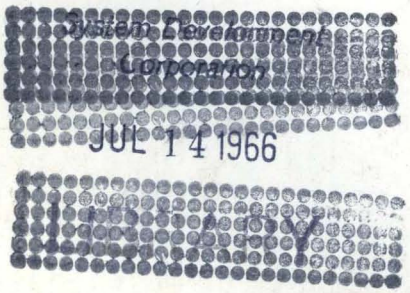
LBR

*June, 1966*

# computers and automation




# THE COMPUTER DIRECTORY AND BUYERS' GUIDE, 1966

## the June, 1966 issue of "Computers and Automation"

Roster of Organizations in the Computer Field

Buyers' Guide for the Computer Field: Products and Services for Sale or Rent

Surveys of Computing and Consulting Services

Descriptions of Computers: Digital, Analog, Special Purpose

Over 1,000 Areas of Application of Computers and more besides

It only takes a split second to access mortgage records at First Federal Savings and Loan Association of Miami.

Bell System Data-Phone* service is the vital link.

All of First Federal's 96,000 savings accounts at seven branches are "on line" with the association's central computer. A debit, credit or inquiry made at a teller's window can be handled in 5 to 10 seconds —complete with printout.

This real-time, input/output operation is performed on business machines connected to Data-Phone data sets and to the computer via telephone lines. The operation is simply to enter the account number and type of transaction. The computer answers immediately.

Mortgage records are stored on magnetic cards, 112 records to a card, and any single record can be accessed at random.

To trial-balance the entire mortgage portfolio takes just 17 minutes. (It used to take days.)

So fast is the new system, that First Federal has computer time for automating other operations.

When you think of data communications, think of us.

*Service mark of the Bell System

**Bell System**
American Telephone & Telegraph and Associated Companies

# computers and automation

JUNE, 1966 Vol. 15, No. 6



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*computers and data processors:*
*the design, applications,*
*and implications of*
*information processing systems.*

# THE COMPUTER DIRECTORY and BUYERS' GUIDE For 1966


. . . commencing page 10



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# Forget it!

Once you remember to buy Computape and put it in use, you will probably forget it again almost immediately.

That's the way it should be.

Actually, we spend a great deal of time and effort in making Computape so it *can* be forgotten. By the time it leaves our shipping department, every quality control and production technique known has been used to make sure it performs perfectly — pass after pass — over its almost unlimited service life.

Don't forget, though, that whenever you need data recording advice or assistance, there is a qualified Computron engineer readily available to help.

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# THE COMPUTER DIRECTORY AND BUYERS' GUIDE, 1966

## Table of Contents


Editorial — Applications of Computers . . . . . 9
Roster of Organizations in the Computer Field . . . . . 10
Roster of Products and Services: Buyers' Guide to the Computer Field . . 26
Roster of Electronic Computing and Data Processing Services . . . . . 51
Survey of Consulting Services . . . . . 54
Survey of Software Suppliers . . . . . 56
Characteristics of General Purpose Analog Computers . . . . . 58
Descriptions of General Purpose Digital Computers . . . . . 63
Ranges of Computer Speeds of Commercial Computers . . . . . 86
Over 1000 Areas of Application of Computers . . . . . 88
Capacity Loading . . . . . 94
Survey of Special Purpose Computers . . . . . 95
Roster of School, College, and University Computer Centers . . . . . 96
Computer Users Groups — Roster . . . . . 109


## ADVERTISING INDEX

Following is the index of advertisements. Each item contains: Name and address of the advertiser / page number where the advertisement appears / name of agency if any.


American Telephone & Telegraph Co., 195 Broadway, New York 7, N. Y. / Page 2 / N. W. Ayer & Son

Beemak Plastics, 7424 Santa Monica Blvd., Los Angeles, Calif. 90046 / Page 108 / Advertisers Production Agency

J. H. Bunnell Co., 81 Prospect St., Brooklyn 1, N. Y. / Page 94 / Spiegel & Laddin, Inc.

Burroughs Corp., 6071 Second Blvd., Detroit, Mich. 48232 / Page 87 / Campbell-Ewald Co.

California Computer Products, 305 Muller Ave., Anaheim, Calif. / Page 107 / Advertisers Production Agency

Computron Inc., 122 Calvary St., Waltham, Mass. 02154 / Page 6 / Larcom Randall

Datamec Division, Hewlett-Packard Co., 345 Middlefield Rd., Mountain View, Calif. / Page 111 / Ellis Walker

Dialight Corp., 60 Stewart Ave., Brooklyn, N. Y. 11237 / Page 109 / H. J. Gold Co

Engler Instrument Co., 250 Culver Ave., Jersey City, N. J. / Page 85 / Ray Ellis Advertising

Fabri-Tek nc., 5901 County Rd. 18, Edina, Minn. 55436 / Page 21 / Midland Associates, Inc.

Forms, Inc., Willow Grove, Pa. / Page 103 / Elkman Advertising Co.

General Electric Co., Special Information Products Dept., Sect. 37 F, P. O. Box 1122, Syracuse, N. Y. 13201 / Pages 90, 91 / Deutsch & Shea, Inc.

Honeywell E. D. P., 81 Walnut St., Wellesley Hills, Mass. Pages 59 through 62 / Batten, Barton, Durstine & Osborn, Inc.

Honeywell E. D. P., 200 Smith St., Waltham, Mass. 02154 / Page 93 / Allied Advertising Agency, Inc.

International Business Machines Corp., Electronics Systems Center, Owego, N. Y. 13827 / Page 13 / Benton & Bowles, Inc.

International Business Machines Corp., Data Processing Div., White Plains, N. Y. / Pages 40, 41 / Marsteller Inc.

LMC Data, Inc., 116 E. 27 St., New York, N. Y. 10016 / Page 94 / —

Lockheed Missiles & Space Co., P. O. Box 504, Sunnyvale, Calif. / Page 110 / McCann-Erickson, Inc.

MAC Panel Co., P. O. Box 5027, High Point, N. C. / Page 112 / Lavidge, Davis & Newman, Inc.

National Cash Register Co., Main & K Sts., Dayton, Ohio 45409 / Page 8 / McCann-Erickson, Inc.

L. A. Pearl Co., 801 Second Ave., New York, N. Y. 10017 / Page 57 / —

Randolph Computer Corp., 200 Park Ave., New York, N. Y. 10017 / Page 109 / Albert A. Kohler Co., Inc.

Teletype Corporation, 5555 Touhy Ave., Skokie, Ill. 60078 / Pages 52, 53 / Fensholt Advertising

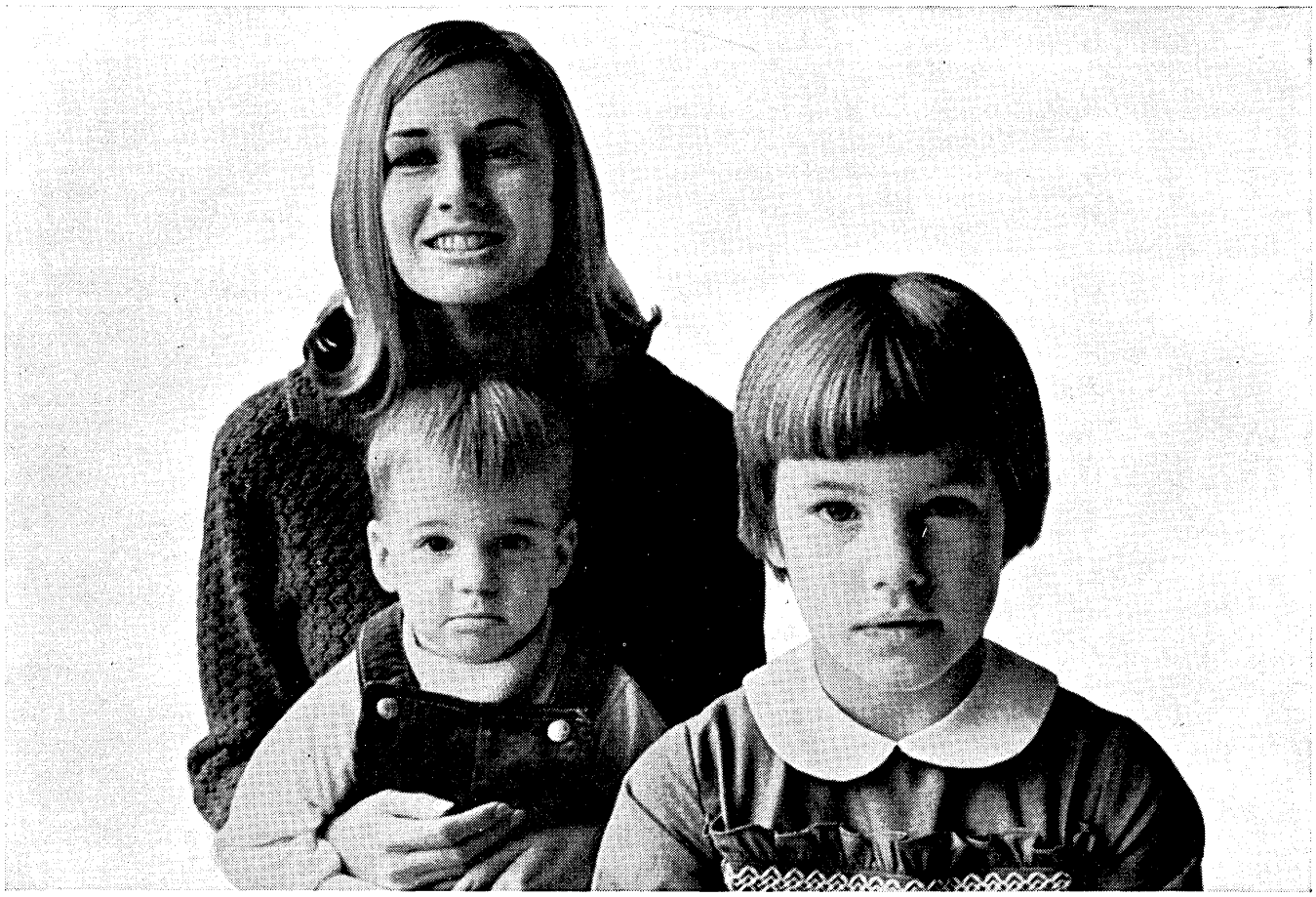
UNIVAC Div. of Sperry Rand Corp., 1290 Avenue of the Americas, New York, N. Y. 10019 / Pages 24, 25 / Daniel and Charles, Inc.

Wright Line, Inc., 160 Gold Star Blvd., Worcester, Mass. 01606 / Pages 3, 4 / Loudon Advertising

# The NCR 315 family of computers.

## (The second most important family for the man who wants to know everything about his business, everyday.)

The NCR 315 is no more one computer system than a family is one person. It's a family of computer systems. Related but tailored differently for the differing needs of every market group. One branch of our family is helping a west coast airline keep track of reservations. Another is helping a newspaper set type. Another series of 315 configurations is helping to meet the total data needs of industry (a Johnson's Wax installation is one recent example). A different branch of our family serves government. Another is automating window transactions for banks and savings and loan associations. And still another branch of the NCR 315 family is causing nothing short of a revolution in the retailing business today. We could go on until doomsday about the merits of 315 systems. Like RMC (rod memory computer) that cycles at billionths of a second. But that's another story (ask your NCR man). The thing is, whatever kind of data handling need you have, there's a member of the 315 family that can do the job.



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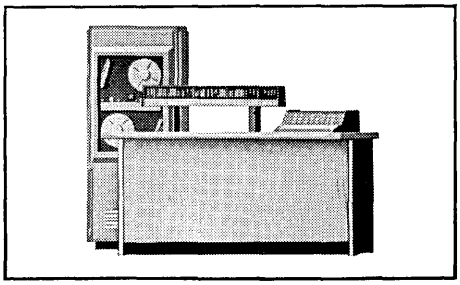


THE NATIONAL CASH REGISTER CO. ®

DAYTON, OHIO 45409

# Applications of Computers

This year in our computer directory issue we publish a list of "Over 1000 Areas of Application of Computers". Before releasing the list for typesetting, we counted the applications; the count came out at 1085, which represents a safe margin over the proclaimed 1000. This year's list contains an increase of more than 200 applications over last year's list.

The biggest change between this year's list and last year's list is the appearance of a fourth main section:

IV. Humanities

Under this heading there are 36 listed applications grouped under seven subdivisions:

1. Archeology
2. Art
3. Games of Skill
4. History
5. Languages
6. Literature
7. Music

Of course some of the humanities applications were listed last year in other places; but most were listed for the first time this year. This is further evidence of the growing penetration by computers into both parts of C. P. Snow's "Two Cultures" — not only the scientific culture but also the humanities culture.

What is the true number now of areas of application of computers? It seems reasonable to estimate that for every two or three applications that we know of, there is one we do not know of. Accordingly, it seems reasonable to believe that the true number of different areas of application of computers is still under 2000. Here is a problem that a computer nowadays cannot solve; instead, the answer comes from a careful census based on observations of the real world.

The number of computer applications reflects the degree of current understanding of how to apply computers. The more areas of application that can be listed, the greater is people's understanding of how to use computers. Of course, we are still only at the beginning — in the first 20 odd years of the existence of the computer; the number of applications in the future will be far greater.

Many applications also are naturally interdependent. For example, after the application of computers to payrolls, and after the application of computers to sales analysis, the application of computers to paying commissions on sales arises from the combination.

The list of areas of application is instructive and worth studying. In fact, one of the biggest incentives for doing anything is knowing that somebody else has done it; and one of the biggest arguments for persuading an employer to say yes to trying out a new scheme is the fact that somebody else has made it work successfully. At the start of a famous little book "Calculus Made Easy" by Sylvanus P. Thompson, appears what he calls an ancient simian proverb:

What one fool can do, another can.

Since it has been widely agreed that computers are morons, it should logically follow that:

What one computer can do, another can.

We are particularly grateful to Robert L. Roussel, Robert T. McLean, and Lillian Gleiberman for engaging in the census this year, searching for possible applications, and telling us about them.

Next year we plan to award a prize of $25 to that reader of "Computers and Automation" who sends us the largest number of accepted new areas of application of computers to be included in our 1967 directory list. Each proposed entry should be typed double-space on a 3" by 5" slip, and should give a concise description of an actual area of computer applications; the slip should show the proposed classification (giving two numbers, a Roman numeral and an Arabic numeral, in the scheme used in this year's list or reasonably modified); the slip should also show the initials of the person proposing the entry. If the same new application is submitted by two persons, it will score for each one. Entries are subject to acceptance and editing; it is understood that all entries submitted may be used by "Computers and Automation". We will publish an acknowledgement to each person whose entries are published. The closing date for this contest is March 31, 1967. We invite your responses.

Edmund C. Berkeley

EDITOR

# ROSTER OF ORGANIZATIONS IN THE COMPUTER FIELD

(Cumulative, information as of April 15, 1966)

The purpose of this Roster is to report organizations in the computer field: organizations making or developing computing machinery or data-processing machinery, and organizations supplying significant components used in the computer field if related to the field (for example, ferrite cores would be such a component).

For listings of organizations supplying services in the computer field, please see the following surveys and rosters, elsewhere in this Directory: Roster of Electronic Computing and Data Processing Services; Survey of Consulting Services; Survey of Software Suppliers; and Roster of School, College, and University Computer Centers.

Entries. Each Roster entry if complete contains: Name of the organization, its address / Telephone number / Description of its main activities, main products in the field, any comments / Size (expressed in number of employees) / Year established. In cases where we do not have complete information, we put down what we have.

Accuracy. We have tried to make each entry accurate to the extend of information in our possession. We shall be grateful for any more information or additions or corrections that anyone is kind enough to send us. Although we have tried to be accurate and complete, we assume no liability for any statements expressed or implied.

## Abbreviations

The key to the abbreviations follows:

S — Size (number of employees)

E — Established (year of establishment)

*C This organization has kindly furnished us with information expressly for the purpose of the Roster and therefore our report is likely to be more complete and accurate than otherwise might be the case. (C for Checking) / 66: information furnished in 1966 / 65:information furnished in 1965 / etc.

## Organization Entry Form

The form to be completed for an entry in the Roster of Organization follows:

1. Your organization's name?

_____

2. Street address? _____

_____

3. Telephone number: area code? _____

4. City, state, zip code? _____

_____

5. Types of computers, data processors, computer components, data processing supplies or services, etc., that you produce or offer? _____

_____

_____

6. Approximate number of your employees? _____

7. Year organization was established? _____

8. Listings for three of your executives:

   President: _____

   Public Relations Director: _____

   Advertising Manager: _____

This data supplied by _____

Title _____ Date _____

ROSTER

A

Abacus Information Management Co., P.O. Box 399, New York, N. Y. 10008 / - / *C 65
Technical and managerial guidance for civilian and military systems. Functions served include appraisal, audit, professional criticism, review, crystallization of procedures and standards, and financial valuation / S 2 / E 1962

ABL Inc., P.O. Box 11193, Palo Alto, Calif. / - / *C 65
Engineering and consulting service in the processing of analog, audio, digital and optical signals / S 2 / E 1961

The Acratod Co., 2708 Bagby (P.O. Box 66847), Houston, Texas 77006 / 713-JAckson 4-3111 / *C 65
Punched card and tape handling equipment and supplies, including control panels, wires, magnetic tape, ribbons, binders, etc. Used D.P. machines / S 10 / E 1939

AC Spark Plug Div. General Motors Corp., 7929 S. Howell Ave., Milwaukee, Wis. 53201 / 414-762-7000 / *C 65
Design, development and production of general purpose and special purpose digital computers for space and airborne systems and other applications / S 7600 / E 1948

Adage, Inc., 1079 Commonwealth Ave., Boston, Mass. 02215 / 617-783-1100 / *C 66
Hybrid stored-program signal-processing computer linkage, DAC's, ADC's, multiplexer, operational amplifiers / S 270 / E 1957

ADB Institutet (Scandinavian Automatic Data Processing Institute), Chalmers University of Technology, Gibraltargatan 5, Gothenburg S, Sweden / 031-200410 / *C 64
University training in automatic data processing. Consulting, programming, coding and running problems on Alwac III E (Wegematic 1000) and SAAB D27 computers for industries in Scandinavia / S 25 / E 1957

Adcom Corp., 20945 Plummer St., Chatsworth, Calif. / 213-341-4635 / *C 65
Design and manufacture of computer data acquisition systems employing high-speed A to D converters, D to A converters, digital multiplexers, analog memories, and hybrid interfaces / S 58 / E 1964

Addo-X, Inc., 845 Third Ave., New York, N.Y. 10022 / 212-Plaza 3-6600 / *C 66
Addo-X data capture & control equipment; Addo-X tape reader; Addo-X optical font adding machine; Addo-X 990 key data collection system; check digit verifier Mod. 7-11 / S ? / E 1947

Advanced Circuitry Div., Litton Industries, 4811 Kearney St., Springfield, Mo. / 417-UN 9-1806 / *C 65
Custom printed circuits, multiplanar interconnects, weldable circuits and packaged assemblies / S 100 / E 1943

Advance Data Systems, 9261 W. Third St., Beverly Hills, Calif. 90213 / 213-273-7650 / *C 66
Special purpose computers, computer operated revenue control devices, i.e., money machines, gates, etc. Magnetic cards and tickets. Consulting services / S 150 / E 1961

Advanced Scientific Instruments, Div. of EMR, 8001 Bloomington Freeway, Minneapolis, Minn. 55420 / 612-888-9581 / *C 65
Digital computers / S 200 / E 1961

Aero Geo Astro Div., Keltec Industries, Inc., Edsall and Lincolnia Rds., Alexandria, Va. 22314 / 703-354-2000 / *C 65
Special purpose computers, radar programmers, coordinate digital converters, data loggers, data acquisition systems of all types for industry and government, special computer interface products / S 700 / E 1958

Aetna Products Co., Inc., 11 Commercial St., P.O. Box 438, Hicksville, N.Y. / 516-WE 1-3120 / *C 65
Inked ribbons for computers, data processing, etc. / S ? / E 1941

Aircraft Armaments, Inc., York Rd., Cockeysville, Md. 21030 / 301-666-1400 / *C 66
Special purpose computers, simulators, training systems, test equipment, instrumentation; special purpose devices for missiles, space vehicles and other military weapons systems, air traffic control, anti-submarine warfare, etc., based on custom specifications / S 1250 / E 1950

Airpax Electronics, Inc., P.O. Box 8468, Fort Lauderdale, Fla. 33310 / 305-587-1100 / *C 66
Telemetry, electronic tachometry / S 400 / E 1947

Aladdin Electronics, 703 Murfreesboro Rd., Nashville, Tenn. 37210 / 615-242-3411 / *C 66
Pulse and wideband transformers / S 200 / E 1925

The William C. Allen Corp., 1875 Connecticut Ave., N.W., Washington, D.C. 20009 / - / *C 65
Management consultants / S ? / E ?

Allied/Egry Business Systems, Inc., 429 East Monument Ave., Dayton, Ohio 45402 / 513-223-3133 / *C 66
Continuous forms / S 1000 / E 1893

American Bosch Arma Corp., ARMA Div., Roosevelt Field, Garden City, N.Y. 11532 / 516-742-2000 / *C 66
Data management systems, digital computers, gyro compasses, gyros, accelerometers, ASW systems, sonics equipment, ground support equipment, displays, heading references / S 845 / E 1910

American Data Services, Inc., 0110 S.W. Bancroft St., Portland, Ore. 07201 / 503-226-6851 / *C 65
System design, programming, data processing and machine services provided business, governmental and scientific groups. Computers used are Burroughs 205 and IBM 1401 / S 20 / E 1959

American Hydromath Co., 24-20 Jackson Ave., Long Island City, N.Y. 11101 / 212-Ex 2-4242 / *C 65
Mechanical and electro-mechanical analog computer: special purpose slide rules, quality control computer, mechanical nomographs / S 10 / E 1940

American Telephone & Telegraph Co. and Associated Bell System Telephone Companies, (Hq) 195 Broadway, New York 7, N.Y. / - / *C 65
Complete communications services for data processing systems / S 735,000 / E ?

AMP Inc., Eisenhower Blvd., Harrisburg, Pa. 17105 / 717-564-0101 / *C 66
Solderless terminals, wiring devices, capacitors, power supplies, converters, pulse forming networks / S 7000 / E 1941

Ampex Corp., 401 Broadway, Redwood City, Calif. (HQ) / 415-367-2011 / *C 66
Research, development, production by several divisions includes Videofile System, recording systems, tape recorders (all types), recording heads, servomechanisms, scanners, and magnetic tape; converters, core memories, tape handling systems / S ? / E ?

Ampex Corp., Computer Products Div., 9937 W. Jefferson Blvd., Culver City, Calif. 90230 / 213-836-5000 / *C 66
Core memories, tape handling systems / S 900 / E 1960

Amphenol-Borg Electronics Corp., 2801 S. 25th Ave., Broadview, Ill. 60155 / 312-261-2000 / *C 65
Connectors of all types, coax cable, multiconductor cable, RF connectors, coax switches, precision potentiometers, integrated circuits, harness assemblies / S over 500 / E 1958

Amplifier Corp. of America, 75 Frost St., Westbury, N.Y. 11590 / 516-333-9100 / *C 66
Tape recorders, tape decks, tape cartridges, transistorized electronic modules and plug-in boards, transistorized power supplies, transistorized amplifiers; flutter meters, demagnetizers; instruments to order / S 25 (affiliate of Keystone Camera Co., Inc.; additional personnel and facilities readily available) / E 1936

AmTron Inc., 14631 S Waverly Ave., Midlothian, Ill. / 264-5835 / *C 65
Analog and digital electronic controls for process application in industrial plants / S 50 / E 1959

Andersen Laboratories, Inc., 501 New Park Ave., West Hartford, Conn. / - / *C 66
Delay line memories / S ? / E ?

Anelex Corp., Anelex Bldg., 150 Causeway St., Boston, Mass. 02114 / 617-742-4505 / *C 66
Printers and printer systems, disk file memories, electronic communications devices for data processing and communications industries / S 1100 / E 1952

API Instruments Co., 7100 Wilson Mills Rd., Chesterland, Ohio 44026 / 216-423-3131 / *C 66
Indicating and controlling instruments used as safety devices and "balance wheels" to prevent drift of electronic circuits in computers and to warn of malfunctioning / S 600 / E 1945

Applied Control Corp., 293 Fairview Ave., Cedar Grove, N. J. 07009 / 201-239-3851 / *C 65
Test equipment, digital, in circuit, non loading, visual indication of computer component contents, bench tester and panel mounting versions / S 10 / E 1958

Applied Data Research, Inc., Route 206 Center, Princeton, N.J. 08540 / 609-921-8550 / *C 66
Data processing consultants; computer systems analysis & programming services; software systems development; information retrieval; data processing systems evaluation for management information controls / S 60 / E 1959

Applied Magnetics Corp., 749 Ward Drive, Santa Barbara, Calif. 93105 / 805-967-0123 / *C 66
Custom designed precision magnetic recording heads for computer and instrumentation applications / S 325 / E 1957

Approved Business Machines Co., Inc., 16 Hudson St., New York 13, N.Y. / WAlker 5-9813 / *C 65
Used business machines, including punch card machines; scanners; adding machines; analog, digital and special purpose computers; data processing machinery; forms handling equipment / S ? / E ?

Argonaut Associates, Inc., P.O. Box K, Beaverton, Ore. / 503-CY 2-3149 / *C 66
Analog computers, function generators / S 17 / E 1959

Aries Corp., Westgate Research Park, McLean, Va. 22101 / 703-893-4400 / *C 66
Systems consultants, analysts, and programmers providing professional support to computer users for management information systems, software development and modification, scientific problems, statistical analysis, information retrieval, real-time applications and data conversion / S 125 / E 1962

Arkay Engineering, Inc., 11800 W. Olympic Blvd., Los Angeles 64, Calif. / GRanite 9-8028 / *C 65
Engineering and consulting services. Experienced in designing and shipping hardware. Semiconductor circuits, data systems, automatic checkout and control, complete computers, telemetry, instruments, value analysis, proposals / S 12 / E 1958

ARMA Div., American Bosch Arma Corp. -- name changed to American Bosch Arma Corp., ARMA Div., which see

The Arnold Engineering Co., P.O. Box G, Marengo, Ill. 60152 / 312-568-7251 / *C 65
Magnetic materials / S 750 / E 1936

The Artronic Instrument Co., 11232 Triangle Lane, Silver Spring, Md. 20902 / 301-949-1131 / *C 65
Delay lines, encapsulated circuit modules, magnetic core memory devices, pulse transformers, shift registers / S ? / E 1959

Arvey Corp., Lamcote Div., 3500 N. Kimball Ave., Chicago, Ill. 60618 / 312-463-1400 / *C 66
Perforator tape; Mylar reinforced paper, foil, and metallized foil combinations / S 300 / E 1905

ASI Computer Div., Electro-Mechanical Research Inc. -- name changed to Electro-Mechanical Research Inc., ASI Computer Div., which see

Astrodata, Inc., 240 E. Palais Rd., Anaheim, Calif. 92803 / 714-772-1000 / *C 66
Analog computers, digital computers, data processors, data acquisition systems, telemetry systems, timing systems, amplifiers, A/D and D/A converters, multiplexers, signal conditioning equipment, discriminators, oscillators, simulators, decommutators, time code generators, translators, displays, tape search systems, power supplies, computer interface systems / S 1100 / E 1961

Audio Devices, Inc., 235 East 42nd St., New York, N.Y. / 212-687-0800 / *C 66
Magnetic computer tape / S 400 / E 1937

Audio Instrument Co., Inc. 220 E. 23rd St., New York, N.Y. 10010 / 212-MU 9-5518 / *C 65
Analog time delay devices; logarithmic converters; autocorrelation recorder / S 9 / E 1949

Auerbach Corp., 121 N. Broad St., Philadelphia, Pa. 19107 / 215-491-8200 / *C 66
Full range of EDP consulting services and publication of analytic reference services for computer users / S 200 / E 1957

Auerbach Corp., 1634 Arch St., Philadelphia, Pa. 19103 / 215-LO 3-7737 / *C 65
Consulting services in system engineering, computer programming, business information systems, product and market planning, programmed teaching, computer analysis (Auerbach standard EDP reports) / S 175 / E 1957

Autographic Business Forms, Inc., 45 E. Wesley St., S. Hackensack, N.J. 07606 / 201-489-6500 / *C 65
Continuous business forms / S 400 / E 1883

Automated Business Forms Corp., 24 Forge St., Jamesburg, N.J. / - / *C 66
Continuous tabulating forms / S ? / E ?

Automated Data Processing Services, Inc., 1104 Spring St., Silver Spring, Md. / 301-779-5500 / *C 66
Service Bureau operations; all type of data processing and conversion services; IBM 1440, 16K, 2-tape, 2 disk, 1403 printer, 2 card read/punches, NCR 420-1 optical scanner / S 35 / E ?

Automated Systems International Ltd., P.O. Box 5201, Seven Oaks Station, Detroit, Mich. 48235 / 313-933-9791 / *C 66
Parts inventory control and replenishment systems service and operation for automotive parts; accounting and management reporting systems for automative dealers / S 20 / E 1960

Automation Dynamics Corp., 35 Industrial Parkway, Northvale, N.J. 07647 / 201-768-9200 / *C 65
Support test equipment / S 25 / E 1957

Automation Engineers, 344 W. State St., Trenton 8, N.J. / 695-2628 / *C 65
Consultants in automatic control machinery, automatic materials handling equipment, information handling equipment, and random card file equipment. Designers of specialized data processing equipment, including office machinery coupling mechanisms. Analysis of automation economics; supervision of installations / S 20 / E 1942

Automation Institute of America, Inc., Suite 600, 760 Market St., San Francisco, Calif. 94102 / 415-GA 1-6285 / *C 66
Training courses in data processing offered in most metropolitan areas throughout the United States / S ? / E 1959

Automation Sciences, Inc., 275 Madison Ave., New York, N.Y. 10016 / 212-686-7122 / *C 65
Service company: systems analysis, computer programming, engineering and feasibility studies for computer, simulation, data reduction, command control and special data processing systems / S 60 / E 1963

Autonetics Div., North American Aviation, Inc., 3370 Miraloma Ave., Anaheim, Calif. 92803 / 714-772-8111 / *C 65
General purpose digital computers, special purpose digital computers, digital differential analyzers, special purpose analog computers, modular command and control systems, airborne/spaceborne recorders/reproducers / S 24,000 / E 1928 (parent co.)

Auto-trol Corp., 5566 Harlan St., Arvada, Colo. 80002 / 303-421-3726 / *C 66
Digitizers (X,Y & Z coordinate measuring & recording); X-Y coordinate data plotters (Automated drafting machines); paper tape perforators; photo-optical shaft encoders; serial card readers (low cost, low speed) / S 30 / E 1962

Avtron Manufacturing, Inc., 10409 Meech Ave., Cleveland, Ohio 44105 / 216-641-8310 / *C 65
Design, development and manufacture of special and general digital indication/control equipment; solid-state power computers and multipliers; semi-automatic test equipment / S 75 / E 1954

B

Babcock Electronics Corp., 1640 Monrovia Ave., Costa Mesa, Calif. / LIberty 8-0611 / *C 65
Command control and guidance systems including receivers, transmitters, encoders, decoders, signal generators and support equipment / S 1000 / E 1947

Bailey Meter Co., 29801 Euclid Ave., Wickliffe, Ohio 44092 / 216-943-5500 / *C 65
Automatic control equipment, special purpose computers, data processing equipment, analog and digital information systems / S 2000 / E 1916

Baltimore Business Forms, Inc., 3132 Frederick Ave., Baltimore, Md. 21229 / 301-233-8000 / *C 66
Forms -- continuous and datacard sets / S 685 / E 1916

Basic Systems Inc., 880 Third Ave., New York, N.Y. 10022 / 212-752-4600 / *C 65
Consulting services to design custom training courses to meet client training requirements and the design of self-instructional texts for individual purchasers / S 125 / E 1960

Battelle Memorial Institute, 505 King Ave., Columbus 1, Ohio / - / *C 65
Digital and analog research in systems engineering, servomechanism, automatic control machinery, and automatic materials handling machinery / S 2300 / E 1929

Beckman Instruments, Inc., 2500 Harbor Blvd., Fullerton, Calif. 92634 / - / *C 65
Analog, hybrid integrated and real-time digital computers; high-and medium-speed data acquisition and processing systems; communications and telemetry decommutation equipment; analog and digital data systems and components / S ? / E ?

Beemak Plastics, 7424 Santa Monica Blvd., Los Angeles, Calif. 90046 / 213-876-1770 / *C 65
Plastic holders for punched cards / S 25 / E 1952

Bell & Howell Micro-Data Div., 6800 McCormick Rd., Chicago, Ill. 60645 / 312-539-7300 / *C 65
Microfilm recorders and readers designed to complement computer and tab printers / S ? / E 1961

Bell Telephone Mfg. Co., Automation Systems Div., Berkenrodelei 33, Hoboken, Belgium / (03) 37-78-35 / *C 66
Data peripheral equipment (mainly magnetic tape transports; mail handling equipment, postal automation; document handling equipment, banking automation) / S 150 (ASD); 12,000 (company) / E 1950 (ASD); 1882 (company)

The Bendix Corp., Bendix-Pacific Div., 11600 Sherman Way, N. Hollywood, Calif. 91605 / 213-765-1010 / *C 66
Telemetry decoding and processing components, systems and services / S 3200 / E 1937

The Bendix Corp., Eclipse-Pioneer Div., Teterboro, N.J. 07608 / 201-288-2000 / *C 65
Airborne digital computers, analog-to-digital converters, transducers, motor generators, memory storage devices, automatic and manual checkout systems / S 9000 / E 1916

The Bendix Corp., Industrial Controls Div., 8880 Hubbell Ave., Detroit, Mich. / 313-272-3710 / *C 66
Numerical control systems / S 300+ / E 1957

Benson-Lehner Corp., 14761 Califa St., Van Nuys, Calif. 91401 / 213-781-7100 / *C 65
Data reduction, handling and translating equipment: record readers (oscillographic, film, etc.), CRT printer/plotter; data display devices including line drawing plotters, point and symbol plotters, special readers including map and blue print readers, digital microscopes and comparators; shaft rotation-to-digital converters; electrically controlled typewriters / S 140 / E 1950

Berkeley Enterprises, Inc., 815 Washington St., Newtonville, Mass. 02160 / 617-332-5453 or 332-3928 / *C 66
Publisher of "Computers and Automation" and other publications. Scientific kits for educational purposes: Brainiac (computer construction kit); Probability and Statistics kit; Teaching Machines and Programmed Learning kit / S 12 / E 1954

E. J. Bettinger Co., 20 S. 15 St., 7th floor, Philadelphia, Pa. / 215-LO4-0700 / *C 65
Personnel consultants to the EDP industry / S 20 / E 1955

Boonshaft & Fuchs -- name changed to Weston-Boonshaft and Fuchs, which see

Booz, Allen Applied Research Inc., 135 S. LaSalle St., Chicago, Ill. 60603 (also Bethesda, Md. and Cleveland, Ohio) / 312-FRanklin 2-1728 / *C 66
Broad range of computer services including computer and hardware systems design, installation management, computer feasibility, applications, systems analysis, software design, data processing, and scientific computation / S 525 / E 1955

Booz, Allen & Hamilton Inc., 135 S. LaSalle St., Chicago, Ill. 60603 (offices also in New York, Washington, D. C., Cleveland, Detroit, San Francisco, and Los Angeles) / 312-FInancial 6-1900 / *C 66
Management consultants, technical and management services in electronic and automatic data processing for integrated management information and control systems for industry, commerce, government, and institutions; feasibility studies, system design, equipment selection, implementation, systems conversion, EDP audit and review / S 400 / E 1914

Bonner & Moore Associates, Inc., 500 Jefferson Bldg., Houston, Tex. 77002 / 713-CApitol 8-0871 / *C 66
Consulting firm specializing in computer technology and management sciences; services ranging from conceptual system design and development through implementation, installation and project management / S 40 / E 1956

Bowmar Instrument Corp., 8000 Bluffton Rd., Ft. Wayne, Ind.; Acton Laboratories, Inc. (subsidiary), Acton, Mass.; TIC of Calif. (subsidiary), Newbury Park, Calif. / 219-747-3121 / *C 65
Precision servo components and assemblies, counters, electronic devices, measurement and test instruments, solid state digital computer readouts / S 1000 (including subsidiaries) / E 1951

W. H. Brady Co., 727 W. Glendale Ave., Milwaukee, Wisc. 53209 / 414-332-8100 / *C 65
Tab machine labels, key punch correction seals, computer tape control tabs, tape reel labels, file folder labels, pert symbols (all self-adhesive) / S ? / E 1914

Brandon Applied Systems, Inc., 30 E. 42nd St., New York, N.Y. 10017; 1130 17th St., N.W., Washington, D.C. 20036 / New York: 212-Yukon 6-1518; Washington: 202-296-0678 / *C 66
A data processing consulting firm providing wide range of services, including programming, systems design, equipment selection, technical writing, hardware systems engineering. BASI also publishes, with Moody's, the Moody's Computer Industry Survey, and conducts training courses / S 35, including London office / E 1964

The Bristol Co., Waterbury, Conn. 06720 / 203-756-4451 / *C 66
Special purpose computers; data recording; high speed printers; scanners; servo mechanisms; systems engineering; and telemeters / S 1800 / E 1889

Brooks Instrument Div., Emerson Electric Co., 407 W. Vine St., Hatfield, Pa. / 215-855-5174 / *C 65
Flow meters, variable area, turbine, and positive displacement with associated readout and control equipment / S 250 / E 1946

Charles Bruning Div., Addressograph Multigraph Corp., 1800 W. Central Rd., Mt. Prospect, Ill. 60058 / 312-CL 5-1900 / *C 65
Dry diazo, moist diazo and electrostatic copiers for use in communicating computer printout by reproduction methods / S 3000 / E 1897

Bryant Computer Products, Div. of Ex-Cell-O Corp., 850 Ladd Rd., Walled Lake, Mich. 48088 / 313-624-4571 / *C 66
Computer storage devices, rotating drum and disc file, random access, mass data; and related electronic interfaces / S 600 / E 1953

Bulova Watch Co., Inc., Systems and Instruments Div., 62-10 Woodside Ave., Woodside, N.Y. 11377 / 212-NE 9-5700 / *C 65
Timers and timing devices; development of automatic fabrication and control processes and machinery; research and development of special-purpose electro-optical and electromechanical devices; precision manufacturing and assembly / S 500 / E 1950

The Bunker-Ramo Corp., 277 Park Ave., New York, N.Y. 10017 / 212-826-7171 / *C 66
Digital computers for military use; input/output devices; on-line EDP services (information utility or data bank); bank automation equipment and systems; integrated circuits; systems study, research and development / S 2500 / E 1928

The Bunker-Ramo Corp., Defense Systems Div., 8433 Fallbrook Ave., Canoga Park, Calif. 91304 / 213-346-6000 / *C 66
Militarized general-purpose digital computers; computer/display devices; display consoles; hybrid thin-film microcircuits / S 1300 / E 1964

J. H. Bunnell & Co., 920 Essex St., Brooklyn, N.Y. 11208 / 212-NI 9-1717 / *C 65
Tape punch / S 45 / E 1873

Burlingame Associates, Ltd., 510 S. Fulton Ave., Mt. Vernon, N.Y. 10550 / MO 4-7530 / *C 65
Analog computers, computing amplifiers and power supplies, analog recorders, analog-to-digital converters, digital voltmeters / S 40 / E 1928

Burr-Brown Research Corp., 6730 S. Tucson Blvd., Tucson, Ariz. 85706 / 602-294-1431 / *C 66
Proprietory and custom analog computers and simulators, all silicon DC operational and instrumentation amplifiers, analog and hybrid function modules, power supplies and accessories / S 185 / E 1956

Burroughs Ann Arbor Lab., P.O. Box 1307, Ann Arbor, Mich. / 313-426-4621 / *C 65
Design, development, and production of digital display equipment and systems. Demonstrated capability in TV scan conversion, computer driven microfilm recorders, multiple station inquiry systems, direct view command and control consoles, human factor simulators, and bulk information storage and retrieval. Display components available: symbol generators, line generators, display monitors, light pens / S 25 / E 1955

Burroughs Corp., 6071 Second Ave., Detroit, Mich. 48232 / 313-875-2260 / *C 65
Electronic data processing and data communications systems and equipment for every general purpose, scientific and military data handling application. Specialized systems and components include input/output systems, magnetic tape storage systems, on-line disc file memory systems, high speed printers and multiple tape listers, paper tape readers and punches, punch card readers and punches, automatic record processors, MICR item processing and document sorter systems, hybrid micro-circuit modules, numerical readouts, alpha-numeric displays, counting and decoding tubes and devices, memory stacks, and magnetic drums, disks, tapes, cores and thin films / S 34,000 / E 1886

Burroughs Corp., Electronic Components Div., P.O. Box 1226, Plainfield, N.J. 07061 / 201-757-5000 / *C 66
Ferrite memory cores, planes and stacks; visual readout devices and systems; electronic counters -- uni- and bi-directional with visual readout and electronic outputs / S ? / E 1955 (division)

Butler Roberts Associates, Inc., Sub. of Oki Electronics of America, Inc., 500 S.E. 24 St., Ft. Lauderdale, Fla. 33316 / 305-523-7202 / *C 65
All computer and EDP peripheral equipment, including high speed line printers, input-output devices both on-line and off-line, etc. / S 12,000 (parent & subs.); 11 (Butler-Roberts Inc.) / E 1881 (parent); 1960 (Butler-Roberts Inc.)

C

Cadre Industries Corp., 20 Valley St., Endwell, N.Y. 13763 / 607-PI 8-3373 / *C 65
Cable harnesses, cable assemblies, wiring harnesses, custom manufacturing: amplifiers, plug-in modules and panels, test equipment, communications equipment and systems / S 814 / E 1951

CAE Industries, Ltd., Box 6166, Montreal 3, Quebec, Canada / 514-875-5522 / *C 66
Solid state telegraph equipment, translators, selectors, etc. Supervisory control and telemetry systems; flight simulators; computers / S 3000 / E 1947

CALMA Co., 346 Mathew St., Santa Clara, Calif. 95050 / 408-244-0960 / *C 66
Analog graphical data digitizing systems / S 20 / E 1960

California Computer Products, Inc., 305 N. Muller St., Anaheim, Calif. 92803 / 714-774-9141 / *C 66
Digital plotting equipment / S 200 / E 1959

Cambridge Thermionic Corp., 445 Concord Ave., Cambridge, Mass. 02138 / 617-876-2800 / *C 66
Digital system design, digital logic modules, printed circuit boards, board racks and digital hardware accessories / S 472 / E 1941

Camwil, Inc., 11821 Pico Blvd., Los Angeles, Calif. 90064 / 213-GR 3-9648 / *C 66
Special type heads for IBM selectric mechanisms. Type heads made up in computer and teletype codes; foreign languages; mathematical, chemical and electronic symbols / S 12 / E 1962

Canadian Aviation Electronics, Ltd., P.O. Box 6166, Montreal 3, Quebec, Canada / 514-631-6781 / *C 65
Code translators, supervisory control and telemetry equipment, printed circuit boards, flight systems simulators, traffic control equipment, A to D converter / S 1000 / E 1947

Canadian Research Institute, 85 Curlew Dr., Don Mills, Ont., Canada / 416-447-5561 / *C 65
Analog computers; analog to digital converters / S 20 / E 1938

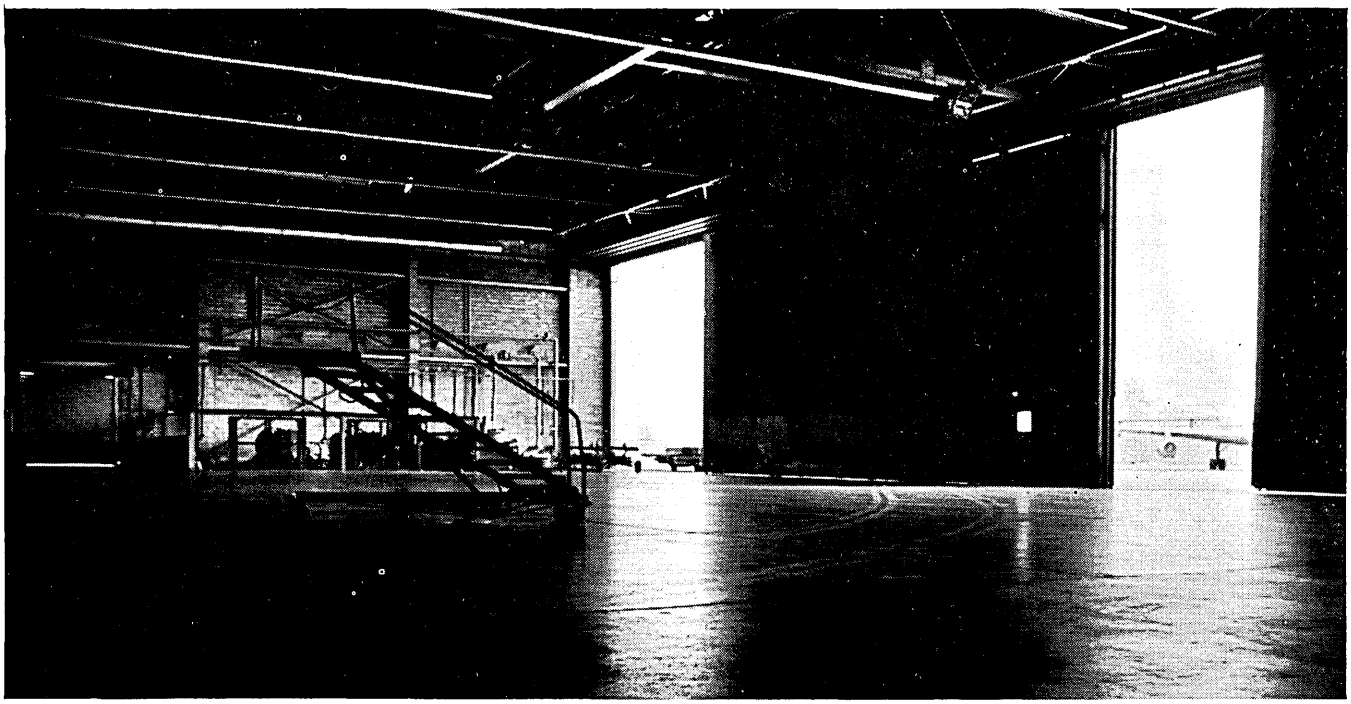
Carlton Controls Corp., 15 Sagamore Rd., Worcester, Mass. 01605 / 617-791-6544 / *C 66
Photoelectric perforated tape reader for either paper or mylar tape / S 25 / E 1958

C-E-I-R, Inc., One Farragut Square, S., Washington, D.C. 20006 / 212-EXecutive 3-1111 / *C 65
Data processing service bureaus, scientific and economic studies, statistical analysis, consultants in computer and management sciences / S 900 / E 1954

Celanese Plastics Co., 744 Broad St., Newark, N.J. 07102 / 201-642-6800 / *C 66
CELANAR (R) polyester film — base film used in the manufacture of magnetic tape / S ? / E ?

Celestron Associates, Inc., 4 Broadway, Valhalla, N.Y. 10595 / 914-761-3456 / *C 66
Consulting; Programming/Analysis services; Software; Applications; Design Automation; Automatic Program Translation (X-ACT System); Debugging Aids; Automatic Segmentation for Multi Programming / S 20 / E 1959

Centralab, the Electronics Div. of Globe-Union Inc., P.O.Box 591, Milwaukee, Wisc. 53201 / WO2-9200 / *C 65
PEC (R) integrated circuits — typical functions; flip-flop, NOR gate, pulse shrinker, pulse stretcher, TDL NAND, monostable multivibrator. Also produce ceramic capacitors, variable resistors and rotary switches /



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## Yes, empty airline hangars.

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But what has this to do with your career opportunities at IBM? Simply this:

IBM, in cooperation with Eastern Airlines, is developing a new digital airborne processing and recording system. It's called AIDS—Aircraft Integrated Data System. What's its object?

To alleviate unnecessary on-the-ground checks.

How? By identifying components that *really* need to be fixed or replaced, and *predict* when this will occur.

A prototype IBM AIDS capable of monitoring 300 key airframe, engine and subsystem parameters, as frequently as once a second, is currently operating aboard an Eastern Airlines Whisperjet on regular passenger flights.

Today this data is recorded during flight, then processed and evaluated with ground computers. Tomorrow, on-board computers will process this data in real-time.

New? Revolutionary? Exciting? Yes, all of these. And AIDS is just one example of the dynamic work being done by the Electronics Systems Center of IBM's Federal Systems Division in Owego, New York. What we need now are professionals who can develop and design more new systems like AIDS. Perhaps you.

If you're challenged by the prospect of developing newer and more sophisticated systems and their applications, you could be one of the growing minds we're looking for. See if your discipline is listed. Then write, outlining your experience and education, to: J. R. Raftis, Dept. 701-S, IBM Electronics Systems Center, Owego, New York 13827.
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Systems Analysts • Electrical Engineers experienced in avionics subsystems • Mechanical Engineers—hydraulic systems, control mechanisms, landing gears • Aeronautical Engineers—controls—flight and engine; propulsion—turbo jet engines • Statisticians—data analysis • Operations Research—modeling and simulation for design and management decisions • Airline Economics—analysis of data, equipment and airline operation factors such as maintenance, fuel consumption, reliability and schedules • Aircraft Instrumentation—aircraft equipment installation, FAA design regulations.

IBM®

S 3000 / E 1928

Century Electronics & Instruments, Inc. 6540 E. Apache St., Tulsa 15, Okla. / 918-TE 5-9951 / *C 65
Multi-channel recording oscillographs of direct writing electrophotographic and conventional photographic types; vibration and stress-analysis systems; data recording equipment and cameras; input-output devices; galvanometers; null balance recording potentiometers, UV direct writing oscillograph, hi-speed digital printer, telemetry calibrator, precision oscillator / S 650 / E 1945

CG Electronics Div., Gulton Industries, Inc. 15000 Central Ave., East, Albuquerque, N. Mex. 87108 / 505-299-7601 / *C 65
Digital data acquisition and reduction systems; missile and satellite-borne low and high-level PCM telemetry systems; low level-solid state multiplexers; high security digital command and monitoring systems; high speed A/D, D/A converters; digital timers; supervisory control systems; physiological data collection systems; automatic checkout and testing systems; computer linkage; data translation and formatting systems, digital serializer and visual readout devices; printed circuits, microwelded, copper deposition modules / S 180 / E 1957

Certron Corp., 2233 Barry Ave., Los Angeles, Calif. 90064 / 213-478-1001 / *C 66
Magnetic tape certification, recertification and rehabilitation; new certified magnetic tapes for sale / S 30 / E 1964

Chalco Engineering Corp., 15126 S. Broadway, Gardena, Calif. 90247 / 213-FA 1-9021 / *C 66
Punched tape reading equipment and regulated solid state power supplies / S 120 / E 1951

Cheshire, Inc., 408 Washington Blvd., Mundelein, Ill. 60060 / 312-566-7880 / *C 65
Machines which cut and apply computer-printed forms to mailing pieces as labels or heat-transferred address, imprints at speeds to 20,000 per hour / S 75 / E 1928

Chrono-log Corp., 2583 West Chester Pike, Broomall, Pa. 19008 / 215-ELgin 6-6771 / *C 66
Programmable clock/calendars for use on IBM series 7000, CDC 3000 computers and other digital computers. Digital counters, clocks, calendars, time code generators and readers / S 25 / E 1957

Cincinnati Time Recorder Co., 1733 Central Ave., Cincinnati, Ohio 45214 / 513-241-5500 / *C 65
Fire alarms, master time and program systems, time recorders, indicating wall clocks, signaling devices, automatic parking control equipment, service supplies and data collection systems / S 300 / E 1896

C. P. Clare & Co., 3101 W. Pratt Blvd., Chicago, Ill. 60645 / 312-AM 2-7700 / *C 65
Relays, sealed contact reed relays, mercury wetted contact relays, telephone type relays, stepping switches / S 1500 / E 1937

Clary Corp., 408 Junipero St., San Gabriel, Calif. CUmberland 3-2724 / *C 65
Solid state scientific computers, arithmetic center, high-speed line printers, solenoid printers, graphic arts products, construction automation machinery, missile components and tape perforating equipment / S 344 / E 1939

Clifton Precision Products, Division of Litton Industries, Marple at Broadway, Clifton Heights, Pa. 19018 / 215-622-1000 / *C 66
Converters—analog to digital, digital to analog; mechanical counters; sine-cosine resolvers; servomechanisms; synchros / S 1300 / E 1945

Codamite Corp., P.O.Box 2518, Anaheim, Calif. 92804 / 714-774-4707, 714-776-5432 / *C 65
Code generators and translators / S 30 / E 1962

Cognitronics Corp., 549 Pleasantville Rd., Briarcliff Manor, N. Y. / 914-RO 9-7900 / *C 66
Full line of composing room computers; remote optical scanners; digital to audio devices — "Speechmaker" units / S 35 / E 1961

Cohu Electronics, Inc., Box 623, San Diego, Calif. 92112 / 714-277-6700 / *C 66
Data amplifiers, analog to digital converters, digital couplers, input scanners, digital voltmeter/ratiometers / S 240 / E 1944

Collins Radio Co., Dallas, Tex. 75207 / 214-Adams 5-9511 / *C 66
Complete line of equipment and systems for communication, computation and control / S 18,000 / E 1933

Collins Radio Co., Information Science Center, 19700 San Joaquin Rd., Newport Beach, Calif. / KImberly 9-2911 / *C 65
Collins Kineplex data communications systems for transmission of punched card, magnetic tape and other digital information over telephone line, radio circuit or other voice channels. Commercial and military communication and data processing systems and equipment including airborne data systems, teletype and other message switching systems / S 1000 / E 1950

Colorado Instruments, Inc., Garden Office Center, Broomfield, Colo. 80020 / 303-466-7333 / *C 65
Digital data acquisition systems (special-purpose, designed to meet customer requirements) and computer data entry keyboards (C-Dek) / S 25 / E 1961

Columbia Ribbon & Carbon Mfg. Co., Inc., Herb Hill Rd., Glen Cove, N.Y. / 516-OR 6-2730 / *C 66
Fabric and film base ribbons for high speed printers; carbon paper and film base ribbons for MCR systems; continuous spirit and offset duplicating masters / S 500 / E 1905

Columbia Technical Corp., 50 St. at 25 Ave., Woodside, N. Y. 11377 / 212-932-0800 / *C 66
Delay networks for use in computers; hybrid cermet networks for use in computers; HUMISEAL line of insulating coatings for protection of electronic assemblies against environmental stresses / S 124 / E 1950

COMCOR, Inc., 1335 S. Claudina St., Anaheim, Calif. 92803 / 714-772-4510 / *C 66
Analog computers; hybrid computers; operational amplifiers; plug-in computing components; maintenance services / S 225 / E 1959

Commerce Clearing House, Inc., 4025 W. Peterson Ave., Chicago, Ill. 60646 / 312-CO 7-9010 / *C 66
Loose leaf automation reporter / S 1800 / E 1913

Components Corp., 106 Main St., Denville, N.J. 07834 / 201-627-0290 / *C 66
Decade counting units, DIGI-KLIPS ® (printed circuit connectors), DIGI-GUIDES (printed circuit guide rails) / S 10 / E 1943

Computer Applications Inc., 555 Madison Ave., New York, N.Y. 10022 / 212-PLaza 9-1310 / *C 66
Computer service and consulting, data processing services, service bureau equipment: IBM 1410, 1401, CDC 160A, GL ACD Plotter, SC 4020 / S 1100 / E 1960

Computer Associates, Inc., Lakeside Office Park, Wakefield, Mass. 01880 / 617-245-9540 / *C 66
Computing services; consulting services; programming services / S 50 / E 1961

Computer Co. of America, 121 Gill Rd., Haddonfield, N.J. 08033 / — / *C 66
Desktop computers / S ? / E ?

Computer Control Co., Inc., Old Connecticut Path, Framingham, Mass. / 617-879-2600 / *C 66
Computers and special-purpose digital systems for space, engineering, training, scientific and business applications. Digital modules, test instruments, magnetic core memories. Space vehicle instrumentation, simulation and data handlers; information storage and retrieval; missile tracking and positioning; signal processing and time compression; language translators; industrial process and machine tool control; business data processing; pulse pattern and range time code generation; computer training devices / S 1500 / E 1953

Computer Devices Corp., 6 West 18th St., Huntington Sta., N.Y. 11746 / 516-AR 1-0666 / *C 65
Serial memories (wire sonic delay line type); other delay lines for trim and time adjustment; word generators / S 30 / E 1961

Computer Fulfillment, 225 East St., Winchester, Mass. 01890 / 617-729-4650 / *C 66
Specialized services and data processing for the publishing industry; subscription fulfillment, circulation file maintenance and analysis; reader inquiry processing, consulting / S ? / E 1963

Computer International Sales Co., 2708 Bagley (P.O. Box 66847), Houston, Tex. 77006 / 713-JA 4-3111 / *C 66
Sell used computers on commission for owners / S 8 / E 1964

Computer Logic Corp., 1528 20th St., Santa Monica, Calif. 90404 / 213-451-9754 / *C 66
Digital logic cards; associated hardware and software, such as power supplies and chassis / S 15 / E 1960

Computer Sciences Corp., 650 N. Sepulveda Blvd., El Segundo, Calif. 90245 / 213-678-0592 / *C 66
Wide range of capabilities in the Information Sciences; programming, analysis and consultation services to manufacturers and users of computing and peripheral equipment; emphasis is given to production of compiler feasibility analyses and consultation with manufacturers to assess the direction of integrated hardware-software packages / S 1400 (approx.) / E 1959

Computer Systems Institute, Inc., 300 Sixth Ave., Suite 275, Pittsburgh, Pa. 15222 / 412-261-6110 / *C 66
Training of computer programmers on RCA 301, IBM 1401-1410 systems / S 12 / E 1962

Computing & Software, Inc., TSI Division, 8155 Van Nuys Blvd., Panorama City, Calif. 91402 / 213-781-7960 / *C 66
Computing and programming services. Equipment includes 3-IBM 7094's, a #B5000, IBM 7044, IBM 7040; a Univac 1108; SDS 9300, SDS 930, SDS 910; an IBM 1440, 4-IBM 1401's, 2-IBM 1620's; a GE 235; a microwave high-speed date link, 5-Electronic Associate 231-R Analog Computers; several automatic telemetry data reduction systems, plus wide variety of scientific raw data optical data measurement systems / S 600 / E 1947

Computron, Inc., Member of the BASF Group, 122 Calvary St., Waltham, Mass. 02154 / 617-899-0880 *C 66
Magnetic tape for computers and instrumentation / S 250 / E 1960 (Computron, Inc.); 1865 (BASF)

COMRESS, Inc., 2120 Bladensburg Rd., N.E., Washington, D.C. 20018 / 202-529-0360 / *C 66
Systems design, software development, hardware/software evaluation. Developers of SCERT (Systems and Computers Evaluation and Review Technique), a simulation system used in hardware/software evaluation and management; TRANSIM, a machine-to-machine 100% translator; DOPIC, a documentation program used in program debugging, flow charting and documentations / S 59 / E 1962

Connecticut Technical Corp., 3000 Main St., Hartford, Conn. 06120 / 203-522-6167 / *C 66
Input-output typewriters, keyboards, tape perforation systems, data logging typewriters, tape listing printers, special card perforators and readers, and services to design computer peripheral equipment / S 25 / E 1960

Consolidated Avionics, 800 Shames Dr., Westbury, N.Y. 11590 / 516-ED 4-8400 / *C 65
Transistorized power supplies, automatic test equipment, digital systems, logic modules, magnetic card readers, engine generator control modules / S 150 / E 1957

Consolidated Electrodynamics Corp., 360 Sierra Madre Villa, Pasadena, Calif. 91109 / 213-796-9381 / *C 66
Electronic instruments for measurement, analysis and control; instrumentation for dynamic testing; amplifiers; analog and special purpose computers; automatic control equipment; data processing, data recording and data reduction equipment; information retrieval devices; input-output devices; electronic multipliers; regulated power supplies; magnetic tape recorders, readers, storage systems and reels, tape handlers; magnetic tape; recording papers; research; telemetering systems; transducers / S 3000 / E 1937

Continental Connector Corp., 34-63 56th St., Woodside, N.Y. 11377 / 212-TW 9-4422 / *C 66
Precision electronic connectors for computers and data processing equipment: printed circuit, rack and panel, power, special designs, microcircuit module sockets / S 525 / E 1952

Control Data Corp., 8100 34th Ave. So., Minneapolis, Minn. 55440 / 612-888-5555 / *C66
General purpose and special purpose digital computers and systems, hybrid computer systems, all types of peripheral equipment, magnetic tape certifiers, certified magnetic tape, micro-miniature digital computers, automatic check-out systems, lasers, computer components, all types of software, and data centers / S 11,000 / E 1957

Control Data Corp., Control Systems Div., 4455 Miramar Rd., La Jolla, Calif. 92037 / — / *C 66
Electronic data processing and systems design consulting services of all kinds / S 315 / E 1956

Control Data Corp., Data Display Div., 2401 N. Fairview Ave., St. Paul, Minn. / 612-631-0550 / *C 66
Control Data 280 microfilm recorder & display system; Control Data 210 inquiry retrieval display system; Control Data 250 multistation display system / S 372 / E 1958

Control Data Corp., Government Systems Div., 3101 E. 80th St., Minneapolis, Minn. 55440 / — / *C 66
Special purpose digital computers and systems / S ? / E ?

Control Equipment Corp., 19 Kearney Rd., Needham Heights, Mass. 02194 / 617-444-7550 / *C 66
Digital logic modules, custom digital systems, digital instrumentation including multiplexers, A/D converters, output buffers, data loggers, similar data processing instrumentation / S 25 / E 1956

Control Logic, Inc., 3 Strathmore Rd., Natick, Mass. / 617-655-1170 / *C 66
Digital circuit modules, digital circuit cards, microcircuit logic cards, programmable digital equipment, special purpose digital systems / S 40 / E 1961

Controlomag Laboratories, 2459 Susquehanna St., Roslyn, Pa. 19001 / 215-884-8098 / *C 65
Custom digital counters and controls / S 18 / E 1959

Control Science Corp., 5150 Duke St., Alexandria, Va. / 703-354-9000 / *C 65
Decoders, encoders; active solid-state filters; displays, electronic and electro-mechanical; telemetering systems / S 35 / E 1961

Control Systems Div., Control Data Corp. — name changed to Control Data Corp., Control Systems Div., which see

Control Technology, Inc., 1232 Belmont Ave., Long Beach, Calif. 90804 / 213-433-3360 / *C 66
Computer software; digital, analog and hybrid simulation studies and services; consulting services; courses; research studies; structural design and drafting software / S 20 / E 1960

Cook Electric Co., Data Stor Div., 6401 W. Oakton, Morton Grove, Ill. 60053 / 312-967-6600 / *C 66
Systems engineering assistance; computer peripheral equipment including photoelectric paper tape readers, incremental and continuous digital magnetic tape transports with read and write capability; magnetic drum recorders; recorder development, design and manufacture capability / S 1500 / E 1897

Cornell-Dubilier Electronics, Div. Federal Pacific Electric Co., 50 Paris St., Newark, N.J. 07101 / 201-624-7500 / *C 66
Full line of capacitors for computer application; delay lines / S 3300 / E 1920

Corning Glass Works, 3900 Electronics Drive, Raleigh, N.C. / 919-828-0511 / *C 65
Microcircuits, capacitors, resistors, glass memory delay lines, printed circuit boards / S ? / E ?

Creed & Co. Ltd., Hollingbury, Brighton, Sussex, England / BRighton 507111 / *C 66
Teleprinters and range of paper tape equipment

for tape preparation, duplication, editing, translation and verification / S 2850 / E 1912

Crystalonics, Inc., 147 Sherman St., Cambridge 40, Mass. / 617-491-1670 / *C 65
Semiconductors, solid circuits / S 100 / E 1959

James Cunningham Son & Co., Inc., 10 Carriage St., Honeoye Falls, N.Y. / 716-624-2000 / *C 66
Computer components: scanners, switch matrix, automatic controls keyboards, systems engineering / S 125 / E 1838

Cybernetics General Co., 4247 Park Blvd., San Diego, Calif. 92103 / 714-297-4593 / *C 65
Technical services in programming, systems engineering and computer and data processing requirements analysis / S 11 / E 1963

Cyber-tronics, Inc., 915 Broadway, New York, N.Y. 10010 / 212-OR 4-9150 / *C 65
All computers and punch-card machines; rental and sale / S 130 / E 1961

Cybertype Corp., 80 Fifth Ave., New York, N.Y. 10011 / — / *C 66
Consultants and engineers supplying computer systems, applications, programs and data processing / S ? / E ?

Cybetronics Inc., 132 Calvary St., Waltham, Mass. 02154 / 617-899-0012 / *C 66
Magnetic tape rehabilitation services, tape certifiers, cleaners and rewinders; magnetic tape testers, magnetic tape cleaner, digital system for controls, consulting services, special-purpose computer and peripheral memory systems / S 30 / E 1960

Cycle Equipment Co., 130-B E. Sunnyoaks Dr., Campbell, Calif. 95008; mail address: P.O. Box 307, Los Gatos, Calif. 95030 / 408-378-4220 / *C 66
Perforated tape winders, unwinders, feeders, tape transports, reels, tape supply indicators / S 10 / E 1948

D

DA-PEX Company, 334 Francis Bldg., Louisville, Ky. 40202 / 502-451-7457 or 585-5454 / *C 66
Used computer broker — consult and advise owner-users buying or selling used computers and punched card machines / S ? / E 1960

Data-American Equipment Co., 333 No. Michigan Ave., Chicago, Ill. 60601 / 312-CE 6-2525 / *C 65
Data-Vault, a safe and vault for the protection of computer tapes, disc packs and microfilm from fire, explosion and moisture / S ? / E 1961

Data Communications, Inc., Church Rd., P.O. Box 29, Moorestown, N. J. 08057 / 609-235-6650, 51, 52 / *C 66
Digital communication and terminal equipment. Data transmission terminals; time division multiplex terminals; high speed teleprinters; and cryptic devices / S 25 plus manufacturing / E 1962

The Data Corp. 4050 Wilshire Blvd., Los Angeles, Calif. 90005 / 213-385-9255 / *C 65
Consultants, methods analysts, systems analysts, programmers for major computer manufacturers. In house IBM 1460/360, SDS 910, Philco and REI Optical scanners. Representation in principal cities / S 150 / E 1962

Data Display Div., Control Data Corp., — name changed to Control Data Corp., Data Display Div., which see

Data Dynamics, Inc., 305 Webster St., Monterey, Calif. 93940 / 408-375-4133 / *C 65
Mathematical, operations and systems analysis and programming / S 110 / E 1962

Data-Link Corp., 4546 El Camino Real, Los Altos, Calif. 94022 / 415-327-2616 / *C 66
D-L 40 Splicer-Guage-Punch-punched tape splicer with tape registration guage, manual code hole punch; D-L 35 and D-L 71 Winders, electric 35 or 70 C.P.S. with split reels or demountable reels; D-L 45 Unwinder, center feed; Splice and Correct tape, self adherring, for 5, 6, 7 & 8 channel punched tape / S 20 / E 1964

Data Machines, Inc., 1590 Monrovia Ave., Newport Beach, Calif. / 714-646-9371 / *C 65
DATA 600 series general purpose, stored program scientific computers / S 6 / E 1964

Datamation Assistants Co., Inc., Ninianne Blvd. & Rt. 1, Princeton, N.J. 08540 / 609-452-2211 / *C 66
Consultation hardware/software, service bureau job processing, keypunch/optical scanning conversions, information retrieval and total management system specialists / S 160 / E 1965

Datamec Corp., — name changed to Hewlett-Packard Co., Datamec Div., which see

Data Processing Equipment Exchange Co., — see DA-PEX Co.

Data Processing Management Assoc., 505 Busse Highway, Park Ridge, Ill. 60068 / 825-8124 / *C 66
The association representing the management level data processing user group / S 25 / E 1951

Data Products Corp., 8535 Warner Dr., Culver City, Calif. 90321 / 213-837-4491 / *C 66
High-speed LINE/PRINTERS (R); random access memory DISCFILES (R); on-line and off-line print stations / S 500 / E 1962

Datapulse Inc., Datapulse Div., 509 Hindry Ave., Inglewood, Calif. 90306 / 213-671-4334, 678-4275 / *C 66
Pulse generators, data generators, word, frame and character generators / S 100 / E 1962

Datapulse Inc., KRS Instruments Div., 780 S. Arroyo Parkway, Pasadena, Calif. 91105 / 213-792-4142, 681-7416 / *C 66
Data recording instrumentation utilizing continuous-loop magnetic tape cartridges / S 50 / E 1962

Data Systems Analysts, Inc., 5900 Westfield Ave., Pennsauken, N.J. 08110 / 609-665-6088 / *C 66
Development of computer controlled communication systems and message switching programs / S 30 / E 1963

Data Systems Div. of Litton Industries — see Litton Industries, Data Systems Div.

Data Systems Inc., 10700 Puritan Ave., Detroit, Mich. 48238 / 313-341-6900 / *C 65
Design, develop and manufacture digital computers and systems for computer communications and information converters / S 50 / E 1961

Data Trends, Inc., 1259 Route 46, Parsippany, N.J. / 201-334-1515 / *C 66
Computer/communications systems; remote I/O terminal devices; data collection systems; optical scanners (hand printed) / S 28 / E 1963

Davidson Electronic Development Co., 2211 Peninsula Dr., Erie, Pa. 16505 / 814-833-9818 / *C 66
Front end specialists (parameter measurements, scanning, data reduction and sequencing for computer input, tape or cards) / S 20 / E 1951

Dayton Electronic Products Co., Inc., 117 E. Helena St., Dayton, Ohio 45404 / 513-224-1416 / *C 65
250 KC and 1 MC logic circuits, custom circuits, control systems, data acquisition systems and digital logic training devices / S 95 / E 1951

Decision Control, Inc., 1590 Monrovia Ave., Newport Beach, Calif. / 714-646-9371 / *C 65
Coincident current core memory systems, logic modules, digital systems / S 50 / E 1956

Decision Systems Inc., 1490 Queen Anne Rd., Teaneck, N.J. 07666 / 201-833-2690 / *C 66
Systems development, computer programs and programming systems, analog and digital data processing services, computer application and feasibility studies, systems analysis, information retrieval, and automatic programming development / S 60 / E 1960

Delco Radio Div., General Motors Corp., 700 E Firmin St., Kokomo, Ind. / 312-GL7-8461 / *C 65
(Semiconductors) silicon and germanium power transistors, silicon rectifiers, digital circuits and support equipment; data format converters; data acquisition and recording systems; digital circuit modules to 10 m.c. speeds; special purpose digital systems; solid state industrial control systems / S 6000 / E 1936

Dennison Manufacturing Co., Machines Systems Div., 300 Howard St., Framingham, Mass. 01702 / 617-873-3511 / *C 66
Cummins-Dennison Dat-A-Read / S 3800 / E 1844

Design Automation, Inc., 4 Tyler Rd., Lexington, Mass. 02173 / 617-862-8998 / *C 66
Computer analysis of electronic circuit performance; electronics consulting for design review; and electronics consulting for design / s 3 / E 1965

The G. C. Dewey Corp., 202 E. 44 St., New York, N.Y. 10017 / 212-MU 2-7369 / *C 65
Digital, analog computers / S 125 / E 1955

Dialight Corp., 60 Stewart Ave., Brooklyn, N. Y. 11237 / 212-HYacinth 7-7600 / *C 65
Indicator lights, pilot lights, ultra-miniature indicator lights ("Datalites") for computer and automation fields. Data-Strip and Data-Matrix for computers, etc. Telephone light strips and indicator lights; transistorized indicator lights. Illuminated pushbutton switches. Oil-tight indicator lights for heavy-duty industrial applications. Single plane numeric readout / S 250 / E 1937

Dialtron Corp., 203 Harrison Pl., Brooklyn 37, N.Y. / HYacinth 7-7600 / *C 65
Time delay relays for computers, data processing and automation equipment / S 230 / E 1938

Diamonite Products Mfg. Co., McConkey St. Ext., Shreve, Ohio / 216-547-4211 / *C 65
Computer components of alumina ceramics, high strength, low loss, high density, electrical insulating, vacuum tight, readily metallized. Sizes available, subminiature through normal size requirements / S 175 / E 1940

DI/AN Controls, Inc., 944 Dorchester Ave., Boston, Mass. 02125 / 617-288-7700 / *C 66
Computer keyboard, lister-printers, magnetic core memories, core transistor logic modules, digital magnetic cards (shift registers, binary counters, logic, etc.) / S 250 / E 1958

Dian Laboratories, Inc., 611 Broadway, New York 12, N.Y. / VI 6-4155 / *C 65
D.C. analog computers — analog computing services. Analog computing services; general purpose analog computers. Design and construction of special purpose computers, simulators, and trainers / S 10 / E 1955

The Diebold Group, Inc. 430 Park Ave., New York, N.Y. 10022 / 212-PLaza 5-0400 / *C 65
Full range of integrated services in the fields of modern management and management science. Areas of specialization include automation, automatic data processing, programming, information technology, product and business planning analyses. Subsidiary companies in 13 cities on two continents / S 150 / E 1954

Digital Development Corp., 5575 Kearny Villa Rd., San Diego, Calif. 92123 / 714-278-9920 / *C 66
Magnetic disc and drum memories / S 150 / E 1959

Digital Devices, Inc., 200 Michael Dr., Syosset, L.I., N.Y. / 516-921-7100 / *C 66
Delay lines, magnetostrictive, supplied as components with or without recirculation and interface electronics; also complete memory systems / S 75 / E 1955

Digital Electronics Inc., 2200 Shames Dr., Westbury, N.Y. 11590 / 516-ED 3-2115 / *C 66
Digital computers and digital to analog and analog to digital converters / S 50 / E 1961

Digital Electronic Machines, Inc., 2130 Jefferson, Kansas City, Mo. 64108 / 816-421-3181 / *C 66
Card read unit (CRU); card to tape unit (CTU); tape preparation unit (TPU); instrumentation / S 24 / E 1963

Digital Equipment Corp., 146 Main St., Maynard, Mass. 01754 / 617-897-8821 / *C 66
Solid state, general purpose digital computers, memory test systems, special purpose systems, digital circuit modules; input-output equipment, including CRT displays, light pens, magnetic tape systems, various memory options / S 1000 / E 1957

Digitronics Corp., 1 Albertson Ave., Albertson, L.I., N.Y. 11507 / 516-HT 4-1000 / *C 66
Data communication terminals, paper tape readers and handlers and source data acquisition equipment / S 350 / E 1957

Discon Corp., 4250 NW 10th Ave., Fort Lauderdale, Fla. 33309 / 305-565-5511 / *C 66
Digital plotters; digital coordinate readers; film readers; binary to decimal converters; digital systems, custom; data minimizers / S 50 / E 1962

Documentation Inc., 4833 Rugby Ave., Bethesda, Md. 20014 / 301-656-9500 / *C 66
Consulting, systems design and engineering, indexing, abstracting, cataloging, microfilming, mechanized publishing, microfilm, microfiche readers, reader-printers / S 700 / E 1951

Dolin Metal Products, Inc., 315 Lexington Ave., Brooklyn, N.Y. 11216 / 212-638-9472 / *C 66
Manufacturers of stock size data tape store units; special sizes mobile storage systems; tabulating card files / S 80 / E 1948

Douglas Randall Inc., a subsidiary of Walter Kidde & Co., Inc. 441 Pawcatcuk Ave., Westerly, R.I. 02891 / 203-599-1750 / *C 65
Reed relays, coils / S ? / E 1950

Drake Mfg. Co., 4626 N. Olcott, Harwood Hts., Ill. 60656 / 312-867-7227 / *C 66
Miniature lighting specialists— indicator, instrument and read-out lights, lenses, lampholders, accessories specified in commercial as well as military equipment / S 130 / E 1932

Dresser Products, Inc., 112-114 Baker St., Providence, R.I. 02905 / 401-781-4430 / *C 66
Data processing equipment and supplies (paper tape handling equipment, paper tape splicers and splicing tape, paper tape filing supplies— folders, envelopes, etc.) / S 9 / E 1955

Drexel Dynamics Corp., Maple Ave., Horsham, Pa. 19044 / 215-927-6200 / *C 66
Card readers, sub systems OEM, components, card feeders / S 200 / E 1956

E.I. duPont de Nemours & Co., 1007 Market St., Wilmington, Del. 19898 / 302-PR 4-2421 / *C 65
Differential analyzers, recording papers / S 100,000 / E 1802

Dura Business Machines, 32200 Stephenson Highway, Madison Heights, Mich. / 313-588-1100 / *C 66
Dura MACH 10 automatic typewriters; Dura code converters / S 400 / E 1961

Durant Mfg. Co., 600 N. Cass St., Milwaukee, Wisc. 53201 / 414-271-9300 / *C 65
Digital read-out instrument counters and indicators / S 300 / E 1879

Dymec Div. of Hewlett-Packard Co., 395 Page Mill Rd., Palo Alto, Calif. 94306 / — / *C 66
Digital data plotting systems / S ? / E ?

E

E-A Industrial Corp., 2326 South Cotner Ave., Los Angeles, Calif. 90064 / 213-477-5078 / *C 65
Digital systems and computers for process control / S ? / E 1962

Eastman Kodak Co., 343 State St., Rochester, N.Y. 14650 / 716-325-2000 / *C 65
Photographic equipment, staple synthetic and organic chemicals and dyestuffs; facsimile equipment (photocopy); recording paper / S 50,000 / E 1889

Ebasco Services, Inc., 2 Rector St., New York, N.Y. 10006 / 212-344-4400 / *C 66
Consulting and engineering services: systems analysis and design; commercial, scientific, engineering EDP applications; data communications; feasibility studies; plant automation; data processing and computing services / S 1500 / E 1907

E D P Corp., 1900 N. Mills Ave., Orlando, Fla. 32803 / 305-241-5324 / *C 65
Code translators and digital displays. Time Code-Generators-Encoders-Decoders. Sequences and event programmers. Monitoring and remote control systems / S 75 / E 1959

EDP Management, Inc., P.O. Box 393, New York, N.Y. 10008 / - / *C 65
Consulting services: computer type communication systems; economic research; information engineering; programming; research; and systems engineering / S ? / E ?

ELCO Corp., Maryland Rd. & Computer Ave., Willow Grove, Pa. 19090 / 215-659-7000 / *C 65
VARICON* Connectors, BI/CON* Connectors,

MICROCON* Connectors, MODUCON* Micro-modules, VARIMATE* Connectors, VARIPLATE* Connectors, VARIPAK * Card Cages, E-Z MATE* Tube Sockets (*Trade Mark) / S 700 / E 1947

Electric Indicator Co., Inc., Camp Ave., Stamford, Conn. 06879 / 203-322-1671 / *C 65
Sub-fractional and fractional A/C and D/C motors, generators and blowers used in computers / S 170 / E 1926

Electro Instruments, Inc., 8611 Balboa Ave., San Diego, Calif. 92112 / 714-277-6590 / *C 65
Digital voltmeters, ohmeters, ratiometers; analog-to-digital converters; wideband DC amplifiers, X-Y recorders, monitor oscilloscopes, digital data systems / S 647 / E 1954

Electro-Mechanical Research, Inc., P.O. Box 100 (1900 Main St.), Sarasota, Fla. 33578 (company divisions include: Telemetry Div., Sarasota, Fla.; ASI Computer Div., Minneapolis, Minn.; Photoelectric Div., Princeton, N.J.; Aerospace Services, College Park, Md.; Magnetics, Van Nuys, Calif.) / 813-955-8153 / *C 66
General purpose and special purpose digital computers and associated peripheral equipment; telemetry components and systems; data acquisition, data handling and data processing systems / S 1408 / E 1941

Electro-Mechanical Research, Inc., ASI Computer Div., 8001 Bloomington Freeway, Minneapolis, Minn. 55420 / 612-888-9581 / *C 66
General purpose computers for scientific, engineering and on-line systems applications / S 250 / E 1961

N. V. Electrologica, 4 Bordewijkstraat, Rijswijk (ZH), The Netherlands / 070-906720 / *C 66
EL X2, EL X4, EL X8 computers; EL 1000 tape-reader; disc-storage-drive for interchangeable disc-packs / S 500 / E 1956

N. V. Electrologica, 214 Stadhoudersplantsoen, The Hague, The Netherlands / 070-514641 / *C 65
EL X2, EL X3, EL X4, El X5 and EL X8 computers, EL 1000 high speed tape reader / S 500 / E 1956

Electro-Miniatures Corp., 600 Huyler St., So. Hackensack, N.J. 07606 . 201-488-7770 / *C 66
Commutator switches. Metal segments and rings embedded in plastic compounds / S 152 / E 1955

Electronic Administrative Services, Inc., 1745 Saratoga Ave., San Jose, Calif. 95129 / 408-257-4000 / *C 66
Full scale E.A.M. installation. User contracts: IBM 1401, 1410, 7040, 7090; on order, IBM 360 Model 20. General business consulting services; administrative services; management consulting services / S ? / E 1960

Electronic Associates Inc., West Long Branch, N.J. / 201-222-1100 / *C 65
Analog, digital and hybrid computers, digital plotting equipment, computing services / S 2500 / E 1945

Electronic Development Corp., 423 West Broadway, So. Boston, Mass. 02127 / 617-268-9696 / *C 66
Voltage to digital converters (decimal and binary); data logging systems / S 25 / E 1958

Electronic Engineering Co. of Calif., 1601 E. Chestnut Ave., Santa Ana, Calif. 92702 / 714-547-5501 / *C 66
A/D, D/A converters, magnetic core memories, multiplexers, data acquisition systems, computer format control buffers, paper tape readers, tape search and control equipment / S 300 / E 1949

Electronic Management, Computerology Corp. ($Emc^2$), 6900 Wisconsin Ave., Washington, D.C. 20015 / 301-OL6-0540 / *C 66
Consultants in military and civilian functionally encompassing systems / S 8 / E 1964

Electronic Memories, Inc., 12621 Chadron Ave., Hawthorne, Calif. 90250 / 213-772-50-1 / *C 66
Memory systems, stacks and cores for commercial, military and space application / S 700 / E 1961

Electronic Modules Corp., 1949 Greenspring Drive, Timonium, Md. 21093 / CL 2-22900 / *C 65
Computers and special purpose digital control systems for military, government and commercial applications. Digital process and machine controls. Digital logic modules 250 kc to 10 mc / S 170 / E 1961

Electron Ohio, Inc., 1278 W. 9th St., Cleveland, Ohio 44113 / 216-MA 1-5377 / *C 66
"Shoptrol" data collection system; bar chart recorder; magnetic drums; electro-magnetic counters / S 8 / E 1961

Electropac, Inc., a subsidiary of Computer Control Company, Inc., Industrial Park, Peterborough, N.H. 03458 / 603-924-3821 / *C 65
Contract manufacturer of electronic and electromechanical equipment (computer, aerospace, industrial, medical). Production or prototype construction wiring or circuit assembly to commercial or Mil specifications / S 220 / E 1960

Elgenco, Inc., 1550 Euclid St., Santa Monica, Calif. 90404 / 213-451-1635 / *C 66
Low frequency gaussian noise generators / S 15 / E 155

EL-RAD Manufacturing Co., 4300 N. California Ave., Chicago, Ill. 60618 / 312-478-7300 / *C 66
Delay lines and pulse transformers for computer applications / S 250 / E 1944

Encoder Div., Litton Precision Products, Inc., 7942 Woodley Ave., Van Nuys, Calif. 91406 / 213-781-2111 / *C 66
Digital shaft encoders of the magnetic, optical and contact types. Output codes include self-decoded, binary, BCD, gray and V-Scan binary / S 175 / E 1963

Engineered Electronics Co., 1441 E. Chestnut St., Santa Ana, Calif. 92702 / 714-547-5651 / *C 66
Digital logic cards and modules, IC logic cards, custom systems, custom packaging and welding, and rotary thumbwheel switches / S 200 / E 1954

English Electric-Leo-Marconi Computers Ltd., Kidsgrove, Stoke-on-Trent, Staffs, England / Kidsgrove 2141 / *C 65
Data processing systems for commerce, industry and science. Time high facilities at Computer Bureau. Back-up Service Centres. Commercial, technical and management science bureau services / S 3250 / E ?

Entelek, Inc., 42 Pleasant St., Newburyport, Mass. 01950 / 617-465-3000 / *C 66
Keypunch performance aids, programmed instruction in computer-based management, computer-assisted instruction / S 10 / E 1961

Epsco, Inc., 411 Providence Hwy., Westwood, Mass. 02090 / 617-329-1400 / *C 65
Computer components and equipment; special purpose computers, monitoring systems, computer linkages and format recorders, 1 and 5 megacycle digital circuit cards, wide-board amplifier series, portable data gathering systems, high speed A/D converters, volt-meters, reference sources. Pulse code modulation air and ground telemetry systems / S 275 / E 1954

Essex Systems Co., Inc., 40 E. 49th St., New York, N.Y. 10017 /_- / *C 66
Continuous tabulating forms / S ? / E ?

ESS GEE, Inc., 1 Holland Ave., White Plains, N.Y. / WH 6-1200 / *C 65
Airborne data processing equipment and instrumentation. Instrumentation and recording equipment for operation into computers, A/D converters, and computer interconnection components. Ground data handling systems / S 75 / E 1959

Evershed & Vignoles Ltd., Acton Lane Works, Chiswick, London W. 4, England / Chiswick 3670 / *C 65
Special purpose analog computers, data loggers, industrial telemetry, process control, servo-system components / S 2300 / E 1895

Exact Electronics Inc., 455 S.E. 2nd Ave., Hillsboro, Ore. 97123 / - / *C 66
Waveform generators / S 27 / E 1957

Executone, Inc., 47-37 Austell Place, Long Island City, N.Y. 11101 / 212-EX 2-4800 / *C 66
Electronic voice communication, sound, signalling and pocket page systems / S 450 / E 1937

E-Z Sort Systems, Ltd., 45 Second St., San Francisco, Calif. 94105 / 415-GA1-8005 / *C 65
Edge-punched cards for filing and sorting data. Special cards for correlation of facts. Control systems for a number of electronic computers. Teaching machines, program scheduling / S 186 / E 1935

F

F & F Enterprises, Inc., Chicago Switch Div., 2035 Wabansia Ave., Chicago, Ill. 60647 / 312-489-5500 / *C 66
Switches / S 60 / E 1954

Fabri-Tek Inc., 5901 S. County Rd. 18, Box 24035, Minneapolis, Minn. 55424 / 612-935-8811 / *C 66
Memory systems, stacks and planes, educational digital, trainers and related equipment, Biomedical and nuclear physics research instruments / S 2500 / E 1957

Fabri-Tek Inc., Box 645, Amery, Wisc. / 715-268-7155 / *C 65
Core memory planes, stacks and systems, thin film system / S 2000 / E 1957

Facit-Odhner Inc., a subsidiary of Atvidabergs Industries of Sweden, 222 East 44 St., New York, N.Y. 10017 / 212-867-7171 / *C 65
Sale of the Facit high-speed tape reader, tape punch and tape duplicator / S 10,000 / E 1922

Fairchild Controls, Div. of Fairchild Camera and Instrument Corp., 225 Park Ave., Hicksville, L.I., N.Y. 11802 / 516-WE 8-5600 / *C 65
Especially for computing and data processing industries — a complete new line of single turn, multi-turn potentiometers and trimmers (FAIRCON) / S 500 / E 1945

Fairchild Space and Defense Systems, Div. of Fairchild Camera and Instrument Corp., 300 Robbins Lane, Syosset, L.I., N.Y. / 516-WE 1-4500 / *C 65
Reconnaissance, mapping and ground data handling systems; special purpose computers; digital controls and electronics; data block readers; data annotation; special fixed memory devices; frequency control and time-base generators / S 1300 / E 1920

Farrington Electronics, Inc., Shirley Industrial Park, Springfield, Va. / 703-354-5000 / *C 65
Optical character recognition equipment, series 9SP; ID' IP; SD and source data recorders / S 300 / E 1953

Ferranti Electric, Inc., East Bethpage Rd., Plainview, N.Y. 11803 / 516-293 8383 / *C 66
Agent for Ferranti Ltd., Hollinwood, Lancashire Eng. Argus 400 and 500 general purpose and process control computers, silicon integrated circuits, moire fringe measuring systems, viscometers, magnetic tape bulk erasers, high resolution CRT display tubes / S 16,000 / E 1896

Ferranti Ltd., Manchester, Lancashire & Brackwell, Berkshire, England / Failsworth 2071 or Bracknell 2020 / *C 65
Real time digital computers and data handling systems / S over 5000 / E 1882

Ferranti-Packard Electric Ltd., Industry St., Toronto 15, Ontario, Canada / 416-762-3661 / *C 66
FP6000 general purpose computer, special purpose computer systems (reservations systems, process control), photo-electric tape readers, magnetic flip disc displays, special digital systems design and manufacture / S 1100 (company); 220 (Electronics) / E 1912 (company); 1949 (Electronics)

Ferroxcube Corp., Saugerties, N.Y. 12477 / 914-246-2811 / *C 66
Ferrite cores, planes, stacks, memory systems and recording head assemblies / S 1000 / E 1950

Fischer & Porter Co., County Line Rd., Warminster, Pa. / OSborne 5-6000 / *C 65
Industrial and military data acquisition equipment. Digital computer process control. Multiple pressure measuring systems. Vehicular traffic data recorders and systems. Meteorological data recorders and systems. Electronic integrator / S 15,000 / E 1937

Floating Floors, Inc., (subsidiary of National Lead Co.), 22 E. 42nd St., New York, N.Y. 10017 / 212-986-9050 / *C 66
Raised floors, surface cable ducts, computer air conditioning units, computer room floor cleaner polish / S over 5000 / E 1957 (parent 1891)

Dr Ivan Flores, 931 President St., Brooklyn 15, N.Y. / -- / *C 65
Consulting services / S ? / E ?

The Foxboro Co., 38 Neponset Ave., Foxboro, Mass. 02035 / 617-543-9750 / *C 65
Process computer systems, data logging and alarming computers, alarm scanners, computer set point stations / S 3000 / E 1903

Franklin Electronics Inc., East Fourth St., Bridgeport, Pa. 19405 / 215-272-4800 / *C 66
Digital printers -- 40 columns maximum / S 85 / E 1953

Friden, Inc., a subsidiary of the Singer Co., 2350 Washington Ave., San Leandro, Calif. 94577 / 415-357-6800 / *C 66
Data processing and data collecting systems, including: Flexowriter* automatic writing machine; Collectadata* data collection network; 6010 electronic computer and 6018 magnetic disc file; Computyper* writing/computing machine, Model CTP and Model 5010 (electronic); Teledata* data transmitter/receiver; Selectadata* selective reader; code converter; Add-punch* adding machine/tape punch; remotely controlled input-output devices and printers; special Flexowriter writing machines. Equipment for reading, punching, verifying, converting, regenerating and transmitting paper tape, edge-punched cards or tabulating cards. Supplies used with data processing equipment. Adding machines, 10-key and special type style for optical reader. Electronic and rotary desk calculators. *Trademark / S 11,600 / E Incorporated 1934

G

G-E Communication Products Dept., Lynchburg, Va. / 703-VI 6-7311 / *C 65
TDS-91 Data Communications / S ? / E ?

General Atronics Corp., 1200 E. Mermaid Lane, Philadelphia, Pa. 19118 / 215-248-3700 / *C 66
Memory systems, electronic; Automatic counting & sorting systems; Photoelectric readers; Oscilloscopes & cameras for recording data / S 250 / E 1956

General Computers, Inc., 5990 W. Pico Blvd., Los Angeles, Calif. 90035 / 213-939-7687 / *C 66
Analog computers and analog computing components / S 50 / E 1957

General Devices, Inc., Box 253, Princeton, N.J. 08540 / 609-924-2500 / *C 66
Digital data acquisition systems, tape to tape translators, computer input devices, telemetering systems / S 75 / E 1953

General Dynamics/Electronics, 3302 Pacific Highway, P.O. Box 127, San Diego 12, Calif. / 714-298-4641 / *C 65
Computer readout devices, high speed electronic printers, high speed communications printers, microfilm recorders, plug-in and potted circuits, digital devices for display of computer information, input and visual output devices (the CHARACTRON® shaped beam tube), facsimile systems / S 1200 / E 1955

General Dynamics/Electronics, 1400 North Goodman St., Rochester, N.Y. 14601 / 716-FI 2-8000 / *C 65
Digital computers, process control computers, statistical analog computers, data transmission systems, data logging systems / S 4000 / E 1894

General Electric Co., Capacitor Dept., P.O. Box 158, Irmo, S.C. 29063 / 803-253-3830 / *C 65
Capacitors for computers / S 750 / E 1898

General Electric Co., Computer Dept., 13430 N. Black Canyon Highway, Phoenix, Ariz. 85001 / 602-941-2900 / *C 65
GE-115, 205, 215, 225, 235, 415, 425, 435, 625, 635. Complete data-processing systems, includ-

ing full line of peripherals. Computer services offered non-computer customers through six Information Processing Centers in major metropolitan areas / S 4400 / E 1956

General Electric Co., Electronic Components Sales Operation, 1 River Rd., Schenectady, N.Y. 12305 / 518-FRanklin 4-2211 / *C 66
Sells electronic components and devices to electric and electronic product manufacturers / S 250,000 / E 1892

General Electric Co., Laminated Products Dept., Coshocton, Ohio / MAin 2-5310 / *C 65
Flooring for free-access floors / S 700 / E ?

General Electric Co., Process Computer Business Section, 2255 W. Desert Cove Rd., Phoenix, Ariz. 85002 / 602-941-2900 / *C 66
Process computers and systems; remote scanners; data loggers; explosion-proof ID card reader; network analyzer; contract programming / S? / E ?

The General Fireproofing Co., E. Dennick Ave., Youngstown, Ohio 44501 / 216-746-7271 / *C 65
Data processing accessory equipment / S 2600 / E 1902

General Instrument Corp., Defense & Engineering Products Group, Radio Receptor Div., Andrews Rd., Hicksville, N.Y. 11802 / 516-OVerbrook 1-4300 / *C 66
General and special purpose computational and data processing systems and equipment utilizing conventional modular and/or microelectronic packaging / S 9000 / E 1922

General Instrument Corp., Magne-Head/Systematics Div., 13040 S.Cerise Ave., Hawthorne, Calif. 90250 / 213-679-3377 / *C 66
Tape to card converters, card to tape converters, data communication equipment / S 300 / E 1955

General Instrument Corp, Radio Receptor Div., 100 Andrews Rd., Hicksville, N.Y. 11802 / 516-681-4300 / *C 66
Custom designed general support equipment, automated test equipment, special purpose computer components and computer systems, digital systems using small-medium general purpose computers / S 600 / E 1922

General Precision, Inc., GPL Div., Bedford Rd., Pleasantville, N.Y. 10570 / 914-RO 9-5000 / *C 66
PARD (Precision Annotation & Retrieval Display) systems; microtelivisor; character vector generator; airborne computers for use with dopplar radar systems; lenticolor (real-time color display using black and white film or TV source); TV hard copy printer / S 1000 / E 1946

General Precision, Inc., Kearfott Products Div., 1150 McBride Ave., Little Falls, N. J. 07424 / 201-256-4000 / *C 66
Analog, digital, and hybrid computers. Programmed measurement and checkout equipment. Digital data communication, high-speed logic, and range instrumentation systems. Data acquisition and recording systems. Analog to digital converters. Servomechanisms and systems. Digital electroluminescent solid state readout devices (alpha-numeric). Resolvers, transolvers, synchros, servo motors, motor tach generators, servo amplifiers, QR circuits, dc power supplies, choppers, mag-amps, signal comparators and sensors, and summing-isolation amplifiers / S 6000 / E 1917

General Precision, Inc., Librascope Group, 808 Western Ave., Glendale, Calif. / 213-240-2117 / *C 66
Military computers and data-processing systems; mass memories; peripheral computer disc memories; optical systems; encoders / S 2000 / E 1937

General Precision, Inc., Link Group, Colesville Rd., Binghamton, N.Y. 13902 / 607-772-3100 / *C 66
Aircraft and missile simulators, video and photographic storage/retrieval and processing systems, space information systems, range timing and instrumentation systems, graphic data conversion systems, special purpose analog/digital computing systems and ancillary equipments, computer simulation, and scientific programming services / S 4000 / E 1935

General Radio Co., 22 Baker Ave., W. Concord, Mass. 01781 / 617-EM 9-4400 / *C 66
Electronic measuring and test instruments, including frequency counters, digital-to-analog converters and printers / S 1000 / E 1915

Genisco Technology Corp., Systems Div., 18435 Susana Rd., Compton, Calif. 90221 / 213-774-1850 / *C 66
Tape recording and reproducing systems; telemetry checkout equipment / S 450 / E 1947

Geo Space Corp., 5803 Glenmont Drive, Houston, Tex. / 713-MO 6-1611 / *C 66
Digital photographic plotters; 21 channel to System/360 format controller; geophysical data processing equipment / S 600 / E 1957

The Geotechnical Corp., 3401 Shiloh Rd., Garland, Tex. 75040 / 214-278-0102 / *C 65
Slow-speed, low-frequency analog magnetic tape recorder/reproducers / S 650 / E 1936

The Gerber Scientific Instrument Co., 83 Gerber Rd., South Windsor, Conn. (P.O. Box 305, Hartford, Conn.) / 203-644-1551 / *C 66
Plotters (plotting boards), automatic drafting machines, graphic to digital converters, digital to graphic converters, data reduction equipment, scanners / S 275 / E 1948

Giannini Controls Corp., 1600 S. Mountain Ave., Duarte, Calif. 91010 / 213-681-2311 / *C 65
Data acquisition devices, encoders, numerical controls; measurement and control devices; instruments; timing devices; ultrasonic devices; nucleonic devices / S 2000 / E 1945

Giannini Scientific Corp., Flight Research Div., P.O. Box 1-F, Richmond, Va., 23201 / 703-737-4163 / *C 66
Photo instrumentation, systems and analog to digital converters / S 80 / E 1948

Government Systems Div., Control Data Corp. -- see Control Data Corp., Government Systems Div.

GPS Instrument Co., Inc., 188 Needham St., Newton, Mass. 02164 / 617-969-9405 / *C 66
High-speed, high-accuracy repetitive analog computers, statistical and iterative types; computer center and services rental; computer components, function and noise generators, multiplier/divider, etc. / S 60 / E 1951

Graphic Controls Corp., 189 Van Rensselaer St., Buffalo, N.Y. 14210 / 853-7500 / *C 65
GC data processing forms; continuous, manifold data processing forms / S 360 / E 1957

H. J. Gruy & Associates, Inc., 2501 Cedar Springs Rd., Dallas, Tex. 75201 / 214-RI 2-1421 / *C 66
Petroleum engineering consultants; equipment includes 1620 II-40K, 1443 printer, 1311 disc drive, calcomp plotter with SPS & Fortran compilers / S 70 / E 1959

The GYREX Corp., 3003 Pennsylvania Ave., Santa Monica, Calif. / 213-EXbrook 3-0462 / *C 65
Computer input systems (high speed data processors); time and frequency standards and control systems; pulse generators and time markers / S 30-35 / E 1956

H

Haddonfield Research & Mfg. Co., 121 Gill Rd., Haddonfield, N.J. 08033 / 609-429-9218 / *C 66
Production of ferrite products used in the memory area, consultation in ferrite magnetics, manufacture of small-scale computer systems marketed under the name "Compulator" / S 10 / E 1962

Hagan Controls Corp., 250 Mt. Lebanon Blvd., Pittsburgh, Pa. 15228 / 415-563-6120 / *C 66
Data loggers, alarm indicating monitors, recorders / S 521 / E 1918

Halbrecht Associates, Inc., 4977 Battery Lane, Bethesda, Md. 20014 / 301-656-9170 / *C 65
Personnel consulting, recruiting and placement in EDP fields (software, engineering and management), operations research, management sciences, mathematics / S 10 / E 1957

Hammond Manufacturing Co. Ltd., 394 Edinburgh Rd. North, Guelph, Ontario, Canada / 519-822-2960 / *C 66
Transformer and sheet metal components of all types for electronic and electrical computer sub and main systems / S 350 / E 1927

Philip Hankins & Co., Inc., 800 Massachusetts Ave., Arlington, Mass. 02174 / 617-648-2330 / *C 65
Computer consulting, software development and programming / S 35 / E 1959

Philip Hano Co., Inc., 85 Sargeant St., Holyoke, Mass. 01040 / 413-JE 3-7141 / *C 66
Continuous forms marginally punched; included are custom, standard, stock tab and tab imprints / S ? / E 1888

Harman Kardon, Inc. — name changed to the Roback Corp., which see

Hayden Book Co., Inc., 116 W. 14th St., New York, N. Y. 10011 / 212-OR-5-5020 / *C 66
Texts and trade books on programming, digital tape recording, digital computers and systems, analog computers, data transmission and systems / S 75 / E 1934

The A. W. Haydon Co., 232, No. Elm St., Waterbury, Conn. 06720 / 203-756-4481 / *C 65
Electromechanical and electronic time code generators and systems; stepping motors, devices and systems; timing motors, devices and systems / S 460 / E 1946

Heath Co., Benton Harbor, Mich. / 616-YU-3-3961 / *C 65
Educational analog computer / S 575 / E 1946

Hewlett-Packard, 1501 Page Mill Rd., Palo Alto, Calif. 94304 / 415-326-7000 / *C 65
Design and manufacture of general purpose electronic test equipment including electronic counters, digital recorders, frequency synthesizers, digital to analog converters, pulse generators, oscilloscopes, sampling oscilloscopes, switching time testers, electronic voltmeters, clamp-on dc millimeters, oscillators, audio signal generators, microwave sweep oscillators and signal generators, microwave power and SWR meters, wave guide and coaxial equipment, data acquisition systems, X-Y recorders, strip-chart recorders, magnetic tape recording systems, multi-channel recording systems / S 7300 / E 1939

Hewlett-Packard Co., Datamec Div., 345 Middlefield Rd., Mountain View, Calif. 94041 / 415-968-7291 / *C 66
Digital magnetic tape units; mark sense card and page readers; source data acquisition systems; electromechanical computer peripherals and associated electronics / S 135 / E 1961

The Hickok Electrical Instrument Co., 10514 Dupont Ave., Cleveland, Ohio 44108 / 216-514-8060 / *C 66
Computer and data processing test and repair instruments / S 700 / E 1914

Hoffman Electronics Corp., Semiconductor Div., Hoffman Electronic Park, El Monte, Calif. 91734 / 686-0123 / *C 65
Photoelectric tape and card readers; semiconductor devices including diodes, regulators, temperature compensated reference devices / S 429 / E 1941

Allen Hollander Co., Inc., 385 Gerard Ave., Bronx, N.Y., 10451 / 212-MO 5-1818 / *C 66
Pressure sensitive pinfeed labels for data processing / S 200 / E 1948

Hollander Associates, P.O. Box 2276, Fullerton, Calif. 92663 / 714-LA 5-0777 / *C 65
Design and consulting in general and special purpose computers and their application to business, control, communications switching, and defense; including technical liaison overseas. Research on methodologies for system design and optimization / S 9 / E 1961

Holley Computer Products Co., Subsidiary of Control Data Corp., 1480 N. Rochester Rd., Rochester, Mich. 48063 / 313-651-8811 / *C 66
High and medium speed digital drum printers / S 200 / E 1961

Honeywell, Denver Div., 4800 E. Dry Creek Rd., Denver, Colo. 80217 / 303-771-4700 / *C 65
Incremental digital magnetic tape recorders / S 1000 / E 1886

Honeywell, Inc., Electronic Data Processing Div., 60 Walnut St., Wellesley Hills, Mass. 02181 / 617-CE 5-7450 / *C 66
Card reader; card reader/punch; mass memory file; magnetic tape unit; high speed printers; memory tester; tape transmission terminal; data station, remote communications terminal / S 6000 / E 1955

Honeywell Inc., Industrial Div., 1100 Virginia Dr., Fort Washington, Pa. 19034 / 215-643-1300 / *C 66
General purpose digital computers for on-line real-time applications, special purpose analog computers, and programming and maintenance of these systems / S about 3500 / E 1863

Honeywell, Special Systems Div., Queen & So. Bailey Sts., Pottstown, Pa. 19464 / 215-323-4000 / *C 65
General purpose digital computers for on-line real-time applications, special purpose analog computer systems, MGF, programming, and maintenance of these systems / S 350 / E 1958

The Hoover Co., Electronics Div. -- name changed to Novatronics, Inc. which see

Houston Fearless Corp., 11801 Olympic Blvd., Los Angeles, Calif. 90064 / 213-272-4331 / *C 66
Computer-peripheral equipment, microfilm storage-retrieval-display systems, filmcard (microfiche) camera-processors, film processors, and TV camera pedestals, heads, and tripods; precision measuring microscopes, projectors, and photogrammetric equipment / S 720 / E 1940

HRB-Singer, Inc., Box 60, Science Park, State College, Pa. 16801 / 815-238-4311 / *C 66
Services and special equipment in the areas of operations research, system analysis, and system measurement and evaluation / S 1250 / E 1946

I

Image Instruments, Inc., 2300 Washington St., Newton Lower Falls, Mass. 02162 / 617-969-8440 / *C 66
Storage tube systems for man-machine interface, off-line processing, temporary storage or multiple display purposes in conjunction with computer. / S 13 / E 1958

IMC Magnetics Corp., Western Div., 6058 Walker Ave., Maywood, Calif. / 213-LUdlow 3-4765 / *C 65
Linear and rotary solenoids, step-servo motors, synchros, resolvers, digital to shaft angle converters / S 150 / E 1946

Inductor Engineering, Inc., 117 Schley Ave., Lewes, Del. 19958 / 302-645-6251 / *C 65
Magnetic amplifiers, transformers, toroids, electronic filters, pulse transformers, converters / S 25 / E 1956

Industrial Control Co., Central Ave. at Pinelawn, E. Farmingdale, L.I., N.Y. 11735 / 516-MY 4-3000 / *C 65
Servo multipliers, function generators, servo digitizers / S 25 / E 1949

Industrial Electronic Engineers, Inc., 7720 Lemona Ave., Van Nuys, Calif. 91405 / 213-787-0311 / *C 66
Rear-projection readout and display devices and systems; binary to decimal driver/decoders; readout and display accessories; illuminated switch status indicator; bina-view self-decoding readout / S 200 / E 1946

Industrial Nucleonics Corp., 650 Ackerman Rd., Columbus, Ohio 43202 / 614-267-6351 / *C 65
AccuRay industrial process measurement and automatic control systems, data reduction and readout systems for paper, plastics, metal and other industries / S 550 / E 1950

Informatics, Inc., 5430 Van Nuys Blvd., Sherman Oaks, Calif. 91401 / 213-783-7500 / *C 66
Specialists in on-line real-time time sharing software applications, implementation and analysis; provide design, analysis, programming and implementation of computer-based systems for government and industry / S 250 / E 1962

Information Displays, Inc., 102 E. Sandford Blvd., Mt. Vernon, N.Y. 10550 / 914-OW 9-5515 / *C 66
CRT display systems -- computer aided graphics / S 40 / E 1946

Information for Industry, Inc., 1000 Connecticut Ave., N.W., Washington, D.C. 20036 / 202-296-4936 / *C 66
Sole owners of data base covering all U.S. chemically related patents issued since 1950 to date. Programs available for IBM, Burroughs and CDC equipment / S 6 / E 1955

Information International Inc., 200 Sixth St., Cambridge, Mass. 02142 / 617-868-9810 / *C 66
Automatic programmable film readers, applications programming for PFR systems, software development (compiler, assemblers, etc.) / S 38 / E 1962

Information Processing Systems, Inc., 200 W. 57th St., New York, N.Y. 10019 / 212-CI 6-2267 / *C 66
Brokerage of used computer systems; consulting on purchases and sales of EDP equipment; leases on EAM and EDP systems / S ? / E 1963

Information Products Corp., Subsidiary of Renwell Industries, New Ludlow Rd., So. Hadley Falls, Mass. / 413-536-1800 / *C 65
Random access file interrogators, computer input and display equipment, data editing equipment / S ? / E ?

Information Retrieval Corp., 1000 Connecticut Ave., N.W., Washington, D.C. 20036 / 202-296-4936 / *C 65
Information retrieval devices; information services, and information engineering / S 20 / E 1961

Infotran, Inc., 860 Fifth Ave., New York, N.Y. 10021 / 212-LE 5-7724 / *C 66
Special purpose computers, data communications and control systems; planning, design and development of total information systems; new product development; educational services / S 6 / E 1964

Innovation Consultants, Inc., 4 E. State St., Doylestown, Pa. 18901 / 215-FIllmore 8-2324 / *C 66
Management consulting, systems design, programming, management education / S 160 (including associated entities) / E 1960

Institute for Computing Sciences, Preston Forest Tower, P.O. Box 30245, Dallas, Tex. 75230 / AD 1-1012 / *C 66
Educational programs for management; career training / S 15 / E 1965

Intectron, Inc., 2300 Washington St., Newton Lower Falls, Mass. 02162 / 617-969-9311 / *C 65
Microphotometric instruments, granularity computer, analog multiplier, optical correlation analyzer, optical fourier transformer, analog computers / S 10-20 / E 1960

International Accountants Society, Inc., Business Electronics Div., 209 W. Jackson Blvd., Chicago, Ill. 60606 / HArrison 7-5322 / *C 66
Home study courses in programming for computers, and applications of business problems to computers / S 100 / E 1955 (division)

International Business Machines Corp., Data Processing Div., 112 E. Post Rd., White Plains, N.Y. 10601 / 914-WH 9-1900 / *C 65
Complete line of data processing systems and equipment, including the IBM System/360, the IBM RAMAC 305 (model 2), 1401-G, 1401, 1440, 1460, 1410, 1620, 1620 (model 2), 7010, 7040, 7044, 7070, 7072, 7074, 7080, 7090, 7094, 7094II, data processing systems; 7700 data acquisition system; 1420 bank transit system; 1240 bank data processing system; 1062 teller terminal; 1230 optical mark scoring reader; 1231 optical mark page reader; 1282 optical reader card punch; 1418 optical character reader; random access disk and drum storage units; 7770 audio response unit; 1070 process communication system, 2321 data cell drive; 1015 inquiry display terminal; 2250 display console; 2671 paper tape reader; 1710 control system; magnetic character inscribing and sensing equipment; airline reservations systems; Tele-processing devices and systems including data collection and transmission equipment; Hypertape; mark sensing equipment; and a full line of punched card equipment, including the low-cost Series 50 line. Also printers, Micro-processing, punched cards, magnetic tape, magnetically encoded paper checks and other supplies used with data processing equipment / S 116,000 / E 1911

International Business Machines Corp., Federal Systems Div., 326 E. Montgomery Ave., Rockville, Md. / 301-GA 4-6700; 301-HA 7-4110 / *C 65
Electronic information handling and control systems for U.S. government space, defense, and civil programs. Systems management, systems development, research, engineering, production, installation, and field support / S ? / E 1955

International Computers and Tabulators Ltd., 839 Stewart Ave., Garden City, New York, N.Y. 11533 / 516-CH8-5656 / *C 66
I.C.T. 1900 series of digital computers. Computer peripheral and ancillary equipment for O.E.M. / S 20,000 / E 1959

International Computers and Tabulators, Ltd., I.C.T. House, Putney, London S.W. 15, England / Putney 7272 / *C 65
Punched card equipment and electronic digital computers, card to paper tape converters, paper tape to card converters, data collection and recording equipment, magnetic drums, input-output devices, memory systems, office equipment, line-a-time high speed printers, magnetic character, paper tape and punch card readers, magnetic tape filing systems, readers, and recorders / S 20,000 / E 1959

International Data Corp., 355 Walnut St., Newtonville, Mass. 02160 / 617-332-8840 / *C 65
Market research and publishing activity in computer field / S 10 / E 1964

International Diode Corp., 90 Forrest St., Jersey City, N.J 07304 / 201-432-7151 / *C 66
Fast switching computer diodes with high forward conductance. / S 13 / E 1959

International Electro-Magnetics, Inc., Eric Drive & Cornell Ave., Palatine, Ill. 60067 / 312-358-4622 / *C 65
Magnetic record, playback and erase heads for computers, telemetering, data recording, video and audio equipment / S 25 / E 1959

International Electronic Research Corp., 135 W. Magnolia Blvd., Burbank, Calif. 91502 / 213-849-2481 / *C 66
Analog to digital converters / S 350 / E 1950

International Rectifier, 233 Kansas St., El Segundo, Calif. 90246 / 213-678-6281 / *C 66
Zener voltage regulators, controlled rectifiers, transient protectors, photoelectric readouts / S 1100 / E 1947

International Resistance Co., 401 N. Broad St., Philadelphia, Pa. 19108 / 215-WA 2-8900 / *C 66
Resistors (composition, film, power and precision wire wound and special application); potentiometers, displacement transducers; low pressure cell; rectifiers; pressure transducers, diodes, frequency and time standards / S 2500 / E 1927

Invac Corp., 26 Fox Rd., Bear Hill Industrial Park, Waltham, Mass. 02154 / 617-899-2380 / *C 66
Tape punches, tape readers: typewriter transmitter/receiver, photoelectric keyboards, reperforation, verification data communications, and similar systems / S 75 / E 1959

Itek Corporation, 10 Maguire Rd., Lexington 73, Mass. / 617-862-6200 / *C 65
Research, development and manufacture of digital computers, graphic to digital converters, information retrieval devices, mass memory systems, high speed printers, film readers, scanners, translating equipment, and visual output devices / S 2100 / E 1957

ITI Electronics, Inc., 369 Lexington Ave., Clifton, N.J / - / *C65
IT-271 remote cathode-ray indicator; IT-284 high level video amplifier; IT-277 large screen cathode-ray indicator; custom manufacturing / S ? / E ?

ITT Data Services, a division of International Telephone and Telegraph Corp., P.O. 402, Rt. 17 & Garden State Pkwy., Paramus, N.J. / 201-262-8700 / *C 66
Full range of data processing services (scientific and commercial) including programming, computational services and data center management / S 550 / E 1965

ITT Federal Laboratories, a div. of International Telephone and Telegraph Corp., 500 Washington Ave., Nutley, N.J. 07110 / 201-284-0123 / *C 65
Medium and large scale real time data processors for on-line applications; ITT 025 data processor, ITT 525 Versatile Automatic Data Exchange / S ITT, 173,000; ITTFL, 5,000 / E 1920

ITT General Controls, 801 Allen Ave., Glendale, Calif. 91201 / 213-842-6131 / *C 65
Automatic controls for product or process. Counters and counting devices, actuators, magnetic valves, Hydramotor ® electrohydraulic valves and actuators, industrial controls and instruments, mercury switches, Klikswitch ® snap-acting switches, time switches (sequency), transformer-relays, contactors, limit controls (temperature) / S 3000 / E 1930

J

Janus Control Corp., 296 Newton St., Waltham, Mass. 02154 / - / *C 66
Electronic decade and instrument counters and counter-related products; numerical displays / S 30 / E 1963

Jay-El Products, Inc., 1859 W. 169th St., Gardena, Calif. 90247 / 213-323-7130 / *C 65
Illuminated push button switches, indicator lights, time delays, time delay relays, flashers, color coated lamps / S 45 / E 1956

JB Electronic Transformers Inc., 2310 W. Armitage Ave., Chicago, Ill. 60647 / 312-276 0444 / *C 65
Computer components / S 100 / E 1959

Jonker Corp., 26 N. Summit Ave., Gaithersburg, Md. 20760 / 301-948-9440 / *C 66
Information and data retrieval equipment based on the principal of optical coincidence or superimposable cards; equipment for drilling holes into cards and reading out holes from the cards; manual and automatic hardware / S 70 / E 1960

K

Kearfott Products Div., General Precision, Inc. -- name changed to General Precision, Inc., Kearfott Products Div., which see

George Kelk Ltd., 48 Lesmill Rd., Don Mills, Ontario, Canada / 416-445-5850 / *C 66
Special purpose computers for on line industrial control; shaft to digital converters / S 45 / E 1953

Keystone Computer Associates, Inc., 409 N. Easton Rd., Willow Grove, Pa. 19090 / 215-657-0400 / *C 66
Specialize in systems design, systems analysis, and computer programming; offer services in scientific, engineering and data processing applications, as well as management consulting / S 40 / E 1965

Walter Kidde & Co., Inc., Aerospace Div. -- see Douglas Randall, Inc., a subsidiary of Walter Kidde & Co., Inc.

A. Kimball Co., Div. of Litton Industries - name changed to Kimball Systems, Inc.-- Div. of Litton Industries, which see

Kimball Systems, Inc., Div. of Litton Industries, 215 Daniel St., Farmingdale, N.Y. 11735 / 516-MYrtle 4-7300 / *C 65
High-speed punched tag reader, PM "75" machine, hard pack / S 450 / E 1876

Kleinschmidt Div., SCM Corp., Lake-Cook Rd., Deerfield, Ill. 60015 / 312-945-1000 / *C 65
Communications and data processing hardware, including high- and medium-speed printers, tape perforators, and systems / S ? / E ?

Kyros Corp., 5428 Lake Mendota Drive, P.O. 406, Madison, Wis. / 608-238-3587 / *C 66
Kyread tape developer; Kysolve specialty solvents for "stripping" computer tapes; consulting services / S 3 / E 1961

L

Leach Corp., Controls Div., 717 N. Coney Ave., Azusa, Calif. / 213-334-8211 / *C 66
Data recording systems for aerospace and industrial applications; specializing in lightweight, portable, high environmental applications; compatible with all computer formats / S 450 / E 1960

Lear Siegler, Inc., Power Equipment Div., P. O. Box 6719, Cleveland, Ohio 44101 / 216-662-1000 / *C 66
Magnetic particle clutches or brakes / S 1200 / E 1940

Ledex Inc., 123 Webster St., Dayton, Ohio 45402 / 513-224-9891 / *C 65
Research, development, design, and production of remote switching and actuating components and subsystems, such as intervalometers, automatic checkout, mode selectors, programmers, sequence controls, positive/negative circuit searching, pulsing devices, guidance control, power transfer, switching and/or actuating subsystems to meet extreme environments. Standard products include: rotary and medium stroke linear solenoids, protected silicon bridge rectifiers, transient controls, stepping and servostep motors, open and hermetically sealed switches for multi-circuit switching, arc suppressors / S 340 / E 1942

Leeds & Northrup Co., Sumneytown Pike, North Wales, Pa. 19454 / 215-699-5353 / *C 66
Industrial computer control systems—digitally directed analog mode and direct digital control, LN 4100, LN 4200-also, a line of industrial data loggers, LN 1000, LN 1500 / S 3100 / E 1899

Lenkurt Electric Co., Inc. 1105 County Rd., San Carlos, Calif. 94070 / 415-591-8461 / *C 65
Microwave, Multiplex and data transmission systems / S 2500 / E 1943

LFE Electronics, 1075 Commonwealth Ave., Boston, Mass. 02215 / 617-254-4233 / *C 66
Batch-fabricated core memories; CRT displays; delay line memories / S 1050 / E 1946

Librascope Group, General Precision, Inc. – see General Precision,Inc., Librascope Group

Licon Div., Illinois Tool Works Inc., 6615 W. Irving Park Rd., Chicago, Ill. 60634 / 312-AV 2-4040 / *C 65
Full line of precision snap-action switches, illuminated pushbutton switches, environment-free switches / S 150 / E 1955

Link Group, General Precision, Inc., Systems Div., Binghamton, N. Y. 13902 / 607-RA 3-9311 / *C 65
GP-4 digital computer, wave-form display analyzer, and graphic display systems / S 2900 / E 1935

Lipps, Inc., 1630 Euclid St., Santa Monica, Calif. 90404 / 213-EX3-0449 / *C 66
Complete line of instrumentation and audio heads for professional equipment – magnetic recording heads / S 50 / E 1947

Liskey Aluminum, Inc., P.O. Box 580, Glen Burnie, Md. 21061 / 301-796-3300 / *C 66
Raised flooring, modular air conditioning, partitions, design and engineering for planning computer room / S 250 / E 1958

Litton Industries, Data Systems Div., 8000 Woodley Ave., Van Nuys, Calif. 91406 / 213-781-8211 / *C 66
Air data computers; general purpose microelectronic computer; data links; IFF decoders; microelectronic power supplies; command and control system engineering, development and production; automated test equipment; displays; tape recorders / S 3200 / E 1961

Litton Industries, Monroe DATALOG Div., 343 Sansome, San Francisco, Calif. / - / *C 66
The Monroe DATALOG ultra high speed optical printer / S ? / E ?

Litton Industries, Triad Distributor Div., 305 N. Briant St., Huntington, Ind. 46750 / 219-356-6500 / *C 66
Transformers, filter reactors, integrated circuit cards, card extractors, component lead benders / S 500+ / E 1947

Litton Industries, USECO div., 13536 Saticoy St., Van Nuys, Calif. / 213-786-9381 / *C 66
Terminals, handles, knobs, pushbutton switches special machined and molded products / S 200 / E 1942

Litton Industries, Winchester Electronics Div., Main St. & Hillside Ave., Oakville, Conn. / 203-274-8891 / *C 66
Connectors and accessories; round, rectangular miniature, subminiature, printed circuit, coax, crimp contact; special application types / S 500 / E 1941

Litton Systems, Inc., Mellonics Systems Development Div., 1001 W. Maude Ave., Sunnyvale, Calif. 94086 / 408-245-0795 / *C 66
Data systems engineering and computer programming services in the analysis, design and development of command and control systems; data handling networks; scientific and commercial data processing systems; information management systems; digital computer simulation systems / S 80 / E 1961

Lockheed Electronics Co., 6201 E. Randolph St., Los Angeles, Calif. / 213-722-6810 / *C 66
Printed circuit boards, etched, plated, plated through holes, flush commutators, transducers, core memory products / S 700 / E 1959

Logitek, Inc., 42 Central Dr., Farmingdale, L.I., N.Y. 11735 / 516-MY4-3080 / *C 66
Time code generators, magnetic tape search and control, time code translators, digital clocks / S 55 / E 1961

Loral Electronic Systems, a division of Loral Corp., 825 Bronx River Ave., Bronx, N.Y. 10472 / TI 2-9500 / *C 65
Special purpose digital and analog computers / S 2255 / E 1948

Lufkin Research Laboratories, 210 W. 131st St., Los Angeles, Calif. 90061 / 213-321-6283 / *C 66
Digital magnetic tape recorders; tape-to-tape converters; magnetic tape readers / S 35 / E 1963

M

F. B. MacLaren & Co., Inc., 15 Stepar Pl., Huntington Sta., L.I., N.Y. 11746 / 516-HAmilton 3-4433 / *C 66
Special purpose analog computers / S 15 / E 1950

Mac Panel Co., 2060 Brentwood St., High Point, N.C. 27262 / 919-882-8138 / *C 65
Magnetic computer tape, control panels, wires, plugboard programming systems / S 100 / E 1958

Magnecraft Electric Co., 5575 N. Lynch Ave., Chicago, Ill. 60630 / 312-AV 2-5500 / *C 65
High speed relays for computers / S 125 / E 1951

Magne-Head/Systematics Div., General Instrument Corp. — see General Instrument Corp., Magne-Head/Systematics Div.

Magnetics Inc., Butler, Pa. 16001 / 412-285-4711 / *C 66
Powder cores, tape wound cores, ferrite cores, isolation amplifier / S 400 / E 1949

Management Systems Corp., 209 Griffin St., Dallas, Tex. 75202 / 214-RI 2-8251 / *C 66
Data processing consultants in systems and applications; installation management; contract programming; computing services and time sales; complete bureau services / S 20 / E 1964

F. L. Mannix & Co., Inc., Suite 1132, Park Square Bldg., Boston, Mass. 617-542-5033 / *C 65
Executive and technical placement in the field of data processing. Consultants in wage and salary programs; organization and personnel administration / S ? / E ?

Mardix, 1160 Terra Bella Ave., Mountain View, Calif. / - / *C 65

Marksmen, Inc., 21 West 10th St., Kansas City, Mo. 64105 / 816-842-4150 / *C 66
Data collection and conversion systems; incremental, block and digital recorders interfaced with typewriter, adding machine, badge reader or time recorder; data recorded on ¼" magnetic tape cartridges / S 25 / E 1964

Massey Dickinson Co., Inc., 9 Elm St., Saxonville, Mass. 01706 / 617-877-2511 / *C 65
Programming and data acquisition equipment for behavioral, physiological, psychological, and visual research / S 25 / E 1957

Mast Development Co., 2212 E. 12th St., Davenport, Iowa 52803 / 319-323-9729 / *C 65
Random access projectors / S 40 / E 1945

Mathematischer Beratungs- und Programmierungsdienst GmbH., Kleppingstr. 26, Dortmund, Germany / 528697 / *C 65
Electrologica XI / S 65 / E 1957

McDonnell Automation Center, P.O. Box 516, St. Louis, Mo. 63166 / 314-731-2121 / *C 66
A complete data processing service center offering consulting, systems design, programming, administrative data processing and scientific computing services / S over 1000 / E 1960

Melcor Electronics Corp., 1750 New Highway, Farmingdale, N.Y. / 516-694-5570 / *C 65
Amplifiers and power supplies for analog computers / S 85 / E 1960

Mellonics Systems Development, Div. of Litton Systems, Inc. -- see Litton Systems, Inc., Mellonics Systems Development Div.

Memorex Corp., 1180 Shulman Ave., Santa Clara, Calif. 95052 / 408-248-3344 / *C 66
Precision magnetic computer tape and tape accessories / S 475 / E 1960

Methods Research Corp., 105 Willow Ave., Staten Island, N. Y. 10305 / 212-442-4900 / *C 66
Visual control systems / S 25 / E 1952

M-H Standard Corp., 400 Heaton St., Hamilton, Ohio 45011 / 513-894-7171 / *C 65
Palletflo and Versarack, components for computer controlled live storage racks / S 50 / E?

Micro-Lectric, Inc., 19 Debevoise Ave., Roosevelt, L.I., N.Y. 11575 / 516-FR 8-3222 / *C 65
Precision wire-wound potentiometers, linear and non-linear, sine cosine / S 19 / E 1951

Micronetic Corp., 3127 Colvin St., Alexandria, Va. 22314 / 703-549-3033 / *C 66
Magnetic tape / S 30 / E 1965

Microsonics, Inc., 60 Winter St., Weymouth, Mass. 02188 / 617-337-4200 / *C 65
Delay lines memory systems up to 20 mc; quartz crystal computer clocks / S 50 / E 1957

Microspace, Inc., 170 S. Van Brunt St., Englewood, N.J. 07631 / 201-567-7454 / *C 65
Information discs, analog to digital conversion encoders, energy coupled encoder, visual readout equipment, light sources / S 27 / E 1962

MICRO SWITCH, a Div. of Honeywell, 11 W. Spring St., Freeport, Ill. 61032 / 815-232-1122 / *C 66
Precision snap-action switches; mercury switches; lighted and unlighted pushbuttons; pushbutton assemblies; toggle switches; keyboards; multi-lighted Coordinated Manual Controls equipped with dry-circuit or electronic duty contact blocks; microsecond "one shot" circuits (electronic package) / S ? / E 1935

Midwestern Instruments, Subsidiary of Tele Corp., 41st and Sheridan, Tulsa, Okla., 74101 / 918-627-1111 / *C 66
Tape transport systems / S 300+ / E 1951

Missouri Research Laboratories, Inc., 2109 Locust St., St. Louis, Mo. 63103 / 314-241-7875 / *C 66
Binary-to-decimal converter/display, digital interface, digital address selector / S 400 / E 1946

Mohawk Data Sciences Corp., Harter St., Herkimer, N.Y. 13350 / 315-866-6800 / *C 66
Model 700 buffered tape unit / S 250 / E 1965

Monarch Metal Products, Inc., MacArthur Ave., New Windsor, N.Y. 12550 / 914-562-3100 / *C 66
Data processing accessory equipment including items for filing, sorting, storage and moving of punched cards, control panels, disk packs and magnetic tape reels / S 85 / E 1945

Monroe Computer Systems Division, 550 Central Ave., Orange, N.J. / 201-673-6600, Ext. 469 / *C 66
Monroe XI, a desk sized general purpose digital computer for business, engineering and educational use and other computers for special purposes; the magnetic Monro-Card System, an optional supplementary storage system for Monrobot XI / S 1000 / E 1964 (division)

Monroe DATALOG Div. of Litton Industries — see Litton Industries, Monroe DATALOG Div.

Monroe Data Processing Inc., 550 Central Ave., Orange, N.J. / 201-673-6600 / *C 66
Nationwide data processing services offered through accountants to small and medium sized businesses; process all paperwork necessary for general business accounting and financial statements; deliver sales analysis for management guidance; also DATATAX, a computerized personal income tax preparation service / S 100+ / E 1960

Monroe International, Inc. Division Litton Industries, 550 Central Ave., Orange, N.J. 07051 / 201-673-6600 / *C 65
Monrobot XI desk-sized electronic computer for scientific and business use, Monro-Card Processor for additional high-capacity storage. Electro-mechanical and electronic office machines / S ? / E 1912

Moog Inc., Industrial Div., 44 Hamburg St., East Aurora, N.Y. / 716-652-0220 / *C 66
Memory access servo components and systems / S 50 / E 1950

Moore Associates, Inc., 893 American St., San Carlos, Calif. 94070 / 591-5363 / *C 66
Telemetering and data transmission systems / S 50 / E 1957

Moore Business Forms, Inc., Research Div., 1001 Buffalo Ave., Niagara Falls, N.Y.; Denton, Tex.; Emeryville, Calif.; Park Ridge, Ill.; Toronto, Ont.; Winnipeg, Manitoba / — / *C 65
Business forms and systems, data processing forms-systems, forms handling equipment / S 10,000 / E 1882

F. L. Moseley Co., 409 No. Fair Oaks, Pasadena, Calif. / SY 2-1176 / *C 64
X-Y recorders (with time base); strip chart recorders, logarithmic amplifiers, curve followers, computer accessories / S 300 / E 1951

The Mosler Safe Co., 320 Park Ave., New York, N.Y. 10022 / 212-Plaza 2-4500 / *C 65
Protection for data processing tapes, disk packs, etc., from fire, smoke, moisture; mechanized card files / S 2200 / E 1848

Motorola Semiconductor Products, Inc., 5005 E. McDowell Rd., Phoenix, Ariz. 85008 / - / *C 66
Computer components / S 6600 / E 1955

Ray Myers Corp., 1302 E. Main St., Endicott, N.Y. 13760 / 607-P18-0424, P18-4273 / *C 66
Data processing accessory equipment. Systems development and production programs for input/output departments in data handling. Complete floor plan service / S 50 / E 1955

N

Nash and Harrison Ltd., 1355 Wellington St., Ottawa 3, Ont., Canada / 613-722-6544 / *C 66
Digital, process control computers designed around standard modular components which may be adapted to a wide variety of control applications. Special designs and consulting services quoted on request / S 12 / E 1957

Natel Engineering Co., Inc., 7129 Gerald Ave., Van Nuys, Calif. / ST 2-4161 / *C 65
AC, DC, frequency signal conditioning components for automatic controls, handling, monitoring and alarm systems / S 35 / E 1959

National Blank Book Co., Water St., Holyoke, Mass. 01040 / 413-539-9811 / *C 66
Data processing accessories / S 1000 / E 1843

The National Cash Register Co., Main & K Sts., Dayton, Ohio 45409 / 513-449-2000 / *C 66
Wide range of business machines and systems for businesses of all sizes; large and small digital computer systems, cash registers, adding machines, accounting machines, and supplies / S 73,000 / E 1884

National Computer Analysts, Inc., U.S. Hghwy 1, Lynwood Dr., Princeton, N.J. 08540 / 609-452-2800 / *C 66
Consulting, programming and computing services / S 40 / E 1962

National Physical Laboratory, Mathematics Div., Teddington, Middx, England / TEDdington Lock 3222 / *C 66
Computing service using ACE and KDF9 / S 60 / E 1945

New Era Ribbon & Carbon Co., Inc., 1228 Cherry St., Philadelphia, Pa. 19107 / 215-LO 3-1973-4 / *C 65
All types of computer and tabulator ribbons / S 15 / E 1959

Simon M. Newman, 1411 Hopkins St., N.W., Washington, D.C. 20036 / 202-387-4672 / *C 66
Documentation consulting-indexing and information retrieval, including application of automation to retrieval problems / S ? / E 1961

Nexus Research Laboratory, Inc., 480 Neponset St., Canton, Mass. 02021 / 617-828-9000 / *C 66
Solid-state encapsulated d-c operational amplifiers, logarithmic modules and related components for analog applications; low-profile cases (.375" high) for card rack mounting; analog computer building blocks. Applications department to assist customers with special designs / S 160 / E 1962

Non-Linear Systems, Inc., Del Mar Airport, Del Mar, Calif. 92014 / 714-755-1134 / *C 65
Digital voltmeters, ohmmeters, ratiometers; electronic measurement instruments for missile, nuclear, scientific and manufacturing fields; digital readouts, data processing and recording equipment, scanners, visual output devices, analog to digital converters, digital to analog converters, digital clocks, binary to decimal converters, AC and DC amplifiers (precision), statistical digital voltmeters, digital telemetering, digital counters / S 350 / E 1952

Norden Div. of United Aircraft Corp., Helen St. Norwalk, Conn. 06852 / 203-838-4471 / *C 65
Sense amps, differential amps, servo amps, gates, custom analog and digital circuits, all fabricated as monolithic integral circuits; TO-5 or flat package / S 2100 / E 1928

North Atlantic Industries, Inc., 200 Terminal Dr., Plainview, N.Y. 11803 / 516-681-8600 / *C 66
Resolver/synchro computer interface equipment / S 125 / E 1956

Northrop Corp., Nortronics Div., 2301 W. 120th St., Hawthorne, Calif. / 213-757-5181 / *C 66
Airborne digital computers, input/output devices, support equipment, software, programming, systems integration and test / S 4200 (division) / E 1939 (Northrop Est.), 1957 (Nortronics Div.)

Norton Associates, Inc., 240 Old Country Rd., Hicksville, N.Y. 11801 / 516-OV 1-6181 / *C 66
Standard and special magnetic record, playback, and erase heads in single and multi-track arrangements for magnetic tape, film, drum, and magnetic ink character recognition / S under 50 / E 1955

Nortronics Div., Northrop Corp., 1 Research Park, Palos Verdes Peninsula, Calif. 90274 / 213-FRontier 7-4811 / *C 65
Automatic checkout equipment, airborne and other digital and analog computers, display and information systems, astro-inertial and inertial guidance systems / S 16,033 (Northrop Corp.); 6000 (Nortronics Div.) / E 1939 (Northrop Corp.); 1957 (Nortronics Div.)

Nortronics, A Div. of Northrop Corp., Precision Products Dept., 100 Morse St., Norwood, Mass. / 617-762-5300 / *C 65
Precision gyroscopes, gyro systems, inertial components, inertial sensor test facilities, standards laboratories, accelerometers / S 1200 / E 1948

Novatronics, Inc., 500 N. Andrews Ave., Ext., P.O. Box 878, Pompano Beach, Fla. 33061 / 305-942-5200 / *C 65
Research, development and manufacture of telemetry systems and components, airborne electronic instrumentation, electronic ground support and control equipment, special electronic test sets, automatic checkout equipment, instrumentation vans, precision electronic devices such as highly regulated power supplies and military ordnance and logic equipment, baluns, filters, multiplexers, transformers, vibration analysis equipment, spectrum analyzers / S 75 / E 1965

O

Edward Ochman Systems, Box 141, Fairfield, Conn. / 259-1927 / *C 65
Manufacturers and sellers of control panels and wires for IBM and Remington Rand Equipment; also data processing accessories and computer tape storage equipment / S 15 / E 1949

Ohio Envelope Co., Box 19086, Cincinnati, Ohio 45219 / 513-961-6698 / *C 66
File folders, filing supplies for storage of paper, tape and other EDT information / S 23 / E ?

Oki Electronics of America Affiliate/Oki Elec. Ind. Co. Ltd., 202 East 44th St., New York, N.Y. 10017 / 212-MU 2-2989 / *C 66
Peripheral equipment / S 10,000 / E 1881

Omni-Data, Div. of Borg-Warner Corp., 511 N. Broad St., Philadelphia, Pa. 19123 / 215-WA 5-4343 / *C 66
Digital communication systems, communication terminal equipment, photo-electric tape readers, recorders and displays / S 38,000 (Borg-Warner Corp.) / E 1960

Omnitronics, Inc., Subsidiary of Borg-Warner Corp., 511 N. Broad St., Philadelphia, Pa. 19123 / 215-925-4343 / *C 65
Digital communication systems; space electronic devices and systems; digital data handling equipment such as checkout equipment, small special purpose computers, tape-to-tape converters, editors, and buffering equipment. Communications terminal equipment such as high-speed photoelectric tape readers, recorders, and displays / S 30,000, Borg-Warner Corp. / E 1960

Opto-Electronic Devices, Inc., subsidiary Sigma Instruments, Inc., 170 Pearl St., Braintree, Mass. 02185 / 617-843-5000 / *C 65
Opto-electronic translators / S 1000 / E 1963 (subsidized)

OPTOmechanisms Inc., 40 Skyline Drive, Plainview, N.Y. 11803 / 516-433-8100 / *C 66
Photographic type processors; special cameras; photographic devices; photometric devices; optical tachometers; projectors; optical trackers; stereo viewers; satellite detectors; measuring interferometers; stereo comparators; linear measuring tables; neg. to pos. film viewers / S 120 / E 1951

P

Pacific Data Systems, Inc., 1058 E. First St., Santa Ana, Calif. 92701 / 714-547-9183 / *C 66
General purpose digital computer / S 50 / E 1963

Pacific Electro Magnetics Co., Inc. 942 Commercial St., Palo Alto, Calif. 94303 / 415-321-1177 / *C 65
Ultra-portable instrumentation magnetic tape recorders and related equipment / S 26 / E 1959

Packard Bell Computer, a div. of Packard Bell Electronics— see Raytheon Computer

PAKTRON Div. Illinois Tool Works Inc., 1321 Leslie Ave., Alexandria, Va. 22301 / 703-548-4400 / *C 66
Electronic components, capacitors / S 425 / E 1954

Paper Manufacturers Co., 9800 Bustleton Ave., Phila. Pa. 19115 / 215-673-4500 / *C 66
Perforator tape in rolls or fanfolded available in wide variety of colors, diameters and widths. Compositions available are: paper; fibre; paper/mylar/paper; mylar/aluminum foil/mylar; and mylar / S 450 / E 1905

Parzen Research, Inc., 48 Urban Ave., Westbury, L.I., N. Y. 11590 / 516-ED 4-3900 / *C 65
Precision timing systems; ultra-stable frequency combiners, frequency comparators, frequency generation equipment; special data handling, telemetry, and tone-signaling systems / S 25 / E 1962

Pastoriza Electronics, Inc., 385 Elliot St., Newton, Mass. 02164 / 617-332-2131 / *C 66
Analog to digital tape formatters and systems; A-D converters, D-A converters; amplifier manifolds, amplifiers, multiplexers; hybrid and special purpose computers; portable analog computer / S 25 / E 1960

L. A. Pearl Co., 801 Second Ave., New York, N.Y. 10017 . 212-OR 9-6535 / *C 65
IBM computers and peripherals bought for cash / S 1 / E 1945

Pergamon Press, Inc., 44-01 21st St., Long Island City, N.Y. 11101 / 212-EM 1-7900 / *C 65
Books / S 75 / E 1953

Perspective, Inc., 4400 7th Ave. So., Seattle, Wash. 98108 / 206-MA 4-7800 / *C 66
The Illustromat "1100", a computer-directed graphics instrument whose function is to produce visually and mechanically accurate perspective drawings from any viewing distance and angle; it makes mechanically accurate axonometric drawings or projections from orthographic prints / S 19 / E 1953 (incorporated)

Philbrick Researches, Inc., 34 Allied Drive at Route 128, Dedham, Mass. 02026 / 617-329-1600 / *C 66
Analog computers, operational amplifiers, nonlinear transconductors, power supplies / S 220 / E 1946

Philco Corp., Communications & Electronics Div., 3900 Welsh Rd., Willow Grove, Pa. / 215-OL 9-7700 / *C 66
Philco 2000, Philco 1000, Philco 3100 process controller, Philco 1700 message and data switching system, Philco general purpose print/reader, ZIP-code readers, mass storage systems, peripheral equipment, displays, Philco 7100 plant monitor system, computer service bureau / S 5000 / E ?

Philco Corp., Subsidiary of Ford Motor Co., Lansdale Div., Church Rd., Lansdale, Pa. 19446 / 215-855-4681 / *C 66
Integrated circuits; microwave components; diodes (switching, mixer, pin, backward, tunnel); infrared components; microwave devices and components / S 1500 / E 1966

Philips Electronic Instruments, 750 S. Fulton Ave., Mt. Vernon, N.Y. 10550 / 914-MOunt Vernon 4-4500 / *C 65
X-ray diffractometers, spectrographs, cameras, detectors, industrial radiographic equipment, X-ray, electron microscopes, gauges, process control instrumentation, electron probe microanalyzer, automatic X-ray spectrometer which may be linked with computers to read directly in any prescribed units of measurement / S 350 / E 1942

Photocircuits Corp., 31 Sea Cliff Ave., Glen Cove, N.Y. / 516-OR 6-8000 / *C 66
Tape readers and spoolers, militarized tape reader / S 450 / E 1951

Photo Magnetic Systems, 1800 R St., N.W., Washington, D. C. 20009 / — / *C 65
Information storage and retrieval / S ? / E ?

Photomechanisms, Inc., 15 Stepar Place, Huntington Sta., N. Y. 11746 / 516-HA3-4411 / *C 66
Photographic computer input-output equipment, hard copy generating systems on and off-line utilizing rapidly processed silver halide films and paper and electrostatic papers / S 55 / E 1952

Photon, Inc., 355 Middlesex Ave., Wilmington, Mass. 01887 / 617-933-7000 / *C 66
Computer-driven phototype setting machines, photographic computer printers, tape merger machines / S 300 / E 1940

Pickering & Co., Inc., Sunnyside Blvd., Plainview, N.Y. 11803 / 212-OV 1-0200 / *C 66
Magnetic drum heads / S 160 / E 1946

Planning Research Corp., 1100 Glendon Ave., Los Angeles, Calif. 90024 / 213-GR 9-7725 / *C 65
Analysis, design and implementation of programming systems for electronic computers / S 510 / E 1954

Potter Instrument Co., Inc., 151 Sunnyside Blvd., Plainview, N.Y. 11803 / 516-OVerbrook 1-3200 / *C 66
Peripheral equipment for electronic data processing, magnetic tape transports, magnetic record/playback heads for digital recording, perforated tape readers and spoolers for military and commercial applications, high speed printers and systems, random access memory systems, complete line of accessories / S 650 / E 1942

Prestoseal Mfg. Corp., 37-12 108th St., Corona, N.Y./ 212-IL 7-5566 / *C 66
Splicer for punched paper tape, 5-8 channel./ S 50 / E 1947

Procedyne Corp., 221 Somerset St., New Brunswick, N.J. 08903 / 201-249-8347 / *C 65
Fourier transform computer, frequency response analyzer, signal generators, converters and transducers, phase meters, calibration equipment / S 12 / E 1961

Profimatics, Inc., 7060 Owensmouth Ave., Canoga Park, Calif. 91303 / 213-883-6530 / *C 66
Consulting services related to industrial process control and automation, including technical and economic feasibility studies, process simulation, specification writing and bid evaluation, system design, programming, installation, training and project management / S 7 / E 1965

Programmatics Inc., 12011 San Vicente Blvd., Los Angeles, Calif. 90049 / 213-476-1956 / *C 66
Systems analysis and design, feasibility studies, management control systems, systems programming, business and scientific applications / S 14 / E 1963

Programming & Systems, Inc., 33 W. 42nd St., New York, N.Y. 10036 / 212-LW 4-0530 / *C 66
Complete EDP education and service bureau work / S 50 / E 1959

Programming Service, Inc., 18455 Burbank Blvd., Tarzana, Calif. 91356 / 213-881-1672 / *C 66
Analysis, design, development, implementation of computer: information storage and retrieval systems; scientific, process control, commercial programming / S 25 / E 1965

Q

Quest Manufacturing Co., 220 W. Monroe St., Chicago, Ill. 60606 / 312-782-7838 / *C 65
Inked ribbons for all computer/data processing and machine accounting equipment / S 30 / E 1917

Quindar Electronics Inc., 60 Fadem Rd., Springfield, N.J. 07081 / 201-379-7400 / *C 66
Communications systems and modules for data transmission, manufacturer of analog and digital telemetering systems and scanners for all types of industry / S 135 / E 1960

R

Randolph Computer Corp., 200 Park Ave., New York, N.Y. 10017 / 212-986-4722 / *C 66
Acquiring and leasing EDP equipment, specializing in IBM's Systems 360 / S 8 / E 1965

The Rapids Standard Co., Inc. 825 Rapistan Bldg., Grand Rapids, Mich. 49502 / 616-451- 2081/ *C 65
Manufacturers of materials handling equipment; conveyors, storage racks, etc. / S 300 / E ?

Raytheon Computer, 2700 S. Fairview St., Santa Ana, Calif. 92704 / 714-546-7160 / *C 66
Digital computers and computer systems, hybrid computer systems, linkage systems, multiverters, analog-to-digital converters, digital-to-analog converters, digital circuit modules, BIAX memory products / S 325 / E 1958

RCA Electronic Data Processing, Cherry Hill, Camden 8, N.J. / WO 3-8000 / *C 65
Full range of digital computers, components, supplies and services / S ? / E 1955

Recognition Equipment Inc., 4703 Ross Ave., Dallas, Tex. 75204 / 214-TA3-8194 / *C 66
Optical character recognition systems / S 375 / E 1961

Records Reserve Corp., 751 Clay Rd., Rochester, N.Y. 14623 / 716-334-3644 / *C 65
Computer accessories: aluminum reels for magnetic tape, plastic reel cases, tape stoppers, shielded magnetic tape carrying and shipping cases, storage cabinets for panel boards and magnetic tape, and auxiliary tape racks / S 35 / E 1955

Redcor Corp., 7760 Deering Ave., Canoga Park, Calif. 91304 / 213-348-5892 / *C 65
Data acquisition system; A-D and D-A converters; digital logic modules / S 220 / E 1956

Reeves Instrument Co., 100 East Gate Blvd., Garden City, N.Y. 11532 / 516-PI 6-8100 / *C 66
Analog computer, capable of expansion to powerful hybrid facility; computation center for scientific analysis and simulation / S 1150 / E 1943

Reeves Soundcraft Corp., 15 Great Pasture Rd., Danbury, Conn. 06813 / 203-743-7601 / *C 66
Magnetic tape for computers / S 350 / E 1950

Rese Engineering Inc., A & Courtland Sts., Philadelphia, Pa. 19120 / 215-GL5-9000 / *C 66
Magnetic core memories; special digital systems / S 40 / E 1952

Rheem Electronics, 5250 W. El Segundo Blvd., Hawthorne, Calif. 90250 / 213-772-5321 / *C 66
Photoelectric punched tape readers and matching spooler systems / S 10,000 (incl. parent org.) / E 1960

Rixon Electronics, Inc., 2121 Industrial Pkwy., Silver Spring, Md. 20904 / 301-622-2121 / *C 65
Data Modems, teletype and computer input data multiplexers, special purpose electro-mechanical peripheral equipment for computer systems / S 200 / E 1953

RMS Associates, Div. of Information Displays, Inc.— name changed to Information Displays, Inc., which see

The Roback Corp., Huntingdon Valley, Pa. 19006 / 215-OR 6-4000 / *C 65
Digital logic modules, Facilogic (R) digital breadboards, low cost digital solid state volt-ohm meters, A/D and D/A converters, multiplexers, data processors, computer formatting and buffering equipment / S 100 / E 1962

Robertshaw Controls Co., Aeronautical & Instrument Div., Santa Ana Freeway @ Euclid St., Anaheim, Calif. 92603 / 714-535-8151 / *C 66
Manufacturers of process control instrumentation including direct digital devices, recorders, controllers, transmitters, level measurement, and flow integrators / S 300 / E 1950

Robins Data Devices, Inc., 15-58 127th St., Flushing, N.Y. / 212-445-7200 / *C 66
Splicers, winders, encoders, reels, centerfeed unwinders, unwind cans, data tape folders, envelopes and holders, bulk tape erasors and splicing patches / S 15 / E 1961 (div.)

Rotron Mfg. Co., Inc., Hasbrouck Lane, Woodstock, N.Y. 12498 / 914-679-2401 / *C 66
Cooling devices and high pressure/vacuum air sources specifically designed for the computer industry...Muffin Fan, Sprite, Skipper, Centrimax, Spiral, Duplex Spiral, Feather Fan, etc. / S 550 / E 1947

S

Sage Electronics Corp., 1212 Pittsford-Victor Rd., Pittsford, N.Y. 14534 / 716-LU6-8010 / *C 66
Resistors / S 170 / E 1948

Sanders Associates, Inc., 95 Canal St., Nashua, N.H. 03060 / 603-883-3321 / *C 65
Computer driven information displays, character generators, digital logic circuitry and special computers / S 3000 / E 1951

I. Savage Co., 1340 Commonwealth Ave., Boston, Mass. 02134 / 617-734-4569 / *C 66
Software and EDP consulting / S 1 / E 1964

The Scam Instrument Corp., 7401 N. Hamlin Ave., Skokie, Ill. 60076 / COrnelia 7-8300 / *C 65
Design and manufacture digital data scanners, loggers, digital controllers, recording annunciators, graphic control panels, special purpose digital computers. Also G.P. programming services / S 230 / E 1953



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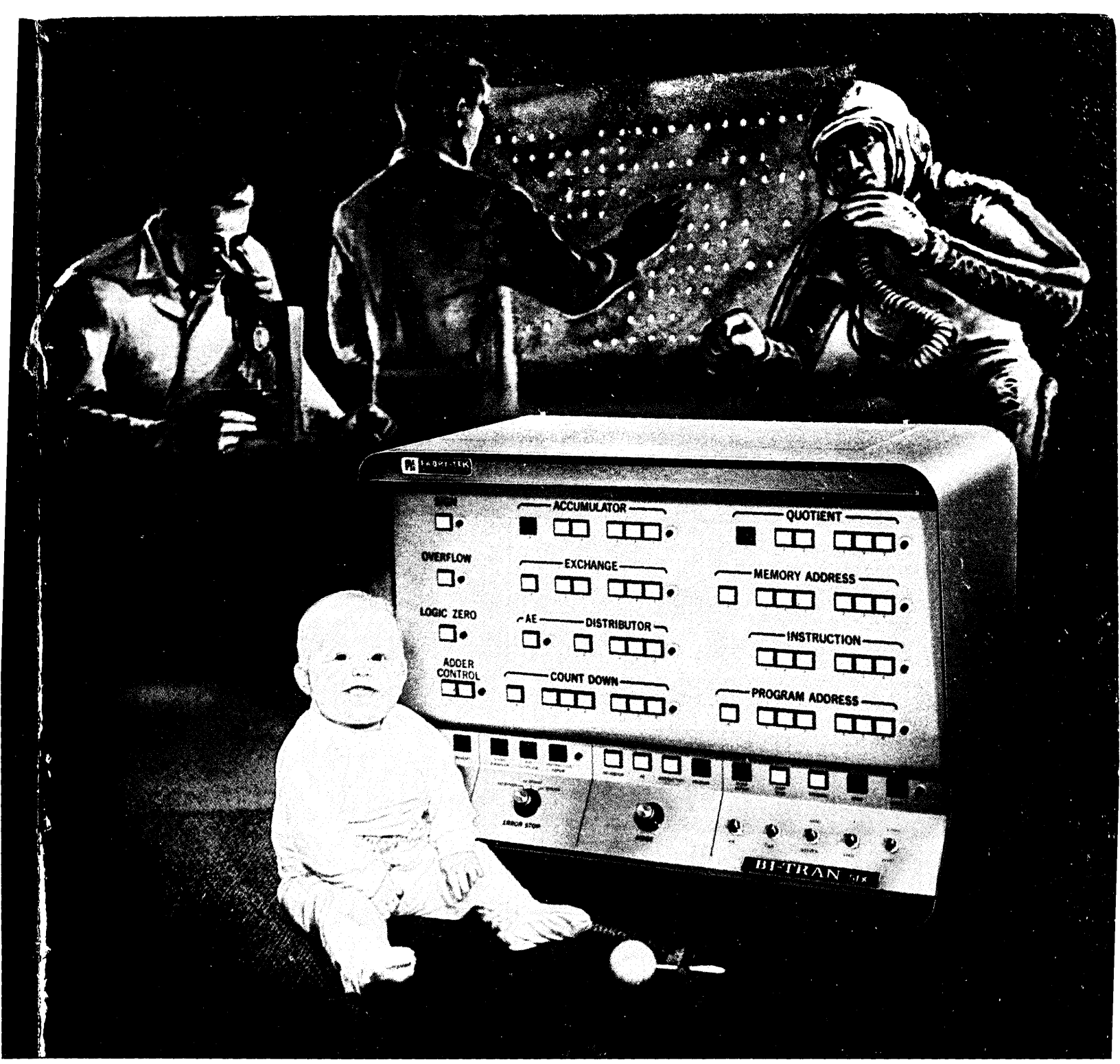


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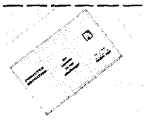

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Schaevitz-Bytrex Corp., 223 Crescent St., Waltham, Mass. 02154 / 617-899-5600 / *C 65
Electronic weighing and measuring systems, strain gage devices; load, pressure and torque transducers and systems / S 70 / E 1957

Scientific Control Corp., 14008 Distribution Way, Dallas, Texas 75234 / 214-CHapel 1-2111 / *C 66
General purpose data processors / S 40 / E 1964

Scientific Data Systems, Inc., 1649 Seventeenth St., Santa Monica, Calif. 90404 / 213-871-0960 / *C 66
General-purpose digital computers and data processing systems; special-purpose digital computers; computer-controlled data systems; data-acquisition systems; analog and digital system components and modules; systems engineering services / S 2500 / E 1961

Scientific Educational Products Corp., 30 E. 42nd St., New York, N.Y. 10017 / 212-867-9480 / *C 66
Minivac and Nordac digital computer trainers for use in computer education programs in educational institutions and industrial concerns S ? / E 1962

Seismograph Service Corp., Box 1590, (6200 E. 41st St.), Tulsa, Okla. 74102 / 918-NA 7-3330 / *C 65
Optical analog computer / S 500 (Tulsa); 1600 (world-wide) / E 1931

Serendipity Associates, 9760 Cozycroft, Chatsworth, Calif. 91311 / 213-341-0033 / *C 66
Research development in computer application and technology as related to systems engineering and human factors. Specialized capabilities include problem definition, design of solution algorithms, programming, documentation, debugging and checkout for simulation models for stochastic systems, mathematical models for cost-effectiveness evaluation, management information systems and scientific application programming / S 55 / E 1961

The Service Bureau Corp., 425 Park Ave., New York, N.Y. 10022 / 212-PL 1-5600 / *C 66
Complete range of data processing and computer programming services for business, government, science and education. IBM 1401, 7094, System 360 / S 2200 / E 1957

Shepard Laboratories, Inc., 480 Morris Ave., Summit, N.J. / 201-CR 3-5255 / *C 65
Small and large high-speed typers for data processing field / S 40 / E 1940

S-I Electronics, Inc., 103 Park Ave., Nutley, N.J. 07110 / 201-667-0055 / *C 66
Digital magnetic tape transports, digital magnetic tape transport read and write heads / S 55 / E 1960

Sigma Instruments, Inc., 170 Pearl St., Braintree, Mass. / - / *C 65
Cyclonome, single phase, high torque, synchronous stepping motor / S ? / E ?

Simulators, Inc., 1856 Walters Ave., Northbrook, Ill. 60062 / 312-272-6310 / *C 66
General purpose analog computers / S 17 / E 1965

Société d'Electronique & D'Automatisme, 17-19, rue du Moulin des Bruyères, BP No111, 92 Courbevoie, France / 333-41.20 / *C 66
SEA 3900, SEA 4000, CINA, CAB 1500 (digital), NADAC 20, NADAC 100 (analog); peripheral equipment (highspeed printers, tape perforators, optical tape readers, magnetic units); analogical modules, various components / S 900 / E 1948

Solid State Electronics Corp., 15321 Rayen St., Sepulveda, Calif. / 364-2271 / *C 65
Line of solid state silicon digital logic modules; 10 megacycle speed, -55°C to +125°C; microminiature, Logic modules available include: J-K flip-flop (logic), flip-flop, counter/shift register, "and-or" gates, Schmitt Trigger, inverting amplifier, non-inverting amplifier, slave clock, clock oscillator, free running multivibrator, one-shot multivibrator / S 10 / E 1958

Soroban Engineering, Inc., Port Malabar Industrial Park-Palm Bay, P.O. Box 1690, Melbourne, Fla. 32902 / 305-723-7221 / *C 66
Paper tape equipments, punch card equipments, printers, keyboards / S 255 / E 1954

Southern Computer Service, 200 TV Rd., P.O. Box 100, Dothan, Ala. 36302 / 794-3166 / *C 65
EDP service bureau, commercial data processing / S 8 / E 1962

Spear, Inc., 335 Bear Hill Rd., Waltham, Mass. 02154 / 617-899-4800 / *C 66
Special and general purpose digital computers for general scientific and researcher laboratory processing with heavy emphasis on biomedical research and clinical applications / S 20 / E 1964

Sperry Farragut Co., Div. of Sperry Rand Corp., Bristol, Tenn. 37622 / 615-968-1151 / *C 65
Amplifiers; packaged computer circuits, plug-in circuits; printed circuits; computer type coils; analog computers; computer components; fire control equipment; systems engineering / S 1000 / E 1951

Sperry Gyroscope Co., Div. Sperry Rand Corp., Great Neck, N.Y. 11020 / 516-LR4-1270 / *C 66
Small microcircuited real-time general purpose computers, associated analog to digital and digital to analog converters; microcircuited CRT display consolos / S 8000 / E ?

Standard Products Corp., 856 Main St., New Rochelle, N.Y. / - / *C 66
100% nylon computer-printer uninked fabric ribbons / S ? / E ?

The Standard Register Co., Dayton, Ohio 45401 / 513-223-6181 / *C 66
Business forms, continuous; data collection equipment, electronic; auxiliary forms handling equipment, mechanical / S 3900 / E 1912

Statistical Tabulating Corp., 104 S. Michigan Ave., Chicago, Ill. 60603 / 312-DE2-2484 / *C 66
Nine data-processing and computer service centers containing IBM 1400 series card and tape systems, Systems/360, and Honeywell H200 tape systems. Plus peripheral equip. Administrative management, scientific management, engineering and general data-processing, programming, systems analysis, consultation and temporary personnel. Divisions: Data-processing, Task Force, CAM, Data-Mat./ S ? / E ?

Stollarmetrics, Inc., 210 E. Ortega St., Santa Barbara, Calif. 93101 / 805-963-3566 / *C 66
Airborne and ground telemetry systems and components, including solid state commutators, decommutators, A to D converters, space-borne programmers (intervalometers) / S 75 / E 1961

Straza Industries, 790 Greenfield Drive, El Cajon, Calif. 92021 / 714-442-3451 / *C 66
Microfilm printers/plotters, display/printers, display systems, symbol generators, line generators / S 110 / E 1963

Stromberg-Carlson Corp., Data Products Div., 1895 Hancock St., San Diego, Calif. 92112 / 714-298-8331 / *C 66
High speed microfilm recorders, electronic printers, direct view displays and computer inquiry and retrieval systems / S 310 / E 1955

Sunshine Scientific Instruments, 1810 Grant Ave., Philadelphia, Pa. 19115 / 215-OR chard 3-5600 / *C 65
Testing and measuring equipment, calibration, certification. Analog field plotter, prototypes, precision electromechanical assemblies, mechanical components / S 30 / E 1947

Sylvania Electronic Systems, 40 Sylvan Rd., Waltham, Mass. 02154 / 617-894-8444 / *C 65
Special purpose data processing system / S 10,000 / E 1905

System Development Corp., 2500 Colorado Ave., Santa Monica, Calif. 90406 / 213-393-9411 / *C 66
IBM 360/50; IBM 7094; Philco 2000-210; CDC 3600; specializing in the design and development of information management systems for military, governmental, scientific and educational applications / S 3000 / E 1957

Systemat, 1107 Spring St., Silver Spring, Md. / 301-587-4200 / *C 65
Professional placement of computer personnel / S 10 / E 1960

Systems Engineering Laboratories, Inc., P. O. Box 9148, 6901 W. Sunrise Blvd., Fort Lauderdale, Fla. 33310 / 305-587-2900 / *C 66
Low level, high level, slow speed, high speed digital data acquisition systems and computers / S 431 / E 1961

Systems Sales Co., a div. of Systems Mfg. Corp., 13 Broad St., Binghamton, N.Y. 13904 / 607-723-6344 / *C 65
Tabulating and computer accessories / S under 300 / E 1945

Systems Science Corp., 1104 Spring St., Silver Spring, Md., 400 E. Third St., Bloomington, Ind. 47403 / 301-779-5500 (Md.); 812-332-1720 (Ind.) / *C 66
Specialists in real time, on-line automation of police activities; perform feasibility studies; development of hardware specifications; systems and applications; software design and programming / S 15 / E 1961

Systron-Donner Corp., 888 Galindo St., Concord, Calif. 94520 / 415-682-6161 / *C 66
± 100 volt desk top analog computers, all solid state, with plug-in digital logic modules. SD 10/20 computer has 20 amplifier capacity; SD 40/80 computer has 84 amplifier capacity; both use same plug-in computing modules / S 450 / E 1957

T

TAB Products Co., 550 Montgomery St., San Francisco, Calif. 94126 / 415-981-6160 / *C 66
Data processing equipment including card files, open reference files, storaways, trucks, unit spacefinder card files, control panel cabinets. Computer room equipment including tape reel racks, tape cabinets, disc pack racks, disc pack cabinets, forms handling equipment / S 100 / E 1950

Tally Corp., 1310 Mercer St., Seattle, Wash. 98109 / 206-624-0760 / *C 66
Business digital data communication systems utilizing high speed paper tape readers and perforators at speeds from 60 to 120 char/sec with automatic error recovery routines; card and magnetic tape data terminals; paper tape readers and perforators / S 300 / E 1948

Tape Certifiers, Inc., 1604 W 139th St., Gardena, Calif. 90249 / 213-321-6846 / *C 65
Magnetic tape certification and re-certification for computer and telemetry applications and tape consulting / S 19 / E 1964

Tech Serv Inc., 5451 Holland Drive, Beltsville, Md. 20705 / 301-474-2900 / *C 65
Transistorized digital logic elements and digital systems / S 45 / E 1959

Technical Information Processing, 1503 N. Washington St., Wheaton, Ill. 60187 / 312-668-6131 / *C66
Technical programming in areas of engineering design, mathematics and statistics / S 2 / E 1965

Technical Measurement Corp., 441 Washington Ave., North Haven, Conn. 06473 / 203-239-2501 / *C 66
Signal averaging computers, correlation computers, pulse height analyzers / S 700 / E 1955

Technical Measurement Corp., Telemetrics Div., 2830 S. Fairview St., Santa Ana, Calif. 92704 / 714-546-4500 / *C 66
Automatic telemetry processors, telemetry systems and equipment, input/output devices, buffers, synchronizers, simulators / S 240 / E 1959 (Telemetrics Div.)

Techni-rite Electronics, Inc., 65 Centerville Rd., Warwick, R.I. / 401-737-2000 / *C 65
Data recording equipment, oscillographs / S 85 / E 1959

Technitrol Inc., 1952 E. Allegheny Ave., Philadelphia, Pa. 19134 / 215-GA6-9105 / *C 66
Component parts - pulse transformers, electromagnetic delay lines, shift registers / S 1100 / E 1947

TELautograph Corp., 8700 Bellanca Ave., Los Angeles, Calif. 90045 / 213-OR 8-4756 / *C 65
Graphic communications systems/equipment for transmission of handwriting (Instantaneous) or facsimile (page-a-minute) / S 250 / E 1888

Telecomputations, Inc., 1104 Spring St., Silver Spring, Md. / 301-779-5500 / *C 66
Teleprocessing services on IBM 360/40; packaged or specialized programs; 24-hour real time service. On order: IBM 360/67 with dual processors / S 25 / E 1964

Telecomputing Services, Inc. -- see Computing & Software, Inc., TSI Div.

Telemetrics Div., Technical Measurement Corp. -- see Technical Measurement Corp., Telemetrics Div.

Telemetrics, Inc., 2830 Fairview St., Santa Ana, Calif. 92704 / 714-546-4500 / *C 65
General and special purpose computers, telemetry data processors, signal conditioners, synchronizers / S 500 / E 1962

Teleregister Corp. -- name changed to The Bunker-Ramo Corp., which see

Teletype Corp., 5555 Touhy Ave., Skokie, Ill. 60076 / 312-676-1000 / *C 66
Page printers; paper tape readers; paper tape punches; high-speed tape-to-tape equipment; automatic data switching systems / S 6000 / E 1930

M. Ten Bosch, Inc., 80 Wheeler Ave., Pleasantville, N.Y. / 914-RO 9-3000 / *C 65
Amplifiers, automatic controls, servo mechanisms / S 60 / E 1950

Texas Instruments, Inc., Industrial Products Group, 3609 Buffalo Speedway, Houston, Tex. 77006 / 713-JA 6-1411 / *C 66
A-D and D-A converters; multiplexers; pulse generators; tape transports for recording digital data; data collection, processing and display systems optimized for digital seismic data handling / S 1000+ / E 1930 (Parent company)

Texas Instruments, Inc., Semiconductor Components Div., P.O. Box 5012, Dallas, Tex. 75222 / 214-AD5-3111 / *C 66
Complete line of semiconductor devices including special computer diodes, transistor and integrated-circuit amplifiers, and military and industrial digital networks / S 25,000 / E 1930

Theta Instrument Corp., Saddle Brook, N. J. 07663 / 201-487-3508 / *C 65
Analog-digital converters / S 150 / E 1956

Merle Thomas Corp., State National Bank Bldg., Suite 410, 10400 Connecticut Ave., Kensington, Md. 20795 / 301-933-4410 / *C 66
EDP consulting services: consulting services to business, industry, government, in application of automatic data processing to business systems; engineering applications; feasibility studies; computer center / S 75 / E 1962

3 M Co., Instrument Dept., 12909 S. Cerise Ave., Hawthorne, Calif. / 213-772-5141 / *C 65
3 M-201 control computer systems, 3 M-110 data acquisition systems, 3 M-220 direct digital controls / S ? / E 1963

3 M Co., Revere-Mincom Div., 300 S. Lewis Rd., Camarillo, Calif. / 805-482-1911 / *C 65
Magnetic recorders for analog, frequency modulation, pulse code modulation as used in instrumenting missile ranges, etc. / S 500 / E ?

Torotel, Inc., 5512 E. 110th St., Kansas City, Mo. 64137 / 816-SOuth 1-6314 / *C 65
Magnetic amplifiers, delay lines, pulse transformers / S 100 / E 1956

Towson Laboratories, Inc., 3500 Parkdale Ave., Baltimore, Md. 21211 / 301-367-4001 / *C 66
A/D converters, multiplexers for modular data acquisition systems. Analog to teletypewriter converters. Telemetering systems. PCM encoders. Synchro to digital and digital to synchro converters / S 25 / E 1959

Trak Electronics Co., Inc., 59 Danbury Rd., Wilton, Conn. 06897 / 203-762-5521 / *C 66
Morse-to-teleprinter code converters; DIGI-STORE, asynchronous magnetic tape read/write unit / S 95 / E 1947

Transistor Electronics Corp., Box 6191, Minneapolis, Minn. 55424 / 612-941-1100 / *C 65
Digital readouts, indicators, switches and information display panels for computers, control, guidance and other solid state systems / S 200 / E 1957

Transitel International Corp., 615 Winters Ave., Paramus, N.J. 07642 / 201-262-8200 / *C 66
Solid state supervisory control and data acquisition systems / S 80 / E 1958

Transkrit Corp., 704 Broadway, New York, N.Y. 10003 / 212-OR3-2200 / *C 66
Continuous forms (spot carbonized), magnetic ink imprinting / S 100 / E 1938

Triad Distributor Div., Litton Industries -- see Litton Industries, Triad Distributor Div.

Triton Electronics, Inc., 62-05 30th Ave., Woodside 77, N.Y. / 212-721-7500 / *C 65
Computer and instrumentation tape / S 75 / E 1939

TRW Systems Group, 1 Space Park, Redondo Beach, Calif. 90278 / 213-679-8711 / *C 66
General purpose computers, digital data processors, special purpose computers, memory systems, design code and checkout of real time digital computer programs, SE and ID for all data systems applications / S 11,000 / E 1954

U

Uarco Inc., W. County Line Rd., Barrington, Ill. / 381-4030 / *C 65
All types of business forms and forms handling equipment / S 2700 / E 1894

Ultronic Systems Corp., 7300 N. Crescent Blvd., Pennsauken, N.J. 08110 / - / *C 66
Data pumps, encoding keyboards, magnetic tape transmission terminals, character multiplex / S over 500 / E 1960

Unimation Inc., 16 Durant Ave., Bethel, Conn. / 203-744-1800 / *C 66
UNIMATE - industrial robot: teachable material transfer machine, performs manual labor. Weight handling capacity of 75 lbs / S 40 / E 1962

Union Switch & Signal Div. of Westinghouse Air Brake Co., Pittsburgh, Pa. 15218 / 412-242-5000 / *C 65
"Readall" readout instruments, miniature and sub-miniature relays, remote control systems for railroads and pipelines; control and communication systems for industry; remote controls for locomotives and vehicles / S 1500 / E 1881

United Data Processing, 1001 S.W. 10th, Portland, Ore. / - / *C 65
Key punch trainer machine and program; service bureau with 2 tape 1401's, teleprocessing, punched tape, key punch, etc., providing general business computing / S 65 / E ?

U.S. Navy Marine Engineering Laboratory, Computer Div., Annapolis, Md. 21402 / 301-268-7711, Ext. 8514 / *C 66
Mathematical analysis and research; design, development, and validation of mathematical models simulating complex naval shipboard machinery systems and auxiliary systems;
design and development of management information systems; computer programming and data processing services / S 700 (lab), 25 (div.) / E 1903 (lab), 1964 (div.)

UNIVAC Div. of Sperry Rand Corp., 1290 Ave. of Americas, New York, N.Y. 10019 / 212-956-2121 / *C 65
Digital electronic computing systems, data processing services / S ? / E ?

UNIVAC Div. of Sperry Rand Corp., 10924 Ave. J East, Grand Prairie, Tex. / AN 2-3511 / *C 65
Complete MICR bank processor systems including high-speed document sorters, audit listers, and Central Processor with accumulating and dictionary look-up capabilities. MICR document encoding devices to print the amount, account number, and transit number fields. Optical character recognition systems for automation of accounts receivable and inventory control, including Readatron Card Punch and Charge Sales Recorders / S 150 / E 1957

Uptime Corp., 15910 West 5th Ave., Golden, Colo. 80401 / 303-279-3351 / *C 66
Punched card readers and punches / S 90 / E 1958

URS Corp., 1811 Trousdale Drive, Burlingame, Calif. 94011 / 415-697-1221 / *C 66
Data processing services, simulation and mathematical modeling, operations research, programming aids and languages, computer education, management information systems, command control systems, communications requirements, scientific and engineering computations, logistics research; service bureau with IBM 1440 and (2) 1311 disks / S 175 / E 1951

Useco Div., Litton Industries, 13536 Saticoy St., Van Nuys, Calif. / 213-ST 6-9381 or 213 -TR 3-3520 / *C 65
Electronic hardware, terminals, terminal boards, molded products, headers, encapsulation cups, screw machine / S 125 / E 1943

V

Vector Electronic Co., Inc., 1100 Flower St., Glendale, Calif. 91201 / 213-245-8971 / *C 65
Pre-programming, patchboards, patch cords, plug-in cards, breadboard kits / S 85 / E 1947

Veeder-Root, 70 Sargeant St., Hartford, Conn. 06102 / 203-527-7201 / *C 66
Counting/recording/controlling devices / S 1200 / E 1866

Victor Comptometer Corp., Business Machines Group, 3900 North Rockwell St., Chicago, Ill. 60618 / 312-KE9-8210 / *C 66
Solenoid controlled digital printers, accumulators, listers, calculators, time-data printers / S 3800 / E 1918

Virginia Electronics Co., Inc., River Rd. & B and O Railroad, Washington, D.C. 20016 / 301-654-6680 / *C 65
Communication control systems, intercommunication systems, circuit programming systems (patch boards), etc. / S 90 / E 1951

W

Waber Electronics, Inc., 2000 N. Second St., Philadelphia, Pa. 19122 / 215-NEbraska 4-3200 / *C 66
Master power controls, electrical outlet boxes, instrument carts and lab mobile carriers / S 70 / E 1958

Paul G. Wagner Co., 1227 S. Shamrock Ave., Monrovia, Calif. 91016 / 213-357-1992 / *C 66
MICRO-PUNCH 461, a portable, printing key punch / S ? / E ?

The Walkirk Co., 10321 S. La Cienega, Los Angeles, Calif, 90045 / 213-776-0323 / *C 66
Design, assembly and functional testing of circuit modules using either 3D cordwood encapsulation techniques or open printed circuit boards; utilizing production or hand soldering and component preparation / S 50 / E 1948

Wang Laboratories, Inc., 836 North St., Tewksbury, Mass. 01876 / 617-851-7311 / *C 66
LOCI desk-top digital computer for "on-line" and "off-line" use in scientific computations; data acquisition systems; universal, preset, and bidirectional counters; punched tape block readers / S 140 / E 1951

Warren Associates, 433 Putnam Ave., Cambridge, Mass. / OL 5-2097 (Natick, Mass.) / *C 65
Software, consulting service, correspondence courses / S 5 / E 1964

Washington Aluminum Co., Inc., Knecht Ave. and P.R. R., Baltimore, Md. 21229 / 301-242-1000 / *C 65
Computer flooring (raised, free access, steel) / S 250 / E 1947

F. S. Webster Co., Interchemical Corp., Copying Products Div., 1 Amherst St., Cambridge, Mass. 02142 / 617-KI 7-2300 / *C 65
Inked ribbons for all computers / S 225 / E 1889

West Eleven, Inc., 11836 San Vicente Blvd., Los Angeles, Calif. 90049 / 213-477-1039 / *C 66
Analog computers and analog computer components (distributor in USA and Canada for Hatachi) / S ? / E 1961

Westgate Laboratory, Inc., 506 S. High St., Yellow Springs, Ohio 45387 / ROckwell 7-7375 (Dayton, Ohio — VIctor 9-1330) / *C 65
Research, development, prototype, and small lot production in electronics, physics, optics and photography; X-Y plotters and vehicle position displays, controls, industrial instrumentation, eye movement cameras, X-Y recorders / S 58 / E 1956

Westinghouse Electric Corp., Advanced Data Systems, 700 Braddock Ave., East Pittsburgh, Pa. 15112 / — / *C 66
Consulting service: systems and operations research; data systems design and development; data retrieval systems and packages / S ? / E ?

Westinghouse Electric Corp., Electronic & Specialty Products Group, Gateway Bldg.#3, Pittsburgh, Pa. 15230 / 412-391-2800 / *C 66
Amplifiers, plug boards, computer packaged circuits, computing services, consulting services, analog to digital converters, digital to analog converters, electronic counters, indicator lights, diode and electronic multipliers, shift registers, research, scanners, telemetering systems, transformers, visual output devices / S 25,000 / E 1962 (Group)

Weston-Boonshaft and Fuchs, Hatboro Industrial Pk., Hatboro, Pa. / 215-OS 2-1240 / *C 65
Sine, transient and random computer analyzers, servo computers, control systems, statistical computers / S 100 / E 1959

Weston Instruments, Inc., 614 Frelinghuysen Ave., Newark, N.J. 07114 / 201-243-4700 / *C 65
Instruments and components; indicating, display and controlling instruments; product resolvers, input-output devices, multipliers, calibrators, relays, and resistors / S 2000 / E 1888

Wheeldex, Inc., 1000 N. Division St., Peekskill, N.Y. 10567 / 914-737-6800 / *C 66
Continuous pinfeed card forms in single and multiple widths; record retrieval equipment associated with E.D.P. / S 150 / E 1931

Whittaker Corp., Technical Products Div., 9601 Canoga Ave., Chatsworth, Calif. 91311 / 213-341-0800 / *C 66
Electromechanical counter / S 950 / E 1939

John Wiley & Sons, Inc., 605 3rd Ave., New York 16, N.Y. / TN 7-9800 / *C 65
Technical books / S 500 / E 1807

G. C. Wilson & Co., 1035 26th St., Huntington, W. Va. 25703 / 304-523-5149 / *C 65
Timing controls and time delay relays / S 10 / E 1945

Winchester Electronics Div., Litton Industries, Main St. & Hillside Ave., Oakville, Conn. / 203-274-8891 / *C 65
Connectors, terminals, and accessories / S 375 / E 1941

Wittek Products Co., 14750 Keswick St., Van Nuys, Calif. 91405 / 213-ST 0-8265 / *C 65
Breadboard kits for electronic designers working on research and development in semiconductor circuitry, computers, and data processing systems / S 3 / E 1948

Wolf Research & Development Corp., P.O. Box 36, Baker Ave., West Concord, Mass. 01781 / 617-369-2111 / *C 66
Mathematical analysis and programming services; computer consulting in the fields of aerospace, information retrieval, geodesy, electronics and management systems / S 300 / E 1954

Wright Engineering Co., Inc. 180 E.California Blvd., Pasadena, Calif. 91101 / 213-MU 1-2651 / *C 65
Magnetic digital logic components and systems; buffers and storage systems; aerospace timers; magnetic tape transports / S 10 / E 1950

Wright Line Division, Barry Wright Corp., 160 Gold Star Blvd., Worcester, Mass. 01606 / 617-791-0933 / *C 66
Products for the handling, storage and filing of punched cards, magnetic tape, paper tape and disk packs / S 300 / E 1934

Wyle Laboratories, 128 Maryland St., El Segundo, Calif. 90245 / 213-678-4251 / *C 66
Computers, digital, desk-top and rack-mounted with expandable memories and expandable programmers. Punch card readers, keyboard-display units, other peripherals. Circuits, two complete lines of module cards, one utilizing germanium discrete components, the other principally silicon IC's / S 550 / E 1949

X

Xerox Corp., P.O. Box 1540, Rochester, N.Y. 14603 / 716-546-4500 / *C 65
Document copying and reproduction equipment / S 10,000 / E 1906

Y

Ed Younger & Assoc., 8 S. Michigan, Chicago, Ill. 60603 / — / *C 66
Recruit and select computer personnel for corporate clients on nationwide scale / S 5 / E 1962

Z

ZUSE KG, Wehneberger Str. 4, 643 Bad Hersfeld, Germany (West) / 2751 (06621) / Telex 04/93 329 / *C 65
Programmed controlled digital computers, automatic plotters, data handling equipment / S 1200 / E 1949

- END -

# Compu

## The gap between the computer and you. Univac® closes it

The first of these computer communications systems is the UNIVAC DCT-2000.

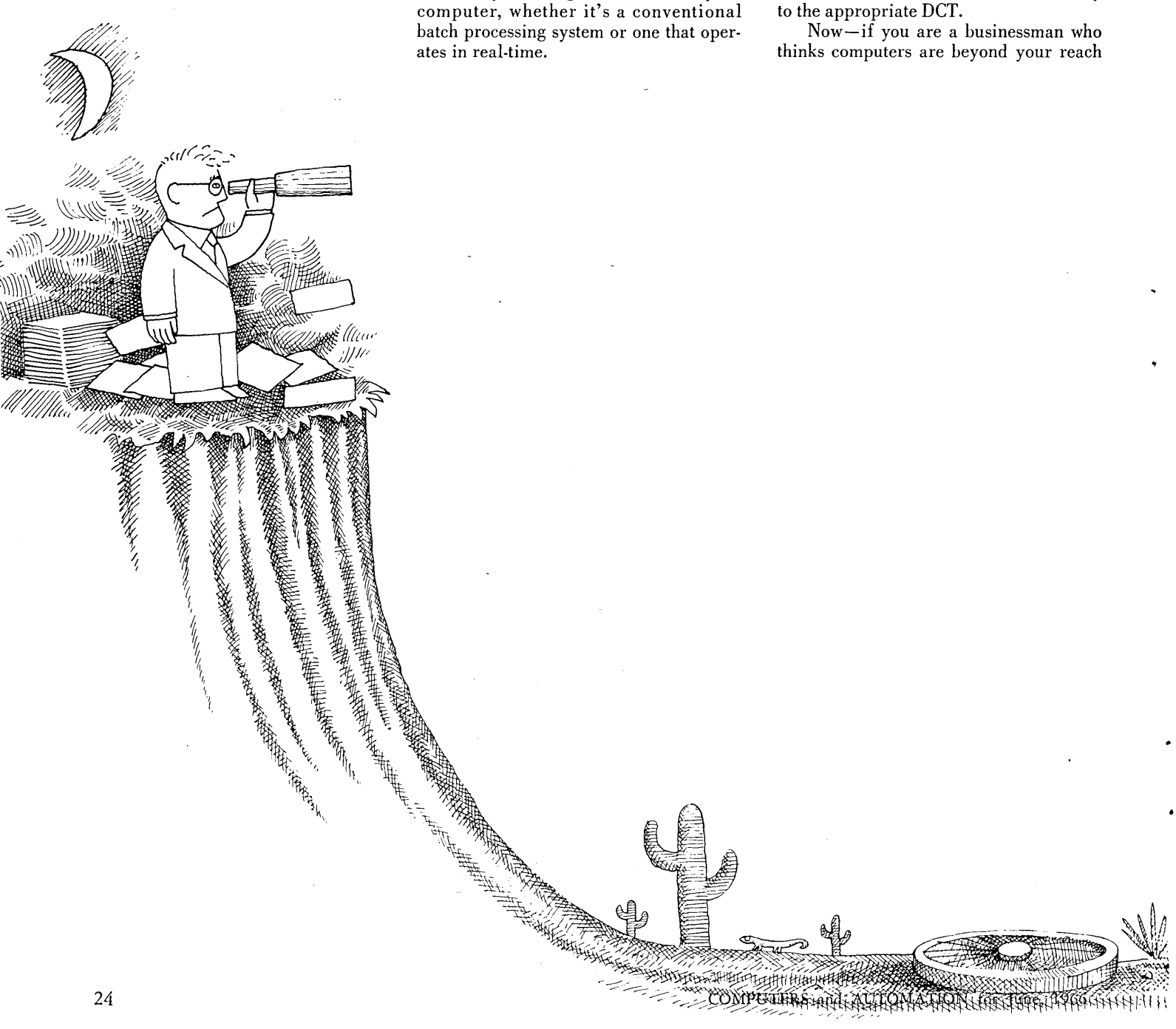
Prior to these flexible new data terminals, emphasis has been on either low or high speed terminal equipment. But for most business requirements low speed is too slow. High speed is too expensive.

Now you can get more out of your computer, whether it's a conventional batch processing system or one that operates in real-time.

With conventional systems, the DCT-2000 sends accumulated data on a scheduled basis.

In a real-time mode the UNIVAC DCT-2000 sends data to the computer at any time. Or a network of DCT's can send data simultaneously. All of it will be processed and returned almost immediately to the appropriate DCT.

Now—if you are a businessman who thinks computers are beyond your reach



# ter Gap

## with a new series of Data Communications Terminals.

—you can afford to catch up. The low cost UNIVAC DCT-2000 can be your efficient, economical entry into an existing system such as those provided by the network of UNIVAC Data Processing Centers. And you can start at any level.

All you need is a standard telephone line. And because the DCT-2000 prints up to 300 characters per second, receives into punched cards at up to 75 cards per minute, and sends data at up to 200 cards per minute, the telephone line can be used to its fullest capacity.

Capabilities like these make the DCT-2000 the answer for the businessman who wants total systems performance at low cost. Soon UNIVAC will provide additional answers. The DCT-1000, and a variety of other data communications devices.

UNIVAC has closed computer gap.

**UNIVAC®**

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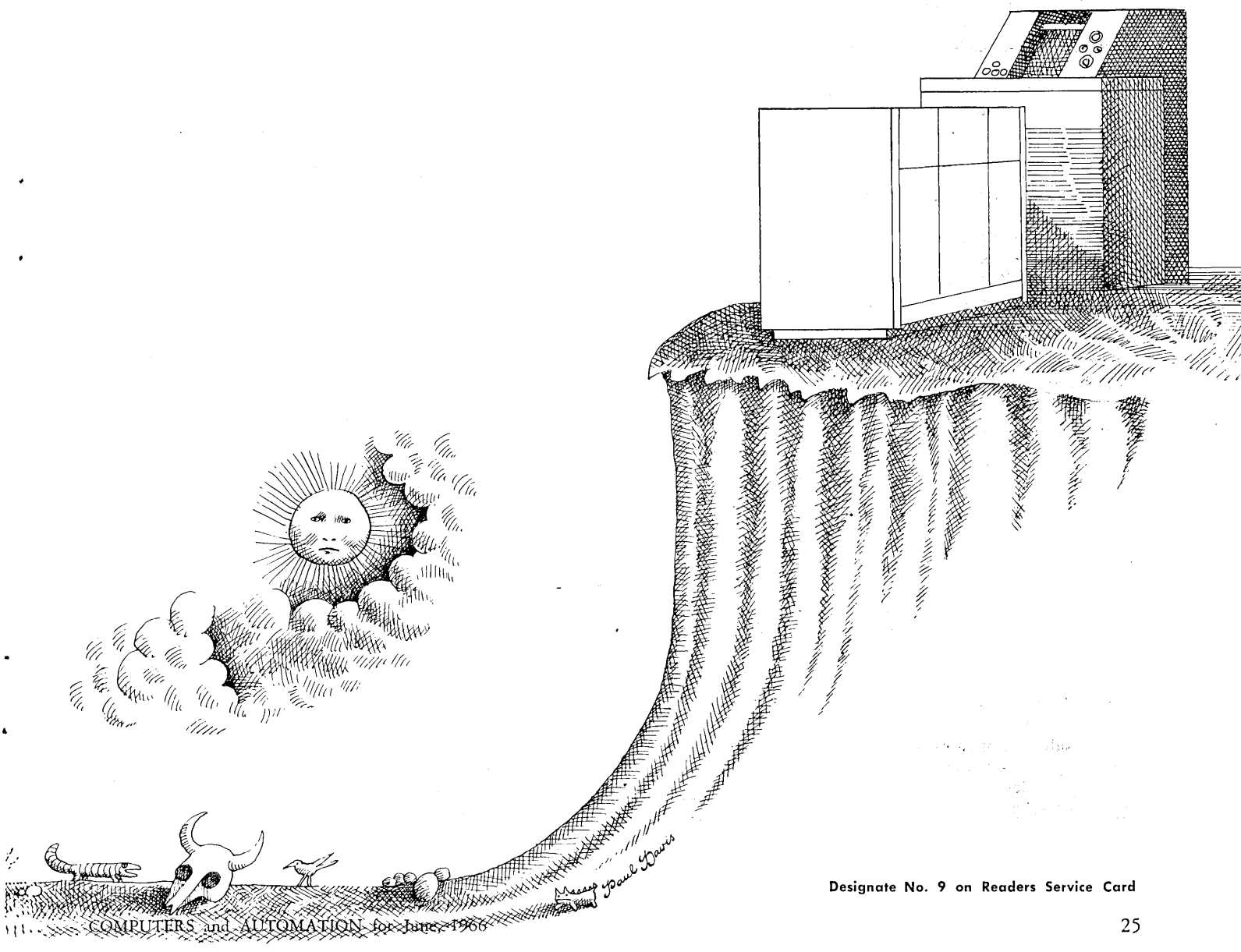



Designate No. 9 on Readers Service Card

# BUYERS' GUIDE FOR THE COMPUTER FIELD: PRODUCTS AND SERVICES FOR SALE OR RENT

(Cumulative, information as of April 1, 1966)

The purpose of this roster "The Buyers' Guide for the Computer Field: Products and Services for Sale or Rent" is to give information about the existence and in many cases the properties of every product or service in the computer field that is offered for sale or rent and about which we have received information in 1966 — with certain exceptions as noted below. This is the tenth cumulative edition of this roster.

Kinds of Entries. There are three kinds of entries in this list: full entries; cross reference entries; and name entries. A full entry contains or should contain the following information:

Name of supplier and address / name or identification of product or service / DESCR: a brief description of the product in about 25 words or more / USE: how it is used / price range, and whether for sale or rent.

Every entry is subject to editing.

Cross-reference entries show that a product listed under one product heading is described more fully under another product heading.

Name entries consist of just the name of the organization, listed under the product class.

Corrections. We have tried to make each entry correct to the extent of information in our possession. But it is inevitable that at least some errors have occurred, and we shall be glad to publish corrections.

Exceptions. Certain products and services in the computer field and their descriptions are either not included or only partially included in this Buyers' Guide. For these, please see the following lists located elsewhere in this Directory:

Roster of Electronic Computing and Data Processing Services;
Survey of Consulting Services;
Survey of Software Suppliers;
Descriptions of General Purpose Digital Computers;
Characteristics of General Purpose Analog Computers;
Survey of Special Purpose Computers; and
Roster of School, College, and University Computer Centers.

Questionnaire. Many of the entries in this roster have been derived from answers to questionnaires which we sent out to over 800 suppliers. The entries have been mainly derived from answers given on the "Product Entry Form," which follows:

Product Entry Form for
THE COMPUTER DIRECTORY and BUYERS' GUIDE, 1966

1. Name or identification of product (or service)? _____
2. Brief description? _____
3. How is it used? _____
4. Price range? Between _____ and _____
5. Under what particular heading should it be listed? (See the list of 142 headings) _____

Note: Up to 25 words (subject to editing) will be published FREE. If you want more than 25 words published, the charge for up to 50 words (still subject to editing) is $15.

( ) Please give us 50 words. Enclosed is $15.

Organization _____
Address _____
This data supplied by _____
Title _____ Date _____

## LIST OF HEADINGS

As a guide to the products and services offered in the computer field, please refer to the following list of headings under which products and services may be classified. There is some overlapping among these headings; it may be necessary or desirable to look under more than one heading.


A: Adding Machines ___A1
Amplifiers ___A2
Analog Computers (SEE Computers, Analog)
B: Boards — Plotting ___B1
— Plug ___B2
C: Cameras.... ___C1
— Data Recording ___C2
Cards (SEE ALSO Punch Cards) ___C3
— Magnetic ___C4
Circuits. . . . ___C5
— Computer, Packaged ___C6
Communications Systems(Computer Types) ___C7

Computers (SEE ALSO specific types) ___C8
Computers, Analog ___C9
Computers, Digital ___C10
Computers, Special Purpose ___C11
Computers, Test Equipment ___C12
Computer Components (SEE ALSO specific types) ___C13
Computing Services ___C14
Consulting Services ___C15
Controls. . . . ___C16
— Automatic ___C17
— Sorting and Counting ___C18
Converters, Information . . . . ___C19
— Analog to Digital ___C20
— Card to Magnetic Tape ___C21
— Card to Paper Tape ___C22
— Code ___C23
— Digital to Analog ___C24
— Digital to Graphic ___C25
— Graphic to Digital ___C26
— Magnetic Tape to Card ___C27
— Magnetic Tape to Paper Tape ___C28
— Magnetic Tape to Magnetic Tape ___C29
— Paper Tape to Card ___C30
— Paper Tape to Magnetic Tape ___C31
Cores. . . . ___C32
— Ferrite ___C33
— Magnetic ___C34
Counters . . . . ___C35
— Electronic ___C36
— Mechanical ___C37
Courses by Mail (Computer Field) ___C38

D: Data Processing Accessory Equipment ___D1
Data Processing Machinery (SEE ALSO specific types) ___D2
Data Recording Equipment ___D3
Data Reduction Equipment ___D4
Delay Lines (Computer Types) ___D5
Desk Calculators ___D6
Differential Analyzers ___D7
Digital Computers (SEE Computers, Digital)
Discs, Magnetic ___D8
Drums, Magnetic ___D9

E: Economic Research ___E1
Education (SEE ALSO Courses) ___E2

F: Facsimile Equipment ___F1
Floors ___F2
Forms, Continuous ___F3
Forms Handling Equipment ___F4

G: Generators, Function . . . . ___G1
— Electronic ___G2
— Mechanical ___G3

H: Heads, Magnetic . . . . ___H1
— Reading ___H2
— Recording ___H3

I: Information Engineering ___I1
Information Retrieval Devices ___I2
Integrators . . . . ___I3
— Electronic ___I4
— Mechanical ___I5
— Inventory Systems ___I6

K: Keyboards ___K1

L: Lights, Indicator ___L1

M: Magnetic Ink Imprinting ___M1
Memory Systems ___M2
Multipliers . . . ___M3
—Diode ___M4
—Electronic ___M5
—Servo ___M6

O: Office Machines ___O1
Operations Research ___O2

P: Panels. . . . ___P1
—Jack ___P2
—Relay Rack ___P3
Paper Tape ___P4
Patch Cords ___P5
Plotters(SEE ALSO Boards — Plotting) ___P6
Plugboards ___P7
Printers. . . . ___P8
—High Speed ___P9
—Keyboard ___P10
—Line-a-time ___P11
Programming Services ___P12
Publications ___P13
Punch Card Accessories ___P14
Punch Card Machines ___P15

R: Readers . . . . ___R1
—Character ___R2
—Film ___R3
—Magnetic Card ___R4
—Magnetic Ink ___R5
—Magnetic Tape ___R6
—Paper Tape ___R7
—Photoelectric ___R8
—Punch Card ___R9
Recording Papers ___R10
Registers, Shift ___R11
Relays (Computer Types) ___R12
Research ___R13
Resolvers. . . . ___R14
—Coordinate Transform ___R15
—Product ___R16
—Sine-Cosine ___R17
Robots ___R18
Ribbons, Data Processing ___R19

S: Scanners ___S1
Servomechanisms ___S2
Simulators ___S3
Storage Systems. . . . ___S4
—Magnetic ___S5
Switches. . . . ___S6
—Stepping ___S7
Synchros ___S8
Systems Engineering ___S9

T: Tape Handlers ___T1
Tape, Magnetic. . . . ___T2
—Filing Systems ___T3
—Readers ___T4
—Recorders ___T5
—Reels ___T6
Tape, Paper. . . . ___T7
—Filing Systems ___T8
—Punches ___T9
—Readers ___T10
Telemetering Systems ___T11
Thin-films, Magnetic ___T12
Timing Devices ___T13
Transformers. . . . ___T14
—Pulse ___T15
Translating Equipment ___T16
Typewriters, Electric, Controlled ___T17

V: Visual Output Devices ___V1

ROSTER

A1. ADDING MACHINES

Addo-X, Inc., 845 Third Ave., New York, N. Y. 10022 / Addo-X optical font adding machine / DESCR: type font to supply input data for IBM 1285 optical reader at speeds up to 3000 lines per min., list 12, total 13 / - / - / A1

Friden, Inc., a subsidiary of The Singer Co., 2350 Washington Ave., San Leandro, Calif. 94577 / ADD-PUNCH(TM) adding machine/tape punch / DESCR: performs same functions as adding machine plus punched paper tape containing all or part of printed information; tape may be converted to tab cards; tape processed by bureau or own computer / USE: sales analyses, inventory control and accounts receivable aging reports / $2000 to $3000 / A1

Friden, Inc., a subsidiary of The Singer Co., *a / AFY adding machine / DESCR: 10-key adding-multiplying; Natural Way keyboard; check dials show each entry before being printed; extra column totaling, plus regular 10 / - / $290 to $350 / A1

Friden, Inc., a subsidiary of The Singer Co., *a / 0105 Natural Way adding machine / DESCR: special type style compatible with IBM 1285 optical reader, Model I; reference numbers, amounts and totals appear on tape; check window prevents entry errors / USE: business reports such as payroll, inventory control and general accounting / $350 to $400 / A1

A2. AMPLIFIERS

Adage, Inc., 1079 Commonwealth Ave., Boston, Mass. 02215 / ADI-BLOC modules / DESCR: operational amplifiers, sample-and-hold amplifiers, DAC switches, multiplexer switches, comparators, axis-crossing detectors. Offset stability, linearity, noise all .01% or better / - / $50 to $500 / A2

Burr-Brown Research Corp., 6730 S. Tucson Blvd., Tucson, Ariz. 85706 / amplifiers / DESCR: broad line of all silicon DC operational amplifiers and instrumentation. Amplifiers featuring new FET input amplifiers and FET chopper stabilized units / USE: instrumentation, control, computing and measurement applications / $39 to $295/ stock units / A2

Cohu Electronics, Inc., Box 623, San Diego, Calif. 92112 / 114C differential DC amplifier / DESCR: provides high common mode rejection, stability and low drift and noise. Operates with balanced or unbalanced transducers and other input circuitry / USE: designed for thermocouple and strain gage measurements where transducer, amplifier and output device are grounded at different locations / $995 / A2

Cohu Electronics, Inc., *a / 112A wideband DC data amplifier / DESCR: provides accurate amplification of low level signals from DC to 40 kc--allowing simple, reliable measurement of strain, temperature, vibration, flow, displacement / USE: with strain gages, thermocouples and other transducers to test missiles, aircraft, bridges, buildings, ships, guns, heavy machinery / $530 to $680 / A2

COMCOR, Inc.

Engineered Electronics Co. -- see C5

General Computers, Inc., 5990 W. Pico Blvd., Los Angeles, Calif. 90035 / operational amplifier / DESCR: solid state operational amplifier provides ± 100 VDC output at 40 ma / - / $195 / A2

General Electric Co., Electronic Components Sales Operation

General Instrument Corp., Defense and Engineering Products Group, Radio Receptor Div., Andrews Rd., Hicksville, N. Y. 11802 / amplifiers / DESCR: include IF, RF, pulse, video, distribution, isolation, limiting modulator, narrow band, wideband and general purpose / USE: Variety of applications / $1000 to $15,000 / A2

General Radio Co., 22 Baker Ave., W. Concord, Mass. 01781 / amplifiers / DESCR: audio, DC, IF, power, RF, tuned / - / $95 to $1250 / A2

Genisco Technology Corp., Systems Div., 18435 Susana Rd., Compton, Calif. 90221 / tape recording and reproduce systems / DESCR: ruggedized systems for collecting information under adverse conditions / USE: high environment applications: adverse field conditions; laboratory environments / $4000 up / A2

F. B. MacLaren & Co., Inc., 15 Stepar Pl., Huntington Sta., L.I., N. Y. 11746 / packaged servo amplifiers / DESCR: vacuum tube and transistorized, plug-in units employing MS components for military and industrial applications requiring exceptional reliability, performance and life / USE: in precision custom designed servo mechanisms with AC or DC error signals / $100 to $3500 / A2

Melcor Electronics Corp., 1750 New Highway, Farmingdale, N. Y. 11735 / amplifiers / DESCR: solid state ac and dc amplifiers and power supply modules for analog and digital instrumentation / USE: power amplification, impedance matching, conversion / $20 to $1000 / A2

Nexus Research Laboratory, Inc.

Philbrick Researches, Inc., 34 Allied Drive at Route 128, Dedham, Mass. 02026 / operational amplifiers / DESCR: widest selection of performance and physical configuration / USE: computing, process control, instrumentation, simulation, active mathematics / $20 to $300 / A2

Scientific Data Systems, Inc., 1649 Seventeenth St., Santa Monica, Calif. 90404 / amplifiers; operational; analog input / DESCR: low- and high-level; accept analog inputs for subsequent conversion to digital form / USE: A/D conversion and analog computing devices / $60 to $500 / A2

Texas Instruments, Inc., Semiconductor-Components Div., P.O. Box 5012, Dallas, Tex. 75222 / integrated-circuit amplifiers / DESCR: operational/differential high-frequency, general-purpose, low-level audio, and thermal-feedback video amplifiers operate from -55° to +125° C.; packaged in standard TO-84 and TO-89 flat packages / USE: in high-reliability electronic systems / $25 to $145 / A2

B1. BOARDS, PLOTTING

Discon Corp. -- see P6

Methods Research Corp., 105 Willow Ave., Staten Island, N. Y. 10305 / magnetic visual control systems / DESCR: magnetic boards (plain or gridded) on which a wide variety of magnetic card holders, magnets, arrows, write-on strips is placed / USE: controlling production, personnel, sales, machine loading, trucking, etc. / $30 to $3000 / B1

B2. BOARDS, PLUG

AMP Inc., Eisenhower Blvd., Harrisburg, Pa. 17105 / patchcord programming devices / DESCR: panel mount, rack mount, anti-vibration, fixed programming systems / USE: multiple switching / - / B2

Digital Equipment Corp., 146 Main St., Maynard, Mass. 01754 / Digital Logic Laboratory / DESCR: training device and design tool built around a line of computer circuit packages with both integrated and discrete components / USE: desk-top unit allows designers or students to build a complete operating digital system / $850 to $1000 / B2

Litton Industries, Triad Distributor Div. -- see C3

C1. CAMERAS

General Atronics Corp., 1200 E. Mermaid Lane, Philadelphia, Pa. 19118 / cameras, oscilloscopes / DESCR: automatic controls, sorting & counting; electronic counters; memory systems; photoelectric readers; systems engineering / USE: quality control inspections; automatic counting & sorting / - / C1

Giannini Scientific Corp., Flight Research Div., P. O. Box 1-F, Richmond, Va., 23201 / MULTI-DATA® camera / DESCR: photographic recorders electronically controlled for high resolution, high speed recording -- 16, 35 and 70 mm film sizes / USE: computer display recording, oscilloscope and television display recording / $1700 to $5000 / C1

Houston Fearless Corp., 11801 Olympic Blvd., Los Angeles, Calif. 90064 / filmcard camera-processor / DESCR: makes microfiche while you wait; finished 4 x 6" COSATI filmcards containing 60 microimages and full size typed title one minute after exposure / USE: microfiche production; libraries, archives, business and industry / price on request / C1

C2. CAMERAS, DATA RECORDING

Giannini Scientific Corp., Flight Research Div. -- see C1

Houston Fearless Corp. -- see C1

OPTOmechanisms Inc., 40 Skyline Drive, Plainview, N. Y. 11803 / Sentinel IV 35 mm recording instrumentation camera / DESCR: pulse or cine operated; capable recording data from cathode ray tube, may be synchronized, remote controlled between 2 or more cameras; single and double frame exposure / USE: in conjunction with cathode ray tube display / $1800 to $3500 / C2

C3. CARDS

DI/AN Controls, Inc., 944 Dorchester Ave., Boston, Mass. 02125 / logic and control cards / DESCR: digital magnetic cards featuring low impedance circuitry, non-volatile storage, low power, high radiation resistance, small and lightweight packaging / USE: binary counters, shift registers, ring counters, digital delays, parallel to serial converters, sorters, pseudo-random code generators / $50 to $125 / C3

Jonker Corp. -- see D3, C15, P13

Litton Industries, Triad Distributor Div., 305 N. Briant St., Huntington, Ind. 46750 / circuit cards / DESCR: universal plated, extender, integrated, pre-punched, plug-in, card extractors / - / $1.40 to $12.50 / C3

Wheeldex, Inc. -- see F3

C5. CIRCUITS

The Bunker-Ramo Corp., Defense Systems Div., 8433 Fallbrook Ave., Canoga Park, Calif. 91304 / hybrid thin-film microcircuits / DESCR: thin-film passive elements combined with active devices in chip form / USE: A/D converters; computer circuits; voltage regulators; active filters; resistor ladder networks; threshold logic circuits; etc. / quote on request / C5

Columbia Technical Corp., 50 St. at 25 Ave., Woodside, N. Y. 11377 / custom hybrid circuits / DESCR: flat packs or plug in configurations / USE: in both analog and digital systems / $10 to $150 / C5

Continental Connector Corp.

Digital Equipment Corp., 146 Main St., Maynard, Mass. 01754 / digital system modules / DESCR: over 400 different types solid state digital circuit modules; 3 compatible frequencies -- 500 KC, 5MC, 10MC; specially packaged / USE: systems design, test, construction applications / $30 to $348 / C5

Digital Equipment Corp., *a / FLIP CHIP modules / DESCR: integrated and discrete components packaged on 5½ by 2½ inch printed circuit boards; low cost due to automated production facilities / USE: simple counters and adders to full scale digital computing systems / $5 to $100 / C5

Digital Equipment Corp., *a / laboratory and educational modules / DESCR: full coordinated series of transistorized digital computer circuits packaged in "building block" form; 3 compatible frequencies: 500 KC, 5MC, 10MC / USE: educational and industrial training; practical digital systems test and design work / $41 to $160 / C5

Engineered Electronics Co., 1441 E. Chestnut St., Santa Ana, Calif. 92702 / digital logic modules and circuit cards / DESCR: complete line offers almost any desired circuit combination / USE: plug-in or permanent circuit modules for use in data processing and related equipment / $4/module to $150/module / C5

Litton Industries, Winchester Electronics Div.

Lockheed Electronics Co., 6201 E. Randolph St., Los Angeles, Calif. / printed circuit boards / DESCR: etched, plated, plated through holes, flush commutators, multilayer / USE: all printed circuit applications / 50¢ to $500 ea. / C5

Philco Corp., Subsidiary of Ford Motor Co., Lansdale Div., Church Rd., Lansdale, Pa. 19446 / microelectronic integrated circuits; hybrid circuits / - / USE: broad range of digital and linear applications / $2.55 (100-999) quantity and $43.50 (100-999) quantity / C5

Texas Instruments, Inc., Semiconductor-Components Div., P.O. Box 5012, Dallas, Tex. 75222 / digital integrated circuits / DESCR: silicon monolithic circuits available in 0° to +70° and -55° to +125°C operating ranges. Packaged in TO-84 and TO-89 flat package. / USE: in high-reliability equipment ranging from guidance systems to hearing aids / $5 to $35 / C5

Wyle Laboratories, 128 Maryland St., El Segundo, Calif. 90245 / circuit cards / DESCR: two complete lines of module cards, one utilizing germanium discrete components, the other principal silicon IC's / USE: for assembling computers and other digital electronic systems $13 to $100 / C5

C6. CIRCUITS, COMPUTER, PACKAGED

Adage, Inc. -- see M5, A2

Computer Control Co., Inc., Old Connecticut Path, Framingham, Mass. / circuits, computer, packaged / DESCR: single source capability for digital logic modules. Broad logic lines, 200 KC to 20 MC, from germanium to silicon, from discrete to comprehensive new integrated circuit packages / - / - / C6

Computer Logic Corp., 1528 20th St., Santa Monica, Calif. 90404 / digital logic cards / DESCR: discrete and integrated logic cards comprised of various logic function, (flip flops, gates, multivibrators); associated hardware and software / USE: build digital data systems / $23 to $315 per card / C6

Control Equipment Corp., 19 Kearney Rd., Needham Heights, Mass. 02194 / Series 600, 700, 800, 900 digital logic modules / DESCR: saturated circuits and clamped loads; high fan-out capability and high noise rejection; inputs diode-coupled and represent standard load; NAND and inverter logic available / - / $10 to $100 / C6

Control Logic, Inc., 3 Strathmore Rd., Natick, Mass. / digital circuit modules / DESCR: welded encapsulated; several with silicon and germanium semiconductors--operating ranges up to 50 MC. Each product family contains logic elements, level converters, lamp and indicator drivers / - / $10 per flip flop to $90 per flip flop / C6

Control Logic, Inc., *a / microcircuit digital circuit cards / DESCR: plug-in circuit cards utilizing microcircuits for logic operation and counting up to 20 MC. Over 30 different card types and standard mounting accessories. Complete systems readily constructed / - / $40 per card to $150 per card / C6

DI/AN Controls, Inc., 944 Dorchester Ave., Boston, Mass. 02125 / core transistor logic modules / DESCR: perform logic functions; feature high logic power, maximum noise immunity, low power, non-volatile storage, high reliability, small-tough-light weight packaging / USE: primarily designed for space applications / $15 to $100 / C6

Digital Equipment Corp. -- see C5

Lockheed Electronics Co. -- see C5

MICRO SWITCH, a Div. of Honeywell, 11 W. Spring St., Freeport, Ill. 61032 / circuits, computer packaged / DESCR: 401 ED Series of Microsecond "one-shot" circuits -- produce single pulse voltage from 0.1 to 3.0 usec depending upon device; contain a resistor, capacitor, magnetic square loop core and diode / USE: in printed circuit boards or other applications in which circuit is at a remote location from controlling switch or load / - / C6

Motorola Semiconductor Products, Inc., 5005 E. McDowell Rd., Phoenix, Ariz. 85008 / circuits, logical / DESCR: integrated circuits: MECL®, MRTL®, MDTL®, MVTL® types® / USE: gates, flip-flops, half-adder, bias regulator, gate expander / $2 to $45 / C6

Nexus Research Laboratory, Inc.

Philco Corp., Subsidiary of Ford Motor Co., Lansdale Div. -- see C5

Raytheon Computer, 2700 S. Fairview, Santa Ana, Calif. 92704 / digital circuit modules / DESCR: silicon and germanium for operation at 200KC, 1MC, 5MC, 20MC; module breadboard kit for digital system development / USE: digital data systems / $34 to $425 (in quantity of 1-10) / C6

Scientific Data Systems, Inc., 1649 Seventeenth St., Santa Monica, Calif. 90404 / circuits, computer, packaged / DESCR: all types of digital computer circuits and modules / USE: primarily for interface between analog processes and digital computers; also custom-built digital systems / $45 to $150 per module / C6

The Walkirt Co., 10321 S. La Cienega, Los Angeles, Calif. 90045 / electronic module manufacturing / DESCR: Mechanical design (including art work) 3D Cordwood encapsulated modules, and/or component assembly onto printed circuit boards using production flow and/or hand soldering, plus functional module testing / USE: assembling complex circuits into economical and/or small volume systems / bid basis / C6

The Walkirt Co. *a / Integrated Circuit Carriers and Breadboard / DESCR: carriers recessed for welding I.C.'s in place. 14 pins on carrier backside; welded I.C. becomes small plug-in module, mates with breadboard & allows plug-in of 6 carriers. / USE: prototype and/or limited production integrated circuit sub systems / $1.18 to $2.50 / C6

Wyle Labs -- see C5

## C7. COMMUNICATIONS SYSTEMS

Adage, Inc., 1079 Commonwealth Ave., Boston, Mass. 02215 / 770 hybrid-computer linkage system / DESCR: internal command set; 85 kc word rate; self-test frees digital computer during analog and linkage checkout / - / $30,000 to $150,000 / C7

The Bunker-Ramo Corp., 277 Park Ave., New York, N. Y. 10017 / Series 200 date display, updating and retrieval / DESCR: consoles contain CRT screen and alpha-numeric keyboards, many different configurations; usually connected to computer system through control unit and communication lines / USE: query and update a computer memory / $1100 to $14,000 / C7

CAE Industries Ltd., P.O. Box 6166, Montreal 3, Quebec, Canada / telepath auto-call / DESCR: on-line character generators automatically generate polling sequences for selecting outstation data and teleprinter equipment / USE: telegraph and data networks / $1000 to $3000 / C7

CAE Industries Ltd., *a / telepath selectors / DESCR: on-line outstation control and selection equipment to control teleprinters, tape reperforators, transmitter distributors, other on-line equipment / USE: telegraph and data networks operating with computer switching and automatic polling systems / $500 to $1500 / C7

Collins Radio Co., Dallas, Tex. 75207 / communication systems, computer type / DESCR: computer-controlled, store-and-forward digital message switching system for handling 32-1000 circuits / USE: control of high density message traffic and message processing / - / C7

Data Communications, Inc., Church Rd., P.O. Box 29, Moorestown, N. J. 08057 / DATABANK / DESCR: magnetic tape terminal designed to store data, transmit previously stored data or simultaneous storage and transmission / - / $2950 and up / C7

Data Communications, Inc., *a / DATAGUARD / DESCR: portable transmitting/receiving device which encrypts/decrypts data through a myriad of variations in the custom coding program / USE: in areas where security is of the utmost importance / $165/month rental / C7

Data Communications, Inc., *a / TELEMUX-I / DESCR: solid state, synchronous, full duplex, time division multiplexing terminal compatible with CCITT standards / - / $29,000 plus / C7

Data Systems Analysts, Inc.

Data Trends, Inc., 1259 Route 46, Parsippany, N.J. / TP-10 printer system / DESCR: compact, noiseless electronic strip printer / USE: in conjunction with touch-tone telephone; provides hard copy record of inquiries and responses / depends on configuration / C7

Digitronics Corp., 1 Albertson Ave., Albertson, L.I., N.Y. 11507 / Diato-verter data terminals / DESCR: transmits and receives magnetic tape, paper tape or punched card data over standard telephone lines / USE: centralized processing, inventory control, data collection / $7500 to $61,225 / C7

Electron Ohio, Inc., 1278 W. 9th St., Cleveland, Ohio 44113 / data collection system / DESCR: piece count, productive and down times electrically transmitted to control center; punched cards are produced / USE: central time keeping; production control / $100/machine connected to $500/machine connected / C7

Executone, Inc., 47-37 Austell Place, Long Island City, N. Y. 11101 / electronic communication systems / DESCR: intercom, sound, signalling, voice paging and pocket page systems / USE: instant internal communication to help speed work flow, increase productivity / - / C7

General Electric Co., Process Computer Business Section -- see C10

G-E Communications Products Dept.

General Instrument Corp., Defense and Engineering Products Group, Radio Receptor Div., Andrews Rd., Hicksville, N. Y. 11802 / communications systems / DESCR: wide variety of communications systems utilizing analog and/or digital information / USE: for any custom application / various / C7

General Instrument Corp., Magne-Head/Systematics Div., 13040 S. Cerise Ave., Hawthorne, Calif. 90250 / telepunch / DESCR: transmits and receives IBM cards via Model 33 or Model 28 teletypewriters; 10 characters/second; attaches to IBM 24 card punch / USE: data transmission systems / $3150 ($140/mo.) to $4250 ($175/mo.) / C7

General Instrument Corp., Radio Receptor Div. -- see S9

Hewlett-Packard Co., Datamec Div., 345 Middlefield Rd., Mountain View, Calif. 94041 / D-111 data entry system / DESCR: mark sense readers transmit via Data-Phone to editing, formatting buffer. Buffer output supplied as required / USE: capture small amounts of data from many sources / $700/mo. rental to $7000/mo. rental / C7

Honeywell, Inc., Electronic Data Processing Div., 60 Walnut St., Wellesley Hills, Mass. 02181 / data station / DESCR: remote communications terminal with paper tape, keyboard, printing, punch card, optical reading options / USE: data communications line terminal / $9000 to $30,000 / C7

Honeywell, Inc., Electronic Data Processing Div., *a / tape transmission terminal / DESCR: communications terminal for data transmission from or to magnetic tape / USE: remote terminal / $60,000 to $120,000 / C7

Lenkurt Electric Co., Inc., 1105 County Rd., San Carlos, Calif. 94070 / 26C data transmission system / DESCR: transistorized FSK system used to convert one 1200-bps or one 2400-bps data signal for transmission over a single voice channel / - / $2400 to $3900 / C7

Philco Corp., Communications & Electronics Div., 3900 Welsh Rd., Willow Grove, Pa. / Philco message and data switching systems / DESCR: communications processor and message switching system / USE: routing, storing and forwarding messages / $300,000 to $3,000,000 / C7

Quindar Electronics Inc., 60 Fadem Rd., Springfield, N. J. 07081 / solid state frequency multiplexing / DESCR: tone signalling for frequency multiplexing in supervisory control and telemetering systems; low speed and high speed; germanium and silicon types / USE: means of frequency or time division multiplexing for all types of supervisory control and data transmission / $300 to $600 / C7

Scientific Data Systems, Inc., 1649 Seventeenth St., Santa Monica, Calif. 90404 / communications systems (computer types) / DESCR: message-switching units / USE: with full-duplex, half-duplex, simplex telegraph or telephone lines / - / C7

Tally Corp., 1310 Mercer St., Seattle, Wash. 98109 / data communication systems / DESCR: paper tape, magnetic tape, card data communication terminals operating over dial-up telephone lines at 60-120 char/sec; automatic error correction routines, including typewriter I-O / USE: plugged into dataphone or equivalent / $20 per month to $300 per month / C7

Transitel International Corp., 615 Winters Ave., Paramus, N.J. 07642 / supervisory control systems / DESCR: solid state supervisory systems for conventional operation or use with a digital control computer; provides digital communication between remote devices and/or processes and a central point / USE: in the gas or water utilities or in any of the process industries / $5000 up / C7

Ultronic Systems Corp., 44 Wall St., New York, N.Y. / character multiplex / DESCR: up to 64 teletype lines on one voice grade line; various code levels and bit rates can be accommodated / - / quote from factory / C7

Ultronic Systems Corp., *a / DATA PUMP® / DESCR: transmission and reception of digital data up to 1200 bits/sec over conventional Schedule 4 telephone lines / - / under $500 / C7

Ultronics Systems Corp., *a / magnetic tape transmission terminal -- Model 3000 / DESCR: allows transmission and reception of magnetic tape data over conventional telephone lines / USE: with paper tape equipment, high speed printers, etc. / under $45,000 / C7

URS Corp. -- see I1

## C8. COMPUTERS

Astrodata, Inc.

The Bunker-Ramo Corp., 277 Park Ave., New York, N.Y. 10017 / digital MIL spec. computer BR-133 / DESCR: general-purpose; extreme ruggedness and reliability / USE: shipboard; military uses - real-time control / - / C8

COMCOR, Inc.

Computer Co. of America, 121 Gill Rd., Haddonfield, N.J. 08033 / the "Compulator" series, desktop computers / DESCR: fully integrated group of desktop computers / USE: business, data or scientific problem solving / $650 to $2500 / C8

Computer International Sales Co.

Control Data Corp. -- see C10

DA-PEX Company, 334 Francis Bldg., Louisville, Ky. 40202 / used computer broker / DESCR: consult and advise with owners to help them obtain the best price when buying or selling used computers and punched card machines / - / - / C8

Digital Equipment Corp., 146 Main St., Maynard, Mass. 01754 / LINC computer / DESCR: small, general purpose digital computer equipped with devices and logical circuits; programs in simplified symbolic language; built-in oscilloscope presents words, numbers, graphical displays of incoming or processed data / USE: biomedical research lab. / $42,000 up / C8

Digital Equipment Corp., *a / LINC-8 / DESCR: combining concepts and operating simplicity of LINC with speed, memory advantages, variety of peripheral devices of PDP-8; including multiplexed analog-to-digital inputs; relay register output provisions; dual digital LINtape transports; integral alphanumeric oscilloscope display / USE: biomedical and environment science research / $38,500 -- full range additional options available / C8

Digital Equipment Corp., *a / PDP-1 computer / DESCR: general purpose, solid state, digital computer; 100,000 additions per sec.; control simultaneously 1 large variety of peripheral devices; single address, single instruction, stored program, 18-bit word length / USE: from scientific on-line experimentation to real time process control / $120,000 up / C8

Digital Equipment Corp., *a / PDP-4 computer / DESCR: general purpose, single address, parallel, binary, 18-bit word length; random access magnetic core memory; cycle time 8 usecs; operates with variety of peripheral devices / USE: from scientific on-line experimentation to real time process control / $60,000 up / C8

Digital Equipment Corp., *a / PDP-5 computer / DESCR: small scale general purpose; one-address, fixed word length, parallel computer using 12 bit, two's complement arithmetic; magnetic core memorey with cycle time of 6 usecs / USE: in larger computer systems / $25,000 up / C8

Digital Equipment Corp., *a / PDP-6 computer / DESCR: medium-sized system; 16 accumulators; 15 index registers; provision for expansion; elements interconnected by busses and operate asynchronously; contains all hardware necessary for time-shared use / USE: very-high

capacity scientific data processing; time sharing / $250,000 up / C8

Digital Equipment Corp., *a / PDP-7 computer / DESCR: high-speed, solid state digital computer; single address, fixed 18-bit word length, binary machine; random access magnetic core memory; cycle time of 1.75 usec; 285,000 additions per sec. / USE: scientific lab; computing center; real-time process control system / $45,000 up / C8

Digital Equipment Corp., *a / PDP-8 computer / DESCR: compact, general-purpose digital computer; high speed, random access, magnetic core memory; binary operations on 12- or 24-bit 2's complement numbers; cycle time 1.6 usec; integrated solid state logic modules / USE: scientific computation, system and control applications, on line data collection and reduction / $18,000 / C8

Digital Equipment Corp. -- see C12

Ferranti Electric, Inc., East Bethpage Rd., Plainview, N.Y. 11803 / ARGUS 400 and 500 computers / DESCR: general purpose and process control, silicon integrated circuitry, full range process input/output devices / - / $45,000 to $60,000 / C8

Scientific Control Corp., 14008 Distribution Way, Dallas, Texas 75234 / computers, general purpose / DESCR: 5 computers ranging from 2 to 5 usec.; fully parallel, indexed operation / USE: scientific and data processing applications, independentally or as integral part of data handling systems through adequate interfacing / $14,800 to $100,000 / C8

Société d'Electronique & D'Automatisme

## C9. COMPUTERS, ANALOG

Burr-Brown Research Corp., 6730 S. Tucson Blvd., Tucson, Ariz. 85706 / analog computer/simulator / DESCR: educational analog simulator and special purpose analog computers / USE: undergraduate instruction in physical sciences and engineering. Also, industrial control and computation / $3000 to $50,000 / C9

COMCOR, Inc.

GPS Instrument Co., Inc., 188 Needham St., Newton, Mass. 02164 / GPS 10,000 analog computer / DESCR: general purpose with hybrid capability, expandable to over 300 computing elements; high speed operation for iterative and statistical computation / USE: general purpose; hybrid / $50,000 up / C9

GPS Instrument Co., Inc., *a / GPS 200T analog computer / DESCR: compact solid state, real-time, compressed time and hybrid operation; based on full output band width to over 1 megacycle per second / USE: general purpose; hybrid / $20,000 to $70,000 / C9

F.B. MacLaren & Co., Inc., 15 Stepar Pl., Huntington Sta., L.I., N.Y., 11746 / analog computers / DESCR: custom designed precision electromechanical systems to perform specific mathematical operations in military and industrial computer applications / USE: data conversion - voltage to position, velocity, voltage, etc. / variable, depending on application / C9

Pastoriza Electronics, Inc., 385 Elliot St., Newton, Mass. 02164 / PAC (Personal Analog Computer) / DESCR: small analog computer for teaching applications; contains two integrators, two multiplexers, one adder, power and patch cords, read-out meter, controls / USE: simulate and solve differential equations / $350 / C9

Perspective, Inc.

Philbrick Researches, Inc., 34 Allied Drive at Route 128, Dedham, Mass. 02026 / analog computing components / DESCR: modular analog computing instruments; amplifiers, multipliers, dividers, integrators, differentiators / USE: research, process control, simulation, active mathematics / $300 up / C9

Reeves Instrument Co., 100 East Gate Blvd, Garden City, N. Y. 11532 / REAC 600 analog computer / DESCR: high speed, solid state, large scale computing system; expandable to powerful hybrid facility / USE: product analysis and systems simulation / varies / C9

Reeves Instrument Co. -- see C14

Simulators, Inc., 1856 Walters Ave., Northbrook, Ill. 60062 / simulation equipment / DESCR: small, medium and large general purpose analog and hybrid computers / USE: simulation, on-line data analysis / $5000 to $150,000 / C9

Systron-Donner Corp., 888 Galindo St., Concord, Calif. 94520 / SD 10/20 analog computer / DESCR: general purpose desk top computer; full ± 100 volt operating range, visual computer circuits on removable problem board, patchable electronic mode control and time scales, expandable to 20 operational amplifiers / USE: teaching and instructional use for engineering and mathematics students; also for simulation and optimization / $6000 to $13000 / C9

Systron-Donner Corp., *a / SD 40/80 analog computer / DESCR: general purpose, desk top ± 100 volt; built-in digital logic, patchable electronic mode control and time scales, expandable up to 84 amplifiers / USE: in research for simulation and optimization of dynamic problems. Also at universities for teaching and instructional use / $14,000 to $75,000 / C9

West Eleven, Inc., 11836 San Vecente Blvd., Los Angeles, Calif. 90049 / Hitachi 303 analog computer / DESCR: low-cost desktop; satellite for large analog computers / USE: high schools; colleges; research laboratories; aid in teaching mathematics, electronics and mechanics; engineering aid in solving small scale problems at high speed / $1400 to $5050 / C9

West Eleven, Inc., *a / Hitachi 505, analog computer / DESCR: low cost, advanced analog computer; highest quality standards; solid state (silicon) 100 V desk-top; modular, 10 amplifiers to 120 amplifiers / USE: high speed simulations and computations by engineer, researcher or scientist / $7300 to $60,000 / C9

## C10. COMPUTERS, DIGITAL

American Bosch Arma Corp., ARMA Div., Roosevelt Field, Garden City, N. Y. 11532 / Micro D computer / DESCR: stored program 13 bit (expandable to 18 bits) serial binary microelectronic computer operating on fractional whole numbers at rates up to 80,000 operations per sec. / USE: aircraft inertial navigation; missile guidance applications / $10,000 to $14,000 ea. in quantity / C10

The Bunker-Ramo Corp., Defense Systems Div., 8433 Fallbrook Ave., Canoga Park, Calif. 91304 / BR-130 (AN/UYK-1) digital computer / DESCR: medium scale; 6 usec read-write cycle; 8K core memory (expandable to 32K); interleaved I/O; real-time interrupts; NTDS compatible / USE: Polaris and Transit navigation systems; range tracking; photo recon interpretation; oceanographic data systems; communications intelligence processing systems / quote on request / C10

The Bunker-Ramo Corp., Defense Systems Div., *a / BR-133 (AN/UYK-3) digital computer / DESCR: general purpose; 1 usec read-write cycle; 16K core memory (expandable to 32K); multilevel priority interrupt; NTDS and mobil OPCON I/O devices compatible / USE: satellite tracking; fire control; simulation; reconnaissance; small ships data handling; air defense; oceanographic applications; automatic mapping / quote on request / C10

The Bunker-Ramo Corp. -- see C8

CAE, 17, Route de la Reine, Boulogne/Seine, France / CAE 90-10 / DESCR: basic cycle: 1.75 μs, large connection with peripheral equipments, integrated circuit / USE: process control and real time / $30,000 to $200,000 / C10

CAE, *a / CAE 90-40 / DESCR: four different possibilities for external connection / USE: real time and scientific applications / $200,000 to $400,000 / C10

CAE, *a / CAE 90-80 / DESCR: specially designed for external connection / USE: real time and scientific applications / $400,000 to $800,000 / C10

Cambridge Thermionic Corp., 445 Concord Ave., Cambridge, Mass. 02138 / digital computer systems / DESCR: designs, develops and manufactures / USE: industrial, commercial and military applications / - / C10

Celestron Associates, Inc. -- see C15

Cognitronics Corp., 549 Pleasantville Rd., Briarcliff Manor, N. Y. / computers / DESCR: full line designed to perform justification and hyphenation decisions and output completed tape for operation of hot and cold type machines / USE: accepts raw punched tape text and outputs tape complete with instructions / $30,000 to $75,000 / C10

Collins Radio Co., Dallas, Tex. 75207 / C-8500 electronic computing system / DESCR: intermediate scale, integrated circuit; 32-bit word, max. 262,000 bytes; 2 usec core storage; overlapped core banks; 32 high-speed I/O channels and 1 multiplex channel / USE: communication; industrial systems / - / C10

Computer Co. of America -- see C8

Computer Control Co., Inc., Old Connecticut Path, Framingham, Mass. / computers, digital / DESCR: real-time, on-line computers featuring monolithic integrated digital logic circuit modules. General or special purpose / - / - / C10

Control Data Corp., 8100 34th Ave. So., Minneapolis, Minn. 55440 / 8090, 160A, 1700, 3000 Series, and 6000 Series computers / DESCR: small, medium, large-scale general purpose digital computer systems; some with time-sharing capabilities; world's largest digital computer; use with variety of peripherals; modular design for expansion / USE: general purpose computations; process control; total management information systems; scientific and engineering computations / $100,000 to $5,000,000 / C10

Control Logic, Inc., 3 Strathmore Rd., Natick, Mass. / special purpose systems / DESCR: special purpose digital data handling, measurement, control, data formatting systems designed to meet specific customer requirements / - / - / C10

Digital Electronics Inc., 2200 Shames Dr., Westbury, N. Y. 11590 / DIGIAC 3080 computer / DESCR: mobile, self contained; solid state machine with printed cards, requires no special maintenance / USE: in computer education / $19,500 / C10

Digital Equipment Corp. -- see C8

Electro-Mechanical Research, Inc., ASI Computer Div., 8001 Bloomington Freeway, Minneapolis, Minn. 55420 / ADVANCE series digital computer systems / DESCR: general purpose digital computers; series includes low-cost 6020, 6040, 6050, and 6070. Machines are program compatible and include full software package / USE: scientific and engineering computation and on-line systems applications / $80,000 to $225,000 / C10

Electro-Mechanical Research, Inc., ASI Computer Div., *a / digital computers / DESCR: small to medium scale, high speed, general purpose; associated peripheral equipment / USE: scientific, engineering, on-line systems application / $30,000 to $500,000 / C10

Engineered Electronics Co., 1441 E. Chestnut St., Santa Ana, Calif. 92702 / custom digital systems / DESCR: will deliver a completely tested system according to customer's requirements / - / subject to negotiation / C10

Ferranti Electric, Inc. -- see C8

Ferranti-Packard Electric Ltd., Industry St., Toronto 15, Ontario, Canada / FP 6000 general purpose digital computer / DESCR: 24-bit; multi-processing memory protection by hardware; 1½ address order code with 7 accumulators to 3 index registers available to each program / USE: special purpose needs through special interfacing equipment / $120,000 to $1,000,000 / C10

Friden, Inc., a subsidiary of The Singer Co., 2350 Washington Ave., San Leandro, Calif. 94577 / 6010 electronic computer / DESCR: fully transistorized, random access core storage; desk-sized; removable program panel; accepts input from punched tape, edge-punched cards, etc. Output: printed document, tape, cards / USE: billing, various accounting applications, statistical quality control, product analysis reports / $19,000 to $20,000 / C10

General Electric Co., Process Computer Business Section, 2255 W. Desert Cove Rd., Phoenix, Ariz. 85002 / computers, digital / DESCR: magnetic core; magnetic bulk memory backup; complete line of peripherals, including process and data communications / USE: real-time process applications for monitoring, logging, operator guide or control / $20,000 to $1,000,000 / C10

General Electric Co., Process Computer Business Section, *a / information processing systems; data communications systems / DESCR: 11 computers from small-scale (GE-115) punched-card processor, with capability for use as remote terminal, to a large-scale, time-sharing computer (GE-645); 12 different data-communications equipments / USE: business, banking, scientific/engineering, education, government / $1375 per month rental and $66,000 purchase to $150,000 per month rental and $7,000,000 purchase / C10

General Instrument Corp., Radio Receptor Div. -- see S9

General Precision, Inc., Kearfott Products Div., 1150 McBride Ave., Little Falls, N. J. 07424 / AN/ASN-24 (V) / DESCR: general purpose digital computer set including variety of input-output signal conversion and control-display modules. Fully qualified to MIL E 5400 Class II. Logistics complement established / USE: real time digital control and processing in manned aircraft (e.g., central navigation in USAF C-141) / - / C10

General Precision Inc., Kearfott Products Div., *a / GPK-10 / DESCR: general purpose microcircuit digital computer; large, internally stored memory is NDRO, electrically alterable; up to 550,000 bits; extensive input-output and computing capacity / USE: real time airborne processing and control / - / C10

General Precision, Inc., Kearfott Products Div., *a / L 90-1 / DESCR: microcircuit digital computer with 5 megahertz serial bit processing; 28 bit data word, up to 16,000 words of memory; large input-output capability; compiler, simulator developed / USE: airborne data processing and control / - / C10

Honeywell Electronic Data Processing, 60 Walnut St., Wellesley Hills, Mass. 02181 / Series 200 computers / DESCR: six models of business data processing systems ranging from small card system to super-powered multi-programming models, including complete array of peripheral equipment / USE: business and scientific data processing applications / $150,000 to $2,500,000 / C10

Honeywell Inc., Industrial Div., 100 Virginia Drive, Fort Washington, Pa. 19034 / H20 digital control system / DESCR: low cost, real-time system with 18-bit word; 1.75 usec. cycle time; parallel I/O channels; 16 priority hardware interrupts; memory protect; parity checking / USE: on line industrial control, laboratory data acquisition, off-line scientific computations / $21,000 to $200,000 / C10

Information Processing Systems, Inc., 200 W. 57th St., New York, N. Y. 10019 / sale of used computer systems / DESCR: brokerage of used computer systems for organizations having purchased equipment and now upgrading to newer machines / - / - / C10

Litton Industries, Data Systems Div., 8000 Woodley Ave., Van Nuys, Calif. 91406 / microelectronic general purpose computer / DESCR: family of micromodular, high speed, militarized, off the shelf general purpose machines; multiprogramming and multiprocessing; user options / USE: general purpose computer applications / $100,000 up / C10

Monroe Computer Systems Division, 550 Central Ave., Orange, N. J. / Monrobot XI / DESCR: desk-size general purpose electronic computer; 2000 word drum memory (optional high capacity storage system provided by magnetic Monro-Card); needs no air-conditioning or special installation / USE: general business accounting; packaged programs for commercial and engineering applications; educational tool in secondary schools and colleges / $24,500 basic operating system / C10

The National Cash Register Co., Main & K Sts., Dayton, Ohio 45409 / NCR 315 RMC computer / DESCR: first commercially available computer to employ all thin film memory; new high speed peripheral units plus floating point logic have been added / USE: for random, sequential, real-time or remote inquiry processing / $300,000 up / C10

The National Cash Register Co., *a / NCR 500 computer / DESCR: ability to communicate in one or a combination of five data processing languages; offers over 20 different types of supporting units / USE: variety of applications, including payroll accounting, bill and charge, sales and inventory analysis / $25,000 to $30,000 / C10

Northrop Corp., Nortronics Div., 2301 W. 120th St., Hawthorne, Calif. / NDC 1050-A militarized airborne digital computer / DESCR: 2048 20-bit word memory, add time 89.5 microseconds, mult. time 835 microseconds, conductively cooled, designed to meet MIL-E-5400 (G) environment / USE: aircraft navigation / C10

Northrop Corp., Nortronics Div., *a / NDC 1051 militarized airborne digital computer / DESCR: 2048 24-bit words (expandable to 8192), add time 8 microseconds, mult. time 72 microseconds, conductively cooled, designed to meet MIL-E-5400 (G) environment / USE: aircraft, space navigation / C10

N.V. Electrologica, 4 Bordewijkstraat, Rijswijk (ZH), The Netherlands / EL X2, EL X4 digital computers and peripherals / DESCR: magnetic core memory 4,096 - 32,768 words of 27 bits excl. one parity-bit; cycle-time 5 mms; time-sharing and interrupt features; floating point arithmetic; backing store possibilities (drums and discs) / USE: general purpose machine / fl 240,000 to max. dependent on desired peripheral equipment / C10

N.V. Electrologica, *a / EL X8 digital computer and peripherals / DESCR: magnetic core memory 16,384 - 262,144 words of 27 bits, excl. one parity bit; cycle-time 2.5 mms; backing store; magnetic drum (524,288 words), disc-storage (23,000,000 words), disc-storage (interchangeable disc-packs, 2,100,000 words/pack); extensive interrupt and time-sharing features; memory protection; floating point arithmetic / USE: general purpose machine / min. fl 1.2 million and up dependent on desired peripheral equipment / C10

Pacific Data Systems, Inc., 1058 E. First St., Santa Ana, Calif. 92107 / PDS 1020 computer / DESCR: general purpose, serial, decimal, internally stored program computer / USE: direct access by engineer or other operator / $21,500 to $25,050 / C10

Philco Corp., Communications & Electronics Div., 3900 Welsh Rd., Willow Grove, Pa. / Philco 2000 / DESCR: general purpose large scale computer series / USE: scientific and business data processing / $250,000 to $2,500,000 / C10

Raytheon Computer, 2700 S. Fairview St., Santa Ana, Calif. 92704 / 520 computer system / DESCR: solid state digital computer; 1 usec main memory; peripheral equipment includes keyboard/CRT display station, disc file, disc pack, drum memory / USE: real-time, hybrid and general purpose scientific and engineering computing / $100,000 to $200,000 / C10

Scientific Data Systems, Inc., 1649 Seventeenth St., Santa Monica, Calif. 90404 / computers, digital / DESCR: 8 general-purpose digital computers: Sigma 7, designed for time-sharing in real-time environments; and the SDS 92, 910, 920, 925, 930, 940, 9300 / USE: scientific and business data processing (real-time; on-line; and interactive time-sharing); digital system control / $30,500 (SDS 92 in minimum useful configuration) to $1 million (large-scale Sigma 7 system) / C10

Spear, Inc., 335 Bear Hill Rd., Waltham, Mass. 02154 / micro-LINC computer / DESCR: general purpose stored program digital computer and data acquisition system; accepts direct analog or digital input, stores data on integral digital tape units; provides analog or digital output / USE: on-line operation in laboratory by those unskilled in computer usage; bio-medical research; clinical applications / $40,000 to $50,000 / C10

Sperry Gyroscope Co., Div. Sperry Rand Corp., Great Neck, N. Y. 11020 / MARK XIV microcircuited computer / DESCR: small, lightweight general purpose computer meeting both MIL-E-5400 and MIL-E-16400 specs. Offers 21 bit word length; 4096 to 8192 word memory; speed of 16,700 multiplies/second/ USE: navigation, fire control and other control applications / under $50,000 / C10

Systems Engineering Laboratories, Inc., P. O. Box 9140, 6901 W. Sunrise Blvd., Fort Lauderdale, Fla. 33310 / digital computers / DESCR: 1.75 usec cycle time, 16 and 24 bit word size, memory expandable from 4K to 32K words / USE: simulators and process controllers / - / C10

Systems Engineering Laboratories, Inc., *a / digital systems / DESCR: low level, high level, slow and high speed digital data acquisition and processing systems / - / $25,000 up / C10

TRW Systems Group, 1 Space Park, Redondo Beach, Calif. 90278 / MARCO 4418 / DESCR: general purpose digital computer; volume 0.3 $ft^3$, weight 32 lbs., power 75 watts; MTBF, greater than 20,000 hrs / - / - / C10

Wang Laboratories, Inc., 836 North St., Tewksbury, Mass. 01876 / LOCI-2, LOgarithmic computing instrument / DESCR: desk-top digital computer computes complex expressions using unique principle of digitally generating logarithms. Programmable. Loops, branches, makes decisions. Results are displayed and/or recorded at electronic speeds / USE: scientific computations / $2750 to $8450 / C10

Wang Labs, Inc. -- see C36, D6

Wyle Laboratories, 128 Maryland St., El Segundo, Calif. 90245 / computers / DESCR: digital, desk-top and rack-mounted, with expandable memories and expandable programmers. Punch card readers, keyboard-display units, other peripherals / USE: scientific and engineering computations. General purpose / $4000 to $15,000 / C10

## C11. COMPUTERS, SPECIAL PURPOSE

Adage, Inc., 1079 Commonwealth Ave., Boston, Mass. 02215 / AMBILOG 200 signal-processing computer / DESCR: analog and digital signal processing under stored-program control via hybrid-arithmetic and logic modules / USE: simulation; on-line data processing / $125,000 to $350,000 / C11

American Bosch Arma Corp., ARMA Div. -- see C10

The Bristol Co., Waterbury, Conn. 06720 / special purpose computers / DESCR: gas flow computers, solid-state and mechanical units; converts volumetric rate of flow measurements to standard conditions / USE: recording or telemetering / $1800 to $6000 / C11

The Bunker-Ramo Corp. -- see C8

Cambridge Thermionic Corp.

Celestron Associates, Inc. -- see C15

Control Data Corp., Government Systems Div., 3101 E. 80th St., Minneapolis, Minn. 55440 / special purpose digital computers / DESCR: design, development and production (including microminiature computers); related equipment for military, aerospace and government applications / USE: fire control; system checkout (automatic); navigation; advanced weapons development and testing / varies / C11

Control Logic, Inc. -- see C10

DI/AN Controls, Inc., 944 Dorchester Ave., Boston, Mass. 02125 / computer keyboard / DESCR: special-purpose digital computer and high-speed keyboard produce clear justified 6-level tape for operating line casters and photo composing machines / USE: newspapers, book publishers, commercial type setting houses / $16,480 to $25,000 / C11

Ferranti Electric, Inc. -- see C8

General Instrument Corp., Radio Receptor Div. -- see C12

General Precision, Inc., Kearfott Products Div., 1150 McBride Ave., Little Falls, N. J. 07424 / DYDAN / DESCR: microcircuit incremental computer with reprogrammable NDRO memory; delay line working storage contains up to 110 dual digital integrators of (nominally) 20-bits each; variable word length / USE: doppler or inertial navigation of aircraft / - / C11

General Precision, Inc., Kearfott Products Div., *a / MINAC (Miniature Navigational Computers) Series / DESCR: navigational computers combining analog and digital computing techniques; compatible with existing Doppler sensors; modular design with built-in self-test feature / USE: real time navigational computation in aircraft / - / C11

HRB-Singer, Inc. -- see I1

George Kelk Ltd., 48 Lesmill Rd., Don Mills, Ontario, Canada / special purpose digital computers / DESCR: produces complete measuring system in connection with an optical scanner / USE: size measurement of steel slabs / $30,000 to $70,000 / C11

Nash and Harrison Ltd., 1355 Wellington St., Ottawa 3, Ont., Canada / digital, process control computers / DESCR: designed around standard modular components; used in conjunction with electronic inspection equipment. Special designs and consulting services quoted on request / USE: wide variety of control applications / $2000 to $10,000 / C11

Philbrick Researches, Inc. -- see C9

Scientific Data Systems, Inc., 1649 Seventeenth St., Santa Monica, Calif. 90404 / computers, special purpose / DESCR: engineering services to adapt SDS general-purpose computers to special-purpose configurations and to integrate SDS computers into custom-designed data systems / USE: spacecraft simulation via analog/digital hybrid system; telemetry data processing; gas pipe line monitoring and on-line control / no charge for system engineering when 80% or more of system price consists of SDS standard products, including SDS computer / C11

Scientific Data Systems, Inc. -- see S9

Spear, Inc., 335 Bear Hill Rd., Waltham, Mass. 02154 / statistical analysis systems or data processing systems / DESCR: special purpose front end designs in combination with micro-LINC general purpose computer to gather and process analog or digital signals for analysis or control / USE: unique scientific research applications / $50,000 to $200,000 / C11

Sperry Gyroscope Co. -- see C10

Technical Measurement Corp., 441 Washington Ave., North Haven, Conn. 06473 / CAT 1000 (Computer of Average Transients) / DESCR: on-line digital computer for statistical analysis / USE: scientific and engineering data -- signal averaging (for signal-to-noise ratio improvement), histogram computations, correlation / $8000 to $15,000 / C11

Technical Measurement Corp., *a / Model 258 correlation computer / DESCR: hybrid for on-line determination of auto- and cross-correlation functions. Used with TMC CAT 1000 / USE: medical research, geophysics, structural analysis, acoustic research, wave propogation studies / $8000 to $15,000 / C11

Technical Measurement Corp., *a / Model 1001 pulse height analyzer / DESCR: 1024-address computer for determining energy, velocity and time distribution spectra through analysis of input pulse amplitudes / USE: primarily nuclear physics and radiochemistry research / $8000 to $15,000 / C11

Technical Measurement Corp., Telemetrics Div., 2830 S. Fairview St., Santa Ana, Calif. 92704 / Model 670 automatic telemetry processor / DESCR: telemetry decommutator operating with computer techniques and having computer capabilities / USE: receives, decommutates and distributes data to many different devices / $120,000 to $190,000 / C11

Texas Instruments Inc., Industrial Products Group, 3609 Buffalo Speedway, Houston, Tex. 77006 / TIAC(TM) system / DESCR: high speed data processing system optimized for processing of field digital data for signal-to-noise improvement / USE: firms engaged in seismic exploration; service firms renting computation services / - / C11

TRW Systems Group, 1 Space Park, Redondo Beach, Calif. 90278 / special purpose computers / DESCR: complete capability for design, development, manufacture of all types; several in early development / - / - / C11

Wyle Labs -- see C10

## C12. COMPUTERS, TEST EQUIPMENT

Computer Control Co., Inc., Old Connecticut Path, Framingham, Mass. / computers, test equipment / DESCR: magnetic and digital test instruments. Generators: pulse current, pulse voltage, digital program (20MC and 5MC). Memory exerciser with 150 n sec cycle time. 65,536 addresses / - / - / C12

Control Data Corp., Government Systems Div., 3101 E. 80th St., Minneapolis, Minn. 55440 / ACE-SC / DESCR: computerized automatic checkout system for Apollo spacecraft systems; design, development, production of checkout systems / USE: identical systems check various subsystems at production sites and after assembled together on launch pad / varies / C12

Digital Equipment Corp., 146 Main St., Maynard, Mass. 01754 / memory test systems / DESCR: single core to automatic testers; memory exercisers to plane testers for coincident current memories or word address memories; other special purpose systems / USE: testing magnetic memory cores, planes, stacks for lab evaluations and production line applications / depends on system / C12

Exact Electronics Inc., 455 S.E. 2nd Ave., Hillsboro, Ore. 97123 / waveform generators / DESCR: electronic instruments of vacuum tube or solid-state design, producing a variety of standard and complex low frequency waveforms / USE: as operational and measuring devices in military, industrial and medical application / $400 to $3000 / C12

General Instrument Corp., Radio Receptor Div., 100 Andrews Rd., Hicksville, N. Y. 11802 / custom designed general support equipment / DESCR: automated test equipment utilizing general purpose or special purpose computer and data gathering devices. Hardware and/or software designed to customer specifications / - / C12

Hickok Electrical Instrument Co., 10514 Dupont Ave., Cleveland, Ohio 44108 / DMS-3200 digital measuring system / DESCR: digital display of electrical parameters as determined by plug-in selection -- DC voltage, Imc. counter, ohmmeter, capacity meter / USE: circuit testing of potentials, components, and timing circuits / $400 to $520 / C12

Honeywell, Inc., Electronic Data Processing Div., 60 Walnut St., Wellesley Hills, Mass. 02181 / memory tester / DESCR: automatic testing of computer memories, as planes or stacks / USE: quality assurance testing / $80,000 to $100,000 / C12

George Kelk Ltd. -- see C11

TRW Systems Group, 1 Space Park, Redondo Beach, Calif. 90278 / computer test equipment / DESCR: present equipment available for standard line computers; capabilities for building test equipment for all computer systems / - / - / C12

Wyle Labs -- see C10

## C13. COMPUTER COMPONENTS (SEE ALSO SPECIFIC TYPES)

Astrodata, Inc.

The Bunker-Ramo Corp., 277 Park Ave., New York, N. Y. 10017 / thin-film circuits / DESCR: integrated; packaged to customer's specs. by a proprietary process / USE: military; aerospace; commercial products / on application / C13

Cambridge Thermionic Corp., 445 Concord Ave., Cambridge, Mass. 02138 / digital logic modules / DESCR: 100 KC germanium lines and 2MC silicon line, both have same pin configuration. A 10MC integrated circuit logic module line also available / USE: industrial, commercial and military applications / $2.50 to $40.00 / C13

COMCOR, Inc.

Computer Control Co., Inc., Old Connecticut Path, Framingham, Mass. / computers, components / DESCR: wide variety digital circuit modules, magnetic core memories, magnetic and digital test instruments / - / - / C13

Consolidated Electrodynamics Corp., 360 Sierra Madre Villa, Pasadena, Calif. 91109 / analog computer function modules / DESCR: encapsulated modules / USE: computers constructed from these modules solve arithmetic and algebraic problems, control and simulate processes, and perform many other functions / - / C 13

Control Logic, Inc. -- see C6 and C10

DI/AN Controls, Inc., 944 Dorchester Ave., Boston, Mass. 02125 / aerospace systems / DESCR: aerospace qualified digital magnetic control systems include: memories, clocks, timers, velocity meter counters, intervalometers, logic modules, telemetry counters / USE: data storage and control aboard satellites and space vehicles / $1000 - $20,000 / C13

General Electric Co., Electronic Components Sales Operation

General Instrument Corp., Radio Receptor Div. -- see S9

Honeywell, Inc., Electronic Data Processing Div. -- see P9, P15, R9, S5, T1

International Diode Corp., 90 Forrest St., Jersey City, N. J. 07304 / alloy junction switching diodes / DESCR: hermetically sealed glass package D07 and smaller; super-speed switching combined with high forward current / USE: digital computers, voltmeters, coupling with tunnel diodes in coincidence circuits / $.45 to $2.65 / C13

International Rectifier, 233 Kansas St., El Segundo, Calif. 90246 / silicon controlled rectifiers / DESCR: 3 terminal, 4-layer solid-state devices for control amplification of a-c power or a-c to d-c conversion / USE: controlling firing point on a-c phase cycle / $1.50 to $500 / C13

International Resistance Co., Inc. (IRC), 401 N. Broad St., Philadelphia, Pa. 19108 / computer components / DESCR: resistors, precision potentiometer and trimmers, zener diodes / - / - / C13

Litton Industries, Data Systems Div., 8000 Woodley Ave., Van Nuys, Calif. 91406 / display / DESCR: modular display consoles with microminiatured electronics for ultra reliability; militarized; user options / USE: computer output display / $75,000 up / C13

Litton Industries, Data Systems Div., *a / microelectronic power supply / DESCR: various voltage and power ratings; militarized off the shelf ultra high reliability / USE: avionic; computers and related input/output equipment / $1000 to $1500 / C13

Litton Industries, Triad Distributor Div. -- see T14

Litton Industries, Winchester Electronics Div.

Lockheed Electronics Co., 6201 E. Randolph St., Los Angeles, Calif. / position transducer / DESCR: standard units measure displacement from 1" to 150"; designed around an infinite resolution potentiometer which is actuated through a precision spring motor / USE: measurement of position or displacement / $200 to $350 / C13

Lockheed Electronics Co. -- see C5

Motorola Semiconductor Products, Inc., 5005 E. McDowell Rd., Phoenix, Ariz. 85008 / computer components / DESCR: semiconductor devices: germanium and silicon transistors; silicon rectifiers and diodes; thyristors; rectifier assemblies; integrated circuits / USE: electronic circuits / 20 ¢ to $75 / C13

Nexus Research Laboratory, Inc.

PAKTRON Div. Illinois Tool Works Inc., 1321 Leslie Ave., Alexandria, Va. 22301 / capacitors / DESCR: MYLAR, polycarbonate, metalized mylar, miniature capacitors / USE: circuit component / variable / C13

Rotron Mfg. Co., Inc., Hasbrouck Lane, Woodstock, N. Y. 12498 / cooling devices and air sources / DESCR: cooling devices and high pressure/vacuum air sources specifically designed for the computer industry / USE: cooling electronic circuits and provide air sources for tape control, fluidic power supplies, tape air bearings, etc. / $3.95 to $185 / C13

Sage Electronics Corp., Box 3926, Rochester, N. Y. 14610 / Resistors / DESCR: miniature precision wirewound power resistors / - / - / C13

Scientific Data Systems, Inc., 1649 Seventeenth St., Santa Monica, Calif. 90404 / computer components / DESCR: complete range of peripheral devices, memories, analog/digital instrumentation / USE: digital computer systems / - / C13

Scientific Data Systems, Inc., *a / multiplexers, analog / DESCR: models with from 2 to 256 channels / USE: to switch a number of analog inputs into a single output, generally under digital control / $400 to $4000 / C13

Lear Siegler, Inc., Power Equipment Div., P. O. Box 6719, Cleveland, Ohio 44101 / clutch and/or brake / DESCR: stationary coil magnetic particle module. Can be used as either a clutch or brake. Models with torque range up to 80 lb. in. Time to reach rated torque as low as 2 milliseconds. Smooth, noise-free engagement. Maintenance-free, long-life with consistant performance independent of normal environmental range / USE: clutch or brake mounted directly on actuated shaft / $40 to $70 / C13

Société d'Electronique & D'Automatisme

Westinghouse Electric Corp., Electronic & Specialty Products Group

Wyle Labs -- see C5

## C14. COMPUTING SERVICES

Automated Data Processing Services, Inc.

Booz, Allen Applied Research, Inc., 135 S. LaSalle St., Chicago, Ill. / scientific and technical services / DESCR: computer and hardware systems design, installation management, computer feasibility, applications, systems analysis, software design, information retrieval systems, scientific computation / - / - / C14

The Bunker-Ramo Corp., 277 Park Ave., New York, N. Y. 10017 / TeleCenter services / DESCR: on-line, off-line data processing; processor, data storage, communications, input/output equipment on customer's premises tailored to his requirements / USE: storage, updating, retrieval of any data subject to continuous change and frequent inquiry / $100 per mo. to $35,000 per mo. / C14

Computer Advisors to Management (CAM), Div. of Statistical Tabulating Corp., 104 S. Michigan Ave., Chicago, Ill. 60603 / Professional counseling in economic evaluation and application of data-processing and computer systems / DESCR: provides full line of advisory services from feasibility studies to systems design, equipment selection and personnel indoctrination / - / C14

Computer Applications Inc., 555 Madison Ave., New York, N. Y. 10022 / computer services, consulting / DESCR: programming systems, data processing applications, scientific and engineering applications, systems engineering, real-time applications, project management, data processing service centers / USE: business, institutional, government, military / - / C14

Computer Associates, Inc.

Computer Fulfillment, 225 East St., Winchester, Mass. 01890 / computing services / DESCR: subscription fulfillment; circulation; file maintenance and analyses; reader inquiry processing; consulting / USE: publishing industry / - / C14

Computing & Software, TSI Div., 8155 Van Nuys Blvd., Panorama City, Calif. 91402 / computing services / DESCR: complete data processing and data reduction services including electronic equipment operation and maintenance, data analysis, facilities planning, and associated software and program development services / USE: at data centers in Los Angeles and at Government locations / C14

Control Data Corp., Data Centers Div., 8100 34th Ave. So., Minneapolis, Minn. 55440 / digital computing service / DESCR: programming and processing services; Nationwide chain of data centers; computers ranging from small digital systems to large-scale systems; dataphone and remote services / - / on request / C14

Control Technology, Inc., 1232 Belmont Ave., Long Beach, Calif. 90804 / computing services / DESCR: digital, analog and hybrid; software, machine rental; simulation studies / - / - / C14

Cybertype Corp. -- see C15

DA-PEX Company -- see C8

Data-Mat, Div. of Statistical Tabulating Corp., 104 S. Michigan Ave., Chicago, Ill. 60603 / eight data-processing and computer service centers / DESCR: "come-in-and-do-it-yourself" service; customer selects equipment and operates it himself / hourly rates or on contract basis / C14

Decision Systems Inc.

Design Automation, Inc., 4 Tyler Rd., Lexington, Mass. 02173 / computer analysis of electronic circuit performance / DESCR: computer calculation of nonlinear DC, nonlinear transient and linear sinusoidal frequency response of any electronic circuit, with any parts values, and any signals applied / USE: design review analysis / $150 and up / C14

Informatics, Inc., 5430 Van Nuys Blvd., Sherman Oaks, Calif. 91401 / computing services / DESCR: specializing in the design, analysis, programming and implementation of computer-based systems / USE: government and industry / - / C14

Information International Inc., 200 Sixth St., Cambridge, Mass. 02142 / automatic film reading service / DESCR: accept customer film for reading; magnetic tape output. Will develop program if required; system rental available (special rates for universities) / USE: service center for automatic film reading / $200/hour, rental / C14

ITT Data Services, a division of International Telephone and Telegraph Corp., P. O. Box 402, Paramus, N. J. / data processing services / DESCR: full range of scientific and commercial data processing services, including programming, computational services and data center management / - / - / C14

Keystone Computer Associates, Inc. -- see F12

Litton Systems, Inc., Mellonics Systems Development Div., 1001 W. Maude Ave., Sunnyvale, Calif. 94086 / system design tools / DESCR: general-purpose digital computer programs used to simulate and evaluate complex satellite, command and control, transportation, information management and industrial process control systems / USE: optimization of system design prior to procurement / $5000 to $50,000 / C14

Management Systems Corp., 209 Griffin St., Dallas, Tex. 75202 / computing services / DESCR: turn-key computing

from problem definition to system and report design and preparation; facilities for client programming, testing and processing on hourly computer usage / - / - / C14

McDonnell Automation Center, Box 516, St. Louis, Mo. 63166 / computing services / DESCR: over $25 million worth of data processing and computing equipment allows efficient handling of one time or continuous large or small jobs / - / - / C14

Monroe Data Processing Inc., 550 Central Ave., Orange, N. J. / data processing computing service / DESCR: process all paperwork for business accounting; comparative analyses for management; also, DATATAX, a computerized income tax service; raw or coded information processed and returned within a week / USE: accountants, or firms who have a staff accountant; management / variable / C14

National Computer Analysts, U. S. Highway 1, Lynwood Drive, Princeton, N. J. 08540 / computing services / DESCR; processing of clients data for banks; book composition of directories and dictionaries; payroll; hospital packages / - / - / C14

National Physical Laboratory, Mathematics Div., Teddington, Middx, England / digital computing service / DESCR: specialists in numerical analysis, including problems in applied mathematics and theoretical physics; data processing / - / - / C14

Philbrick Researches, Inc., 34 Allied Drive at Route 128, Dedham, Mass. 02026 / computing services / DESCR: large scale, high-speed repetitive analog computer with experienced operator / USE: available by the hour / $25 to $50 per hour / C14

Programming & Systems, Inc., 33 W. 42nd St., New York, N. Y. 10036 / consulting and computer service / DESCR: specializing in total applications from daily invoicing on / USE: all areas involved in EDP / - / C14

Randolph Computer Corp., 200 Park Ave., New York, N. Y. 10017 / short term leasing of IBM's System/360 equipment / DESCR: acquiring and leasing EDP equipment; rental charges lower than manufacturer; initial terms usually fall between 2 to 4 years; service on equipment performed by manufacturer; no charge for overtime usage / USE: alternative to user purchasing his equipment or renting directly from IBM / rental reduction 10%-15% and in many cases higher / C14

Reeves Instrument Co., 100 East Gate Blvd., Garden City, N. Y. 11532 / computation center / DESCR: complete hybrid facility for scientific computation / USE: for product analysis and systems simulation interfaced with a digital computer / depends on application / C14

Reeves Instrument Co. -- see C9

The Service Bureau Corp.

Statistical Tabulating Corp., 104 S. Michigan Ave., Chicago, Ill. 60603 / independent data-processing and computer service with nine centers located in principal cities / DESCR: IBM 1400 series card and tape; Systems/360 and Honeywell H200 tape; peripheral equipment. All phases of management control and reporting for industry, business, science and government / - / C14

Task Force, Div. of Statistical Tabulating Corp., 104 S. Michigan Ave., Chicago, Ill. 60603 / temporary personnel service; (nineteen offices in principal cities) / DESCR: offers specialized data-processing and computer personnel for temporary service -- key-punch, computer and data-processing operators; programmers; methods engineers; systems analysts and mathematicians / - / C14

Telecomputations, Inc.

Merle Thomas Corp. -- see C15

U. S. Navy Marine Engineering Lab., Computer Div., Annapolis, Md. 21402 / computing services / DESCR: Equipment: IBM 360/G40; computer-oriented mathematical systems studies related to the development of advanced naval shipboard machinery, consultation, programming and data processing services / - / - / C14

URS Corp., 1811 Trousdale Drive, Burlingame, Calif. 94011 / computing services / DESCR: any system or application involving utilization and programming of electronic digital computer systems / - / - / C14

Westinghouse Electric Corp., Advanced Data Systems

Wolf Research & Development Corp., P. O. Box 36, Baker Ave., West Concord, Mass. 01781 / computing services / DESCR: digital computer operations, business and scientific programming, engineering analysis; applications in data reduction, data storage, retrieval, computer displays, computer communications; in-house H-200, CDC-G-15D, Whirlwind I / - / - / C14

## C15. CONSULTING SERVICES

Advance Data Systems, 9261 W. Third St., Beverly Hills, Calif. 90213 / revenue control systems / DESCR: computer based systems for automatic collection of money and tickets involving computers, ticket readers, gates, fare vendors, money handling equipment / USE: automatic revenue collection in public transportation, distribution and entertainment fields, / varies / C15

Applied Data Research, Inc., Route 206 Center, Princeton, N. J. 08540 / management information controls / DESCR: evaluation of data processing system needs and equipment selection; review evaluation of existing installations / USE: computer users / - / C15

Auerbach Corp., 121 N. Broad St., Philadelphia, Pa. 19107 / EDP consulting services / DESCR: design, implementation of integrated data processing systems; computer system effectiveness evaluation; reliability studies; installation evaluation, recommendation; feasibility studies; programming; scientific, technical information studies / USE: management / - / C15

Booz, Allen Applied Research, Inc. -- see C14

Booz, Allen & Hamilton, Inc., 135 S. LaSalle St., Chicago, Ill. / management consulting / DESCR: feasibility studies, system design, equipment selection, implementation, systems conversion, EDP audit and review / USE: industry; commerce; banking; government; institutions / - / C15

Brandon Applied Systems, Inc., 30 E. 42nd St., 10017 / consulting services / DESCR: complete range of consulting services in data processing, including systems design, o.r. audits of installations, computer selection, feasibility analysis and implementation guidance / USE: by organizations desiring temporary highly experienced technical assistance / $80 to $275 per day / C15

Celestron Associates, Inc., 4 Broadway, Valhalla, N. Y. 10595 / EDP software scientific & business / DESCR: consulting; programming/analysis services; software; applications; design automation; automatic program translation (X-ACT System); debugging aids; automatic segmentation for multi programming / - / C15

Computer Advisors to Management (CAM), Div. of Statistical Tabulating Corp. -- see C14

Computer Applications Inc. -- see C14

Computer Associates, Inc.

Computer Fulfillment -- see C14

Computer Sciences Corp.

Control Data Corp., Control Systems Div., 4455 Miramar Rd., La Jolla, Calif. 92037 / consulting services / DESCR: electronic data processing and systems design consulting services of all kinds / - / request / C15

Control Technology, Inc., 1232 Belmont Ave., Long Beach, Calif. 90804 / consulting services / DESCR: on-line control systems; hybrid simulation; digital computer software / - / $10 per hr. to $30 per hr. / C15

Cybertype Corp., 80 Fifth Ave., New York, N. Y. 10011 / consultants and engineers / DESCR: supplying computer systems, applications, programs and data processing / - / - / C15

DA-PEX Company -- see C8

Data Systems Analysts, Inc.

Design Automation, Inc., 4 Tyler Rd., Lexington, Mass. 02173 / electronics consulting / DESCR: design review of electronic equipment and circuits; consulting on design of electronic circuits and equipment / USE: to assure design will meet requirements / $15/hr. to $30/hr. / C15

Ebasco Services, Inc., 2 Rector St., New York, N. Y. 10006 / consulting and engineering services / DESCR: systems analysis and design; commercial, scientific, engineering, EDP applications; data communications; feasability studies; plant automation; data processing and computing services / - / - / C15

Electronic Administrative Services, Inc.

Electronic Management, Computerology Corp. ($EMC^2$), 6900 Wisconsin Ave., Washington, D. C. 20015 / military and civilian command and control / DESCR: long range planning and prediction of functionally encompassing systems / USE: decision making for implementation and systems designs / - / C15

Entelek, Inc. -- see E2

Floating Floors, Inc., (subsidiary of National Lead Co.) -- see F2

H. J. Gruy & Associates, Inc., 2501 Cedar Springs Rd., Dallas, Tex. 75201 / petroleum engineering consulting / DESCR: methematical reservoir model simulation and computer application to all types of petroleum engineering problems, including geophysical mapping with X-Y plotter / USE: petroleum exploration, development, refining, producing / C15

HRB-Singer, Inc. -- see I1

Informatics, Inc., 5430 Van Nuys Blvd., Sherman Oaks, Calif. 91401 / consulting services / DESCR: specialists in design, analysis, documentation and implementation of: System 360, on-line systems, message switching, PERT, PL/1, file management, command/control, synthetic intelligence / - / - / C15

Information International Inc. -- see P12

Information Processing Systems, Inc., 200 W. 57th St., New York, N. Y. 10019 / consulting services / DESCR: purchases and sales of computer systems; appraisals of value of systems owned by users / - / - / C15

Infotran, Inc., 860 Fifth Ave., New York, N. Y. 10021 / consulting services / DESCR: special purpose computers, data communications, control systems; planning, design and development of total information systems; new product development; educational services / - / - / C15

Innovation Consultants, Inc., 4 E. State St., Doylestown, Pa. 18901 / management consulting / DESCR: assistance in planning enlarged or new computer applications; cost effectiveness studies on alternatives; network scheduling / - / per diem / C15

Jonker Corp. -- see D3, P13

Jonker Corp., 26 N. Summit Ave., Gaithersburg, Md. 20760 / information retrieval systems consulting / DESCR: design of information and data retrieval systems including forms design, vocabulary development, input/output procedures and index training / USE: to setup a total information/data retrieval program / $200 per day, travel and living expenses / C15

Keystone Computer Associates, Inc. -- see P12

Kyros Corp., P. O. 406, Madison, Wis. / consulting services / DESCR: plastics; chemical photography, high speed recording, optical computer tapes; ball point inks, marking fluids; specialty solvents, paint-removers; encapsulation of inks, adhesives, etc.; visual developers for computer tape; sensing and alarm systems for natural gas, etc. / USE: computer industry / $10 to $15/hr. / C15

Liskey Aluminum, Inc., Box 580, Glen Burnie, Md. 21061 / computer facilities design / DESCR: design and engineering services for planning and supplying computer room flooring, air conditioning and partitioning / - / - / C15

Management Systems Corp., 209 Griffin St., Dallas, Tex. 75202 / consulting services / DESCR: installation evaluation and management; feasibility studies; equipment selection; systems design; software development; personnel evaluation and selection / - / $15 and $35/per net hr. / C15

McDonnell Automation Center, Box 516, St. Louis, Mo. 63166 / consulting services / DESCR: complete automation service center, offering consulting and systems analysis for administrative and scientific applications / USE: data processing problem solving for industry, science and government / - / C15

Ray Myers Corp., 1302 E. Main St., Endicott, N. Y. 13760 / consulting services / DESCR: systems development and production programs / - / - / C15

Nash and Harrison Ltd. -- see C11

National Computer Analysts, U. S. Highway 1, Lynwood Dr., Princeton, N. J. 08540 / consulting services / DESCR: software planning (assemblers, compilers), message switching systems, commercial systems (payroll, inventory, management information), print composition systems (newspaper, books) / - / - / C15

Simon M. Newman, 1411 Hopkins St., N. W., Washington, D. C. 20036 / consulting service, documentation / DESCR: indexing and information retrieval, including application of automation to retrieval problems / - / $250 per day + expenses / C15

Profimatics, Inc.

Programmatics Inc., 12011 San Vicente Blvd., Los Angeles, Calif. 90049 / consulting services / DESCR: systems analysis and design, feasibility studies, management control systems, software design / - / - / C15

Programming Services, Inc.

Programming & Systems, Inc. -- see C14

Randolph Computer Corp. -- see C14

B. I. Savage Co., 1340 Commonwealth Ave., Boston, Mass. 02134 / consultant / DESCR: consulting services: programming --scientific and commercial; software systems development; real-time and control systems; displays and graphics; systems analysis / USE: help client with expertise or reduce his overload / - / C15

Systems Science Corp., 1104 Spring St., Silver Spring, Md.; 400 E. Third St., Bloomington, Ind. 47403 / consulting services / DESCR: specialists in real time, on-line automation of police activities; perform feasibility studies; development of hardware specifications; systems and applications; software design and programming / - / - / C15

Merle Thomas Corp., State National Bank Bldg., Suite 410, 10400 Connecticut Ave., Kensington, Md.

20795 / ADP management consultants / DESCR: application of automatic data processing to business systems; engineering applications; feasibility studies; computer center / USE: business; industry; government / - / C15
URS Corp. -- see C14, I1, 02
Westinghouse Electric Corp., Advanced Data Systems
Westinghouse Electric Corp., Electronic & Specialty Products Group
Wolf Research & Development Corp., P. O. Box 36, Baker Ave., West Concord, Mass. 91781 / consulting services / DESCR: computer and programming specialists; management analysts; applied mathematicians; physical scientists; engineers. Computer systems and applications; information systems; technical and business management; operational analysis; telemetry; data processing; scientific and engineering analysis / - / - / C15

C16. CONTROLS

General Atronics Corp. -- see C1
General Electric Co., Electronic Components Sales Operation
MICRO SWITCH, a Div. of Honeywell, 11 W. Spring St., Freeport, Ill. 61032 / controls / DESCR: Coordinated Manual Controls (CMC) multi-light, multi-circuit control devices comprised of 2¼" sq. indicator, pushbutton, selector, and selector-push units / USE: provide remote control of process operations and illuminated status feedback in data processing / - / C16
Robertshaw Controls Co., Aeronautical & Instrument Div., Santa Ana Freeway @ Euclid St., Anaheim, Calif. 92603 / automatic controls / DESCR: complete control systems; systems engineering available for one or a thousand process loops; direct digital devices offered / USE: complete automation of industrial processes / varies / C16
Scientific Data Systems, Inc. -- see C13
Waber Electronics, Inc.

C17. CONTROLS, AUTOMATIC

API Instruments Co., 7100 Wilson Mills Rd., Chesterland, Ohio 44026 / self-contained controllers, indicating panel meters / DESCR: actuated by direct unamplified signals, act as stable reference points for electronic circuitry that tends to drift / USE: to signal a deviation in computing equipment from a scheduled method of operation and to rigger corrective action when necessary / $25 to $200 / C17
Bendix Corp., Industrial Controls Div., 8880 Hubbell Ave., Detroit, Mich. / Dynapath / DESCR: a numerical control system providing continuous path control of machine tools from a punched tape input / USE: with machine tools / $35,000 to $90,000 / C17
Consolidated Electrodynamics Corp., 360 Sierra Madre Villa, Pasadena, Calif. 91109 / automatic control equipment / DESCR: includes chromatographs, moisture monitors, mass spectrometers, residual gas analyzers, recorders, and other instruments / USE: for controlling various chemical and petrochemical processes / - / C17
Control Equipment Corp., 19 Kearney Rd., Needham Heights, Mass. 02194 / electronic memory wheel / DESCR: "turns" in synchronism with pi ressive assembly machines and conveyor systems / - / $3000 to $6000 / C17
General Atronics Corp. -- see C1
Hagan Controls Corp., 250 Mt. Lebanon Blvd., Pittsburgh, Pa. 15228 / automatic controls / DESCR: systems for all types of boilers, furnaces, and industrial processes; transistorized and magnetic amplifier type components are used / USE: control systems engineered for specific applications / varies with system / C17
Leeds & Northrup Co., Sumneytown Pike, North Wales, Pa. 19454 / LN 4200 computer control system / DESCR: system includes I/O, peripheral equipment, computer mainframe, auxiliary memory, control programs, as well as human engineered man/machine and man/process interface / USE: digitally directed analog control of all industrial processes and supervisory control / $200,000 to $300,000 / C17
Leeds & Northrup Co., *a / LN 4200 direct digital control / DESCR: system includes I/O, peripheral equipment, computer mainframe, auxiliary memory, control programs and human engineered man/machine and man/process interface / USE: direct digital control of all industrial processes / $150,000 to $250,000 / C17
Magnetics Inc., Butler, Pa. 16001 / 412-285-4711 / isolation amplifier / DESCR: linear, push-pull magnetic amplifier, reversible dc voltage output, powered by 3 KC square wave inverter. Fast response, excellent stability and sensitivity. Signal input isolated from output / USE: provide isolation for mv or voltage signals at high potential or remotely located to be fed into computers or other instruments / $150 to $250 / C17
Philco Corp., Communications & Electronics Div., 3900 Welsh Rd., Willow Grove, Pa. / Philco industrial control systems / DESCR: monitors production lines, records production counts, downtime, rejects, alarms and displays in case of deviation from standards / USE: on-line production control / $20,000 to $1,200,000 / C17
Robertshaw Controls Co., Aeronautical & Instrument Div. -- see C16
Transitel International Corp. -- see C7
Waber Electronics, Inc.

C18. CONTROLS, SORTING AND COUNTING

Control Equipment Corp. -- see C17
Davidson Electronic Development Co., 2211 Peninsula Dr., Erie, Pa. 16505 / component parameter controllers/testers / DESCR: over 4,000/hour automation for testing various electronic components. Also high speed (40,000/Hr.) for resistors / USE: manufacturing and testing / $2000 to $50,000 / C18
General Atronics Corp. -- see C1
Nash and Harrison Ltd. -- see C11

C19. CONVERTERS, INFORMATION

Burr-Brown Research Corp., 6730 S. Tucson Blvd., Tucson, Ariz. 85706 / sample and hold units / DESCR: track analog signal and at command, hold or store the instantaneous value of an analog signal for sufficient time to record or convert the data to digital form / USE: interface between analog and digital circuits / $3000 to $50,000 / C19
Data Products Corp. -- see P8
Discon Corp., 4250 NW 10th Ave., Fort Lauderdale, Fla. 33309 / binary to decimal converter / DESCR: rack mounted solid state unit converts 19 bit binary or gray code to decimal display in degrees, minutes, seconds / USE: readout for shaft angle encoders / $8000 to $12,000 / C19
Electronic Engineering Co. of Calif., P. O. Box 58, Santa Ana, Calif. 92702 / EECO 751 format control buffer / DESCR: provides conversion buffering and format control to prepare blocked computer tapes from analog and asynchronous digital data / - / $20,000 to $40,000 / C19
General Electric Co., Process Computer Business Section
Giannini Scientific Corp., Flight Research Div., P. O. Box 1-F, Richmond, Va., 23201 / Mem-O-Tizer (shaft encoder) / DESCR: contains memory and high power output (200 watt) to allow direct recording of numerical data; low breakaway torque .003 inch/ounces allows installation directly to weighing systems / USE: weighing systems to provide electrical data as to automatic and computer controlled systems / $500 to $700 / C19
Straza Industries, 790 Greenfield Drive, El Cajon, Calif. 92021 / Mod. 11-64 symbol generator / DESCR: solid state character generator; 240 points resolution/char., 64 characters; 100,000 char/sec., 16 dots/char. on 15 x 16 matrix; handwired, programmed character modules / USE: input from computer; output to display / $8860 / C19
Straza Industries, *a / Mod. 14-64 symbol generator / DESCR: solid state character generator; 1000 points resolution/char., 63 characters; 200,000 characters/sec., stroke characters; 2 sizes, interchangeable character modules / USE: input from computer; output to display / $6150 / C19
Texas Instruments Inc., Industrial Products Group, 3609 Buffalo Speedway, Houston, Tex. 77006 / data acquisition equipment / DESCR: A-D, D-A converters and multiplexers for high-speed, high-accuracy data processing / USE: industrial, military data processing applications / - / C19
Trak Electronics Co., Inc., 59 Danbury Rd., Wilton, Conn. 06897 / DIGI-STORE asynchronous magnetic tape read-write unit / DESCR: bi-directional, read/write mode, asynchronous speeds to 333 char/sec. (3330 wpm); functional replacement for paper tape punch and tape reader; parallel-to-serial or serial-to-parallel logic; modular construction permits variety of configurations / USE: input/output; data recorder; message storage; editing system / $3300 up / C19

C20. CONVERTERS, INFORMATION, ANALOG TO DIGITAL

Adage, Inc., 1079 Commonwealth Ave., Boston, Mass. 02215 / VOLDICON voltage digitizers / DESCR: analog-to-digital converters; 10khz to 1 mhz word rate, 11- to 15-bit resolution, binary or BCD output, 1 to 100 volt input / - / $3500 to $7000 / C20
Burr-Brown Research Corp. -- see C19
CAE Industries Ltd., P. O. Box 6166, Montreal 3, Quebec, Canada / telepath A/D converters / DESCR: convert low and high level analog input to a digital equivalent in binary or telegraph codes; scanner available to sample multiple inputs / USE: interface between analog input to digital input for on-line or direct read-out / $1500 to $2500 / C20
Clifton Precision Products, Div. of Litton Industries
Control Data Corp.
Control Equipment Corp., 19 Kearney Rd., Needham Heights, Mass. 02194 / Series 3030 A/D converters / DESCR: solid-state; ± 0.1% accuracy and stability; conversion rates to 40Kc; automatic bipolar operation; 1-volt, 10-volt, 100-volt ranges; 10 binary bits plus sign, or 3 decimal digits plus sign / - / $1500 to $3000 / C20
Digital Electronics Inc., 2200 Shames Drive, Westbury, N. Y. 11590 / analog to digital converters / DESCR: all solid state circuitry; internal power supply / USE: general laboratory, on line data processing and educational applications / $225 to $995 / C20
Discon Corp., 4250 NW 10th Ave., Fort Lauderdale, Fla. 33309 / digital scanner and converter / DESCR: photo-electrically senses readout of dial pointer instrument and translates into digital format for computer or control system input / USE: functions in combination with precision dial-pointer instrument as a digital transducer / $2000 to $3000 / C20
Electronic Development Corp., 423 West Broadway, So. Boston, Mass. 02127 / voltage digitizers / DESCR: voltage to digital converters (decimal and binary); 20,000 complete measurements per second. Digital comparitor function (limit testing), serializer function and verification built in / USE: data acquisition, alarm scanning to computer, or magnetic tape, or paper tape, etc. / $3485 to $4485 / C20
Electronic Engineering Co. of Calif., P. O. Box 58, Santa Ana, Calif. 92702 / EECO 760 analog to digital converter / DESCR: up to 14 bits binary or 4 BCD digits and sign at conversion speeds of 33,000 per second / - / $2500 to $3700 / C20
Electronic Engineering Co. of Calif., *a / EECO 761 analog to digital converter / DESCR: up to 11 bits binary or 3 BCD digits at conversion speeds of 12,000 per second. Sample and hold - 100 megohm input / - / $1500 to $2000 / C20
Electronic Engineering Co. of Calif., *a / EECO 762 multichannel ADC / DESCR: up to 100 analog channels input and 4 decimal digits output in a single chassis / - / $3300 to $4600 / C20
Encoder Div., Litton Precision Products, Inc., 7942 Woodley Ave., Van Nuys, Calif. 91406 / shaft to digital encoders / DESCR: optical, magnetic and contact encoders for digitizing a shaft position; output codes include self-decoded, binary, BCD, gray and V-Scan binary / USE: converting shaft position to digital format for transmission, recording or computer operation / $300 to $10,000 / C20
General Precision, Inc., Kearfott Products Div., 1150 McBride Ave., Little Falls, N. J. 07424 / ADAC® / DESCR: size 11 and 18 direct-drive analog to digital code converters in binary, Gray, binary decimal, cyclic binary decimal or excess 3 codes; with or without logic diodes / USE: A-D conversion in computer servos and system modules / - / C20
Giannini Scientific Corp., Flight Research Div. -- see C19
International Electronic Research Corp., 135 W. Magnolia Blvd., Burbank, Calif. 91502 / digital voltmeter / DESCR: analog-to-digital voltmeter using as reference source with inductive digital potentiometer / USE: digital display or programmer reading of a DC voltage level of 10 uvolt to 1000 volts / - / C20
George Kelk Ltd., 48 Lesmill Rd., Don Mills, Ontario, Canada / pulse tachometer / DESCR: Moire fringe optical system to give any number of pulses up to 5000 per revolution / USE: in connection with counting type circuits / $1000 to $1500 / C20
George Kelk Ltd., *a / shaft encoder / DESCR: input is a shaft rotation, 10-100 turns for full scale output (0-999 or 0-999, at substantial power level) / USE: sensing machine settings, such as rolling mill screw downs / $2000 to $4000 / C20
North Atlantic Industries, Inc., 200 Terminal Drive, Plainview, N. Y. 11803 / resolver or synchro to digital converter / DESCR: automatically converts resolver or synchro data to digital data with resolution and accuracy to 19 bits / USE: for age, for closed loop systems / $6000 to $50,000 / C20
Pastoriza Electronics, Inc., 385 Elliot St., Newton, Mass. 02164 / ADC 10 IC / DESCR: analog to

digital converter contained on single card using integrated circuits; converts in 1/8 usec. per bit; ten bit resolution; ± 5 volts input / USE: convert voltage to binary code / $1000 to $2000 / C20
Pastoriza Electronics, Inc., *a / analog data formatter / DESCR: formats analog inputs for digital magnetic tape in IBM format; sample rates up to 100 KC; data gapped with aux-man data input / USE: prepare computer compatible tapes / $5000 to $25,000 / C20
Pastoriza Electronics, Inc., *a / sample-hold multiplexer / DESCR: analog storage device, for sampling one or many analog signals and multiplexing them; 100 KC rates, 1/10 usec operature / USE: input to analog-digital converters / $300 to $3000 / C20
Raytheon Computer, 2700 S. Fairview, Santa Ana, Calif. 92704 / multiverter / DESCR: integrated circuit multiplexer, sample and hold unit, analog-to-digital converter in single chassis; up to 96 channels of multiplexing provided; accuracy is 0.01% / USE: scientific, engineering, bio-medical, industrial data acquisition systems / $5000 to $10,000 / C20
Reeves Instrument Co. -- see C9
Scientific Data Systems, Inc., 1649 Seventeenth St., Santa Monica, Calif. 90404 / converters, analog to digital / DESCR: complete range of speeds; 11-bit to 16-bit conversion / USE: data processing or control systems / $2000 to $6000 / C20
Stellarmetrics, Inc., 210 E. Ortega St., Santa Barbara, Calif. 93101 / ADC-1 A to D converter / DESCR: solid state rack-mounted converter featuring internal sampling rates up to 25 Kc/sec., output resolution of one part in 1024, front panel digital readout / - / approximately $4000 / C20
Towson Laboratories, Inc., 3500 Parkdale Ave., Baltimore, Md. 21211 / A/D converters and multiplexers / DESCR: A/D converters, multiplexers for modular data acquisition systems. Analog to teletypewriter converters. Telemetering systems. PCM encoders. Synchro to digital and digital to synchro converters / - / $650 up / C20
Wang Laboratories, Inc., 836 North St., Tewksbury, Mass. 01876 / special purpose digital systems / DESCR: shaft-to-digital or voltage-to-digital systems tailored to user's functional requirements. Accuracies to .05%. Output to any standard peripheral equipment / USE: for "on-line" or "off-line" recording of information which can be measured either by a rotary shaft or a voltage transducer / $6000 to $20,000 / C20
Wang Laboratories, Inc. -- see C36, D6
Wyle Labs. -- see C5

### C21. CONVERTERS, INFORMATION, CARD TO MAGNETIC TAPE

Ampex Corp., Computer Products Div., 9937 W. Jefferson Blvd., Culver City, Calif. 90230 / Card-Tape System / DESCR: Models 400, 800, and 1500 (cards read per minute), converts data at twice the speed and one third the cost of previous methods; four versions available / - / $28,900 to $39,850 / C21
Ampex Corp., Computer Products Div., *a / Model MCS-2500 Combination Media-Conversion System / DESCR: converts from punched cards or paper tape to magnetic tape; 1500 cards per minute and 1000 cps from paper tape. Both systems operate completely off-line / purchase or lease / C21
Control Data Corp.
Control Equipment Corp., 19 Kearney Rd., Needham Heights, Mass. 02194 / TCP converters, Series 4100 / DESCR: instruments for transferring digital data between punched tape, punched cards, magnetic tape and printers; code-changing and reformatting / - / $3000 to $16,000 / C21
Cook Electric Co., Data Stor Div., 6401 W. Oakton, Morton Grove, Ill. 60053 / converters / DESCR: card to magnetic tape; paper tape to magnetic tape; magnetic tape to magnetic tape / USE: produce computer compatible tapes / $15,000 to $19,000 / C21
Tally Corp., 1310 Mercer St., Seattle, Wash. 98109 / converters / DESCR: paper tape to magnetic tape, magnetic tape to paper tape, cards to paper or magnetic tape utilizing error checking logic to insure error free conversion / - / $5000 to $15,000 / C21

### C22. CONVERTERS, INFORMATION, CARD TO PAPER TAPE

CAE Industries Ltd., P. O. Box 6166, Montreal 3, Quebec, Canada / telepath translators / DESCR: on-line--1 and 2-way code translation devices to convert 5, 8, 12 level, 2 out of 8 touch-tone codes directly from line to tape on cards / USE: interface between teleprinters, business machines, other input equipment to on-line computers / $1000 to $3000 / C22
Control Data Corp.
Control Equipment Corp. -- see C21
Digital Electronic Machines, Inc., 2130 Jefferson, Kansas City, Mo. 64108 / CTU, card to tape unit / DESCR: photoelectrically reads tab cards and transfers data to punched paper tape; interchangeability of code boards / USE: data processing / $2395 up / C22
Dura Business Machines, 32200 Stephenson Highway, Madison Heights, Mich. / Dura converters / DESCR: paper tape-to-card, card-to-paper tape and paper tape-to-paper tape / USE: converts any 5, 6, 7, 8-channel paper tape to card and vice-versa / $3250 to $7000 / C22
General Instrument Corp., Magne-Head/Systematics Div., 13040 S. Cerise Ave., Hawthorne, Calif. 90250 / K177 card to tape converter / DESCR: converts IBM cards to 5, 6, 7, or 8-channel punched tape; 20 char/sec; attaches to IBM 24 card punch / USE: card to tape conversion / $4150 (160/mo.) to $4400 ($169/mo.) / C22
Tally Corp. -- see C21

### C23. CONVERTERS, INFORMATION, CODE

CAE Industries Ltd. -- see C22
Control Equipment Corp. -- see C21
Trak Electronics Co., Inc., 59 Danbury Rd., Wilton, Conn. 06897 / Morse-to-teleprinter code converter / DESCR: electronic, completely transistorized digital computer for converting Morse-code transmissions into electrical impulses that drive standard teleprinter; copies 10 to 110 wpm / USE: message handling; remote data recording / $20,000 to $40,000 / C23

### C24. CONVERTERS, INFORMATION, DIGITAL TO ANALOG

The Bendix Corp., Bendix-Pacific Div., 11600 Sherman Way, Hollywood, Calif. 91605 / digital to analog converter / DESCR: 8 bit parallel binary format; word rate up to 200,000 wps provided in panel height of 8-3/4" / USE: data handling and processing systems / $4000 to $8000 / C24
CAE Industries Ltd. -- see C20
Cognitronics Corp., 549 Pleasantville Rd., Briarcliff Manor, N. Y. / "Speechmaker" systems / DESCR: digital to audio devices, operated by switch closure or binary input to select prerecorded vocabulary and compose variable messages / USE: audio alarms or audio computer output / $1000 to $25,000 / C24
Control Equipment Corp., 19 Kearney Rd., Needham Heights, Mass. 02194 / DA-101 D/A converter / DESCR: resistor matrix and 10 voltage-switching circuits designed to perform digital-to-analog output / - / $60 to $130 / C24
Digital Electronics Inc., 2200 Shames Dr., Westbury, N. Y. 11590 / digital to analog converter / DESCR: self powered; designed to accept up to 8 bit parallel binary input and convert to analog at a rate of up to 50kc. Compatible with other units of its kind / USE: industrial and educational applications / $149 / C24
Electronic Engineering Co. of Calif., P. O. Box 58, Santa Ana, Calif. 92702 / EECO 764 multichannel D/A converter / DESCR: converts up to 36 digital signals in parallel form to analog values / - / $1500 to $5000 / C24
Engineered Electronics Co. -- see C5
General Radio Co., 22 Baker Ave., W. Concord, Mass. 01781 / digital-to-analog converter / DESCR: digital output from counter is translated into dc for analog recording; storage circuits permit intermittent and continuous BCD input; converter selects any 3 consecutive columns / - / $755 to $900 / C24
North Atlantic Industries, Inc., 200 Terminal Drive, Plainview, N. Y. 11803 / digital to resolver or synchro converter / DESCR: available in 10-16 bit, binary angle or binary sin/cos input, multi-speed options, with or w/o storage registers / USE: compatible with standard general purpose computers / $2500 to $5000 / C24
Pastoriza Electronics, Inc., 385 Elliot St., Newton, Mass. 02164 / DAC 10 IC / DESCR: digital to analog converter converting 10 parallel binary bits to ± 5 volts; 1 usec settling time. Includes digital word storage / USE: display digital information / $300 to $700 / C 24
Reeves Instrument Co. -- see C9
Scientific Data Systems, Inc., 1649 Seventeenth St., Santa Monica, Calif. 90404 / converters, digital-to-analog / DESCR: 4-bit to 15-bit conversion / USE: output from digital system to analog indicating or control devices / $200 to $3500 / C24
Wang Labs. Inc. -- see C20, C36, D6
Wyle Labs. -- see C5

### C25. CONVERTERS, INFORMATION, DIGITAL TO GRAPHIC

CAE Industries Ltd. -- see C20
Control Data Corp., 8100 34th Ave. So., Minneapolis, Minn. 55440 / Digigraphic 270 System / DESCR: converts digital information to graphic form and vice versa. Latter application involves use of special "light pen" and CRT. / USE: for advanced automated design applications / on request / C25
Data Products Corp. -- see P8
Discon Corp. -- see C19, P6
General Precision Inc., Link Group, -- see D3
LFE Electronics, 1075 Commonwealth Ave., Boston, Mass. 02215 / SM-2A / DESCR: CRT computer display; alpha-numeric and vector material; character generator generates 500,000 char. per sec. for flicker-free display / USE: display computer-stored or hot-line information for easy reference / - / C25
Stromberg-Carlson Corp., Data Products Div. -- see D3

### C26. CONVERTERS, INFORMATION, GRAPHIC TO DIGITAL

Auto-trol Corp., 5566 Harlan, Arvada, Colo. 80002 / Auto-trol model 3700 digitizer / DESCR: all solid state digitizers for two and three coordinate measuring and recording. Outputs to cards, paper tape, and magnetic tape / USE: photogrammetry, geophysics, strip charts, general purpose (clothing patterns, rug patterns), prepare data for plotters and machine tool directors / $10,000 to $20,000 / C26
CALMA Co., 346 Mathew St., Santa Clara, Calif. 95050 / Model 302 analog data digitizer / DESCR: a new device for reducing analog graphical data to digital form on 7-channel, 556bpi computer-compatible magnetic tape for digital computer processing and analysis. To digitize analog graphical data directly on magnetic tape, operator simply traces the data with a movable stylus, at speeds up to 125 inches per minute / USE: to reduce such analog graphical data as oscillographic traces, oil-well logs, and instrument data films to digital form / $20,000 to $40,000 / C26
Control Data Corp., -- see C25
Discon Corp., 4250 NW 10th Ave., Fort Lauderdale, Fla. 33309 / digital coordinate reader / DESCR: photo-electric readers and linear encoder scales for accurate translation of map and chart data to magnetic tape / USE: computer processing / $120,000 to $150,000 / C26
Discon Corp. -- see C19
General Precision Inc., Link Group -- see D3
The Gerber Scientific Instrument Co., 83 Gerber Rd., South Windsor, Conn. (P. O. Box 305, Hartford, Conn.) / large area coordinate digitizer / DESCR: flat bed digitizing table; movable crosshair reticle; console with digital circuitry to output coded coordinate information / USE: convert drawings or graphical data to a coded digital output / $12,000 to $30,000 / C26

### C27. CONVERTERS, INFORMATION, MAGNETIC TAPE TO CARD

Control Equipment Corp. -- see C21

### C28. CONVERTERS, INFORMATION, MAGNETIC TAPE TO PAPER TAPE

Control Equipment Corp. -- see C21
General Devices, Inc., Box 253, Princeton, N. J. 08540 / "DAT" tape to tape translator / DESCR: bi-directional magnetic tape to paper tape converter to handle differing input/output media and codes / USE: interchange of data by translating different codes / $17,500 to $24,750 / C28
Tally Corp. -- see C21

### C29. CONVERTERS, INFORMATION, MAGNETIC TAPE TO MAGNETIC TAPE

Control Equipment Corp. -- see C21
Cook Electric Co., Data Stor Div. -- see C21
Lufkin Research Laboratories, 210 W. 131st St., Los Angeles, Calif. 90061 / tape-to-tape converter / DESCR: prepares computer compatible tapes from tape cartridges / - / - / C29
Marksmen, Inc., 21 West 10th St., Kansas City, Mo. 64105 / Electric Information Company's data collection/conversion systems / DESCR: incremental, block and digital recorders interfaced with typewriter, adding machine, badge reader and time recorder; data recorded on ¼" magnetic tape cartridges / USE: off-line data collection, alpha/numeric / $1000 hand recorder to $15,000 most sophisticated conversion unit / C29
Trak Electronics Co., Inc. -- see C19
Ultronic Systems Corp. -- see C7

### C30. CONVERTERS, INFORMATION, PAPER TAPE TO CARD

CAE Industries Ltd. -- see C22
Control Equipment Corp. -- see C21
Dura Business Machines -- see C22

General Instrument Corp., Magne-Head/Systematics Div., 13040 S. Cerise Ave., Hawthorne, Calif. 90250 / C750 tape to card converter / DESCR: converts 5, 6, 7, or 8-channel punched tape to IBM cards; 20 chars/sec; attaches to IBM 24 card punch / USE: tape to card conversion / $3750 ($140/mo.) to $4000 ($149/mo.) / C30

C31. CONVERTERS, INFORMATION, PAPER TAPE TO MAGNETIC TAPE

Ampex Corp., Computer Products Div., 9937 W. Jefferson Blvd., Culver City, Calif. 90230 / Model PTS-1000 System / DESCR: converts data at half the cost of previous methods; reads 1000 char/sec from paper tape; operates completely off-line / approximately $26,800 (may be purchased or leased / C31
Control Equipment Corp. -- see C21
Cook Electric Co., Data Stor Div. -- see C21
Marksmen, Inc. -- see C29
Tally Corp. -- see C21
Trak Electronics Co., Inc. -- see C19

C32. CORES

Ferroxcube Corp., Saugerties, N. Y. 12477 / cores, planes and stacks / DESCR: cores in all sizes from 80 mils to 20 mils; wide variety of plane and stack arrays including coincident current, word select and special / USE: data storage for digital data process systems / custom design / C32
Haddonfield Research & Mfg. Co., 121 Gill Rd., Haddonfield, N. J. 08033 / cores / DESCR: 80, 50, 30, and 20 mil ferrite cores produced under controlled conditions to produce optimum parts for system application. Available in various configurations / USE: memory planes and logic applications / $5/M to $75/M / C32
Magnetics Inc., Butler, Pa. 16001 / 412-285-4711 / powder cores / DESCR: moly-permalloy powder cores manufactured in toroidal shapes ranging from .25" to 2.25" in diameter, available in permeabilities from 14 to 550 / USE: inductors requiring high Q and good temperature stability over wide temperature range / $ .25 to $8 / C32

C33. CORES, FERRITE

Ampex Corp., Computer Products Div., 9937 W. Jefferson Blvd., Culver City, Calif. 90230 / ferrite cores / DESCR: ferromagnetic memory cores / USE: computer memories and memory stacks / - / C33
Burroughs Corp., Electronic Components Div., P. O. Box 1226, Plainfield, N. J. 07061 / Ferrite cores, planes and stacks / DESCR: ferrite cores -- 20, 30, 50 and 80 mil. diameters, wide temperature and standard. Stacks and planes assembled to specification / USE: as main memory in data processing equipment / - / C33
Electronic Memories, Inc., 12621 Chadron Ave., Hawthorne, Calif. 90250 / ferrite cores / DESCR: coincident current, word select, lithium, Isodrive(R) cores and Shmoo transfluxors in 20, 30, 50, 80, 100, 140 mil sizes / USE: commercial and military memory stacks and arrays / - / C33
Ferroxcube Corp. -- see C32
Haddonfield Research & Mfg. Co. -- see C32
Lockheed Electronics Co., 6201 E. Randolph St., Los Angeles, Calif. / computer ferrite memory products / DESCR: core to stacks and complete memory systems; high-speed (less than one usec cycle time) systems; integrated circuit systems / USE: random-access digital data storage for data processing systems, both commercial and military applications / dependent on customer's requirements / C33
Magnetics Inc., Butler, Pa. 16001 / 412-285-4711 / ferrite cores / DESCR: ferrite pot cores, toroids, E's, I's, U's. Initial permeabilities from 100 to 2000 for operation up to 20mc / USE: inductors, pulse transformers, magnetic amplifiers / $.05 to $5.00 / C33

C34. CORES, MAGNETIC

Ampex Corp., Computer Products Div. -- see C33
Computer Control Co., Inc., Old Connecticut Path, Framingham, Mass. / cores, magnetic / DESCR: TCM32, 5 usec, front access, 128 to 4096 word capacity, 8 to 48 bits; TCM35, silicon, 1.4 to 2 usec (coincident current, general purpose); ICM40, monolithic integrated circuitry, 1 usec full cycle / - / - / C34
Ferroxcube Corp. -- see C32
Haddonfield Research & Mfg. Co. -- see C32
Lockheed Electronics Co. -- see C33
Magnetics Inc., Butler, Pa. 16001 / 412-285-4711 / tape wound cores / DESCR: strip wound toroidal cores made with high permeability nickle-iron alloys .014" to .000125" thickness / USE: transformers, magnetic amplifiers, inductors, memory elements / $.50 to $20 / C34

C35. COUNTERS

Veeder-Root, 70 Sargeant St., Hartford, Conn. 06102 / series 1770 electric counter / DESCR: miniature, rear or panel mounting, low power requirements, high count speed (1000 cpm), reset or non-reset models / USE: count accumulation in data processing equipment / $8.61 to $20.70 / C35
Veeder-Root, *a / series 1951 high speed electric counter / DESCR: high speed (ac or dc, 3000 cpm), compact, long service life (100 million counts). Reset options: pushbutton, electrical, electrical/manual, non-reset / USE: high speed count accumulation in data processing systems / $22.19 to $51.70 / C35
Veeder-Root, *a / series 1969 Veeder DECADE / DESCR: electromagnetic single wheel counting device with electric reset, readout and transfer / USE: high speed count accumulation, storage and transfer in data processing systems / $13 to $22.25 / C 35

C36. COUNTERS, ELECTRONIC

Burroughs Corp., Electronic Components Div., P. O. Box 1226, Plainfield, N. J. 07061 / uni- and bi-directional counters / DESCR: ten position ring counters with NIXIE® tube readout, 10 electrical outputs and counters are presettable and resettable / USE: as visual indication of an accumulated count / $70 / C36
Components Corp., 106 Main St., Denville, N. J. 07834 / DCU-100 solid state decade counter / DESCR: counter with inexpensive D'Arsonval readout; counts at rates up to 200 kc.; power requirements approximately 6V at 10 milliamps per decade -- none for readout / - / $50 (quantity discounts available) / C36
Electron Ohio, Inc., 1278 W. 9th St., Cleveland, Ohio 44113 / counters, mechanical and electronic / DESCR: reset, predetermining, length measuring; high speed electro-mechanical / USE: record motion, impulses, length / $10 to $50 / C36
Engineered Electronics Co. -- see C5
General Atronics Corp. -- see C1
General Electric Co., Electronic Components Sales Operation
General Precision, Inc., Kearfott Products Div., 1150 McBride Ave., Little Falls, N. J. 07424 / DELSIN ① C70 8753 Series / DESCR: digital electroluminescent solid state indicator modules; numeric and alpha-numeric readouts. Multi-digit displays use multiplexed logic input. Accepts BCD data directly from computer / USE: matched computer digital interface for mapping, cockpit, or plotting board displays, remote readouts / - / C36
General Radio Co., 22 Baker Ave., W. Concord, Mass. 01781 / electronic counters / DESCR: cumulative count, frequency, period, or ratio measurements can be made from dc to radio frequencies / - / $995 to $3145 / C36
Janus Control Corp., 296 Newton St., Waltham, Mass. 02154 / electronic decade and instrument counters and counter-related products; numerical displays with and without latching / DESCR: high-speed, low-cost, integrated circuit and discrete component counters available as modules and complete functional instruments / USE: industrial and military applications / $40 to $2000 / C36
Texas Instruments, Inc., SemiConductor-Components Div., P. O. Box 5012, Dallas, Tex. 75222 / series 51/51R counters / DESCR: RCTL digital semiconductor networks featuring low power drain (2mW at 3V), 300 ns propagation delay, and fanout from 4 to 20; operating at temperatures from -55° to +125° C. / USE: missile and space applications where size weight and reliability are critical / $28 to $36 / C36
Wang Laboratories, Inc., 836 North St., Tewksbury, Mass. 01876 / transistorized electronic counters / DESCR: universal, preset, and bidirectional; measure speed, frequency, ratio, draw, period, time interval, batch control, machine tool position, etc. / USE: tailored to requirements for industrial applications / $750 to $2000 / C36
Wang Laboratories, Inc. -- see D6
Wyle Labs. -- see C5

C37. COUNTERS, MECHANICAL

Electron Ohio, Inc. -- see C36
West Eleven, Inc., 11836 San Vecente Blvd., Los Angeles, Calif. 90049 / SARCEM, elapsed time indicator / DESCR: small, low-cost in-line electrical time; continuous elapsed/in-operation time check of any 100 volt 50-60 cycle equipment / - / $5 to $7.50 / C37
Whittaker Corp., Technical Products Div., 9601 Canoga Ave., Chatsworth, Calif. 91311 / electromechanical counter / DESCR: bi-directional and accurately record 15,000 counts per minute. Visual or switch readout available with either mechanical or electrical reset / - / - / C37

C38. COURSES BY MAIL (COMPUTER FIELD)

Bonner & Moore Associates, Inc. -- see I1, P12
Entelek, Inc., 42 Pleasant St., Newburyport, Mass. 01950 / programmed instruction / DESCR: 4 programmed instruction courses in computer-based planning (PERT), inventory control and forecasting / - / $27.50 to $47.50 / C38
Entelek, Inc. -- see E2
Institute for Computing Sciences -- see E2
International Accountants Society, Inc., Business Electronics Div., 209 W. Jackson Blvd., Chicago, Ill. 60606 / home study courses on programming business computers / DESCR: study of computer programming with particular attention to business application / USE: by individuals and companies in training computer programming personnel / $285 (10% discount allowed companies enrolling 5 or more at one time) / C38

D1 DATA PROCESSING ACCESSORY EQUIPMENT

The Bunker-Ramo Corp., 277 Park Ave., New York, N.Y. 10017 / bank teller machine, Teleregister Mark I / DESCR: direct-connected to any modern computer; transaction processed and recorded by central processor; records continually updated and instantly retrievable; on-line operation / USE: banks; savings, mortgage and loan transactions / $8200 plus / D1
The Bunker-Ramo Corp., *a / BR-90 visual analysis console / DESCR: displays visual data on CRT screen: computer input; operator input from keyboard, from light pencil; projected image from rear port in CRT / USE: superimpose and update digital data on maps and charts / $100,000 plus / D1
The Bunker-Ramo Corp. -- see C7
CAE Industries Ltd. -- see C7
California Computer Products, Inc., 305 N. Muller St., Anaheim, Calif. 92803 / digital plotters / DESCR: 8 basic models for computer controlled preparation of quality ink-on-paper graphic presentations; suitable for on-line or off-line operation / USE: to present digital computer output in pictorial or graphic form / $5000 to $50,000 / D1
California Computer Products, Inc., *a / digital plotting systems / DESCR: off-line digital plotting capability and can drive both 500 and 700 series plotters / USE: for low-speed reading of standard format tape to operate the digital plotters / $15,000 to $35,000 / D1
Camwil, Inc., 11821 Pico Blvd., Los Angeles, Calif. 90064 / special type heads for IBM selectric mechanisms / DESCR: computer and teletype codes; foreign languages; mathematical, chemical and electronic symbols. Type heads prepared to suit customer requirements / USE: in all equipment which incorporates the IBM selectric typing mechanism / $35 to $3000 / D1
Cohu Electronics, Inc., Box 623, San Diego, Calif. 92112 / 490 series digital coupler / DESCR: recording device for use with DVM/ratiometer. Actuates adding machine to record completed voltmeter readings; operates most 10-key office adding machines to produce permanent printed record of voltmeter readings / USE: on the production line, in the repair shop, general laboratory and industrial data logging / $795 / D1
Cohu Electronics, Inc., *a / 510 series DVM/ratiometer / DESCR: 4-digit, lightweight unit, 1 control for range and function; bidirectional tracking logic; high input resistance / USE: reads voltages or ratios: laboratory, bench or assembly line / $995 to $1385 / D1
Control Data Corp. -- see D4
Cook Electric Co., Data Stor Div., 6401 W. Oakton, Morton Grove, Ill. 60053 / recorder / DESCR: data processing accessory equipment and data recording equipment / USE: data systems / $4000 to $20,000 / D1
DA-PEX Company -- see C8
Data Trends, Inc.
Digital Devices -- see D5
Digital Electronic Machines, Inc., 2130 Jefferson, Kansas City, Mo. 64108 / TPU, tape preparation unit / DESCR: keyboard input converted to punched paper tape and/or printed tape listing / USE: data gathering for computer input / $1850 up / D1
Digitronics Corp., 1 Albertson Ave., Albertson, L.I., N.Y. 11507 / DATA-VERTER / DESCR: a source data acquisition and transmission system / USE: to collect information for inventory control, data collection, warehousing, stocking, etc. / $1495 to $1875 / D1
Digitronics Corp., *a / paper tape readers and handlers / DESCR: reads and transports all levels

of paper or mylar punched tape / USE: input to computer or automated control systems / $295 to $5890 / D1

Discon Corp., 4250 NW 10th Ave., Fort Lauderdale, Fla. 33309 / data minimizer / DESCR; data processing unit approximates any input function by a series of linear functions or straight line segments / USE: pre-processing analog or digital data to conserve computer time and storage requirements / $40,000 to $50,000 / D1

Dresser Products, Inc., 112-114 Baker St., Providence, R.I. 02905 / #5110 splicer / DESCR: portable splicer, weight 5 lbs. Once placed on splicer, tapes can be joined, looped or re-paired without being touched by hand until splice is complete / USE: splicing punched paper tapes / $148 / D1

Electron Ohio, Inc., 1278 W. 9th St., Cleveland, Ohio 44113 / magnetic drum / DESCR: medium speed delays from users to several hours; used as program storage; flux responsive heads read out at rest; solid state electronics; "out-of-contact" recording / USE: industrial control purposes; sorting, inspection, control systems / $1000 to $20,000 / D1

Electron Ohio, Inc. -- see C7

General Devices, Inc., Box 253, Princeton, N.J. 08540 / "DAN" data acquisition system / DESCR: PCM programmers and multiplexing systems; up to 90 channels into digital words of 10 data bits plus sign, etc. / USE: time division multiplexes / $9500 to $14,790 / D1

General Electric Co., Process Computer Business Section

General Instrument Corp., Defense & Engineering Products Group, Radio Receptor Div., Andrews Rd., Hicksville, N.Y. 11802 / data processing equipment / DESCR: data acquisition processing, storage and display; overall system design and programming for on and off line computers, sensors and output devices / USE: variety of information handling systems involving analog and digital processes / various / D1

Allen Hollander Co., Inc.

Houston Fearless Corp. -- See I2

Invac Corp., 26 Fox Rd., Bear Hill Industrial Park, Waltham, Mass. 02154 / Model TTR-200 typewriter transmitter/receiver / DESCR: adapted for use as an I/O device; 15.5 char/sec; machine function plus optional functional switches / USE: entry and receiving device for data processing / $1840 unit price / D1

Invac Corp. -- see T9, T10, T7, K1

Kyros Corp., P.O. 406, Madison, Wis. / Kysolve solvents / DESCR: to "strip" computer tape coatings and to combine visual with magnetic bits on the same tape / USE: can be tailored to specific problems / $1.50 per pt. to $4.50 per gal. / D1

Liskey Aluminum, Inc., Box 580, Glen Burnie, Md. 21061 / Data-Aire / DESCR: modular, air conditioning, packaged units; engineering and installation specialist services provided / USE: controlling special computer room environmental conditions / - / D1

Liskey Aluminum, Inc., *a / Spacemaker / DESCR: moveable office partitions, sound and dust proof / USE: computer room and general offices / - / D1

Missouri Research Laboratories, Inc., 2109 Locust St., St. Louis, Mo. 63103 / Model 131 digital address selector / DESCR: selects and decodes addresses to provide read commands; features thumbwheel selection of binary or BCD addresses up to 22 bits / USE: PCM telemetry address and data pickoff, ground station selection computer testing, selection of discrete data for read-out / $1500 / D1

Missouri Research Laboratories, Inc., *a / Model 160A universal logic translator / DESCR: provides logic level translation and/or inversion with driven outputs available. Capable of translating up to 30 channels and inverting up to 15 channels / USE: interface for incompatible digital equipments / $550 to $1050 / D1

Monarch Metal Products, Inc., MacArthur Ave., New Windsor, N.Y. 12550 / data processing accessory equipment / DESCR: items for the filing, sorting, storage and moving of punched cards, control panels, disk packs and magnetic tape reels / USE: filing, storage and transportation of punch cards, control panels, disk packs and magnetic tape reels / - / D1

Ray Myers Corp., 1302 E. Main St., Endicott, N. Y. 13760 / data processing accessory equipment / DESCR: mobile and fixed equipment / USE: storage and processing / - / D1

National Blank Book Co., Water St., Holyoke, Mass. 01040 / data binders / DESCR: binders for housing data processing forms with unbreakable cable flexible posts; six styles / USE: loose leaf binding of tabulating forms / 50¢ to $7.50 / D1

National Blank Book Co., *a / perforator tape / DESCR: paper tape for communications, readers and perforators, data collection, control equipment and converters; available in 5, 6 or 7 and 8 channels, oiled and unoiled / USE: transmitting information and converting tapes to cards / priced per roll / D1

Ohio Envelope Co., Box 19086, Cincinnati, Ohio 45219 / file folders and filing supplies / DESCR: file folders and filing supplies for storage of paper, tape and other EDT information / - / custom made / D1

Photon, Inc., 355 Middlesex Ave., Wilmington, Mass. 01887 / phototypesetting machines / DESCR: computer-driven off-line, print-out and phototypesetting machines using either paper or magnetic tape input / USE: as computer printout system; as automated typesetting / $15,000 to $295,000 / D1

Potter Instrument Co., Inc.

Robbins Data Devices, Inc., 15-58 127th St., Flushing, N.Y. / data processing accessories / DESCR: splicers, encoders, winders, reels, centerfeed unwinders, unwind cans, data tape holders, punched tape folders and envelopes, mailing boxes, bulk tape erasors, splicing patches / USE: editing, storing, winding and unwinding of tape / $15 to $400 / D1

Scientific Data Systems, Inc. -- see C13

Lear Siegler, Inc., Power Equipment Div. -- see C13

TAB Products Co., 550 Montgomery St., San Francisco, Calif. 94216 / data processing auxiliary equipment; computer room equipment / DESCR: card files, open reference files, storaways, trucks, unit spacefinder card files, control panel cabinets; tape reel racks, tape cabinets, disc pack racks, disc pack cabinets, trucks, forms handling equipment/ USE: storage and handling of data processing and computer room materials / wide / D1

Trak Electronics Co., Inc. -- see C19

Weber Electronics, Inc.

Wheeldex, Inc. -- See F4, P14, Te, T8

Wright Line Division Barry Wright Corp., 160 Gold Star Blvd., Worcester, Mass. 01606 / disk pack storage / DESCR: 4" and 6" thickness can be stored in any of 6 available models; four have work surfact tops; all equipment has full-suspension drawers / USE: storage of disk packs / varies / D1

Wyle Labs -- See C10

## D2. DATA PROCESSING MACHINERY (SEE ALSO SPECIFIC TYPES)

Ampex Corp., Computer Products Div. -- see C21, C31

Bell Telephone Mfg. Co., Automation Systems Div., Berkenrodelel 33, Hoboken, Belgium / "Jacketing System" document handling system / DESCR: based on the use of a mylar jacket which is a reusable document and information carrier / - / - / D2

Bell Telephone Mfg. Co., Automation Systems Div., *a / mailhandling equipment and postal automation systems / DESCR: automatic and semi-automatic letter sorters as well as indexing desks destined to automate mail handling / - / - / D2

The Bunker-Ramo Corp. -- see C7, D1

Control Data Corp. -- see D4

Dura Business Machines, 32200 Stephenson Highway, Madison Heights, Mich. / Dura MACH 10 automatic typewriters / DESCR: punched paper tape/edge card, "selectric" or binary code, special code models available, speed 15.4 c.p.s. Auxiliary equipment including punches/readers edit control / USE: repetitive writing applications, data preparation for input, systems applications / $2810 to $5000 / D2

Dymec Div. of Hewlett-Packard Co., 395 Page Mill Rd., Palo Alto, Calif. 94306 / digital data plotting systems / DESCR: systems accept digital data on magnetic tape, punched card or tape and reduce to X-Y smooth curve or point plot / USE: data plotting applications / $7000 to $14,000 / D2

Friden, Inc., a subsidiary of the Singer Co., 2350 Washington Ave., San Leandro, Calif. 94577 / 5010 Computyper* electronic billing accounting machine / DESCR: produces completed invoices at electronic speeds; stores numbers; performs calculations in milliseconds; equipped with a removable program panel. *trademark / USE: for billing and accounting / $6000 to $7000 / D2

Friden, Inc., a subsidiary of The Singer Co., 2350 Washington Ave., San Leandro, Calif. 94577 / FLEXOWRITER(TM) automatic writing machine / DESCR: produces business documents and simultaneously punches tape or cards. With some models, changing program panels, means changing machine functions. Up to 145 words per minute / USE: purchase orders, letter writing, personnel records, sales and production orders, legal documents, etc. / $2400 to $4600 / D2

General Electric Co., Process Computer Business Section

Geo Space Corp., 5803 Glenmont Drive, Houston, Tex. / ADA-200 seismic data conversion system / DESCR: analog to digital to analog magnetic tape; operates in real time; digitizes up to 29 channels of analog data simultaneously / USE: convert and playback seismic data / - / D2

Honeywell, Inc., Electronic Data Processing Div. -- see P9, P15, R9, S5, T1

International Computers and Tabulators Ltd., I.C.T. House, Putney, London S.W. 15, U.K. / computer systems and O.E.M. products / DESCR: I.C.T. 1900 series of digital computers and O.E.M. peripheral and ancillary equipment / - / - / D2

Omni-Data, Div. of Borg-Warner Corp. -- see P10

Potter Instrument Co., Inc.

Recognition Equipment Inc., 4703 Ross Ave., Dallas Tex. 75204 / electronic retina computing reader / DESCR: general purpose optical character recognition system; reads printed or typewritten information, eliminates need for data conversion methods such as key-punching / USE: automates input to computers / $600,000 to $750,000 / D2

Societe d'Electronique D'Automatisme

Teletype Corp.

## D3. DATA RECORDING EQUIPMENT

Addo-X, Inc., 845 Third Ave., New York, N.Y. 10022 / Addo-X data capture & control / DESCR: 10-key shuttle carriage adding-bookkeeping machines linked to Addo-X program controlled tape punches and IBM card punches; digit verifier Mod. 7-11 / - / - / D3

Addo-X, Inc., *a / Addo-X 990 key data collection system / DESCR: high speed key operated. Each key encoded with discrete number. Numbers are transmitted from remote stations to central data collection station / USE: attendance recording; job recording; production control / - / D3

Addo-X, Inc. -- see A1

Ampex Corp., Computer Products Div., 9937 W. Jefferson Blvd., Culver City, Calif. 90230 / Model ATM-13 digital tape recorder / DESCR: airborne and portable; produces recorded data blocks immediately compatible with computers, needing no intermediate processing / USE: reconnaissance, geophysical and similar applications / - / D3

Ampex Corp., Instrumentation Div., 401 Broadway, Redwood City, Calif. 94063 / Model CDR tape recorder / DESCR: digital cartridge tape recorder / USE: commercial and industrial / - / D3

Ampex Corp., Instrumentation Div., *a / Models DAS-100 and SP-300 instrumentation tape recorders / - / USE: medical and industrial data / - / D3

Ampex Corp., Instrumentation Div., *a / Model FR-900 tape recorder / DESCR: rotary head, 5.0 MHz instrumentation tape recorder / USE: for radar recording / - / D3

Ampex Corp., Instrumentation Div., *a / Models FR-1800 (1.5 MHz) and FR-1600 (2.0 MHz) tape recorders / DESCR: instrumentation tape recorders / USE: telemetry and laboratory test data / - / D3

Ampex Corp., Research Div., Redwood City, Calif. 94063 / recording systems / DESCR: electron beam recording systems development / - / - / D3

Ampex Corp. -- see I2 and T1

The Bristol Co., Waterbury, Conn. 06720 / data recording / DESCR: electronic, electrical and mechanical equipment for analog and digital data; chart recorders, logging and printout / USE: process, utility and pipeline applications / $150 to $2000 / D3

Connecticut Technical Corp., 3000 Main St., Hartford, Conn., 06120 / digital printers / DESCR: tape listing (numeric) printers, data logging typewriters; single line or coded input / USE: instrumentation, data logging and process control printout / $250 to $1000 / D3

Consolidated Electrodynamics Corp., 360 Sierra Madre Villa, Pasadena, Calif. 91109 / data recorders / DESCR: include several types of recording oscillographs, strip-chart recorders, magnetic tape recorder/reproducers, indicating controllers, vibration monitors, and other instruments / USE: for recording data / - / D3

Control Logic, Inc. -- see C10

Cook Electric Co., Data Stor Div. -- see D1

Dennison Manufacturing Co., Framingham, Mass. / print-punch marking machines / DESCR: prints and punches simultaneously up to 320 control tickets per minute; may be converted into punch-cards, paper tape and/or magnetic tape / USE:

inventory control, retail price ticket, production control / $69 (monthly rental) to $115 (monthly rental) / D3

DI/AN Controls, Inc., 944 Dorchester Ave., Boston, Mass. 02125 / series "N" and "DL" lister/printers / DESCR: high speed lister/printer handles numeric printout (2400 lines/min.) and alphanumeric printout (1200 lines/min.); expandable in 4 column increments to 16 columns (series "DL") and 32 columns (series "N") / USE: listing, data logging, DVM printout, addressing, computer output printing / $3000 to $10,000 / D3

Electron Ohio, Inc. -- see C7

Electronic Development Corp., 423 West Broadway, So. Boston, Mass. 02127 / 423 data logging systems / DESCR: data acquisition and alarm scanning systems accepting up to 1200 inputs and producing typewriter and punched tape outputs / USE: will record and limit test temperatures, flows, pressure, etc. / $14,500 to $25,000 / D3

Electronic Engineering Co. of Calif., P.O. Box 58, Santa Ana, Calif. 92702 / EECO 755 data recording system / DESCR: digitizes up to 200 analog inputs and records on magnetic tape in IBM format / - / $8500 to $25,000 / D3

General Precision Inc., Link Group, Colesville Rd., Binghamton, N.Y. 13902 / waveform display analyzer / DESCR: computer aided film scanning and recording display device / USE: digital to graphic and graphic to digital conversion, data recording and film readout / varies / D3

Giannini Scientific Corp., Flight Research Div. -- see C1

Hagan Controls Corp., 250 Mt. Lebanon Blvd., Pittsburgh, Pa. 15228 / marine data logger / DESCR: digital data recording system consisting of operators console, two printers and one modular constructed floor cabinet; solid state circuits and printed circuit boards / USE: continuous monitoring of pressures, temperatures, etc. / $50,000 and up / D3

Hagan Controls Corp., *a / Optimac recorder / DESCR: measures up to four electrical inputs, records them on vertical moving strip chart; use cartridge type capillary inking systems, transistorized circuit amplifiers, easily removable chassis / USE: to record process variables which have been converted into analog dc currents and voltages / $315 to $820 / D3

Jonker Corp., 26 N. Summit Ave., Gaithersburg, Md. 20760 / Termatrex / DESCR: information and/or data retrieval system; uses optical coincidence cards to store data/information / USE: retrieval of documents, engineering drawings and data, personnel, chemical compounds, etc. / $5000 to $35,000 / D3

Jonker Corp. -- see C15, P13

Marksmen, Inc. -- see C29

Potter Instrument Co., Inc.

The Standard Register Co., Dayton, Ohio 45401 / source record punch / DESCR: desk-size electronic data collecting unit for recording information both printed form and key-punched code simultaneously on ZIP-CARDS (tab card unit sets); several models available / USE: recording hospital charges at source; production and inventory control in industry / - / D3

Straza Industries, 790 Greenfield Drive, El Cajon, Calif. / Mod. 1201 microfilm printer/plotter / DESCR: converts computer output to alpha-numeric and graphic information; 62,500 char/sec - 10,000 vectors/sec 64 or 128 characters; 35 mm or 16 mm camera - hard copy camera, forms projector / USE: on-line or off-line, BCD or binary / $120,000 to $160,000 / D3

Straza Industries, *a / Mod. 1311 display/printer / DESCR: converts computer output to alpha-numeric and graphic information; 30,000 char/sec., 10,000 vectors/sec.; 35 or 16 mm camera; 16" display tube; light pen; keyboard / USE: on line, BCD or binary / $45,000 to $65,000 / D3

Stromberg-Carlson Corp., Data Products Div., P.O. Box 2449, San Diego, Calif. 92112 / S-C 4020 computer recorder / DESCR: operates on-line with a computer or accepts digital magnetic tape signals and converts binary or BCD codes into combinations of alphanumeric printing, curve plotting and line drawings / USE: converting computer data to graphs, plots, charts, maps on microfilm, movie film, hard copy / $150,000 to $200,000 / D3

Stromberg-Carlson Corp., Data Products Div., *a / S-C 4400 computer document recorder / DESCR: records alphanumeric output directly from computer or computer-generated tapes onto 16mm microfilm. Option permits production of 35mm film for aperture card filing systems / USE: automated and semi-automated storage and retrieval systems / $80,000 to $100,000 / D3

Trak Electronics Co., Inc. -- see C19

Paul G. Wagner Co. -- see P15

Wang Labs, Inc. -- see C20, C36, D6

## D4. DATA REDUCTION EQUIPMENT

Adage, Inc. -- see C11

Control Data Corp., 8100 34th Ave., So., Minneapolis, Minn. 55440 / data reduction equipment / DESCR: a complete line of peripheral equipment for use with digital and hybrid computer systems / - / - / D4

Control Logic, Inc. -- see C10

The Gerber Scientific Instrument Co., 83 Gerber Rd., South Windsor, Conn. (P.O. Box 305, Hartford, Conn.) / data reduction equipment / DESCR: X and Y reading heads; back-lighted work surfaces; chart spooling equipment / USE: converts graphical analog data to a printed or coded form / $3000 to $25,000 / D4

Stromberg-Carlson Corp., Data Products Div. -- see D3

## D5. DELAY LINES (COMPUTER TAPE)

Andersen Laboratories, Inc., 501 New Park Ave., West Hartford, Conn. / delay memories / DESCR: magnetostrictive delay memories; digital glass memories / USE: buffer memories / $75 to $500 / D5

Columbia Technical Corp., 50 St. at 25 Ave., Woodside, N.Y. 11377 / delay lines (computer types) / DESCR: electromagnetic networks of lumped constant and distributed constant types, of fixed or variable delays / USE: as information storage / $10 to $100 / D5

Cornell-Dubilier Electronics Div. Federal Pacific Electric Co., 50 Paris St., Newark, N.J. 07101 / delay lines / DESCR: custom designed delay lines -- engineered lumped constant to meet requirements of computers / USE: in pulse equipment / - / D5

Digital Devices, Inc., 200 Michael Dr., Syosset, L.I., N.Y. / delay lines / DESCR: magnetostrictive delay lines and computer memory systems / USE: computer memories, data storage / $30 to $30,000 (systems) / D5

EL-RAD Manufacturing Co., 4300 N. California Ave., Chicago, Ill. 60618 / delay lines / DESCR: units for both conventional wiring and printed circuit applications. Hermetically sealed or epoxy encapsulated construction / USE: in timing and sync circuits, and phase shifting of sine waves / $1.50 to $250 / D5

General Instrument Corp., Defense and Engineering Products Group, Radio Receptor Div., Andrews Rd., Hicksville, N.Y. 11802 / delay lines / DESCR: magnetostrictive, longitudinal and torsional delay lines for digital and analog computers / USE: computers, coders and decoders, simulators, missiles and aircraft / $100 to $3000 / D5

Technitrol Inc., 1952 E. Allegheny Ave., Philadelphia, Pa. 19134 / electro-magnetic delay lines / DESCR: lumped and distributed constant; 5ms to 10 ms delay. Impedance 50 to 2000 ohms. Tapped and programmable / - / $1 to $15 / D5

## D6. DESK CALCULATORS

Friden, Inc., a subsidiary of The Singer Co., 2350 Washington Ave., San Leandro, Calif. 94577 / 132 electronic calculator / DESCR: same as 130 electronic calculator with addition of automatic square root / USE: scientific and engineering calculations / $1950 / D6

Friden, Inc., a subsidiary of The Singer Co., *a / rotary desk calculators / DESCR: complete line featuring models with short-cut multiplication, automatic squaring and square root, separate multiplier keyboard, tough-one-key division and fast chain multiplication / USE: scientific, business and engineering calculations / $300 to $1400 / D6

Friden, Inc., a subsidiary of The Singer Co., *a / 130 electronic calculator / DESCR: desk size; gives answers in milliseconds; entries and answers on cathode ray tube screen; automatic transfer of intermediate answers / USE: business, scientific and engineering calculations / $2150 / D6

Wang Laboratories, Inc., 836 North St., Tewksbury, Mass. 01876 / Wang 300 series electronic desk calculators / DESCR: feature single electronics packages with up to four satellite keyboards. Large numerals, duplex operations, exclusive "phantom touch" keys, square, square root, $e^x$ and lnx. / USE: business, statistical, and scientific calculations / $1690 to $5130 / D6

Wang Laboratories, Inc. -- see C10, C36

Wyle Laboratories, Inc. -- see C10

## D7. DIFFERENTIAL ANALYZERS

Philbrock Researches, Inc. -- see C9

## D8. DISCS, MAGNETIC

Bryant Computer Products, Div. of Ex-Cell-O Corp. -- see S4

Control Data Corp.

Data Products Corp., 8535 Warner Dr., Culver City, Calif. 90321 / DISCfILES ® / DESCR: large-scale random access DISCfILES. Capacities from 200 million to 1 billion bits / USE: as part of data processing system / $50,000 to $100,000 / D8

Data Products Corp., *a / on-line DISCfILES® / DESCR: large-scale random access DISCfILES directly connected to computer systems to augment memory capacity / USE: part of a data processing system / $75,000 to $125,000 / D8

Digital Development Corp., 5575 Kearny Villa Rd., San Diego, Calif. 92123 / magnetic discs / DESCR: capacity to 250 million bits at 3600 RPM; read-write selection electronics. System capabilities--operate with standard computers. Sealed units provide maximum reliability for continuous operation and extreme environments / USE: computer memory / $10,000 to $250,000 / D8

Electron Ohio, Inc. -- see D1

Friden, Inc., a subsidiary of the Singer Co., 2350 Washington Ave., San Leandro, Calif. 94577 / 6010 magnetic disc file / DESCR: operates on-line with the 6010 electronic computer; stores 122,880 alphanumeric characters; features automatic address verification and variable length data capability / USE: with 6010; storage of payroll, invoice, inventory, accounting, etc. data / $7000 to $8000 / D8

General Electric Co., Process Computer Business Section

General Instrument Corp., Magne-Head Div., 13040 S. Cerise, Hawthorne, Calif. 90250 / magnetic memory discs / DESCR: records and plays back data up to 10 million bits with median access times from 5 to 20 milliseconds / USE: inventory control, process control, communications, multiplexing, data logging, data buffer / $1500 to $13,000 / D8

Scientific Data Systems, Inc., 1649 Seventeenth St., Santa Monica, Calif. 90404 / discs, magnetic / DESCR: Rapid-Access Data (RAD) Storage System, 17-msec average access time, capacity 2.097 million char/unit. Mass Memory Disc Storage System, 162 msec average access time, capacity 67 million char/controller (up to 2 controllers) / - / $30,000 (RAD system) to $200,000 / D8

Scientific Data Systems, Inc. -- see M2

## D9. DRUMS, MAGNETIC

Bryant Computer Products, Div. of Ex-Cell-O Corp. -- see S4

The Bunker-Ramo Corp. -- see C7

Control Data Corp.

Digital Development Corp., 5575 Kearny Villa Rd., San Diego, Calif. 92123 / magnetic drums / DESCR: capacity to 1024 tracks at 3600 RPM; read-write selection electronics. Sealed units. / USE: computer memory / $1000 to $40,000 / D9

Electron Ohio, Inc. -- see D1

General Electric Co., Process Computer Business Section

General Instrument Corp., Magne-Head Div., 13040 S. Cerise, Hawthorne, Calif. 90250 / magnetic memory drum / DESCR: records and plays back data up to 50 million bits with median access times from 5 to 20 milliseconds / USE: inventory control, communications, multiplexing, data logging, data buffer / $3000 to $60,000 / D9

## E1. ECONOMIC RESEARCH

Bonner & Moore Associates, Inc. -- see O2

URS Corp.

## E2. EDUCATION (SEE ALSO COURSES)

Aries Corp., Westgate Research Park, McLean, Va. 22101 / education / DESCR: fundamentals of data processing and programming courses in JOVIAL and other languages. Specially designed courses in programming, computer communications, and information retrieval / USE: computer training / determined by course requirements / E2

Automation Institute of America, Inc., Suite 600, 760 Market St., San Francisco, Calif. 94102 / data processing training / DESCR: courses ranging from Card Punch Operator training through Computer Programming and Systems Design -- entry skill and advancement courses / USE: individual enrollment and company sponsored programs / - / E2

Brandon Applied Systems, Inc., 30 E. 42nd St., New York, N.Y. 10017 / technical training courses / DESCR: series of 7 technical

training courses / DESCR: series of 7 technical training courses in computer field on a seminar basis, publicly and on an in-house basis. Public courses given where firm has offices / - / $75 to $175 / E2

Computer Systems Institute, Inc., 300 Sixth Ave., Suite 275, Pittsburgh, Pa. 15222 / computer programming training / DESCR: train computer programmers; graduates are capable of writing programs for RCA 301, IBM 1401 and 1410 systems; also training the visually handicapped for programming positions / USE: data processing field / $750 to $1500 / E2

Control Technology, Inc., 1232 Belmont Ave., Long Beach, Calif. 90804 / education / DESCR: courses in advanced programming; combined analog-digital simulation; advanced hybrid simulation; advanced analog computation; digital simulation / - / $250 to $350 / E2

Digital Equipment Corp. -- see B2, C5

Entelek, Inc., 42 Pleasant St., Newburyport, Mass. 01950 / computer-assisted instruction / DESCR: computer-based management games / USE: remote use of time-shared computer in simulation of management decision-making / - / E2

Informatics, Inc., 5430 Van Nuys Blvd., Sherman Oaks, Calif. 91401 / education / DESCR: System 360 training, on-line systems, executive training; presented Symposiums on Disc Files (1964), On-Line Systems (1965), and Computers/Graphic Arts, with UCLA (1966) / - / - / E2

Innovation Consultants, Inc., 4 E. State St., Doylestown, Pa. 18901 / education / DESCR: in-house and some public courses on computer applications / USE: for technically untrained top mangement / per diem / E2

Institute for Computing Sciences, Preston Forest Tower, P.O. Box 30245, Dallas, Tex. 75230 / computer programming / DESCR: comprehensive programming training (including actual computer run practice programs) designed to provide technical qualification for entry in the computer field as a programmer or system analyst / USE: initial career training / $725 to $895 / E2

Institute for Computing Sciences, *a / electronic computing for management / DESCR: management training program in the potential of electronic computing systems; course offered in resident and correspondence form / USE: management training / $325 to $360 / E2

Programming & Systems, Inc., 33 W. 42nd St., New York, N.Y. 10036 / EDP education / DESCR: complete range of EDP courses from key punching through programming of IBM 1401 and System 360 / - / $90 to $650 / E2

Scientific Educational Products, 30 E. 42nd St., New York, N.Y. 10017 / Minivac 6010 / DESCR: self instructional digital computer trainer / USE: in laboratory or classroom to teach basic concepts of digital computers, including basic logic, Boolean algebra, binary arithmetic, basic computer operations and basic switching circuitry / $285 / E2

Scientific Educational Products, *a / Nordac II / DESCR: solid state digital logic trainer / USE: to teach basic logic, Boolean algebra, and basic digital computer functions / $485 / E2

URS Corp.

F2. FLOORS

Fabri-Tek Inc., 5901 S. County Rd. 18, Box 24035, Minneapolis, Minn. 55424 / Information storage devices and related equipment / DESCR: memory systems, planes and stacks for use in electronic data processing equipment / USE: information storage devices / - / E2

Floating Floors, Inc., (subsidiary of National Lead Co.), 22 E. 42nd St., New York, N.Y. 10017 / floating floors / DESCR: steel die formed panels -- extra strong design eliminates need of stringers for support. Treated with rust prevention paint, also electrically conductive / USE: computer room floors, general construction / $3 to $4 one sq. ft. installed / F2

Floating Floors, Inc., (subsidiary of National Lead Co.), *a / floating floors / DESCR: aluminum die cast panels, lightweight, stronger than steel, specially designed pedestal prevents any lateral movement of panels. No danger of rust, easily grounded electrically / USE: computer room floors, general construction / $4 to $5 one sq. ft. installed / F2

Liskey Aluminum, Inc., Box 580, Glen Burnie, Md. 21061 / Elaflor / DESCR: raised flooring / USE: computer and general purpose office spaces / - / F2

F3. FORMS, CONTINUOUS

Allied/Egry Business Systems, Inc., 429 East Monument Ave., Dayton, Ohio 45402 / continuous forms / DESCR: continuous, marginally-punched, carbon interleaved forms, stock, imprinted and custom / - / - / F3

Automated Business Forms Corp., 24 Forge St., Jamesburg, N.J. / continuous tabulating forms / DESCR: stock, imprinted and custom made continuous forms / USE: tabulators and computers / competitively priced / F3

Baltimore Business Forms, Inc.

Columbia Ribbon & Carbon Mfg. Co., Herb Hill Rd., Glen Cove, N.Y. / Colitho continuous offset forms / DESCR: offset duplicating plates in continuous form / USE: on tabulators, high speed printers where extra copies are required / - / F3

Columbia Ribbon & Carbon Mfg. Co., *a / ready master forms / DESCR: spirit duplicating masters in continuous form / USE: on tabulators, high speed printers where extra copies are required / - / F3

Essex Systems Co., Inc., 40 E. 49th St., New York, N.Y. 10017 / continuous tabulating forms / DESCR: stock, imprinted and custom made continuous forms / USE: tabulators and computers / competitively priced / F3

Philip Hano Co., Inc., 85 Sargeant St., Holyoke, Mass. 01040 / continuous forms marginally punched / DESCR: custom, standard, stock tab, tab imprints; production lithographed; stapled, pasted and crimped fastening / USE: typewriters, bookkeeping machines, electronic computers, data processing machines / - / F3

The Standard Register Co., Dayton, Ohio 45401 / business forms, continuous / DESCR: tailor-made and stock forms, continuous, marginally punched, various sizes, piles, with one-time carbons and carbonless papers / - / variable / F3

Transkrit Corp., 704 Broadway, New York, N.Y. 10003 / "Transkrit" forms / DESCR: continuous forms or unit sets using "Transkrit" hot wax spot carbonizing / - / available thru business forms dealers or printers only / F3

Wheeldex, Inc., 1000 No. Division St., Peekskill, N.Y. 10567 / continuous pinfeed forms / DESCR: single or multiple width pinfeed card forms, plain, printed, corners rounded or square or other special edge or interior punching / - / - / F3

F4. FORMS HANDLING EQUIPMENT

The Acratod Co. -- see T3A

The Standard Register Co., Dayton, Ohio 45401 / forms handling equipment / DESCR: forms bursters, burster-imprinters, rotary imprinters, decollators (horizontal and A-frame), linefinder attachments for key-driven office machines, forms feeding devices / USE: whenever processed continuous forms require automatic handling to remove carbons, obtain individual documents, etc. / - / F4

TAB Products Co. -- see D1

Wheeldex, Inc., 1000 N. Division St., Peekskill, N.Y. 10567 / mechanized files and continuous pinfeed forms / DESCR: automatic pushbutton filing and storage equipment for all size records / - / - / F4

G1. GENERATORS, FUNCTION

Burr-Brown Research Corp., 6730 S. Tucson Blvd., Tucson, Ariz. 85706 / function generator 1662 / DESCR: compact solid-state units offering high reliability and accuracy for a variety of signal conditioning or computing applications / USE: simulate transfer functions which cannot be handily described mathematically / $625 / G1

Datapulse Inc., Datapulse Div., 509 Hindry Ave., Inglewood, Calif. 90306 / pulse generators / DESCR: fast pulse generators with wide range repetition rates and output powers; programmed models also available / USE: design and test of pulse circuitry and systems / $345 to $1980 / G1

Elgenco, Inc.

General Radio Co., 22 Baker Ave., W. Concord, Mass. 01781 / electronic function generators / DESCR: producing sine and square waves, staircase or ramp wave-forms, pulse bursts, sync signals, pedestals, doubtlets, binary digits, etc. / USE: testing electronic equipment including data handling equipment / $215 to $2500 / G1

Philbrook Researches, Inc. -- see C9

G2. GENERATORS, FUNCTION, ELECTRONIC

Adage, Inc. -- see C11

CAE Industries Ltd. -- see C7

Datapulse Inc., Datapulse Div., 509 Hindry Ave., Inglewood, Calif. 90306 / digital data generators / DESCR: off-the-shelf digital test instruments for high speed simulated serial data, serial words, and pulse programs / USE: general logic and systems development, magnetic memory and tape equipment design and test / $1720 to $6680 / G2

Elgenco, Inc.

General Computers, Inc., 5990 W. Pico Blvd., Los Angeles, Calif. 90035 / card programmed diode function generator / DESCR: any function of an independent variable, Y = f (X), is set up by inserting a prepunched card into the integral card reader of this unique DFG / USE: in analog computer or control system to generate any desired function of an independent variable / $1500 to $4000/ G2

General Radio Co. -- see G1

Texas Instruments Inc., Industrial Products Group, 3609 Buffalo Speedway, Houston, Tex. 77006 / pulse generators / DESCR: wide variety; made-to-order versatility without delivery time or price penalties/ USE: testing and design functions in many areas of science, industry, military / - / G2

G3. GENERATORS, FUNCTION, MECHANICAL

George Kelk Ltd. -- see C20

H1. INFORMATION ENGINEERING

Ampex Corp. -- see H3

Applied Magnetics Corp., 749 Ward Drive, Santa Barbara, Calif. 93105 / magnetic heads / DESCR: precision magnetic recording heads custom designed. Analog, digital, interlaced and redundant assemblies. Research, prototype development and production quantities / USE: computer and instrumentation applications / $150 to $1500 / H1

Ferroxcube Corp., Saugerties, N.Y. 12477 / recording heads / DESCR: complete multiple track recording head assemblies for drum, disc and contact recording applications to standard or customers' specifications with precisely controlled dimensional and finished tolerance / USE: recording of digital data storage on drum, disc or tape / custom design / H1

General Instrument Corp., Magnehead Div., 13040 S. Cerise, Hawthorne, Calif. 90250 / digital tape heads / DESCR: input-output transducer for magnetic tape / USE: on any digital tape deck / $50 to $2000 / H1

Lipps, Inc., 1630 Euclid St., Santa Monica, Calif. 90404 / magnetic recording heads / DESCR: complete line of instrumentation and audio heads for professional equipment / USE: with all kinds of tape and drum recording equipment / $50 to $2000 / H1

Midwestern Instruments, Inc., Subsidiary of Tele Corp.

Norton Associates, Inc. 240 Old Country Rd., Hicksville, N.Y. 11801 / magnetic heads / DESCR: standard and special magnetic record, playback and erase heads in single and multi-track arrangements / USE: magnetic tape, film, drum, magnetic ink character recognition / wide range / H1

Pickering & Co., Inc., Sunnyside Blvd., Plainview, N.Y. 11803 / magnetic drum heads / DESCR: non-contracting for computer & data acquisition systems. Stereophonic/monophonic tape heads for OEM & commercial applcns / - / $11.95 to $34 / H1

S-I Electronics, Inc., 103 Park Ave., Nutley, N.J. 07110 / read and write heads, digital magnetic tape transport / DESCR: various head configurations for transports which can be computer compatible, IBM, UNIVAC, etc.; from 7 to 21 tracks / USE: mounted to digital magnetic tape transports for eading from or writing on digital magnetic tape / varies / H1

H2. HEADS, MAGNETIC

Applied Magnetics Corp. -- see H1

Ferroxcube Corp. -- See H1

General Instrument Corp., Magnehead Div. -- see H1

Lipps, Inc. -- see H1

Norton Associates, Inc. -- see H1

Pickering & Co., Inc. -- see H1

S-I Electronics, Inc. -- see H1

H3. HEADS, RECORDING

Ampex Corp., Audio and Video Communications Div., Instrumentation Div., 401 Broadway, Redwood City, Calif., 94063 / recording heads / DESCR: longitudinal and rotary / USE: for Ampex videotape, instrumentation, professional audio, and digital tape recorders / - / H3

Applied Magnetics Corp. -- see H1

Ferroxcube Corp. -- see H1

General Instrument Corp., Magnehead Div. -- see H1

Lipps, Inc. -- see H1

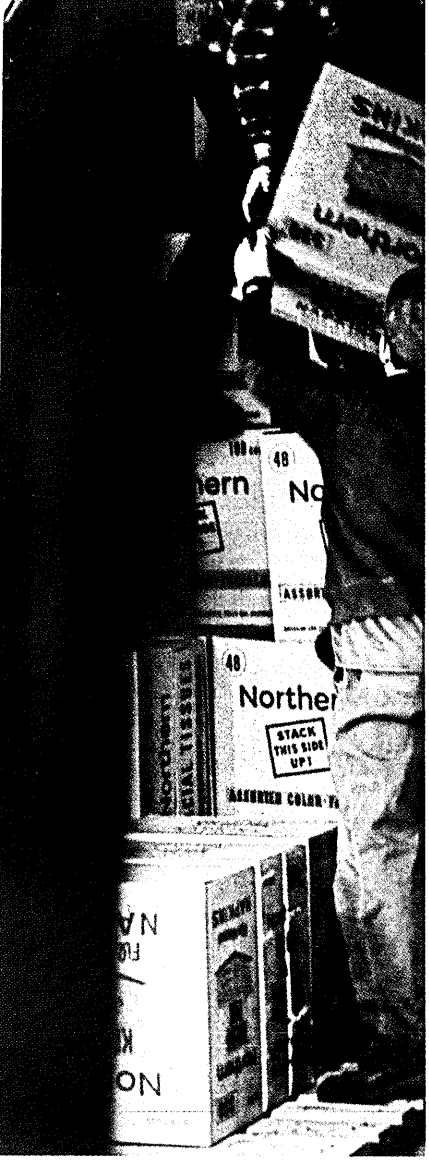
Norton Associates, Inc. -- see H1

Pickering & Co., Inc. -- see H1

S-I Electronics, Inc. -- See H1

I1. INFORMATION ENGINEERING

Aries Corp., Westgate Research Park, McLean, Va. 22101 / communications based management information systems / DESCR: design and implementation of financial and management information systems, which utilize communications for input and query response to remote locations on a real-time basis / USE: computerized organization management and reporting system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Norther
STACK THIS SIDE UP!

IBM
SYSTEM 360

Digital Devices, Inc., 200 Michael Dr., Syosset, L.I., N.Y. / memory systems / DESCR: random, sequential, interlaced memory and buffer systems; deltic correlators / USE: computers, data systems, signal processors / $500 to $50,000 / M2
Digital Devices, Inc. -- see D5
Electron Ohio, Inc. -- see D1
Electronic Engineering Co. of Calif., P.O. Box 58, Santa Ana, Calif. 92702 / EECO 781 magnetic core memory / DESCR: random access, sequential access, and sequential interlace. Capacities from 8 x 256 to 18 x 4096; 5 microsecond cycle time / - / $3800 to $7800 / M2
Electronic Memories, Inc., 12621 Chadron Ave., Hawthorne, Calif. 90250 / MIL-SPEC core memory stacks / DESCR: low weight; high speed; 30- and 20-mil stacks; high systems tolerance; integral heat sink to 1/3 more bits per inch; shock and vibration resistant matrix / USE: military; space / - / M2
Electronic Memories, Inc., *a / NANOMEMORY 650 and NANOMEMORY 900 memory systems / DESCR: high speed, large capacity; 650 and 900 nanosecond cycle time; 300 and 350 nanosecond access time, respectively; capacity to 16,384, 84-bit words / USE: high-speed digital storage / - / M2
Electronic Memories, Inc., *a / (2) 1/2D NANOSTAK memory stacks / DESCR: high speed; large capacity to 16,384 words of up to 84 bits; 2 1/2D organization / USE: memory systems / - / M2
Electronic Memories, Inc. *a / SEMS® series of military and aerospace memory systems / DESCR: low weight and volume, minimum power, high reliability / USE: satellites, aircraft, ship, GSE equipment / - / M2
Fabri-Tek, Inc., 5901 S. County Rd. 18, Minneapolis, Minn. / core memory systems / DESCR: range in speed from 10 usec to 375 nsec and up to 20 million bits or more / USE: computer main memory; instrumentation and computer peripheral equipment / - / M2
Fabri-Tek, Inc. *a / thin film memory systems / DESCR: range in speed from 375 nsec to 150 nsec / USE: computer "scratch pad" memory, etc. / - / M2
Fabri-Tek, Inc. -- see E2, S4
Ferroxcube Corp., Saugerties, N.Y. 12477 / memory systems / DESCR: low cost, covering all sizes from 128 words x 8 bits to 16K x 32 bits in speeds ranging from 10 microseconds down to 1 microsecond / USE: data storage for digital data processing systems / custom design / M2
General Atronics Corp. -- see C1
General Precision, Inc., Librascope Group, 808 Western Ave., Glendale, Calif. 91201 / L-400 disc memories / DESCR: series of high-capacity disc memories, featuring a storage capacity up to 36 million bits / USE: peripheral memory or as mainframe memory / - / M2
General Precision, Inc., Librascope Group, *a / L-4800 and 3800 mass memory disc files / DESCR: large-scale, random-access, high-capacity disc-file mass memories / USE: as data base in on-line, real-time computer systems, or other large data processing systems / - / M2
General Precision, Inc., Librascope Group, *a / woven plated-wire memories / DESCR: machine-woven memories; operate in nanosecond speed, are light weight, have low power consumption / USE: as scratchpad or main memory in aerospace, military, and commercial computers / - / M2
LFE Electronics, 1075 Commonwealth Ave., Boston, Mass. 02215 / batch-fabricated core memories / DESCR: low-cost, light-weight, low-power, medium speed coincident circuit core memories, batch-fabricated by photo-etching techniques from permalloy / USE: computer memories, including airborne applications / - / M2
Lockheed Electronics Co. -- see C33
Potter Instrument Co., Inc.
Raytheon Computer, 2700 S. Fairview, Santa Ana, Calif. 92704 / BIAX memory products / DESCR: memory systems using BIAX nondestructive readout ferro-magnetic element; provide up to 2000 bits per cubic inch storage and readout rates up to 20MC / USE: airborne, spaceborne and ground computer; data processing systems / 10¢ a bit and upward / M2
Rese Engineering Inc., A and Courtland Sts., Philadelphia, Pa. 19120 / magnetic core memories / DESCR: speeds from 1.5 usec full cycle to 10 usec full cycle; low cost units and highly sophisticated units / USE: - / $1000 up / M2
Scientific Data Systems, Inc., 1649 Seventeenth St., Santa Monica, Calif. 90404 / memory systems / DESCR: modular integrated-circuit memories (256 bits) / - / $400 per module / M2
TRW Systems Group, 1 Space Park, Redondo Beach, Calif. 90278 / memory systems / DESCR: complete systems from existing product lines; capability to design and develop new ones for any mission requirements / - / - / M2

M4. MULTIPLIERS, DIODE

Philbrock Researches, Inc. -- see C9

M5. MULTIPLIERS, ELECTRONIC

Adage, Inc., 1079 Commonwealth Ave., Boston, Mass. 02215 / hybrid multiplying DAC / DESCR: multiplies analog voltage by digital number directly; eliminates motor-driven pots. 15-bit resolution, 100 usec settling to 0.01% final value / - / $930 to $1350 / M5
Burr-Brown Research Corp., 6730 S. Tucson Blvd., Tucson, Ariz. 85706 / multiplier/divider Model 1661 / DESCR: a quarter-square for quadrant electronic multiplier or a two quadrant electronic divider at high operational accuracy / USE: a variety of specialized functions in industrial analog applications / $595 / M5
Philbrock Researches, Inc. -- see C9

O1. OFFICE MACHINES

The National Cash Register Co., Main & K Sts., Dayton, Ohio 45409 / NCR 395 electronic accounting machine / DESCR: transistorized, electronic, accounting and computing system; performs initial processing or serves as a satellite where initial processing requires by-product machineable media / USE: for varied data processing applications in all types and sizes of business / $10,000 to $24,000 / O1
Wheeldex, Inc. -- see F4, P14, T3, T8
Wyle Labs -- see C10

O2. OPERATIONS RESEARCH

Bonner & Moore Associates, Inc., 500 Jefferson Bldg., Houston, Tex. 77002 / operations research / DESCR: forecasting and econometrics; corporate simulations through investment allocation, planning and scheduling models and general mathematical model developments / USE: industrial fields / consulting or contractual basis / O2
Booz, Allen Applied Research, Inc. -- see C14, C15
H&B-Singer, Inc. -- see I1
Keystone Computer Associates, Inc. -- see P12
McDonnell Automation Center, Box 516, St. Louis, Mo. 63166 / operations research / DESCR: simulation and optimization of tactical and strategic operating, manufacturing and distribution functions for industry and government - complete engineering analysis of structures, networks and equipment / - / - / O2
URS Corp., 1811 Trousdale Drive, Burlingame, Calif. 94011 / operations research / DESCR: mathematical modeling and simulation in inventory, production, traffic control; communications, combat, management and administrative operations; command and control systems / - / - / O2
Wolf Research & Development Corp., P.O. Box 36, Baker Ave., W. Concord, Mass. 01781 / operations research / DESCR: computer applications of regression analysis to system data analysis; mathematical modeling, simulation in inventory, traffic control, communications, management and administrative operations / - / - / O2

P1. PANELS

DA-PEK Company -- see C8
General Electric Co., Process Computer Business Section
Hammond Manufacturing Co. Ltd., 394 Edinburgh Rd. North, Guelph, Ont., Canada / panels / DESCR: aluminum or steel, natural or baked enamel finish, flat or formed; can be custom made to specs / USE: for mounting, protecting, ventilating, computer components and sub assemblies / $1 to $10 / P1

P3. PANELS, RELAY RACK

Hammond Manufacturing Co. Ltd., 394 Edinburgh Rd. North, Guelph, Ont., Canada / relay rack / DESCR: steel, baked enamel, open floor and enclosed floor table models and cabinet racks; special racks to customer specifications / USE: supporting panel mounted computer systems and sub assemblies / $15 to $250 / P3

P4. PAPER TAPE

Addo-X, Inc. -- see D3
Invac Corp. -- see T9
Paper Manufacturers Co., 9800 Bustleton Ave., Phila., Pa. 19115 / PERFECTION® perforator tape / DESCR: in rolls or fanfolded; available in wide variety of colors, diameters, widths and compositions / USE: for communications, data processing and programming / varies / P4

P6. PLOTTERS (SEE ALSO BOARDS -- PLOTTING)

Auto-trol Corp., 5566 Harlan, Arvada, Colo. 80002 / Auto-trol model 6000 data plotter / DESCR: all digital solid state incremental plotter featuring .001" steps, complete line drawing at any angle with one command capabilities, speeds up to sixty inches per second, 384 character printer, internally programmed for varying input formats, and drawing of up to a four inch diameter circle with one command / USE: automatic drafting, maps, electronic schematics, scribing, sketching, art work, graphs, etc. / $25,000 to $75,000 / P6
California Computer Products, Inc. -- see D1
Discon Corp., 4250 NW 10th Ave., Fort Lauderdale, Fla. 33309 / digital plotter / DESCR: high resolution photo-electric readers traversing 19 track linear encoder scales provides absolute position sensing plotter; extreme accuracy and repeatability / USE: off line and on line plotting and drafting / $95,000 to $130,000 / P6
Geo Space Corp., 5003 Glenmont Drive, Houston, Tex. / DP-203 digital photographic plotter / DESCR: on-line computer generated infinitely variable and flexible; alphameric character and curvi-lineal function; displays at extremely fast plotting rates on either paper or film / USE: to produce pictorial and graphic displays / - / P6
The Gerber Scientific Instrument Co., 83 Gerber Rd., South Windsor, Conn. (P.O. Box 305, Hartford, Conn.) / automatic drafting systems / DESCR: numerically controlled; operate from punched tape, magnetic, or tape on-line; 4 control series with table sizes to 5'x20'; accuracies to .0009"; also specialized models / USE: generating drawings, charts, maps, etc. / $25,000 to $150,000 / P6
Stromberg-Carlson Corp., Data Products Div. -- see D3

P7. PLUGBOARDS

AMP Inc., Eisenhower Blvd., Harrisburg, Pa. 17105 / pinboards / DESCR: matrix and universal pinboards / USE: switching operations / - / P7
Litton Industries, Triad Distributor Div. -- see C3

P8. PRINTERS

The Bunker-Ramo Corp. -- see D1
Data Communications, Inc., Church Rd., P.O. Box 29, Moorestown, N. J. 08057 / DCI 150 teleprinter / DESCR: high speed on- or off-line printer capable of operating directly with a CX paper tape reader at 1,500 wpm producing an original and 6 copies / - / $6700 to $9600 / P8
Data Products Corp., 8535 Warner Dr., Culver City, Calif. 90321 / off-line print stations / DESCR: high-speed LINE/PRINTERS ® driven from magnetic tape or paper tape / USE: to handle requirements for output printing in date processing and data communications systems / $30,000 to $50,000 / P8
Data Products Corp. *a / on-line printers / DESCR: high-speed LINE/PRINTERS ® directly connected to computer systems to provide printed output / USE: as part of data processing system / $25,000 to $50,000 / P8
Holley Computer Products Co., Subsidiary of Control Data Corp., 1408 N. Rochester Rd., Rochester, Mich. 48063 / 9330 line printer / DESCR: medium-speed, electro-mechanical drum printer; standard printing speed, three hundred, 120 column lines per minute, 64 character; optional speed 400 lines per minute, printing 48 characters / USE: output device for a digital data system, analog-to-digital converter, tape or card reader / $10,000 to $17,000 / P8
Potter Instrument Co., Inc.
Straza Industries -- see D3
Teletype Corp.

P9. PLOTTERS, HIGH SPEED

Anelex Corp., *a / 4000 Printer / DESCR: compact printer, 300 lines per minute, up to 150 columns, DATA-PHONE interface / USE: remote terminal installations, small-scale computers, public, private communications systems / - / P9
Anelex Corp., *a / 5000 Printer / DESCR: fully buffered high speed printer, up to 1250 lines per minute, 160 columns, on-line operation with central processor, off-line with tape or memory unit / - / - / P9
Anelex Corp., *a / 5000 Printer / DESCR: fully buffered high speed printer, up to 1250 lines per minute, 160 columns, on-line operation with central processor, off-line with tape or memory unit / - / - / P9

Anelex Corp., Anelex Bldg., 150 Causeway St., Boston, Mass. 02114 / high speed print station / DESCR: 1250 lines per minute, 160 columns, on-line operation with IBM 1400, 7000, 360, off-line with 7 or 9 channel magnetic tapes / USE: business, banking, EDP installation / - / P9

The Bristol Co., Waterbury, Conn. 06720 / high speed printer / DESCR: serial entry printer for data logging or computing system; any standard input code; printout up to 75 characters/ sec. / USE: operate from data processing equipment, punched tape, magnetic tape / - / P9

Control Data Corp.

Data Communications, Inc. -- see P8

Data Products Corp., *a / high-speed LINE/PRINTERS ® / DESCR: 300, 600, 1000 line-per-minute LINE/PRINTERS, both commercial and militarized versions / USE: as part of data processing system / $15,000 to $25,000 -- see P8

Data Products Corp. -- see P8

DI/AN Controls, Inc. -- see D3

Franklin Electronics Inc., East Fourth St., Bridgeport, Pa. 19405 / digital printers / DESCR: high speed digital printers; 1 to 32 columns wide; speeds to 40 LPS; alpha numeric print-out optional / USE: on-line printout from computers / $250 to $5500 / P9

Franklin Electronics, Inc., E. Fourth St., Bridgeport, Pa. / digital printers / DESCR: high speed; 1 to 32 columns wide; speeds to 40 lines per second; alpha numeric print-out optional / USE: on-line print-out from computers / $250 to $5500 / P9

General Precision, Inc., GPL Div., Bedford Rd., Pleasantville, N.Y. 10570 / TV hard copy printer / - / - / $7000 to $10,000 / P9

Holley Computer Products Co., Subsidiary of Control Data Corp., 1480 N. Rochester Rd., Rochester, Mich. 48063 / 9300 line printer / DESCR: high-speed electro-mechanical drum printer; standard printing speed one thousand, 136 column lines per minute, printing 48 characters; optional speed 800 lines per minute, printing 64 characters / USE: output device for digital computers / $16,000 to $30,000 / P9

Honeywell, Inc., Electronic Data Processing Div., 60 Walnut St., Wellesley Hills, Mass. 02181 / high speed printers / DESCR: line printing at speeds from 450 to 1350 LPM / USE: data processor peripheral / $25,000 to $60,000 / P9

Litton Industries, Monroe DATALOG Div., 343 Sansome, San Francisco, Calif. / MC4000 ultra high speed printer / DESCR: printout rate compatible with most computer processing rates; basic printers require serial character input with print command; digital waveform generator writes and positions characters on face of cathode ray tube; uses standard direct-write oscillograph papers; image made visible by latensifying with ordinary fluorescent lights; full visibility, less than one second / USE: printing high speed telemetry data, for monitoring in-process control systems and for all applications requiring complete reliability, fast printouts, and quiet operation / $5650 / P9

Oki Electronics of America, Inc., 292 East 44th St., New York, N.Y. 10017 / line printer / DESCR: high speed flying belt type line printer (up to 1000 lpm) / USE: computer input-output / $9000 to $13,000 / P9

Photon, Inc. -- see D1

Soroban Engineering, Inc., Port Malabar Indistrial Park - Palm Bay, P.O. Box 1690, Melbourne, Fla. 32902 / printers / DESCR: page printers, paper tape printers, and punch card printers using Soroban printer digital positioner / - / on request / P9

Stromberg-Carlson Corp., Data Products Div. -- see D3

## P10. PRINTERS, KEYBOARD

Connecticut Technical Corp. -- see T17

Invac Corp. -- see D1

Omni-Data, Div. of Borg-Warner Corp., 511 N. Broad St., Philadelphia, Pa. 19123 / electrostatic strip printers / DESCR: high-speed; electrostatic recording technique to print code, symbols or alphanumeric characters on coated paper 1/4" to 12" wide / USE: data processing, communications, telemetry, output devices / $7485 to $200,000 / P10

## P11. PRINTERS, LINE-A-TIME

Control Equipment Corp., 19 Kearney Rd., Needham Heights, Mass. 02194 / Series 5010 data printer / DESCR: permanent digital data recording; 6 to 20 columns; 2 lines per sec.; parallel entry 8421 cose; low-level logic signals inputs; front panel paper and ribbon replacement / - / $1200 to $2200 / P11

General Radio Co., 22 Baker Ave., W. Concord, Mass. 01781 / line-a-time date printers / DESCR: up to 12 digits can be printed at a rate of 3 prints per second / USE: convert decimal coded information into printed form / $1500 to $1565 / P11

Victor Comptometer Corp., 3900 N. Rockwell St., Chicago, Ill. 60618 / Digi-Matic printers / DESCR: solenoid controlled digital printers, accumulators, listers, calculators, and time-data printers / USE: print-out from data acquisition systems / $305 to $1400 / P11

## P12. PROGRAMMING SERVICES

Applied Data Research, Inc., Route 206 Center, Princeton, N.J. 08540 / programming services / DESCR: software development: automatic programming aids; sort/merge systems; operating systems; compilers / USE: manufacturers; large users; commercial; scientific applications / - / P12

Aries Corp., Westgate Research Park, McLean, Va. 22101 / programming services / DESCR: analysis, design, programming and implementation for Management Information Systems, Scientific Problem Solution, Statistical Analysis and Reporting, Information Retrieval and Data Conversion / USE: computer programming / determined by job requirements / P12

Aries Corp., *a / real-time implementation / DESCR: computer software for real-time receipt, processing and output of data in communications based management information systems or on-line data collection and reduction applications / USE: computer controlled real-time communications systems / determined by job requirements / P12

Aries Corp., *a / software development / DESCR: design and development of specialized programming aids and utility routines, executive systems, statistical report generators, hardware diagnostics and program conversion techniques / USE: increase effectiveness of computer operations / determined by job requirements / P12

Automated Data Processing Services, Inc.

Bonner & Moore Associates, Inc., 500 Jefferson Bldg., Houston, Tex. 77002 / programming systems / DESCR: development of specialized application languages and mathematical programming systems; proprietary packages in matrix generation; linear programming and management information system languages / USE: computer systems / contractual or consulting basis / P12

Booz, Allen Applied Research, Inc. -- see C14

Brandon Applied Systems, Inc., 30 E. 42nd St., New York, N.Y. 10017 / planned standard programming services / DESCR: a unique programming service on a firm fixed price basis. A detailed project manual is developed, which includes programming standards before work is begin / - / quoted individually / P12

Celestron Associates, Inc. -- see C15

Computer Associates, Inc.

Computer Sciences Corp.

Computing & Software, Inc. TSI Division, in55 Van Nuys Blvd., Panorama City, Calif. 91402 / programming services / DESCR: scientific computer software employed for processing of missile flight, rocket static test, artillery fire control, intelligence, meteorological, satellite orbital data, and various business computer software / USE: at data centers in Los Angeles and at Government locations / P12

Control Technology, Inc. 1232 Belmont Ave., Long Beach, Calif. 90804 / programming services / DESCR: software development; applications, systems and utility routines; digital simulation models / - / - / P12

Datamation Assistants Co. Inc., Ninianne Blvd. & Rt. 1, Princeton, N.J. 08540 / computer software and service bureau / DESCR: information retrieval and total management operating systems, type and photo setting programs, cost analysis, legal and similar information retrieval and thesarus building programs / USE: service to clients as applicable / $10,000 to $250,000 / P12

Decision Systems Inc.

HRB-Singer, Inc. -- see I1

Informatics, Inc., 5430 Van Nuys Blvd., Sherman Oaks, Calif. 91401 / programming services / DESCR: specialists in on-line, real-time systems; offices from coast to coast and in Europe / P12

Information International Inc., 200 Sixth St., Cambridge, Mass. 02142 / programming services / DESCR: develop sophisticated assemblers and compilers converting software systems and languages from one computer to another / USE: negotiated contract / variable / P12

ITT Data Services, a division of International Telephone and Telegraph Corp. -- see C14

Keystone Computer Associates, Inc., 409 N. Easton Rd., Willow Grove, Pa. 19090 / programming services / DESCR: services in systems design, development, analysis, and programming; systems engineering, scientific and data processing applications; management consulting / - / - / P12

Management Systems Corp., 209 Griffin St., Dallas, Tex. 75202 / programming services / DESCR: specification writing; system design and program definition; software development; applications programming for accounting, inventory and business systems; experienced on GE, Honeywell, IBM, NCR and RCA / - / $12.50 to $20/per net hr. / P12

McDonnell Automation Center, Box 516 St. Louis, Mo. 63166 / programming services / DESCR: programming of nearly any scope or complexity by experienced programmers -- a variety of program languages / USE: scientific or business applications / - / P12

National Computer Analysts, U.S. Highway 1, Lynwood Dr., Princeton, N.J. 08540 / programming services / DESCR: software (assemblers, compilers), commercial systems (management information, payroll, inventory), print composition systems (newspaper, books), job programming, message switching systems / - / - / P12

Profimatics, Inc.

Programmatics Inc., 12011 San Vicente Blvd., Los Angeles, Calif. 90049 / Assembly Programs / DESCR: only commercially available meta-assembler; computer independent; assemble for any machine on any machine / USE: free-standing or system processor / $10,000 to $50,000 / P12

Programmatics Inc., *a / Systems Programming / DESCR: Assemblers, FORTRAN, COBOL, ALGOL, PL-I, Operating Systems, Sort-Merge, PERT / USE: free-standing or system processor / - / P12

Programming Services, Inc.

B. I. Savage Co. -- see C15

The Service Bureau Corp.

Systems Science Corp. -- see C15

Technical Information Processing, 1503 N. Washington, Wheaton, Ill. 60187 / technical programming / DESCR: optimizing programs, including Bellman's dynamic programming, Pontryagin's maximum principle and variational forms; electrical equipment design, networks and delay lines / USE: design and operating problems / $100 to $5000 / P12

Telecomputations, Inc.

Merle Thomas Corp. -- see C15

TRW Systems Group, 1 Space Park, Redondo Beach, Calif. 90278 / programming services / DESCR: all types of applications-- missile guidance and control; communications code generation, etc. / - / P12

URS Corp., 1811 Trousdale Drive, Burlingame, Calif. 94011 / programming services / DESCR: programming languages, computer simulations, real-time routines, executive routines, operating systems, assembly programs, monitors, report generators, file processors, information storage, retrieval, compilers / - / - / P12

Westinghouse Electric Corp., Advanced Data Systems

Wolf Research & Development Corp., P.O. Box 36, Baker Ave., West Concord, Mass. 01781 / programming services / DESCR: mathematical analysis and programming services; large staff of analysts and programmers experienced in programming scientific, engineering, business, industrial, aerospace, military applications / USE: digital computers / - / P12

## P13. PUBLICATIONS

Auerbach Corp., 121 N. Broad St., Philadelphia, Pa. 19107 / Auerbach standard EDP reports / DESCR: 8 vol. reference service, up-to-date analytical information on major computer systems; comparative evaluations by means of standardized "benchmark" tests / USE: analysts; systems designers / - / P13

Bonner & Moore Associates, Inc. -- see I1, P12

Data Processing Management Assoc., 505 Busse Highway, Park Ridge, Ill. 60068 / Introducing Computers to Small Business / DESCR: the uses and misuses of computers and related EDP equipment and services by small businesses / - / $7.75 / P13

Data Processing Management Assoc., *a / Journal of Data Management / DESCR: monthly publication of the DPMA published for the data processing users group / - / $5 per year / P13

Commerce Clearing House, Inc.

Hayden Book Co., Inc., 116 West 14th St., New York, N. Y. / textbooks / DESCR: texts and trade books on subjects of: programming, digital tape recording, digital computers and systems, analog computers, data transmission and systems / USE: training and general information / $3.50 to $15 / P13

Informatics, Inc., 5430 Van Nuys Blvd., Sherman Oaks, Calif. 91401 / publications / DESCR: prepared major software publications for IBM and UNIVAC; nationwide services / - / - / P13

Jonker Corp., 26 N. Summit Ave., Gaithersburg, Md. 20760 / publication indexes / DESCR: indexes to chemical compound spectra including infrared, nuclear magnetic resonance, X-ray diffraction, gas chromatography and mass spectroscopy / USE: to identify unknown chemical compounds or mixtures / $300 to $1000 / P13
Jonker Corp. -- see D3, C15

P14. PUNCH CARD ACCESSORIES

Dolin Metal Products, Inc., 315 Lexington Ave., Brooklyn, N.Y. 11216 / tab card files / DESCR: build-up type drawers in 4 sizes, 2 styles; storage units for tab card boxes / USE: general filing and storage / $3.50 to $4.50 per drawer / P14
Entelek, Inc., 42 Pleasant St., Newburyport, Mass. 01950 / keypunch performance aids / DESCR: 5 flowcharts guide 024 & 026 keypunch operators through preparation of program planning card, alphanumeric punching and error correction / - / $15 / P14
Monarch Metal Products, Inc. -- see D1
Ray Myers Corp., 1302 E. Main St., Endicott, N. Y. 13760 / punch card accessories / DESCR: mobile and fixed equipment / USE: for storage and processing / - / P14
TAB Products Co. -- see D1
Wheeldex, Inc., 1000 N. Division St., Peekskill, N.Y. 10567 / mechanized files and continuous pinfeed forms / DESCR: special automatic files for handling punch cards, tabulating cards in any volume / - / - / P14
Wright Line Division Barry Wright Corp., 160 Gold Star Blvd., Worcester, Mass. 01606 / Gold Star Filing System / DESCR: composed of 14 pieces of equipment including 3 wide files of 30 drawers to 1 drawer desk models; / one tray used in all files / USE: for filing of punched cards / depends on complement of equipment / P14

P15. PUNCH CARD MACHINES

Addo-X, Inc. -- see D3
Honeywell, Inc., Electronic Data Processing Div., 60 Walnut St., Wellesley Hills, Mass. 02181 / card reader/punch / DESCR: punched card reading and/or punching at 100-400 cpm / USE: data processor peripheral / $13,500 to $15,750 / P15
Soroban Engineering, Inc., P.O. Box 1690, Melbourne,Fla. 32902 / card equipments / DESCR: card punches, card readers, card interpreters (all end-feed) / USE: computer input-output, punches to 650 cards per min., readers to 1100 cards per min. / on request / P15
Uptime Corp., 15910 West 5th Ave., Golden, Colo. 80401 / SPEED-PUNCH 120 / DESCR: asynchronous serial card punch; speed, 160 char. per sec., echo check punch verification, photoelectric jam detection. Optional: offset reject, hole count verification, 50-cycle, 230-volt power / USE: card output from processing systems / $10,500 to $12,300 / P15
Paul G. Wagner Co., 1227 S. Shamrock Ave., Monrovia, Calif. 91016 / MICRO-PUNCH 461 / DESCR: portable, printing key punch; gang punches and prints fully interpreted numeric data into standard 80 column cards, weighs 8 pounds / USE: production control, inventory recording, etc. / $245 / P15

R1. READERS

Chalco Engineering Corp., 15126 S. Broadway, Gardena, Calif. 90247 / regulated solid state power supplies / DESCR: photoelectric line and block punched tape reading devices; mechanical block tape reading devices; supporting tape handler equipment / USE: numerical controls and data input device / $400 to $3000 / R1
Cook Electric Co., Data Stor Div., 6401 W. Oakton, Morton Grove, Ill. 60053 / readers / DESCR: paper tape; photoelectric; magnetic tape; character by character / USE: reads data on tape / $4000 to $13,000 / R1
DA-PEX Company -- see C8
General Electric Co., Process Computer Business Section
Omni-Data, Div. of Borg-Warner Corp., 511 N. Broad St., Philadelphia, Pa. 19123 / photoelectric tape readers / DESCR: for reading virtually all punched tape from translucent to opaque / USE: data processing input, communication terminals, numerical control input / $540 to $3190 / R1
Potter Instrument Co., Inc.
Trak Electronics Co., Inc. -- see C19

R2. READERS -- CHARACTER

Cognitronics Corp. 549 Pleasantville Rd., Briarcliff Manor, N.Y. / remote optical character recognition / DESCR: consists of remotely located scanners transmitting over telephone lines to centrally located, multiplexed character recognition equipment / USE: transmitting of typed or printed data for conversion into machine language / - / R2
Control Data Corp., 8100 34th Ave. So., Minneapolis, Minn. 55440 / Control Data 915 Page Reader / DESCR: high-speed character recognition printed page reading device; allows direct transmission of printed data to computer; reads ASA standard type font; handles documents up to 11" x 14" / USE: - / - / R2
Cook Electric Co., Data Stor Dov. -- see R1
Discon Corp. -- see C26
General Precision, Inc., GPL Div., Bedford Rd., Pleasantville, N.Y. 10570 / GPL character vector generator / - / - / $20,000 to $50,000 / R2
OPTOmechanisms Inc., 40 Skyline Drive, Plainview, N.Y. 11803 / photo interpretation film viewers / DESCR: high resolution stereo for 70mm to 9" film; visual display of angular/coordinate measurements; output to tape punch, typewriter, card punch, printer or on-line computer / USE: viewing roll film; taking precise X-Y coordinate measurements on film to 1 micron accuracy / - / R3
Recognition Equipment Inc. -- see D2

R3. READERS -- FILM

General Precision Inc., Link Group -- see D3
Information International Inc., 200 Sixth St., Cambridge, Mass. 02142 / programmable film reader / DESCR: three models available - systems automatically extracts customer specified data from film under program control; reads any data originally collected on or transferred to film; output on magnetic tape -- also writes on film / USE: similar to digital computer except that it has film I/O (16mm-35mm or 70mm) / $241,000 up / R3

R5. READERS, MAGNETIC INK

Cook Electric Co., Data Stor Div. see R1

R6. READERS, MAGNETIC TAPE

Control Data Corp.
Cook Electric Co., Data Stor Div. -- see R1
Lufkin Research Laboratories, 210 W. 131st St., Los Angeles, Calif. 90061 / magnetic tape readers / DESCR: accepts tape cartridges from recorders for on-line tape processing / - / $9000 to 12,000 / R6
Midwestern Instruments, Inc., Subsidiary of Tele Corp.
Photocircuits Corp., Glen Cove, N.Y. / tape movement through read head by means of direct drive capstan utilizing printed motor. No pinch rollers, friction brakes, clutches or solenoids used, no adjustments required / USE: data processing accessory equipment, data recording and readout device for paper and magnetic tape / $1575 to $3330 / R6
Trak Electronics Co., Inc. -- see C19

R7. READERS, PAPER TAPE

Addo-X, Inc., 845 Third Ave., New York, N.Y. 10022 / Addo-X tape reader / DESCR: 12 characters per sec. paper tape reader; reads 5, 6, 7 or 8 channel tape; posting to adding or bookkeeping machine / - / - / R7
Carlton Controls Corp. -- see R8
Chalco Engineering Corp -- see R1
Control Data Corp.
Cook Electric Co., Data Stor Div. -- see R1
Creed & Co. Ltd., Hollingbury, Brighton, Sussex, England / teleprinter manufacturer / DESCR: telegraph communications equipment and range of paper tape handling equipment for tape preparation, verification, duplication, translation and editing / USE: in variety of data processing installations where paper tape is used for input or output / - / R7
Ferranti-Packard Electric Ltd., Industry St., Toronto 15, Ontario, Canada / photo electric paper tape readers / DESCR: various models, both military and commercial, from 50 to 1000 characters per second. Latest release is a 1000 character per second reader/spooler / USE: computer I/O; data communications; numerical control; off line editing / $2730 to $10,000 / R7
Invac Corp. -- see T10, T7
Omni-Data, Div. of Borg-Warner Corp. -- see R1
Photocircuits Corp. -- see R6
Rheem Electronics, 5250 W. El Segundo Blvd., Hawthorne, Calif. 90250 / photoelectric punched tape readers / DESCR: transistorized and micrologic character and block readers; speeds 20 ch/sec. to 1000 ch/sec. with or without fanfold tanks, take-up and supply reels / USE: peripheral device for entry of digital information / $400 to $3000 / R7
Soroban Engineering, Inc., Port Malabar Industrial Park - Palm Bay, P.O. Box 1690, Melbourne, Fla. 32902 / tape equipments / DESCR: tape perforators, readers, and printers. Perforators to 300 char. per sec. / USE: tape perforator/readers, perforator/printers / on request / R7 -
Tally Corp., 1310 Mercer St., Seattle, Wash. 98109 / Tally readers and perforators / DESCR: perforate and read paper, plastic, foil at speeds to 150 char/sec; asynchronous, bidirectional operation. Perforators feature bit for bit read after write mode checking; readers utilize star wheel principle / USE: digital data systems / $325 to $1800 / R7
Teletype Corp.
Wang Laboratories, Inc., 839 North St., Tewksbury, Mass. 01876 / block tape readers / DESCR: parallel readout device from 6 to 32 lines/block with form A contact. Utilizes tape as storage medium, operates by pulsing a solenoid / USE: numerically controlled equipment for programmed production or testing / $1200 to $2200 / R7
Wang Laboratories, Inc. *a / programmable block tape reader / DESCR: parallel readout device for fixed and/or variable block lengths of 4 to 40 lines to drive relays or transistors / USE: numerically controlled equipment for programmed production or testing / $1750 to $3550 / R7
Wang Labs, Inc. -- see C36, D6

R8. READERS, PHOTOELECTRIC

Carlton Controls Corp., 15 Sagamore Rd., Worcester, Mass. 01605 / photoelectric tape reader / DESCR: perforated, for either paper or mylar tape; requires no adjustment or maintenance other than avoidance of abuse. Speed 60 characters per second / USE: to read perforated tape / $400 to $500 / R8
Chalco Engineering Corp. -- see R1
Discon Corp. -- see C26
Ferranti-Packard Electric Ltd. -- see R7
International Rectified, 233 Kansas St., El Segundo, Calif. 90246 / photoelectric readouts / DESCR: silicon array of light sensing and converting elements; converts light energy to electrical energy in conjunction with openings pre-arranged in information carrier / USE: standard or custom designed assemblies / $1 to $95 / R8
Invac Corp. -- see T10, T7
Oki Electronics of America, Inc. 202 East 44th St., New York, N.Y. 10017 / serial card reader / DESCR: 80 column standard card; 100 cards per min. photoelectric reader / - / $6000 to $8000 / R8
Omni-Data, Div. of Borg-Warner Corp. -- see R1
Photocircuits Corp., Glen Cove, N. Y. / militarized tape reader / DESCR: passed tests as required by MIL-E-16400 Class 3 and MIL-T-21200 Class 2 / USE: as check out device for programming pre-flight functions, pre-flight tests and pre-check of all flight programming where severe environmental conditions have to be met / $7390 to $9980 / R8
Rheem Electronics -- see R7
Wyle Labs -- see C10

R9. READERS, PUNCH CARD

AMP Inc., Eisenhower Blvd., Harrisburg, Pa. 17105 / card programming system / DESCR: desk top or rack mount, 960 circuits / USE: translates punched information into data or switching control outputs / - / R9
Control Data Corp.
Digital Electronic Machines, Inc., 2130 Jefferson, Kansas City, Mo. 64108 / CRU, card read unit / DESCR: reads punched cards for input to telephone network or conversion for teletype input; interchangeability or code boards / USE: data communications / $1850 up / R9
Drexel Dynamics Corp., Maple Ave., Horsham, Pa. 19044 / card readers / DESCR: static, military, commercial, IBM or Rem Rand format automatic card feeders for static readers; card programmed potentiometers, sequencers; badge readers / USE: programming and control / $150 to $6000 / R9
Friden, Inc., a Subsidiary of the Singer Co., 2350 Washington Ave., San Leandro, Calif. 94577 / automatic card reader / DESCR: reads standard Hollerith coded punched cards. Equipped with automatic card feed system; hopper holds up to 200 cards / USE: provides rapid, accurate conversion of coded source data to a variety of business forms / $2000 to $3100 / R9
Hickok Electrical Instrument Co., 10514 Dupont Ave., Cleveland,

Ohio 44108 / Cardmatic card reader / DESCR: high current-carrying capacity self-actuating card-reader switch handles 50 to 540-hole punched card data; manual and motorized models available / USE: punched card controlled circuitry / $195 to $1240 / R9
Honeywell, Inc., Electronic Data Processing Div., 60 Walnut St., Wellesley Hills, Mass. 02181 / card reader / DESCR: punched card reading at 400 or 800 cpm; photoelectric by column / USE: data processor peripheral / $9000 to $11,000 / R9
Soroban Engineering, Inc. -- see P15
Uptime Corp., 15910 West 5th Ave., Golden, Colo., 80401 / SPEED-READER 400 / DESCR: asynchronous serial punched card reader; speed, 400 80-column cards per min., photoelectric reading, timing, misregistration, jam detection. Optional: offset reject, 50-cycle, 230-volt power, 51-column card kit / USE: card input to processing systems / $5700 to $6200 / R9
Uptime Corp. *a / SPEEDREADER 1500 / DESCR: asynchronous serial punched card reader; speed 1500 80-column cards per min., photoelectric reading, timing, misregistration, jam detection. Optional: reject system, 50-cycle, 230-volt power, 51-column card kit / USE: card input to processing systems / $11,700 to $13,500 / R9
Uptime Corp., *a / SPEEDREADER 800 / DESCR: asynchronous serial punched card reader; speed 800 80-column cards per min., photoelectric reading, timing, misregistration, jam detection. Optional: reject system, 50-cycle, 230-volt power, 50-column card kit / USE: card input to processing systems / $8000 to $9100 / R9
Wyle Labs -- see C10

R11. REGISTERS, SHIFTS

DI/AN Controls, Inc. -- see C3
Engineered Electronics Co. -- see C5
Wyle Labs -- see C5

R12. RELAYS (COMPUTER TYPES)

The Bunker-Ramo Corp. -- see I1
Executone, Inc., 47-37 Austell Place, Long Island City, N.Y. 11101 / printact relay / DESCR: miniature, general purpose, plug-in relay for P. C. Board application, Latching and non-latching type / USE: for switching electronic circuitry / $1.75 to $2 / R12

R13. RESEARCH

Ampex Corp., Research Div., 401 Broadway, Redwood City, Calif. 94063 / research and development / DESCR: study and development of foil bearings, magnetic recording heads, core memories, tape transport mechanisms, electron beam and other new recording techniques, ferrite materials for communications / - / - / R13
Booz, Allen Applied Research, Inc. -- see C14, C15
Control Technology, Inc., 1232 Belmont Ave., Long Beach, Calif. 90804 / research / DESCR: error analysis of digital, analog and hybrid simulations; new methods of problem solution; control system theory and applications / - / - / R13
Design Automation, Inc., 4 Tyler Rd., Lexington, Mass. 02173 / research / DESCR: in area of computer simulation of electronic circuits and systems, and mathematical and physical models of electronic devices suitable for computer simulation of these devices / USE: research and development contract / - / R13
Engineered Electronics Co., 1441 E. Chestnut St., Santa Ana, Calif. 92702 / breadboard and training systems / DESCR: contain all required power supplies, indicators, etc., so the various components may be plugged together and form desired combination / USE: a quick method to try various circuit designs / $1000 to $6000 / R13
HRB-Singer, Inc. -- see I1
Informatics, Inc., 5430 Van Nuys Blvd., Sherman Oaks, Calif. 91401 / research / DESCR: synthetic intelligence, command/control, real-time applications / - / - R13
Serendipity Associates
URS Corp. -- see 02
Westinghouse Electric Corp., Electronic & Specialty Products Group

R14. RESOLVERS

Reeves Instrument Co. -- see C9

R15. RESOLVERS -- COORDINATE TRANSFORM

Discon Corp.
General Precision, Inc., Kearfott Products Div., 1150 McBride Ave., Little Falls, N. J. 07424 / resolvers / DESCR: 3- and 4-wire resolvers in size 5 to 54; accuracies down to 5 seconds max. error from EZ; winding-compensated types, matched resolver-amplifier combinations, and transolvers / USE: coordinate conversion, trigonometric functions, vector additions, angle summing, phase conversion / - / R15
Reeves Instrument Co. -- see C9

R16. RESOLVERS, PRODUCT

General Precision, Inc., Kearfott Products Div., -- see R15

R17. RESOLVERS -- SINE-COSINE

Clifton Precision Products, Div. of Litton Industries
General Precision, Inc., Kearfott Products Div. -- see R15
Reeves Instrument Co. -- see C9

R18. ROBOTS

Univation Inc., Bethel, Conn. / UNIMATE -- industrial robot / DESCR: teachable material transfer machine, performs manual labor. Weight handling capacity of 75 lbs. / USE: operates die casting machines, plastic molding machines, forge presses; loads and unloads; starts machine tools / $18,000 to $20,000 / R18

R19. RIBBONS, DATA PROCESSING

Columbia Ribbon & Carbon Mfg. Co., Herb Hill Rd., Glen Cove, N.Y. / data processing ribbons / DESCR: fabric film base ribbons for data processing equipment / USE: OCR, MCR systems, general print-out, plate imaging on high speed equipment / - / R19
Honeywell, Inc., Supplies Div., 60 Walnut St., Wellesley Hills, Mass. 02181 / printer ribbons / DESCR: rolled fabric sheet (typically: nylon, 12-20 inches wide, 10-25 yards long) impregnated with ink, mounted on a stiff, cardboard mandrel / USE: high-speed printers / $15.75 to $23.75 / R19
Standard Products Corp., 856 Main St., New Rochelle, N.Y. / 100% nylon computer-printer uninked fabric ribbons / DESCR: high count precision woven nylon fabrics / USE: inked by ribbon manufacturers for use in high speed printers / - / R19

S1. SCANNERS

Ampex Corp., Research Div., 401 Broadway, Redwood City, Calif. 94063 / scanners / DESCR: silver hallide film scanning by electron beam recording techniques / - / - / S1
Auindar Electronics Inc., 60 Fadem Rd., Springfield, N. J. 07081 / scanners (solid state) / DESCR: solid state equipment for digital telemetering; uses 3 state coding to provide security / USE: for remote supervisory control, data transmission / $1200 to $5000 / S1
The Bristol Co., Waterbury, Conn. 06720 / scanners / DESCR: low-cost, solid-state system utilizing pulse duration modulation code with non-return-to-zero; from 3 to 31 points per rack unit / USE: monitoring process, pipeline or utility / - / S1
Cognitronics Corp. -- see R2
Cohu Electronics, Inc., Box 623, San Diego, Calif. 92112 / input scanner, model 453M / DESCR: scanning accomplished by means of electro-mechanical stepping switches; scanner allows local or remote control, manual or automatic operation / USE: with either digital or analog measuring or recording instruments in any application where multiple signals must be scanned / $2500 / S1
Control Equipment Corp., 19 Kearney Rd., Needham Heights, Mass. 02194 / Series 3010 relay multiplexer / DESCR: 3-pole switching; contact life 1 billion operations; 5 to 100 channels; 200 channels/second scanning; flexible programming; digital outputs isolated by buffer amplifiers / - / $1300 to $3000 / S1
Control Equipment Corp., *a / Series 3020 multiplexer, electronic / DESCR: all solid-state; ± 0.02% accuracy and stability; 5 to 100 channels; 30,000 channels/second scanning; flexible programming; digital outputs isolated by buffer amplifiers / - / $1200 to $12,000 / S1
Control Equipment Corp., *a / Series 3080 crossbar multiplexer / DESCR: 1, 2, or 3 pole switching, 100 to 1000 channels, 50 channel/second scannings flexible programming / - / $1600 to $3000 / S1
Data Trends, Inc.
Electronic Engineering Co. of Calif., P. O. Box 58, Santa Ana, Calif. 92702 / EECO 765 analog multiplexer / DESCR: up to 100 channels ± 50 millivolts to ± 5 volt input; 100 megohm closed input, impedance patchboard sequencing / - / $2100 to $3600 / S1
Hagan Controls Corp., 250 Mt. Lebanon Blvd., Pittsburgh, Pa. / alarm indicating monitor / DESCR: scans various dc volt inputs, compares with preselected set point values, initiates alarm when input is in alarm condition / USE: scans analog voltages of critical process variables, warns operator of hazardous condition. Also, to obtain digital readout of a variable / $16,000 and up / S1
Jonker Corp. -- see D3, C15, P13
F. B. MacLaren & Co., Inc., 15 Stepar Pl., Huntington Sta., L. I., N. Y. 11746 / scanners / DESCR: unit provides servoed optical elements to scan models and maps in azimuth and elevation, introduce image roll, and maintain proper focus for simulation systems / USE: for custom designed simulator programs / variable, depending on application / S1
Nash and Harrison Ltd. -- see C11

S2. SERVOMECHANISMS

Ampex Corp., Instrumentation Div., 401 Broadway, Redwood City, Calif. 94063 / servomechanisms / DESCR: servomechanisms for longitudinal and rotary head instrumentation tape recorders, reel-to-reel and continuous loop / - / - / S2
The Bristol Co., Waterbury, Conn. 06720 / servo mechanisms / DESCR: null-balance, motor-driven units; relay rack mounting; retransmitting slidewire and alarm attachments available / USE: measure and indicate milivolt input / $500 to $800 / S2
Clifton Precision Products, Div. of Litton Industries
General Precision, Inc., Kearfott Products Div., 1150 McBride Ave., Little Falls, N. J. 07424 / servomechanisms / DESCR: 2-, 3-, and 4-component Flite-Line servos, with or without electronics; use size 8 or size 11 Kearfott components. Single and dual speed servos; DC and AC integrating servos / USE: D-A, A-D, coordinate and signal conversion; program actuation; reference positioning; all servo applications / - / S2
F. B. MacLaren & Co., Inc., 15 Stepar Pl., Huntington Sta., L. I. N. Y. 11746 / servo systems / DESCR: custom designed electro-mechanical assemblies to perform addition, subtraction, multiplication, division, integration, differentiation or followup and data conversion functions, in both military and industrial applications / USE: all instrument servo applications / variable, depending on application / S2
Moog Inc., Industrial Div., East Aurora, N. Y. / computer memory access / DESCR: servo components and systems, primarily electro-hydraulic / USE: to position pick-off heads in disk type computer memory systems / $200 to $3000 / S2
Reeves Instrument Co. -- see C9
Lear Siegler, Inc., Power Equipment Div. -- see C13

S3. SIMULATORS

Aircraft Armaments, Inc., York Rd., Cockeysville, Md. 21030 / simulators / DESCR: air traffic control, missile training (REDSTONE, SERGEANT, ATLAS, POLARIS, NIKE-HERCULES), anti-submarine warfare training, space vehicle, radar target, 3-axis flight / USE: training, test and evaluation of personnel, components and systems / custom / S3
Burr-Brown Research Corp., 6730 S. Tucson Blvd., Tucson, Ariz. 85706 / analog simulator/computer / DESCR: accurate simulator/computer utilizing high quality, field proven Burr-Brown operational amplifiers / USE: for teaching physical dynamics to university undergraduates in all engineering and physical science departments / $3000 to $50,000 / S3
COMRESS, Inc., 2120 Bladensburg Rd., N.E., Washington, D. C. 20018 / SCERT (systems and computers, evaluation & review technique) / DESCR: computerized simulation system for evaluating hardware/software. Applications are simulated through the program which outputs specific data regarding costs and performance on computer configurations / USE: managing computer installations; equipment selection, enhancement and design, and as a guide in programming / variable depending on specific job requirements / S3
Exact Electronics Inc. -- see C12
HRB-Singer, Inc. -- see I1
Philbrick Researches, Inc. -- see C9
Scientific Data Systems, Inc., 1649 Seventeenth St., Santa Monica, Calif. 90404 / simulators, digital / SDS DES-1 an extension of SDS 9300 general-purpose digital computer; hybrid interface equipment can link any SDS computer to virtually any analog computer creating integrated hybrid computing system / USE: simulation applications and the solution of differential equations / approx. $200,000 (DES-1) / S3
Scientific Educational Products -- see E2
Technical Measurement Corp., Telemetrics Div., 2830 S. Fairview St., Santa Ana, Calif. 92704 / 510 PCM simulator / DESCR: solid state; 5 programmable 33 bit words with main and sub-frame capabilities / USE: checkout data handling equipment / $10,000 to $15,000 / S3
Technical Measurement Corp., Telemetrics Div., *a / 513 stored program simulator / DESCR: solid state PCM, PAM, PDM programmable simulator; can simu-

late any format / USE: checkout of data handling equipment / $20,000 to $30,000 / S3
TRW Systems Group, 1 Space Park, Redondo Beach, Calif. 90278 / simulators / capability for development and application of simulation models of systems to evaluate systems design and recommend improvements / - / - / S3
URS Corp. -- see 02, P12

S4. STORAGE SYSTEMS

Bryant Computer Products, Div. of Ex-Cell-O Corp., 850 Ladd Rd., Walled Lake, Mich. 48088 / AUTO-LIFT R drum systems / DESCR: rotating, digital, mass storage, random access. Standard line to meet needs. Capacities of 706,500 to 100 million bits / USE: computer peripheral equipment / on request / S4
Bryant Computer Products, Div. of Ex-Cell-O Corp., *a / Model 2A Series 4000 disc file systems / DESCR: rotating, digital, mass storage, random access; modular, non-interchangeable discs. Available one to 26 discs, equal to capacities of 83 million to 3.8 billion bits / USE: computer peripheral equipment / on request / S4
Bryant Computer Products, Div. of Ex-Cell-O Corp., *a / PhD drum systems / DESCR: rotating, digital data, mass storage, random access; up to four independent channels of simultaneous random access to same store; capacities up to 340 million bits / USE: computer peripheral equipment / on request / S4
Control Data Corp., -- see C14
Cook Electrical Co., Data Stor Div., 6401 W. Oakton, Morton Grove, Ill. 60053 / magnetic storing systems / DESCR: incremental, continuous magnetic tape readers and recorders; systems engineering assistance / USE: various applications / $4000 to $15,000 / S4
DA-PEX Company -- see C8
DI/AN Controls, Inc. -- see M2, C13
Digital Devices -- see D5, M2
Dolin Metal Products, Inc., 315 Lexington Ave., Brooklyn, N.Y. 11216 / mobile storage systems / DESCR: adaptation of existing storage equipment on movable carriages rolling on tracks one row in front of another to increase capacities / USE: where space is limited / - / S4
Fabri-Tek Inc. -- see E2, M2
Image Instruments, Inc., 2300 Washington St., Newton Lower Falls, Mass. 02162 / storage tube systems / DESCR: storage tube systems used for displaying computer output for off line processing or man-machine decision making / USE: temporary storage for output to be visually displayed / $15,000 to $30,000 / S4
Trak Electronics Co., Inc. -- see C19

S5. STORAGE, MAGNETIC

Ampex Corp. -- see D3, I2, and M2
Bryant Computer Products, Div. of Ex-Cell-O Corp. -- see S4
Control Data Corp.
Cook Electric Co., Data Stor Div. -- see S4
Data Communications, Inc. -- see C7
Data Products Corp. -- see D8
Digital Development Corp., 5575 Kearny Villa Rd., San Diego, Calif. 92123 / magnetic storage systems / DESCR: up to 13 commands; 0.5 msec. average access; 6 modular capacities 7.5 to 250 million bits per unit. Up to 8 disc units per system; simultaneous multiple access I/O channels / USE: computer memory / $15,000 to $2,000,000 / S5
Electronic Memories, Inc. -- see M2
General Instrument Corp., Magne-Head Div., 13040 S. Cerise, Hawthorne, Calif. 90250 / magnetic disc memory system / DESCR: electronics to interface with any data source; median access time from 5 to 20 milliseconds; up to 50 million bits of storage / USE: inventory control, process control, communications, multiplexing, data logging, data buffer / $3000 to $50,000 / S5
General Instrument Corp., Magne-Head Div., *a / magnetic drum memory system / DESCR: electronics to interface with any data source; median access time from 5-20 milliseconds; up to 10 million bits of storage / USE: inventory control, process control, communications, multiplexing, data logging, data buffer / $5000 to $100,000 / S5
General Precision, Inc., Librascope Group -- see M2
Honeywell, Inc., Electronic Data Processing Div., 60 Walnut St., Wellesley Hills, Mass. 02181 / mass memory file / DESCR: magnetic card storage and retrieval; 15 to 300 million characters / USE: data processor peripheral / $29,250 to $100,125 / S5
Midwestern Instruments, Inc., Subsidiary of Tele Corp.
Scientific Data Systems, Inc. -- D8, M2, T3

S6. SWITCHES

James Cunningham Son & Co., Inc., 10 Carriage St., Honeoye Falls, N.Y. / Cunningham crossbar switch / DESCR: coordinately actuated switch matrix constructed in a 3 axis cartesian format; a co-linear line contact arrangement permits a shielded and balanced system / USE: for switching and routing binary and digital data. Sampling, multiplexing and scanning of analog information / $100 to $1000 / S6
Electro-Miniatures Corp., 600 Huyler St., So. Hackensack, N.J. 07606 / commutator switches / DESCR: circular plastic compounds into which is embedded various metal segments or rings. Unit rotates; contact with rotating unit made by brushes / - / $10 to $3000 / S6
Engineered Electronics Co., 1441 E. Chestnut St., Santa Ana, Calif. 92702 / rotary thumb-wheel switches / DESCR: compact; legible switch / USE: to convert dial setting to equipment code and to provide in-line readout / $3.80/switch to $25/switch / S6
F & F Enterprises, Inc., Chicago Switch Div., 2035 Wabansia Ave., Chicago, Ill. 60647 / switches / DESCR: panel switches lighted or unlighted, rocker or push button up to 6PDT, momentary or maintained circuits, push push, plug into PC board / USE: programming, instruction, read out / 50¢ to $6 / S6
Litton Industries, USECO Div.
MICRO SWITCH, a Div. of Honeywell, 11 W. Spring St., Freeport, Ill. 61032 / miniature toggle switches / DESCR: TW Series has 10 tiny, lightweight, long-life SPDT, DPDT switches with 5 different circuitry options each to give widest range of 2 and 3 positions maintained and momentary versions / USE: large scale computer maintanance panels; military and commercial electronic use / - / S6
MICRO SWITCH, a Div. of Honeywell, *a / Series 2 lighted pushbuttons / DESCR: round or rectangular display; over 80 different colored display screens; wide choice in circuitry and handling power in 30 different switch units / USE: control and display functions / - / S6
MICRO SWITCH, a Div. of Honeywell, *a / "SM" subminiature switches / DESCR: "SM" SPDT switches combine small size, light weight with ample precision operation, terminal variety, and long life; available with silver and gold contacts / USE: limit and control / - / S6
MICRO SWITCH, a Div. of Honeywell, *a / Sub sub-miniature switches / DESCR: tiniest of snap-action switches, the "1SX1" weighs 1/28 ounce; plated turret-type terminals; variety of actuators; UL, CSA listed at 7 amps 28 vdc or 115/230 vac capacity / USE: limit and control functions / - / S6
MICRO SWITCH, a Div. of Honeywell, *a / V3 miniature basic snap-action switch / DESCR: postage stamp sized; has wide variety of terminals, contact arrangements, operating characteristics, long operating life (over 10 million). General purpose types, UL, CSA listed at 15 amps 125/250 vac; 1/4 amp vdc / USE: limit and control functions / S6

S7. SWITCHES, STEPPING

James Cunningham Son & Co., Inc. -- see S6

S8. SYNCHROS

Clifton Precision Products, Div. of Litton Industries
General Precision, Inc., Kearfott Products Div., 1150 McBride Ave., Little Falls, N. J. 07424 / synchros / DESCR: low and high Z hi-accuracy CX's, CDX's, TX's, TR's, induction pots, multi-speed synchros, RX's, RDX's, RC's and tandem synchros ranging from size 5 to 100 / USE: data transmission, computing systems and servos / - / S8
Reeves Instrument Co. -- see C9
Technical Measurement Corp., Telemetrics Div., 2830 S. Fairview St., Santa Ana, Calif. 92704 / 6723 bit synchronizer / DESCR: regenerates PCM data to improve S/N ratio, generates 4 phases of clock, converts data to NRZ-S(L) and NRZ-S(L) under program control / - / $25,000 to $30,000 / S8

S9. SYSTEMS ENGINEERING

Advance Data Systems -- see C15
Aircraft Armaments, Inc. -- see S3
Ampex Corp. -- see I2, M2, and R13
Auerbach Corp. -- see C15
Bonner & Moore Associates, Inc. -- see 02, I1, and P12
Booz, Allen Applied Research, Inc. -- see C14, C15
The Bristol Co., Waterbury, Conn. 06720 / systems engineering / DESCR: engineer and fabricate components and packaged systems for recording, controlling and telemetering / USE: analog or digital techniques; loggers (including computer-based equipment); supervisory systems; instrumentation; panels; consoles / no average estimate can be given / S9
The Bunker-Ramo Corp. -- see I1
Control Data Corp. -- see C14
Cook Electric Co., Data Stor Div. -- see S4
James Cunningham Son & Co., Inc., 10 Carriage St., Honeoye Falls, N. Y. / systems engineering / DESCR: custom electronic systems involving switching, routing or scanning of high speed digital data or low level analog signal information / - / N/A / S9
Decision Systems Inc.
Discon Corp.
Ferranti-Packard Electric Ltd., Industry St., Toronto 15, Ontario, Canada / systems engineering / DESCR: design and manufacture of commercial and military digital systems / USE: various / varies / S9
General Atronics Corp. -- see C1
General Instrument Corp., Radio Receptor Div., 100 Andrews Rd., Hicksville, N. Y. 11802 / general support equipment / DESCR: custom design special purpose digital systems utilizing general purpose or special purpose computers / - / - / S9
HRB-Singer, Inc. -- see I1
Innovation Consultants, Inc., 4 E. State St., Doylestown, Pa. 18901 / systems engineering / DESCR: assistance in problem definition, computer systems design and total system engineering / USE: publishing, advertising, marketing, printing, education, associations / per diem / S9
Keystone Computer Associates, Inc. -- see P12
Reeves Instrument Co. -- see C9
Scientific Data Systems, Inc., 1649 Seventeenth St., Santa Monica, Calif. 90404 / systems engineering / DESCR: complete systems engineering services in conjunction with computer system sales / - / no charge for systems engineering if 80% or more of system price is represented by SDS standard products, including SDS digital computer / S9
Scientific Data Systems, Inc. -- see C11
Merle Thomas Corp. -- see C15
TRW Systems Group, 1 Space Park, Redondo Beach, Calif. 90278 / systems engineering / DESCR: total capability to provide systems engineering and technical direction / USE: data systems applications / - / S9
URS Corp. -- see I1
Wolf Research & Development Corp., P. O. Box 36, Baker Ave., W. Concord, Mass. 01781 / systems engineering / DESCR: computer applications, data control complexes for satellite systems, management information and control systems, feasibility studies, hardware configuration and real-time controls / - / S9

T1. TAPE HANDLERS

Ampex Corp., Computer Products Div., 9937 W. Jefferson Blvd., Culver City, Calif. 90230 / family of servo-driven, interface-compatible, single capstan digital tape transports / DESCR: maximum tape speeds: Model TM-7, 36 ips; Model TM-9, 75 ips; Model TM-11, 120 ips; Model TM-12, 150 ips. Dual or multiple speeds, single within given ranges, packing densities 200, 556, 800 cpi available all models / - / - / T1
Ampex Corp. -- see D3
Bell Telephone Mfg. Co., Automation Systems Div., Berkenrodelei 33, Hoboken, Belgium / digital magnetic tape handlers / DESCR: a wide choice of tape speeds as well as IBM compatibility on 7 and 9 tracks / USE: for connection to any computer / $9000 to $17,000 / T1
Chalco Engineering Corp. -- see R1
Control Data Corp., 8100 34th Ave. So., Minneapolis, Minn. 55440 / 680, 685 and 690 Magnetic Tape Certifiers / DESCR: automatically inspect magnetic tape for variety of faults; also sell certified magnetic tape, plus certification services and actual tape certification equipment / - / - / T1
Cook Electric Co., Data Stor Div., 6401 W. Oakton, Morton Grove, Ill. 60053 / tape handlers / DESCR: magnetic tape readers and recorders; militarized paper tape readers / USE: data acquisition and equipment testing / $4000 to $20,000 / T1
Cycle Equipment Co., P. O. Box 307, Los Gatos, Calif. 95030 / cycle tape handlers (perforated tape) / DESCR: cycle winders, feeders, unwinders and tape transports; speeds up to 35" per second with 3" diameter core; 52" per second with NAB hub in reel sizes to 8" / USE: communications industry, data processing industry, printing industry (automatic typesetting), etc. / $13 to $480 / T1
DA-PEX Company -- see C8
Data-link Corp., Box 177, Los Altos, Calif. 94022 / D-L 40 Splicer-Gauge-Punch / DESCR: punched tape splicer with registration gauge and manual code hole punch / USE: splicer section holds tape; punch will punch individual codes; gauge verifies correct tape jointing / $85 / T1
Data-link Corp., *a / D-L 45 Unwinder / DESCR: center feed unwinder for 5-6-7-8 channel punched paper tape / USE: to

feed tape into EDP or automatic equipment from the center of wound tape / $20 / T1
Data-link Corp., *a / punched tape winder / DESCR: electric winder 3/4" or 1", split or demountable reel, 35 to 70 CPS with friction clutch drive with 2 oz. ±1/2 oz. pull at hub / USE: wind paper tape from original data equipment / $75 to $95 / T1
Dresser Products, Inc., 112-114 Baker St., Providence, R. I. 02905 / #6501 electric tape rewinder / DESCR: designed to rewind punched tape from unwind can onto tape reader reel at 225 feet/min. Unwind can holds full roll of tape / USE: rewinding tape / $107 to $152 / T1
Hewlett-Packard Co., Datamec Div., 345 Middlefield Rd., Mountain View, Calif. 94041 / D-2020 digital magnetic tape unit / DESCR: 1 or 2 tape speeds 1 ips to 45 ips; packing density 200, 556 and 800 bpi; 7 or 9 track / USE: computer tape system / $4800 to $13,000 / T1
Hewlett-Packard Co., Datamec Div., *a / D-3029 digital magnetic tape unit / DESCR: replacement for IBM 729-II or 729-V; low cost, plug interchangeable / USE: with IBM 1400 or 7000 series computers / $14,500 / T1
Hewlett-Packard Co., Datamec Div., *a / D-3030 digital magnetic tape unit / DESCR: tape speed 75 ips; packing density 200, 556 and 800 bpi; single and multiple units / USE: computer tape system / $10,000 to $16,000 / T1
Honeywell, Inc., Electronic Data Processing Div., 60 Walnut St., Wellesley Hills, Mass. 02181 / magnetic tape unit / DESCR: digital unit, 1/2" and 3/4" tape, wide variety of speeds and densities / USE: data processor peripheral / $10,000 to $40,000 / T1
Invac Corp. -- see T9
Midwestern Instruments, Inc., Subsidiary of Tele Corp., 41st & Sheridan Rd., Tulsa, Okla. 74101 / tape transport systems / DESCR: complete series of tape transport systems; low to high performance range with all IBM format compatibilities; on-line use with all major computer manufacturers equipments / USE: on-line computer, off-line data processing, data handling and data acquisition / - / T1
Monarch Metal Products, Inc. -- see D1
Omni-Data, Div. of Borg-Warner Corp., 511 N. Broad St., Philadelphia, Pa. 19123 / paper tape reelers / DESCR: high-speed unidirectional and bidirectional tape handler, speeds up to 100" per sec. in either direction with reel sizes up to 10½" / USE: feed and take up paper tape from readers, punches and recorders / $765 to $2000 / T1
Potter Instrument Co., Inc., 151 Sunnyside Blvd., Plainview, N. Y. 11803 / computer peripheral equipment and systems / DESCR: digital magnetic tape handlers and systems; input and output of data to and from computer-on-line and off-line / USE: electronic data processing / T1
Prestoseal Mfg. Corp., 37-12 108th St., Corona, N. Y. / paper tape splicer / DESCR: splicer for punched paper tape, no cements or splicing patches used. Bond is a fusion between the fibers of the tape, 200 splices per hour / - / $672 / T1
Teletype Corp.

T2. TAPE, MAGNETIC

Ampex Corp., Magnetic Tape Div., 401 Broadway, Redwood City, Calif. 94063; (manufacturing facilities) P. O. Box 190, Opelika, Ala. 36801 / magnetic tape / DESCR: research, development, and production / USE: computer, instrumentation, video and audio recording / - / T2
Audio Devices, Inc., 235 East 42nd St., New York, N. Y. / computer tape / DESCR: magnetic recording tape. Variety of reel types and reel colors, in plastic cases, and with reel collars. / USE: computer systems using magnetic tape / varies with size and quantity / T2
Certron Corp., 2233 Barry Ave., Los Angeles, Calif. 90064 / magnetic tape certification / DESCR: certify new magnetic tape, recertify and rehabilitate used magnetic tape / - / $6 to $12 / T2
COMPUTRON, INC., Member of the BASF Group, 122 Calvary St., Waltham, Mass. 02154 / COMPU-TAPE / DESCR: high quality, high density magnetic tape for computers and instrumentation exclusively. Guaranteed at 556, 800, or 1000 bpi. Full-width certification available / USE: computers and instrumentation / available upon request / T2
Control Data Corp. -- see T1
Cook Electric Co., Data Stor Div. -- see T1
Honeywell Electronic Data Processing, Supplies Div., 60 Walnut St., Wellesley Hills, Mass. 02181 / ½ inch magnetic tape / DESCR: magnetic oxide-coated, Mylar-base, rolled in various lengths from 700 feet to 2400 feet on heavy plastic reels / USE: store information / $19.50 to $36.50 per reel / T2
Honeywell Electronic Data Processing, Supplies Div., *a / 3/4" magnetic tape / DESCR: magnetic oxide coated, Mylar-base, rolled in various lengths from 700 feet to 2450 feet on heavy metal reels / USE: store information / $30 to $66 per reel / T2
Information for Industry, Inc., 1000 Connecticut Ave., N. W., Washington, D. C. 20036 / magnetic tape Uniterm Index / DESCR: sole owners of data base covering all U. S. chemically related patents issued since 1950 to date. Programs available for IBM, Burroughs, and CDC equipment / USE: patent searching by law firms and research department personnel / $6600 to $11,900 / T2
Memorex Corp., 1180 Shulman Ave., Santa Clara, Calif. 95052 / precision magnetic computer tape / DESCR: heavy duty, long wearing; specially treated surface; low level modulation moise; standard configurations / USE: on digital transports / - / T2
Micronetic Corp., 3127 Colvin St., Alexandria, Va. 22314 / Micronetic 404 magnetic tape / DESCR: patented thermosetting binder system / - / $23 to $29 / T2
Reeves Soundcraft Corp., 15 Great Pasture Rd., Danbury, Conn. 06813 / magnetic tape for computers / DESCR: base material of Mylar film or approved equivalent; tapes of various lengths; magnetic performance measured on all channels of IBM-compatible tape drive; photo-sensing markers / USE: data storage / $10 to $40 / T2

T3. TAPE, FILING SYSTEMS

Ampex Corp. -- see I2
Cook Electric Co., Data Stor Div. -- see T1
Dolin Metal Products, Inc., 315 Lexington Ave., Brooklyn, N. Y. 11216 / "Tape-Stor" units / DESCR: build-up type reel units, 2 stock sizes with reel inserts for 4 standard size reels; special sizes and types also available / USE: storage of data tapes / $15 to $18 / T3
Monarch Metal Products, Inc. -- see D1
Ray Myers Corp., 1302 E. Main St., Endicott, N. Y. 13760 / tape library / DESCR: storage for magnetic tapes / - / - / T3
Scientific Data Systems, Inc., 1649 Seventeenth St., Santa Monica, Calif. 90404 / tape, magnetic--filing systems / DESCR: single-channel tape transport (MAGPAK) (TM), transfer rate 1500 char/sec; seven-channel units, densities 200, 556, 800 bits/inch, read/write speeds 60, 75, 120 inches/sec, transfer rates 12, 15, 33, 41.7, 48, 60, 96 kc / - / $15,000 (MAGPAK) to $43,000 / T3
Scientific Data Systems, Inc. -- see M2
TAB Products Co. -- see D1
Wheeldex, Inc., 1000 N. Division St., Peekskill, N. Y. 10567 / mechanized files and continuous pinfeed forms / DESCR: motorized shelves and similar automatic filing equipment for magnetic tape / - / - / T3
Wright Line Div., Barry Wright Corp., 160 Gold Star Blvd., Worcester, Mass. 01606 / TAPE-SEAL computer tape storage system / DESCR: system developed around flexible polyethylene belt which wraps around tape reel; protects and increases storage capacity of reels up to 100% when stored in a cannister / USE: belt (TAPE SEAL) allows the hanging of reel of tape for storage / $1.50 for belt, equipment in wide price range / T3

T4. TAPE, READERS

Addo-X, Inc. -- see R7
Carlton Controls Corp. -- see R8
Cook Electric Co., Data Stor Div. -- see T1
Electronic Engineering Co. of Calif., P. O. Box 58, Santa Ana, Calif. 92702 / EECO 851A/852 tape search & control system / DESCR: reads time on magnetic tape in either forward or reverse direction. Front panel selection of all IRIG codes; millisecond output resolution. Other codes available / - / $4500 to $8800 / T4
Midwestern Instruments, Inc., Subsidiary of Tele Corp.
Mohawk Data Sciences Corp., Harter St., Herkimer, N. Y. 13350 / Model 700 buffered tape unit / DESCR: provides universal interface to output BCD character serial, bit parallel reading, half-inch tape with 80 character block NRZ recording, accepts and records BCD input / USE: input or output device where magnetic tape is involved / $8000 to $10,000 / T4
Omni-Data, Div. of Borg-Warner -- see T1
S-I Electronics, Inc., 103 Park Ave., Nutley, N. J. 07110 / digital magnetic tape transports / DESCR: ruggedized environmental, computer-compatible; only models qualified to MIL-E-5400 and MIL-I-26600; utilized in airborne, shipboard, vehicular, oceanographic and seismic requirements. Recording methods: RZ, RB, NRZ, NRZI, and phase modulation / USE: on and off line recording and reading of digital information in computer and data acquisition applications / $10,000 to $25,000 / T4

T5. TAPE, RECORDERS

Ampex Corp., Audio and Video Communications Div., 401 Broadway, Redwood City, Calif. 94063; (manufacturing facilities) 600 Wooten Rd., Colorado Springs, Colo. 80909 / tape recorders / DESCR: videotape recorders, color and black-and-white; professional audio recorders / - / - / T5
Ampex Corp. -- see C21, C31, D2, I2, and T1
Consolidated Electrodynamics Corp., 360 Sierra Madre Villa, Pasadena, Calif. 91109 / magnetic tape recorder/reproducers / DESCR: analog and digital systems available. Types include portable, 1.5 mc response, extra wide and double bandwidth, general laboratory, high-speed digital and continuous loop / - / - / T5
Datapulse Inc., KRS Instruments Div., 780 S. Arroyo Pkwy., Pasadena, Calif. 91105 / DR-2 DATA-STACT (TM) instrumentation recorder / DESCR: 6 magnetic tape cartridges containing endless-loop tapes up to 1200 ft. in length; records or reproduces data in up to 4 channels / USE: fault recording, vibration data analysis, delay simulation, process control, physiological/biological data acquisition / $3200 to $5700 / T5
Datapulse Inc., KRS Instruments Div., *a / MD-2 DATA-STACT (TM) instrumentation recorder / DESCR: single tape continuous-loop cartridge with reverse and fast forward operating modes, push-button controls, solid-state electronics / USE: record and reproduce data / $950 to $2380 / T5
Genisco Technology Corp., Systems Div., -- see A2
Leach Corp., Controls Div., 717 N. Coney Ave., Azusa, Calif. / DDR-3300 digital recorder/reproducer system / DESCR: weighs less than 125 lbs., works off 12 volts, operates during 10g vibration; quantizes and encodes analog signals, records them in computer compatible digital format / USE: oil industry exploration / - / T5
Leach Corp., Controls Div., *a / MTR-3200 recorder/reproducer / DESCR: provides 14 channels analog and FM or 16 digital channels; 7 tape speeds; tape capacity 2400 Ft. standard / USE: high environmental applications including aircraft, missile, nuclear test, etc. / - / T5
Lufkin Research Laboratories, 210 W. 131st St., Los Angeles, Calif. 90061 / digital magnetic tape recorders / DESCR: portable, scientific, airborne and keyboard recorders; battery powered and cartridge loaded / - / $1100 to $2300 / T5
Midwestern Instruments, Inc., Subsidiary of Tele Corp.
S-I Electronics, Inc. -- see T4
Texas Instruments Inc., Industrial Products Group, 3609 Buffalo Speedway, Houston, Tex. 77006 / Series 500/1000 digital tape transports / DESCR: precision magnetic tape transports for recording digital data; tape path permanently aligned for life of instrument / USE: in the field or laboratory; wherever requirements make a portable instrument necessary / - / T5

T6. TAPE, REELS

Audio Devices, Inc. -- see T2
Cook Electric Co., Data Stor Div. -- see T1
Cycle Equipment Co., P. O. Box 307, Los Gatos, Calif. 95030 / tape reels (perforated tape) / DESCR: available in 6", 8", 10½" and 12" diameters; adjustable for widths to accommodate 11/16", 7/8" and 1" wide tape; detachable solid round 3" diameter plastic core / USE: on widers, feeders and tape transports in accumulating, dispensing and storing tape / $17 to $24 / T6
Memorex Corp. -- see T2
Omni-Data, Div. of Borg-Warner -- see T1

T7. TAPE, PAPER

Arvey Corp., Lamcote Div., 3500 N. Kimball Ave., Chicago, Ill. 60618 / perforator tape / DESCR: mylar reinforced paper, foil, and metallized foil combinations; all standard colors, widths and thicknesses / USE: for photoelectric and electro-mechanical readers / - / T7
Chalco Engineering Corp. -- see R1
Data-link Corp., Box 177, Los Altos, Calif. 94022 / D-L 80 Series, splice correction tape / DESCR: self-adhering tape, 1 ft. lengths, for 5, 6, 7, 8 channel tape to make tape splices or cover code errors for hand punched corrections (1-5 code levels) / USE: with a splicer and punch / $8.50 to $15 / T7
Invac Corp., 26 Fox Rd., Bear Hill Industrial Park, Waltham, Mass. 02154 / Model R-125 photoelectric tape reader / DESCR: accommodates 5 to 8 level, 11/16 to 1" wide tape for photoelectric reading at 0-150 char/sec asynchronously; desk or panel mounting-exceeds EIA standards / USE: peripheral equipment for data processing applications / $750 unit price / T7
Paper Manufacturers Co. -- see P4

T8. TAPE, PAPER-FILING SYSTEMS

Dresser Products, Inc., 112-114 Baker St., Providence, R. I. 02905 / tape file / DESCR: data

processing folders: six styles, letter size documents; two styles, legal size documents. Available in various colors and with one, two or four tape pockets / USE: transporting and filing punched paper tape and punched cards with associated data / $89/M to $120/M / T8

Wheeldex, Inc., 1000 N. Division St., Peekskill, N. Y. 10567 / mechanized files and continuous pinfeed forms / DESCR: motorized and manual files for all material sizes from cards to correspondence including paper and magnetic tapes, reels, etc. / - / - / T8

T9. TAPE, PAPER-PUNCHES

Addo-X, Inc. -- see D3
Control Data Corp.
Cook Electric Co., Data Stor Div. -- see T1
Creed & Co.Ltd. -- see R7
Digital Electronic Machines, Inc. -- see D1
Invac Corp., 26 Fox Rd., Bear Hill Industrial Park, Waltham, Mass. 02154 / Model P-135 tape punch / DESCR: accommodates 5 to 8 level, 11/16 to 1" wide tape for punching at 0-35 char/sec; DC operated-exceeds EIA standards / USE: peripheral equipment for data processing applications / $460 unit price / T9
Robins Data Devices, Inc. -- see D1
Soroban Engineering, Inc. -- see R7

T10. TAPE, PAPER-READERS

Chalco Engineering Corp. -- see R1
Control Data Corp.
Creed & Co. Ltd. -- see R7
Electronic Engineering Co. of Calif., P. O. Box 58, Santa Ana, Calif. 92702 / EECO 5000 Series photo block readers / DESCR: all solid state drive photo electric readout; 40-160 bit per block, 12 blocks per second. Eliminates need for buffer storage / - / $1200 to $2700 / T10
Invac Corp., 26 Fox Rd., Bear Hill Industrial Park, Waltham, Mass. 02154 / Model R-110 photoelectric tape reader / DESCR: accommodates 5 to 8 level, 11/16 to 1" wide, tape for photoelectric reading at 0-35 char/sec asynchronously; desk or panel mounting-exceeds EIA standards / USE: peripheral equipment for data processing applications / $470 unit price / T10
Invac Corp. -- see T7
Omni-Data, Div. of Borg-Warner -- see T1
Rheem Electoonics, 5250 W. El Segundo Blvd., Hawthorne, Calif. 90250 / punched tape spoolers / DESCR: 15 to 100 IPS., rewind 200 IPS, for 8" and 10½" reels; gentle tape take-up during spooling and rewind / USE: automatic tape supply and take up during tape reader operation / $700 to $2500 / T10
Soroban Engineering, Inc. -- see R7
Tally Corp. -- see R7
Wang Labs., Inc. -- see C36, D6, R7

T11. TELEMETERING SYSTEMS

Airpax Electronics, Inc., P. O. Box 8488, Fort Lauderdale, Fla. 33310 / telemetry / DESCR: frequency discriminator, tape speed compensated / USE: - / $395 / T11
Astrodata, Inc.
The Bendix Corp., Bendix-Pacific Div., 11600 Sherman Way, Hollywood, Calif. 91605 / telemetry systems / DESCR: variety of standard and special purpose telemeter transmitting and receiving systems; IRIG FM/FM standards used / USE: missile and space flight test programs / $2000 to $10,000 / T11
The Bristol Co., Waterbury, Conn. 06720 / telemeters / DESCR: Metameter® analog systems (impulse duration type); Metatronic analog frequency-type systems; digital telemetering / USE: measurement, transmission and readout of variables in process and utility applications / $500 to $1000 / T11
CAE Industries Ltd., P. O. Box 6166, Montreal 3, Quebec, Canada / telepath telemetry / DESCR: on-line open and closed loop systems, unattended remote control and supervision of remotely located station equipment and processes / USE: low speed telegraph and data speed operation applications in utilities, pipeline, process control industry / $5000 to $20,000 per site / T11
DI/AN Controls, Inc. -- see C13
Electro-Mechanical Research, Inc., P. O. Box 100, Sarasota, Fla. 33378 / telemetering instrumentation, components, systems / DESCR: data acquisition coding, transmission, reception, demodulation and/or decommutation including: fm, pam, pdm, pcm; telemetry and data processing systems / USE: test and monitoring of aerospace vehicles / not applicable / T11
General Devices, Inc. -- see C28, D1
General Electric Co., Electronic Components Sales Operation
General Instrument Corp., Defense and Engineering Products Group, Radio Receptor Div., Andrews Rd., Hicksville, N. Y. 11802 / telemetering systems / DESCR: microwave telemetry transmitter, lightweight compact equipment capable of 15 watts CW output power in the 2-3 KMC telemetry band / USE: missiles, aircraft and aerospace environment / $3000 to $12,000 / T11
Genisco Technology Corp., Systems Div., 18435 Susana Rd., Compton, Calif. 90221 / telemetry checkout equipment / DESCR: receivers and discriminators for processing of telemetered signals / USE: ground and production checkout / under $100 and up / T11
International Electronic Research Corp., 135 W. Magnolia Blvd., Burbank, Calif. 91502 / telemetry systems / DESCR: transmitters, voltage controlled oscillators, mixer amplifiers to complete RF systems / USE: airborne or aerospace telemetry for data link information / - / T11
Moore Associates, Inc., 893 American St., San Carlos, Calif. / data acquisition systems / DESCR: time division multiplex systems (alarm supervision, remote control, digital telemetering data); also input-output packages for computer interface, automatic sub-program/controller operations related to data acquisitions, and code converters / USE: power utility economic load dispatch; hydroelectric dam operation controlling power generation, oil well production economics and test; etc. / $1800 and up / T11
Quindar Electronics Inc., 60 Fadem Rd., Springfield, N. J. 07081 / solid state analog and digital telemetering / DESCR: analog and digital telemetering modules furnished with or w/o tone keyers and converters, with or w/o computer interface adapters (BCD to decimal, etc.) / USE: for data transmission and handling / $300 to $1500 / T11
Stellarmetrics, Inc., 210 E. Ortega St., Santa Barbara, Calif. 93101 / DD-1024 digital decommutator / DESCR: ground-based solid state telemetry decommutation system featuring integral 10-bit digital output, continuous rate tuning, up to 90 channel readout of standard IRIG and special format signals / - / approximately $17,000 / T11
Stellarmetrics, Inc., *a / Series 200 commutators / DESCR: solid state electronic commutators feature modular flexibility for up to 120 channels on a single unit, and slaving capability to combine more than one unit in a single package / USE: for missile, space vehicle and satellite telemetry applications / $2000 to $4000 / T11
Technical Measurement Corp., Telemetrics Div., 2830 S. Fairview St., Santa Ana, Calif. 92704 / 620 universal PCM decommutator / DESCR: low cost universal system; easily adaptable for all existing or proposed fixed PCM telemetry formats; conditions and decommutates / USE: PCM telemetry signals / $45,000 to $85,000 / T11
Transitel International Corp. -- see C7
TRW Systems Group, 1 Space Park, Redondo Beach, Calif. 90278 / telemetering systems / DESCR: complete capability exists in PCM telemetry and command decoder equipments; proven space hardware / - / - / T11
Westinghouse Electric Corp., Electronic & Specialty Products Group

T12. THIN-FILMS, MAGNETIC

The Bunker-Ramo Corp. -- see C13
Haddonfield Research & Mfg. Co., 121 Gill Rd., Haddonfield, N. J. 08033 / magnetic thin-films / DESCR: "Memro-film" thin magnetic alloy substrates and planes; fabricated and etching methods; custom and standard parts; maintaining quality and uniformity / USE: computer memory applications / 10¢ per bit to 75¢ per bit / T12

T13. TIMING DEVICES

Chrono-log Corp., 2583 West Chester Pike, Broomall, Pa. 19008 / digital clocks/calendars / DESCR: electronic and electromechanical time of day clocks/calendars to provide digital time readings to computers, data loggers, time displays, and telemetry systems / USE: to provide decimal or BCD time readings to digital systems / $350 to $2500 / T13
Chrono-log Corp., *a / programmable clock/calendar / DESCR: reads date and time of day into memory under program control on IBM 7000, System/360 and CDC computers / USE: to provide date and time for billing and job identification on computers with monitor routines / $2500 to $4500 / T13
Chrono-log Corp., *a / time code generator/readers / DESCR: generate serial time codes for recording on analog tape recorders. Read back time code to identify data recorded on tape for time correlation and quick look analysis / USE: telemetry, wind tunnel tests, seismographic and oceanographic studies, etc. / $2490 to $5000 / T13
General Electric Co., Electronic Components Sales Operation
Logitek, Inc., 42 Central Drive, Farmingdale, L. I., N. Y. 11735 / digital clock / DESCR: generates time of day or elapsed time; displays and makes available for computer entry / USE: determine computer time, count down, process time, etc. / $850 to $2000 / T13
Logitek, Inc., *a / tape search and control / DESCR: searching of magnetic tape to particular time as recorded by time code generator / USE: data correlation and editing / $4000 to $22,000 / T13
Logitek, Inc., *a / time code generator / DESCR: generates precise time information for recording on magnetic tape / USE: correlation and editing of recorded data / $4000 to $6000 / T13
Logitek, Inc. -- see T13
TRW Systems Group, 1 Space Park, Redondo Beach, Calif. 90278 / timing devices / DESCR: latest hardware designs incorporate modularity; flexibility for broad spectrum of mission requirements / USE: programmers-sequencers in spaceborne applications / - / T13

T14. TRANSFORMERS

Aladdin Electronics -- see T15
AMP Inc., Eisenhower Blvd., Harrisburg, Pa. 17105 / CAPITRON transformers / DESCR: high and low voltage custom designed transformers / USE: applications requiring specially designed units / - / T14
Hammond Manufacturing Co. Ltd., 394 Edinburgh Rd. North, Guelph, Ont., Canada / transformers / DESCR: electronic, electrical; all types, power, filament, audio, miniature, printed circuit, inverter, torroids, isolating, voltage adjusting, military, chokes, reactors, control distribution; units to customer specification / USE: power supplies, computer circuits, machine operation / $1 to $250 / T14
Litton Industries, Triad Distributor Div., 305 N. Briant St., Huntington, Ind. 46750 / transformers / DESCR: power (plate, filament, isolation, toroidal, rectifier); audio (input, output, interstage); filter reactors; low frequency instrumentation units; pulse transformers / - / $2 to $30 / T14

T15. TRANSFORMERS, PULSE

Aladdin Electronics, 703 Murfreesboro Rd., Nashville, Tenn. 37210 / pulse transformer / DESCR: micro-miniature and miniature sizes; point to point wiring or P/C application. Commercial and Mil-Spec. Standard catalog items or special units. Engineering service / USE: coupling circuits or blocking oscillator circuits -- step-up or step-down / 80¢ to $3.50 / T15
EL-RAD Manufacturing Co., 4300 N. California Ave., Chicago, Ill. 60618 / pulse transformers / DESCR: units for both conventional wiring and printed circuit applications. Hermetically sealed and epoxy encapsulated construction / USE: interstage coupling; pulse shaping; wide band coupling / 75¢ to $15 / T15
Hammond Manufacturing Co. Ltd., 394 Edinburgh Rd. North, Guelph, Ont., Canada / pulse transformer / DESCR: open bracket mounting, epoxy cast, military, to customer specifications only / USE: trigger SCRs, wave shaping / $10 to $100 / T15
Litton Industries, Triad Distributor Div. -- see T14
Marksmen, Inc. -- see C29
Technitrol Inc., 1952 E. Allegheny Ave., Philadelphia, Pa. 19134 / pulse transformers / DESCR: miniature, subminiature, plastic molded; 10 ns to 5 ms pulse width / - / 75¢ to $5 / T15

T16. TRANSLATING EQUIPMENT

COMRESS, Inc., 2120 Bladensburg Rd., N. E., Washington, D. C. 20018 / TRANSIM (translation via simulation) / DESCR: 100% translation of computer programs from a variety of source machines to a variety of object machines / USE: program translation from various computers to other incompatible machines / variable / T16
George Kelk Ltd. -- see C20
Trak Electronics Co., Inc. -- see C23

T17. TYPEWRITERS, ELECTRIC, CONTROLLED

Connecticut Technical Corp., 3000 Main St., Hartford, Conn. 06120 / input-output typewriters / DESCR: heavy duty electric machine modified to furnish coded and/or uncoded input and/or output. Any code, many special modifications / USE: graphic arts industry, computers, communications systems, data logging, process control / $660 to $2000 / T17
Connecticut Technical Corp. -- see D3
Dura Business Machines -- see D2
Invac Corp. -- see D1
Oki Electronics of America Inc., 202 East 44th St., New York, N. Y. 10017 / OKITYPER / DESCR: alphanumeric typewriter with

(Please turn to page 85)

## Make over 70

TEACHING MACHINES /
PROGRAMMED LEARNING MACHINES /
COMPUTING, REASONING, PUZZLE-SOLVING
AND GAME-PLAYING MACHINES

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**TEACHING MACHINE, PROGRAMMED LEARNING, AND AUTOMATIC TEACHING COMPUTER KIT K33**

WITH OUR TEACHING COMPUTER KIT K33, you can make over 70 small machines which electrically read punched paper tape, signal correct answers, give rewards out of a chute, keep score, etc., responding to situations in teaching, programmed learning, computing, reasoning, solving puzzles, playing games, etc. Each machine works on flashlight batteries .... is FUN to make, FUN to use and play with, and TEACHES you — both (1) any information which can be programmed for learning in a series of items or questions on paper tape, and (2) information about how to put together electrical, computing, reasoning, and teaching circuits and devices. All connections with nuts and bolts — no soldering required — completely safe. The TEACHING COMPUTER KIT K33 is the result of 15 years of our design and development work with miniature mechanical brains and scientific educational kits, including the Brainiac electric brain construction kit K18, the Probability and Statistics kit K22, Simon (miniature automatic digital computer with 129 relays), Squee (electronic robot squirrel), etc.

ONLY A FEW OF THE MACHINES THAT YOU CAN MAKE:
Teaching Machines: the Pat-on-the-Back Machine; the Spelling-the-Sound-F Machine; the Answering Machine; the Bronx-Cheer Machine; the Forgive-and-Forget Machine; the Scold-and-Forgive Machine; the If-Answer-Told-No-Reward Machine; the Infinitely-Rewarding Machine; the One-Reward-per-Frame Machine; the Automatic Teaching Computer; Scoring Machine for Honorable Student; Scoring Machine for Student with Weak Conscience; Podunk University's Pigeon Rewarding Machine; the Answering Machine with 100 Answers; the Answering Machine with 540 Answers; .... Logic Machines: the AND/OR Machine; the OR ELSE Machine; the NOT BOTH Machine; the IF AND ONLY IF Machine; the Logical Syllogism Machine; .... Computing Machines: Machines for Adding 7, Squaring, Finding Cube Root, ....; Decimal-to-Binary Converter; .... Puzzle-Solving Machines: the Case of the Missing Hyphen; the Riddle of Sundorra; Hawkshaw the Detective's Machine Made for Bluebeard; the Mysterious Multiples of 369; the Waxing and the Waning Moon; the Daisy Petal Machine; .... Game Playing Machines: Nim; the Game of 21 in Sundorra; Black Match.

WHAT COMES WITH YOUR KIT K33?
- Every special part needed to make the experiments and mechanisms in the kit, including:
  — a Tape Mechanism, which rolls punched paper tape through a reading station where it is read electrically,
  — a Chute Mechanism, which automatically delivers rewards or computes score,
  — four Multiple Switches operating electrically,
  — a Flip-Flop operating mechanically and electrically,
  — prepunched and prelabeled Panel Board, Lamps, Buzzer, small Balls for rewards or scoring, Hand Punch for your own program tape, etc.,
  — in total, over 400 parts of more than 50 kinds — everything you need to make hundreds of different computing, reasoning, and teaching machines.
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I enclose $_____ in full payment.

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# ROSTER OF ELECTRONIC COMPUTING AND DATA PROCESSING SERVICES

Following is a roster of electronic computing and data processing services.

The survey form asked for:

1. Brief description of the types and quantities of computing and data processing machines and equipment which you have?_____

2. Brief description of the types of problems that you specialize in?_____

3. Number of employees?_____
4. Year established?_____
5. Any remarks?_____

Filled in by_____Title_____
Organization_____
Address_____

For school, college, and university computing services, see the section of the directory "School, College, and University Computer Centers".

See also in the "Roster of Products and Services" entries under the heading "C14, Computing Services".

Each full entry from an organization that replied to the survey is in the form of: Name and address of electronic computing and data processing service bureau / Equipment / Problems specialized in / Size(number of employees) Established(year of establishment). Other entries should be self-explanatory.

The abbreviations used include the following:

S - Size (number of employees)
E - Established (year of establishment)
*C - "Checked" by the organization; "66" means "in 1966", etc.

All additions, corrections, and comments will be welcome.

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Applied Business Controls, Inc., 2512 W. Main St., Norristown, Pa. 19401 / EQPM: IBM unit card system complete complement; TWX on site; Philco 2000 series model 210 complete complement / PROB: general ledger accounting systems; all bookkeeping applications; payroll preparation; school scheduling & rostering; insurance company data accumulations & reporting / RMKS: fully integrated system for business and scientific applications / S 18 / E 1960 / *C 66

Automated Accounting Center of Conn., c/o Waterbury National Bank, Waterbury, Conn. 06720 / EQPM: NCR 315 (100) series), 5 magnetic tapes, paper tape, punched card and magnetic ink input; also CDC G-15 with 2 magnetic tapes / PROB: payroll, accounts receivable, inventory control, real estate processing and engineering calculations / S 52 / E 1959 / *C 66

Bendix Systems Division, 3300 Plymouth Rd., Ann Arbor, Mich. / EQPM: Control Data G20, 32K core, 4 tapes; 1000 lpm printer; 650 cpm reader / PROB: real-time simulation, commercial data processing & scientific applications / S 15 / E 1959 / *C 66

Ernest E. Blanche & Associates, Inc., 10335 Kensington Pkwy., Kensington, Md. 20795 / EQPM: IBM 360 Model 30 (32K, 6 tape drives), (2) 1401's (each with 8K, 4 tape drives); 67 key punches and verifiers; (13) EAM machines; tape to card converter / PROB: statistical analysis, engineering computations, accounting, traffic analysis, origin-destination studies, inventory, payroll, subscription fulfillment / S 120 / E 1955 / *C 66

Booz, Allen Applied Research, 135 South LaSalle St., Chicago, Ill. / EQPM: IBM 1620 II, 1311-2, 1443, card, 40K, index registers, floating point, binary / PROB: systems analysis, mathematical models, simulation, scientific computing / S 690 / E 1955 / *C 66

Computing & Software, Inc. (formerly Telecomputing Services, Inc.), 8155 Van Nuys Blvd., Panorama City, Calif. / EQPM: - / PROB: software development & maintenance services (provided at centers in Los Angeles, New York and at government facility locations): (Scientific) missile flight, rocket status test, artillery fire control, intelligence, meteorological & satellite orbital data; (Business) management information processing, PERT, inventory control, payroll and labor distribution / RMKS: services available on rate schedule basis or full-time contract basis / S 600 / E 1947 / *C 66

Control Data Corp., 8100 34th Ave. S., Minneapolis, Minn. 55440 / EQPM: Control Data 3600's (some 1604's and 160A's) PROB: general business, manufacturing, scientific computation, engineering, some specialized problems / S 600 / E 1962 / *C 66

Control Data Corp., Computech Data Ctre., 575 Lexington Ave., New York, N. Y. / EQPM: full line of computers and peripheral equipment from small commercial machines to largest computers on market / PROB: scientific and commercial; engineering, government and business / S about 10,000 / E 1957 / *C 66

Control Technology, Inc., 1232 Belmont Ave., Long Beach, Calif. / EQPM: hybrid computing facility; Milgo 4020 analog, medium sized digital / PROB: hybrid and analog simulation studies / S 20 / E 1960 / *C 66

Data Center Corp., 3002 Midvale Ave., Los Angeles, Calif. 90034 / EQPM: (3) IBM 1440's / PROB: business applications, management information systems / S 10 / E 1962 / *C 66

Delcos, Inc., 360 Western Federal Bldg., Denver, Colo. 80202 / EQPM: (2) IBM Model 1460 tape systems and punch card equipment; IBM System 360 Model 30 by June / PROB: demand deposit banking, savings & loan, sales analysis, school scheduling, manufacturing, and engineering / S 66 / E 1956 / *C 66

Electronic Associates, Inc., 1500 E. Imperial Hwy., El Segundo, Calif. / EQPM: EAI HYDAC 2400 hybrid computer, EAI 231R-V analog computer; (2 each) EAI TR-48, EAI TR-20. Available later in 1966: EAI 8400 digital computer, EAI 8800 analog computer, EAI 680 analog computer / PROB: analysis & simulation (analog, digital, and hybrid) of aerospace vehicles, petrochemical processes, fluid power control systems, bio-engineering systems, hydrologic systems, electronic components; provide digital software for general simulation needs / RMKS: provide courses in basic and advanced analog, digital, and hybrid computing; also provide consulting / S 20 / E 1956 / *C 66

Electronic Associates, Inc., 185 Monmouth Pkwy., W. Long Branch, N. J. / EQPM: EAI 8900 with peripheral equipment and software; EAI TR-20, EAI TR-48 (Analog); EAI 680, EAI 8800 (Analog-Hybrid); EAI 8400 (Digital) / PROB: scientific computation -- particularly simulation / RMKS: employees spread among four centers: Princeton, N. J.; Washington, D. C.; Los Angeles, Calif.; San Francisco, Calif. Also in Burgess Hill, England; Brussels, Belgium / S 250 / E 1945 / *C 66

Electronic Data Service, Inc., 802 Philadelphia Pike, Wilmington, Del. 19809 / EQPM: IBM 1401 tape 8K; IBM 1401 card 4K; 30 key punch machines / PROB: business applications; large volume K/P jobs / S 45 / E 1958 / *C 66

General Kinetics, Inc., 2611 Shirlington Rd., Arlington, Va. / EQPM: - / PROB: research, development and manufacture of magnetic tape equipment and computer tape testing equipment / S 399 / E 1954 / *C 66

GPS Instrument Co., Inc., 188 Needham St., Newton, Mass. 02164 / EQPM: complete line of analog computers featuring high performance and great flexibility. Computers tailored to meet individual needs of many users. GPS Computer Series 10,000 and 200T feature compressed time, real time and hybrid capabilities / PROB: statistical and iterative techniques, including automatic control, basic physical phenomena, evaluation of data, expressible by differential and algebraic equations. Specialize in wide bandwidth operation for high dynamic accuracy in compressed timescale computing with ability to read out in real time / S 60 / E 1951 / *C 66

IDR Co., 325 Chestnut St., Philadelphia, Pa. 19106 / EQPM: IBM System 360 Model 30 and IBM punch card equipment / PROB: publisher's service bureau / S 50 / E 1961 / *C 66

Mathematical Engineering Associates, Inc., 2929 Cedar Springs, Dallas, Tex. 75219 / EQPM: IBM System/360 model 40 with real time communication access, tapes and disks / PROB: petroleum technical applications, information retrieval management, business data processing. Keypunching and clerical data preparation services available / S 13 / E 1959 / *C 66

McDonnell Automation Center, Box 516, St. Louis, Mo. 63166 / EQPM: 30 digital and 19 analog computers including 2 IBM 7094's, an IBM 7080, IBM System 360, 7-Model 30's, a Model 40, a Model 50; a CDC 3200; and EAI-PACE, REAC and CEAC analog computers / PROB: complete consulting, systems design, programming, data processing and computing for business and scientific applications / S 1000+ E 1960 / *C 66

Midwest Research Institute, 425 Volker Blvd., Kansas City, Mo. 64110 / EQPM: System 360 Model 30 64K, 2501 reader, 1403 printer, (2) 2311 drives; Benson-Lehner incremental plotter (on line); various EAM equipment / PROB: engineering, applied math, physics, chemistry and economic research; also operations research and business systems / S 350 / E 1944 / *C 66

National Physical Laboratory, Mathematics Div., Teddington, Middlesex, England / EQPM: ACE and KDG9 / PROB: numerical analysis, applied mathematics, theoretical physics, data processing / S 60 / E 1945 / *C 66

Pacific Tabulating & Statistical Ltd., B202, Marine Bldg., Vancouver 1, B. C. / EQPM: Univac SS80, Univac 1050 III, Honeywell 200, IBM peripheral equip. / PROB: general accounting & statistics, programming, consulting, engineering & scientific / S 32 / E 1952 / *C 66

Recording & Statistical Co., 176 Broadway, New York, N. Y. / EQPM: multi-branch operation using Burroughs B300's, 280's, 160's; Univac 1004's and 5580 plus IBM conventional equipment / PROB: insurance company and agency accounting; all commercial applications / S 250 / E 1911 / *C 66

Reeves Instrument Co., 100 E. Gate Blvd., Garden City, N. Y. / EQPM: REAC 600 general purpose analog computer with hybrid capability expansion. Also computation centre for scientific problem solving / PROB: product analysis and systems simulation / S 1150 / E 1947 / *C 66

Rockford Research Institute Inc., 140½ Mt. Auburn St., Cambridge, Mass. / EQPM: on-line Teletype model 33 (private wire to BBN "Hospital" PDP-1) / PROB: research on: information retrieval, artificial intelligence, reactive typewriter user languages / RMKS: Rockford Research took over research in 1961 from Zator Co. (est. 1946) / S 3 / E 1961/1946 / *C 66

Sperry Rand Corp., UNIVAC Div., 1290 Ave. of Americas, New York, N. Y. / EQPM: complete range of electronic data processing systems and computers -- specializing in real-time, on-line operations / PROB: business, industrial, technical, and scientific / S 19,000 / E 1951 / *C 66

System Development Corp., 2500 Colorado Ave., Santa Monica, Calif. 90406 / EQPM: IBM System 360 Model 50; Philco 2000-210; IBM 7094; IBM Q-32 / PROB: development of computer-based information systems / RMKS: System 360 Model 50 to be replaced by Model 65; eventually, Model 67 / S 3000 / E 1957 / *C 66

Systems Data Processing Co., 908 Fifteenth St., Sacramento, Calif. / EQPM: B260 computer, punch card equipment / PROB: business applications; programming and systems analysis / S 22 / E 1958 / *C 66

Tata Institute of Fundamental Research, Colaba, Bombay 5, India / EQPM: CDC 3600-160A system including 12 magnetic tape units, card reader, card punch and printer. 160A is capable of working as an independent computer or in satellite mode / PROB: cosmic rays, nuclear physics and engineering problems / RMKS: Computer Center used by scientists and engineers from different research laboratories and universities in the country / S approx. 50 / E 1964 / *C 66

Technical Advisors, Inc., Municipal Court Bldg., Ann Arbor, Mich. 48108 / EQPM: RPC 4000 with 4 I-O stations and 300 cps punch; to be replaced August '66 with a PDP-7 with 8K core & 250K disc and peripheral equipment / PROB: surveying and civil engineering / S 15 / E 1959 / *C 66

Telecomputing Services, Inc., name changed to Computing & Software, Inc. -- which see

United Data Processing, Inc., 1001 S. W. 10th Ave., Portland, Ore. 97205 / EQPM: IBM 1401 with tapes; IBM System 360 Model 30 with tapes; MICR / PROB: business, demand deposit accounting, consulting services / S 60 / E 1958 / *C 66

UNIVAC Div., Sperry Rand Corp. -- see Sperry Rand Corp., UNIVAC Div.

Universal Data Processing Corp., 8404 Beverly Blvd., Los Angeles, Calif. 90048 / EQPM: IBM 1401, IBM 1460; (on order for August '66) IBM System 360; also 40 keypunches and various EAM equipment / PROB: business data processing, payrolls, accounts receivable and payable, inventories, merchandizing reports etc. / S 150 / E 1957 / *C 66

URS Corp., Corporate Hq., 1811 Trousdale Dr., Burlingame, Calif. / EQPM: IBM 1440/1311 digital computer; and punch card equipment; (IBM 360/30 on order) / PROB: accounts receivable, credit union accounting, retail accounting, job analysis, general ledger accounting, statistical reporting, payroll, engineering calculations, inventory control / S 175 (70 software specialists) / E 1951 / *C 66

Wolf Research & Development Corp., P. O. Box 36, Baker Ave., West Concord, Mass. / EQPM: Whirlwind I computer with comprehensive on-line communication features; H-200 computer with 4 magnetic tape units, 900 lpm printer, card reader-punch; CDC G-15D computer system with 2 magnetic tape units, paper, punched card input and output device, tracing table generator; various equipment for processing paper tape and punched cards / PROB: scientific engineering, management, business, industrial, military and space exploration applications / S 300 / E 1954 / *C 66

- END -

# how simple can data communications be?

Even if you have a highly sophisticated data processing system, data communications can be as simple as this standard Teletype Model 33 KSR (keyboard send-receive) set. Why? Because Teletype terminal equipment is still the most reliable, versatile, and least costly for collecting and distributing data.

One reason is that Teletype Models 33 and 35 equipment utilize an 8-level code that is compatible with the official language of many computers and other business machines—the American Standard Code for Information Interchange (ASCII).

**Input/output Features** In many data processing systems, Teletype equipment serves as the input/output medium for computers as well as for on-line communications. And, the punched paper tape capabilities of the Models 33 and 35 ASR (automatic send-receive) sets add the versatility of automatic, unattended operations.

For instance, messages and data can be punched into tape for later transmission on-line at full speed to distant points or directly to computers. Efficiency and accuracy are further increased because fixed information can be stored on punched paper tape and combined with variable data to save retyping.

These sets have 4-row keyboards that are familiar to any typist, and also help to reduce the chance of errors.

**Data Communications At Work** An electronics manufacturer uses Teletype equipment to transmit payroll information from a California plant to the firm's payroll processing center in Baltimore. The information is fed into a computer, which sends back payroll and detailed employees' earnings data. This is received at the California plant by Teletype sets and printed directly on payroll checks and earnings statements.

There are many more versatile applications of Teletype equipment in data communications systems. For example: a nationwide trucking firm uses standard Teletype sets to transmit daily progress reports from terminals to the home office computer, which processes the data and sends back recommended routing and scheduling. A major electrical manufacturer uses standard Teletype machines to link 300 sales offices, plants, and warehouses to two real-time computers to streamline order handling, production scheduling, and reduce large inventories.

**For Reliable Communications** These examples show why the Teletype Models 33 and 35 equipment are used by the Bell System and others who require reliable communications at the lowest possible cost. For more examples of applications, write for our new brochure, "WHAT DATA COMMUNICATIONS CAN DO FOR YOU." Teletype Corporation, Dept. 88F, 5555 Touhy Avenue, Skokie, Illinois 60076.

*machines that make data move*

TELETYPE

Circle No. 12 on Readers Service Card

# ROSTER OF CONSULTING SERVICES

Following is a roster of services which provide consulting in the computer field. Many of them also provide computing, and if so, additional description may be found in the "Survey of Computing Services". See also in the "Roster of Products and Services", the headings "C15, Consulting Services", and "P12, Programming Services".

The survey form asked for:

1. Brief description of the facilities, personnel and capabilities which you have for consulting assistance in the area of computers and data processors?_____
2. Brief description of the types of problems that you specialize in?_____
3. Number of employees?_____
4. Year established?_____
5. Any remarks?_____

Filled in by_____Title_____
Organization_____
Address_____

Each full entry from an organization that replied to the survey is in the form of: Name and address of consulting service / Facilities / Problems / Size and year of establishment. Other entries should be self-explanatory.

The abbreviations used include the following:

S - Size (number of employees?
E - Established (year of establishment)
*C - "Checked" by the organization; "66" means "in 1966", etc.

All additions, corrections, and comments will be welcome.

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Abacus Information Management Co., P. O. Box 399, New York, N. Y. 10008 / Technical and managerial guidance to administrative officials responsible for a wide variety of civilian and military systems / Appraisal, audit, professional criticism, review, crystallization of procedures and standards, financial valuation / S 2 / E 1962 / *C 65

Charles W. Adams Associates, Inc., 575 Technology Sq., Cambridge, Mass. / Two offices (Cambridge and Bedford) housing over 50 analysts and programmers at all levels with diverse backgrounds / Man-machine communication, on-line control, data communications, data reduction, computer software, large-scale computation and simulation, information retrieval, business data processing, analysis of system requirements, evaluation of systems, and equipment evaluation and selection / S 60 / E 1959 / *C 66

Aries Corp., Westgate Research Park, McLean, Va. / Systems consultants, analysts and programmers providing professional support to computer users through offices across the country / Management information systems, software development and modification, scientific problems, statistical analysis, information retrieval, real-time applications and data conversion / S 125 / E 1962 / *C 66

Auerbach Corp., 121 N. Broad St., Philadelphia, Pa. 19103 / A systems/design and consulting organization, possessing top technical competence / Systems/design feasibility studies, system effectiveness evaluation, data communications systems design, data base design, software/programming services, assembler/compiler systems, systems analysis, etc. / S 200 / E 1957 / *C 66

Automation Management, Inc., 25 Brigham St., Westboro, Mass. / Office and factory facilities and engineering personnel available to carry a project from the original idea through to installation and training of personnel in integrated office systems / Management control problems of all types involving the use of industrial engineering, operations research, as well as data processing and computer skills / S 3 / E 1955 / *C 65

Ernest E. Blanche & Associates, Inc., 10335 Kensington Pkwy., Kensington, Md. 20795 / 80 IBM EAM Machines, an IBM 360 Model 30 (32 K, 6 tape drives); (2) 1401's (each with 8K, 4 tape drives) / Statistical analysis, engineering computations, accounting, traffic analysis, origin-destination studies; inventory, payroll, subscription fulfillment / S 120 / E 1955 / *C 66

Bonner & Moore Associates, Inc., 500 Jefferson Bldg., Ste. 1124, Houston, Tex. 77005 / Specialize in Computer technology and management sciences. Four divisions of organization are: Management Services, Operations Research, Information Systems and Programming Systems. European operation established in 1965 / Services offered range from management consulting on organizational effects of computer technology and management science to planning implementation and evaluation of these activities. Operations Research encompasses corporate functions of forecasting and econometrics, development of detailed planning and scheduling activities. Implementation of these systems is carried out by the Programming Systems and Information Systems Divisions / S 40 / E 1956 / *C 66

Booz, Allen & Hamilton, Inc., 135 S. LaSalle St., Chicago, Ill. 60603. Also offices in Washington, D. C., New York, Detroit, Cleveland, Los Angeles, San Francisco / Management consultants, technical and management services in electronic and automatic data processing for integrated management information and control systems for industry, commerce, government, and institutions; feasibility studies, systems design, equipment selection, implementation, systems conversion, EDP audit and review / S 400 / E 1914 / *C 65

Brandon Applied Systems, Inc., 30 E. 42nd St., New York, N. Y. 10017 / Staff of over 30 experienced in all facets of data processing consulting. Four fully staffed offices: New York, Washington, London, Tel Aviv. Average experience: computer, 8.6 years; consulting, 4.2 years / Business data processing, standards development, installation management / S 35 / E 1964 / *C 66

Bunker-Ramo Eastern Technical Center, Inc., 2121 Industrial Pkwy., Silver Spring, Md. / Analysts have widely diverse backgrounds ranging from financial management to on-line command control techniques. Services to industry include: problem definition and analysis, system design, system implementation, and training and education / Mathematical and scientific data systems, advanced management systems, computer system feasibility studies, system analysis and design, command information systems, simulation and gaming, installation auditing and programming / S 65 / E 1961 / *C 66

C-E-I-R, Inc., One Farragut Sq., S., Washington, D. C. 20006 / Information processing; mathematical-statistical services; market analysis; management science; economics; automation training; engineering services; data research / Management information and control systems; business data processing; information storage and retrieval; control theory; systems analysis; computer programming and operations; scientific computing; data transmission systems; remote computer operations; mathematics; mathematical statistics; actuarial science; computations; market research; opinion research; audience measurement; sampling; sales forecasting; mediametrics; operations research; mathematical models; mathematical programming; simulations; war and business gaming; weapons system analysis; reliability; quality control; econometrics; statistical analysis; economic and statistical studies; economic and industrial surveys; management science and operations research seminars; computer workshops; in-plant education programs; technical training courses; engineering services; data research / S 1000 / E 1954 / *C 65

Chrono-Log Corp., 2583 W. Chester Pike, Broomall, Pa. / Design and manufacture real-time programmable clock systems for digital computers. Time code generators and readers. Digital clocks. Process control applications and systems / Real-time computer control for both industrial and military applications / S 10 / E 1956 / *C 65

Computer Personnel Consultants, Inc., 135 S. LaSalle St., Chicago, Ill. 60603 / Recruitment of and searches for computer and operations research personnel; personnel appraisal; and personnel and department organization consulting / S 5 / E 1964 / *C 65

Computer Sciences Corp., 650 N. Sepulveda Blvd., El Segundo, Calif. 90245 / Broad range of consulting services to industry, science and governments. Among these services are management sciences consultation, computer feasibility studies, and hardware and software evaluations / feasibility analysis, conversion, software design, long-range manufacturing planning, and communication systems requirements / S 1400 / E 1959 / *C 66

Control Data Corp., 8100 34th Ave., S., Minneapolis, Minn. 55440 / Data Centers Div. / System Sciences Div., Government Systems Div., Control Systems Div., Sales Support Personnel / Consulting with customer in all areas of standard data processing systems or special systems studies relative to applications in science, industry and government / S 8500 / E 1957 / *C 65

The Data Corp., 4050 Wilshire Blvd., Los Angeles, Calif. 90005 / Consultants, methods analysts, systems analysts, programmers for major computer manufacturers. In house IBM 1460/360, SDS 910, Philco and REI Optical scanners. Representation in principal cities / Data problem solving for clients. Consulting, systems, programming and processing / S 150 / E 1962 / *C 65

Dataman Associates, 120 Boylston St., Boston 16, Mass / Electronic data processing personnel consulting exclusively / S 6 / E 1959 / *C 65

Data Handling, 29 Barberry Lane, Roslyn Hts., N.Y. / Have been concerned with the application, design, and programming of electronics equipment for 24 years / Large files; system design; programming / S 1 / E 1954 / *C 66

Data Processing Consultants, Inc., 375 Park Ave., New York, N. Y. 10022 / Full range consulting services in data processing systems / Specialists in inventory control / S ? / E 1961 / *C 65

Data Systems Analysts, Inc., 5900 Westfield Ave., Pennsauken, N.J. / Company structured around group of senior people whose abilities constitute a total capacity in the applied and fundamental computer sciences. Staff has extensive experience in the design, development and implementation of real-time installations for large scale systems / Development of computer controlled communication systems and message switching programs; establishment of acceptance standards, diagnostics, and test procedures for bringing such systems into operation; construction of complete program packages for the system; and the development of data requirements to analyze systems performance / S 30 / E 1963 / *C 66

Dian Laboratories, Inc., 611 Broadway, New York 12, N. Y. / Programming and application of analog computer problems, and design of special purpose analog simulators and trainers / Aerospace and submarine dynamics and control, heat flow, chemical and petroleum kinetics, partial differential equations, noise analysis / S 10 / E 1955 / *C 65

Arnold I. Dumey, 29 Barberry Lane, Roslyn Heights, N. Y. / Consultant on problems of handling large amounts of data by electromechanical or electronic means / Design and application of computers; circulation problems of publishers of periodicals; statistical questions / S ? / E 1954 / *C 65

Ebasco Services Inc., 2 Rector St., New York, N. Y. / CDC G-20; 16K, buffered 6 magnetic tapes, card I/O, 1000 line per minute printer; 40 engineers and consultants active in computing. Programming services including problem formulation for computer application. Rental of computer facilities on service bureau basis / Evaluation and review of data processing systems. Feasibility determination for electronic, automated and other advanced forms of mechanized data processing systems. "Hardware" evaluation and selection. System design and installation. Data transmission and integrated processing procedures / S 1300 (N. Y. office) / E 1905 / *C 65

EDP Management, Inc., P. O. Box 393, New York, N. Y. 10008 / Personnel, demonstrated minimum of 6 (some 9) years of programming. Competence academically past the Master level. Past alternates

of standards X3 subcommittees. Broad range of detailed knowledge in problem areas using: information retrieval; batch, continuous and random processing; real time controls; sort merge; equipment capabilities and configurations; software performance and standards / Input output; interrupt control; accounting; command and control; management information systems for administration, planning, operations, accounting and commitment fulfillment / S 2 / E 1965 / *C 65

Electronic Associates, Inc., P.O. Box 582, Princeton, N.J. / Analysis and computation services plus computer laboratory to implement both large- and small-scale engineering and research simulations. Technical services include systems analysis, program development, and computer programming, as well as programming research and development. Computer laboratories with EAI 8400 digital computers, 8800 analog computers, 8900 hybrid computers, plus 640 digital computers, 680 analog computers, and 690 hybrid computers / Simulation and computation for research and engineering in industrial process systems, aerospace and weapons systems, biomedical, water resources, economics, transportation systems, utility distribution systems, and other complex natural and man-made systems / S approx. 200 / E 1954 / *C 66

Fernandez Long Y Reggini, Consulting Engineers, IDC (Ingenieria De Computadoras) Div., Esmeralda 356, Buenos Aires, Argentina / O/R analysts, EDP consultants, programmers / Computer oriented problems, data processing, systems analysis, simulation / S 10 / E 1963 / *C 66

Fischbach, McCoach & Associates, Inc., 30 E. 42nd St., New York 17, N. Y. / Management consultants specializing in applying scientific techniques to business-type problems. Complete service in appraisals and installation of electronic data processing and control systems for management / Business industry and government problems. Operations research; product appraisals; marketing analysis; organization studies; growth planning; site location studies / S 10 / E 1959 / *C 65

Dr. Ivan Flores, 931 President St., Brooklyn 15, N. Y. / Three specialists in hardware and software to solve all phases of design and system problems / Logical design math models, system design, software interaction, preliminary programming, feasibility, proposals, seminars, brochure on request / S 4 / E 1960 / *C 65

Gannett Fleming Corddry and Carpenter, Inc., 600 N. Second St., Harrisburg, Pa. / Consulting engineering firm with an IBM 1620 Model II, 1311 disk drives, 1443 printer and other EDP equipment / Work for own organization plus operating a service bureau / S 500 / E 1915 (computer section, 1955) / *C 65

GPS Instrument Co., Inc., 188 Needham St., Newton, Mass. 02164 / Analysis and solution on analog-hybrid computers by experienced applications specialists in the fields of aerospace, biomedical, communications and process control / Recognized authorities in adaptive control, optimal control and statistical analysis / S 60 / E 1951 / *C 66

H. J. Gruy & Associates, Inc., 2501 Cedar Springs, Dallas, Texas, 75201 / IBM 1620-II with 1443, 1311 disk drive, 40 K care, Cat-Comp-X-Y 30" plotter and associated equipment - IBM System 360 Model 30 & Model 40 on order / Petroleum Reservoir Engineering and associated industrial problems / S 70 / E 1959 / *C 66

Halbrecht Associates, Inc., 4641 Montgomery Ave., Bethesda, Md. 20014 / Management consultants, personnel and executive recruitment specialists / Electronic data processing, operations research mathematical sciences and scientific management / S 9 / E 1957 / *C 65

Hollander Associates, P. O. Box 2276, Fullerton, Calif. 92633 / Experienced engineers recognized for their contributions in the computer field supplemented by an alert and creative supporting staff / Evaluation and design of computer systems and their component units. Unique objective evaluation procedure clearly demonstrates relative advantages of alternate approaches. Recent contributions to design of spacecraft simulator, evaluation of gigacycle circuits, optimization of data retrieval and associative memories, planning of communication-switching systems and air-traffic beacons / S 9 / E 1961 / *C 65

Honeywell, Inc., Special Systems Div., Queen & S. Bailey Sts., Pottstown, Pa. / Staff of experienced application engineers for analyzing process control problems in preparation for on-line computer control. Facilities include Honeywell 290, Honeywell 610 and Honeywell 20 digital computers and EAI 231R analog computer in a hybrid system / Basic oxygen furnaces, food processing and warehousing, textile finishing, pulp and paper manufacturing, control of utilities, petro-chemical manufacturing processes / S 350 / E 1958 / *C 65

Honeywell Inc., Industrial Division, 1100 Virginia Dr., Fort Washington, Pa. / Staff of experienced application engineers for analyzing process control problems in preparation for on-line computer control. Facilities include Honeywell 290, Honeywell 610, Honeywell 20 digital computer, and two EAT 231R analog computers in a hybrid system. / Basic oxygen furnaces, food processing and warehousing, textile finishing, pulp and paper manufacturing, control of utilities, petro-chemical manufacturing processes / S 50 / E 1962 / *C 66

IDC (Ingenieria De Computadoras), Div. of Fernandez Long Y Reggini, Consulting Engineers - see Fernandez Long Y Reggini, Consulting Engineers, IDC (Ingenieria De Computadoras) Div.

Informatics Inc., 5430 Van Nuys Blvd., Sherman Oaks, Calif. 91401 / Offices in Calif., Tex., N.J., Md., and The Netherlands. Senior staff averages over 14 years' experience in computer field. Specialists in real-time, on-line programming systems. Independent software firm / Real-time, on-line time sharing applications; system design, analysis and implementation; design, analysis, programming and implementation of: synthetic intelligence, command and control advanced information systems, critical path methods, file management, PERT, intelligence systems, BOS/OS/360, experienced in over 100 computers. / S 250 / E 1962 / *C 66

Information Dynamics Corp., 80 Main St., Reading, Mass. 01867 / Senior scientists, engineers, management specialists. Demonstrated competence in: pure and applied mathematics; automated typesetting; computer program design; EDP systems applications; indexing; information processing and distribution systems; library science; microfilm and applied photography; operations research; test and evaluation / All facets of hardware/software information systems engineering including state-of-the-art surveys; systems studies; systems studies; system design; mathematical modelling; computer programming; feasibility evaluations; operating procedure and equipment specification preparation; design, development and fabrication of custom equipment; site supervision during equipment installation; equipment and system testing; manpower requirements development; and personnel training / S 24 / E 1960 / *C 64

Information Processing Systems, Inc., 200 W. 57 St., New York, N.Y. 10019 / - / Consulting on purchase and sale of EDP systems; leases; financial considerations in owning and/or renting EDP equipment. Appraisal of computer equipment / S - / E 1963 / *C 66

Infotran Inc., 860 Fifth Ave., New York, N.Y. 10021 / Planning, design and development of total information systems. New product development. Educational services. / Special purpose computer, data communications and control systems / S 6 / E 1964 / *C 66

Institute for Scientific Information, Inc., 325 Chestnut St., Philadelphia, Pa. 19106 / Consulting research, publications, facsimile hardware, information engineering, publishers of Current Contents of Space, Electronic and Physical Sciences and Science Citation Index / S 75 / E 1955 / *C 64

International Data Corp., 355 Walnut St., Newtonville, Mass. 02160 / Facilities for undertaking and executing market research studies in the computer and data processing field. Specialize in defining market potentials among users of computers and data processing equipment / Market studies and prospect identification in the computer and data processing field / S 18 / E 1964 / *C 66

I. S. S., 14 rue de Milan, Paris 9, France / Consulting in data processing. Business systems design, specializing in design and implementation of real time systems for total management information. Personnel with various experience in telecommunications and data processing / Applications of data processing to management, simulation, application of mathematical methods in management economics. Analysis and programming service in manufacturing and business computing / S 27 / E 1963 / *C 65

C. Jeffery Jacobs CDP, P.O. Box 7216, Station C, Atlanta, Ga. 30309 / Own business - formerly some 12 years of data processing experience with a consulting actuarial firm. Feasibility studies - small business - insurance companies. Systems & procedures - programming / Life Insurance Company Data Processing. Small business accounting etc. / Proprietorship / E 1966 / *C 66

J. Kates and Associates, a division of KCS Limited, 20 Spadina Rd., Toronto 4, Ontario / Total of 65 professional personnel in KCS Limited, many with degrees in more than one discipline / Administrative systems, operations research, programming, mathematical and statistical services / S ? / E 1954 / *C 64

Ling-Temco-Vought, Inc., P. O. Box 2100, Arlington, Tex. 76011 / Consultation, analysis, and programming services in all areas of scientific, manufacturing, and business computing / Management systems / S 270 / E 1949 / *C 64

Liskey Aluminum, Inc., Box 500, Glen Burnie, Md. 21061 / Complete design and engineering of computer room, supplier of raised flooring, air conditioning, and partitions / Expansion of existing computer room. New computer rooms in older buildings; computer rooms for new buildings / S 250 / E 1958 / *C 66

Litton Systems, Inc., Mellonics Systems Development, 1001 W. Maude Ave., Sunnyvale, Calif. 94086 / More than 50 systems engineers and analysts (mathematicians, physicists, engineers and specialists in allied disciplines); 35 of these are senior personnel / Military, scientific and industrial data processing systems engineering; data handling networks, and information management systems / S 82 / E 1961 / *C 66

Management Assistance Inc., 40 Exchange Place, New York 5, N. Y. / Data processing company specializing in the purchasing and leasing of used IBM business machines / Systems engineering and consulting services from Chicago and New York data centers. Develops and manufactures devices to expand the capability of IBM equipment, such as WROC 330 and WROC 452 / S 180 / E 1957 / *C 64

Management Systems Corp., 1 Story St., Cambridge, Mass. 02138 / Management consulting / S 100 / E 1960 / *C 64

F. L. Mannix & Co., Inc., Park Sq. Bldg., Boston, Mass. / Suite of offices / Staffing & evaluating EDP personnel; organizational studies; compensation surveys & evaluations / S 6 / E 1959 / *C 66

Math, Beratungsdienst, Kleppingstr. 26, Dortmund, Germany / Consulting; all problems of electronic computers operations research, etc.; 12-15 consultants (mathematicians, economists, and management economists) / Application of mathematical methods in management economics, service center application of punched tape with small to medium-size firms / S 41 / E 1957 / *C 64

Mathematical Engineering Associates, Inc., 2929 Cedar Springs, Dallas, Texas 75219 / Professional staff accountings and registered engineers with experience from 3-15 years each in programming and systems for technical and business applications. Each professional experienced in 5 different computers / Applications in savings & loan, accounts receivable, general ledger accounting, network simulations, insurance CFO, real-time manufacturing and operations control. Consulting assignments on documentation standards, personnel selection, data processing objective evaluations / S 13 / E 1959 / *C 66

H B. Maynard & Co., Inc., 718 Wallace Ave., Pittsburgh, Pa. 15221 / Manufacturing area computer system consulting / Production, inventory, real time systems / S 175 / E 1934 / *C 65

Mellonics Systems Development, Div. of Litton Systems, Inc. -- see Litton Systems, Inc., Mellonics Systems Development.

Mesa Scientific Corp., 2930 W. Imperial Highway, Inglewood, Calif. 90303 / 15,000 feet of offices in Inglewood, Los Angeles, Santa Ana, Calif.; Silver Spring, Md.; Huntsville, Ala. Many senior analysts, engineers, programmers / Design of all types of computer hardware and software. Computer applications. Checkout and instrumentation systems. Command and control and communication systems / Have served over 200 clients / S 200 / E 1957 / *C 65

National Scientific Laboratories, Inc., 2010 Massachusetts Ave., N.W., Washington, D. C. 20036 / Research and development / Computer application engineering / S 300 / E 1948 / *C 65

Simon M. Newman, Documentation Consultant, 1411 Hopkins St., N.W., Washington, D. C. 20036 / Independent consultant, with 18 years experience in construction and integration of scientific and technical hierarchical classifications; 6 years experience in the mechanization of such systems for information retrieval. 32 years of experience with Patent Office search problems, requiring detailed and exact technical searching / Design of information retrieval systems, and recommendations for implementation by use of hardware, when economically justified / S 1 / E 1961 / *C 65

John K. Paden Co., 6918 Tokalon Drive, Dallas 14, Tex. / Electronic data processing management consulting / Inventory control and production control / S 3 / E 1960 / *C 65

Philco Corp., 3900 Welsh Rd., Willow Grove, Pa. / Technical Representative Div. provides programmers, field engineers, instructors, technical manuals, consultants and computer services / All phases of computer related areas. Long range planning, operations research functions, activities in 57 countries and throughout U. S. / S 3400 / E 1942 / *C 65

Planning Research Corp., 1100 Glendon Ave., Los Angeles, Calif. 90024 (Staffs in 13 other cities, including Washington, D. C.; Huntsville, Ala.; Honolulu, Hawaii; and Paris France) / 300 professionals work exclusively with information systems; programmers average 6 years of experience; average for computer systems analysts exceeds 10 years of experience with computer-based systems. Computer systems analysis, system software, applications programming, real-time systems, applied research, computer engineering. / Information flow methodology, technical audit, compilers, master control systems, information processing, utility programs, scientific programming, cartographis data processing, biomedical data processing, simulation and gaming, command and control, intelligence, logistics, management information systems, information storage and retrieval. / S 700 / E 1954 / *C 66

Programmatics, Inc., 12011 San Vicente Blvd., Los Angeles, Calif. 90049 / Offices in West Los Angeles. Staff has extensive experience in systems analysis and design, machine evaluation and feasibility studies / Systems programming, management control systems, business and scientific applications / S 14 / E 1963 / *C 66

Research Applications Inc., 300 East 44th St., New York, N.Y. 10017 / IBM 7090; IBM 360, Model 30. 20 man commercial programming staff, 6 man statistical-scientific programming staff / Complete



(Please turn to page 104)

# ROSTER OF SOFTWARE SUPPLIERS

Following is a survey of software suppliers in the computer field. Many of them also provide computing and consulting services, and if so, additional descriptions may be found in the "Roster of Electronic Computing and Data Processing Services" and "Roster of Consulting Services". See also in the "Roster of Products and Services:, the headings "C14, Computing Services", "C15 Consulting Services", and P12, Programming Services."

The survey form asked for:

1. Brief description of the facilities, personnel and capabilities which you have for producing software (programs and systems for using computers and data processors)?
   _____
   _____
2. Brief description of the types of software that you supply?_____
   _____
3. Number of employees?_____
4. Year established?_____
5. Any remarks?_____
   _____

Filled in by: Name_____ Title_____
Organization_____ Address_____

Each full entry from an organization that replied to the survey is in the form of: Name and address of software supplier / Facilities / Types of software supplied / Size and year of establishment. Other entries should be self-explanatory.

The abbreviations used include the following:

S - Size of Organization (number of employees)
E - Established (year of establishment)
*C - "Checked" by the organization; "66" means "in 1966", etc.

All additions, corrections, and comments will be welcome.

Abacus Information Management Co., P.O. Box 399, New York, N.Y. 10008 / Knowledge of computer and assembler construction, maintenance, and evaluation. Experience with all IBM, Honeywell, RCA, and Control Data software and problems which include hardware configuration / Sort-merge, report generator, utility, real time and communications, command and control, and executive systems. Documentation, programming, systems design and operational analysis of existing or proposed systems / S ? / E 1962 / *C 65

Charles W. Adams Associates, Inc., 575 Technology Sq., Cambridge, Mass. 02139 / Two offices (Cambridge and Bedford) housing over 50 analysts and programmers at all levels with diverse backgrounds / Utility routines, language translators, executive systems, real-time systems, business data processing applications, graphics applications, simulation, data reduction, numerical analysis, matrix manipulation routines, complete technical systems / S 60 / E 1959 / *C 66

Aries Corporation, 4901 W. 77th St., Minneapolis, Minn. and Westgate Research Park, McClean, Va. / Programming staff has contributed directly to the program systems of NTDS, SAGE, DNCCC, JOVIAL for the CDC 1604, CS-1 compiler for the AN/USQ-20, Air Traffic Control, DDC GSA and NASA / Experience with full range of compilers, assembly, utility systems. Specialize in real-time support including monitors and diagnostics. Have programmed executive control routines, compilers and assemblers, simulators, diagnostic routines, utility support programs, and scientific problems / S 55 / E 1962 / *C 65

Associated Computer Services, Inc., 180 Madison Ave., New York, N.Y. 10016 / Systems analysts, programmers, key-punch operators having extensive experience with mathematical, statistical and analytical techniques; IBM 1401-12K and IBM 360-32K / Systems and programs for sales forecasting and analysis, accounts receivable, accounts payable, production and inventory control, cost accounting, and payrolls / S 10 / E 1961 / *C 66

Auerbach Corp., 121 N. Broad St., Philadelphia, Pa. 19107 / Has evolved unique approach to solution of difficult software-programming problems out of work on such projects as OPCON and AUTODIN / Problem definition, design of custom user languages, design of solution algorithms, programming analysis-flow charting, programming, coding, de-bugging-checkout, installation, personnel training, documentation / S 200 / E 1957 / *C 66

Automation Management, Inc., 25 Brigham St., Westboro, Mass. / Staff or personnel available with experience in management information and control systems, especially those involving communications / AL PUR COM (All Purpose Communication System), cost control systems, systems for speeding the flow of materials and/or information / S 3 / E 1955 / *C 65

E. J. Bettinger Co., 20 S. 15th St., Philadelphia, Pa. / Qualified personnel with extensive recruiting and "on-line" experience in the electronic data processing field; complete testing facilities for evaluating applicants EDP aptitude and executive potential; private offices for conducting confidential client-applicant interviews / — / S 15 / E 1946 / *C 66

Ernest E. Blanche & Associates, Inc., 10335 Kensington Pkwy., Kensington, Md. 20795 / Programming and systems design for processing on IBM 360-30 (32 K, two 7-channel and four 9-channel tape drives) and 2-IBM 1401's (8K, 4 tape drives each); statistical research and analysis; EAM work on 80 IBM machines/ Custom programs to specifications / S 120 / E 1955 / *C 66

Bonner & Moore Associates, Inc., 500 Jefferson Cullen Center, Houston, Tex. 77002 / Houston-based consulting firm specializing in computer technology and management sciences; complete scope of services including advanced system design, program development, implementation and maintenance / Range from standard software packages of assemblers and compilers through specialized systems in fields of retrieval oriented file handling systems, and management information. Includes development of specialized application languages and complete mathematical programming systems. Proprietary packages include generalized matrix generation, complete linear programming packages with decomposition and distribution, management information systems language for the compact computers and a mathematical programming system for the smaller System 360 computers / S 40 / E 1956 / *C 66

Brandon Applied Systems, Inc., 30 East 42nd St., New York, N.Y. 10017 / Fourteen qualified programmers and systems designers, with broad background in all machine types; 4 years min. experience, average 7.3 years. Background in all types of software design, simulation and programming languages / Language components, business systems, conversion systems / S 35 / E 1964 / *C 66

C-E-I-R, Inc., One Farragut Square, S., Washington, D. C. 20006 / IBM 7090's, 7094's, 1460's and 1401's and peripheral equipment; RCA 501 and 301; CDC 3200. Computing services bureaus, consultants computing technology and management sciences / All types (e.g., compilers, executive systems, translators, assemblers, report generators, monitors, packaged subroutines, applications programs, etc.) / S 1000 / E 1954 / *C 65

A. Ben Clymer, 2145 Tremont Rd., Columbus, Ohio 43221 / — / Problems in any field of engineering or science which involve derivation of a mathematical model (such as ordinary or partial differential equations); planning for computer implementation (such as simulation) / S 1 / E 1961 / *C 66

Computers in Business Limited, 89 Wigmore St., London, W.1 / applications: commercial, market-research, real-time, compilers / IBM 360, 1401, 1410, 1440; Control Data 3100, 3200; SDS 90; CCC DDP 224; NCR/Elliott 803, 4100, 903 / $1,000 per 140 hour man month / S? / E ? / *C 66

Computer Logic Corp., 1528 20th St., Santa Monica, Calif. / 6000 sq. ft.; complete engineering facilities for data systems; chief engineer 20 years experience / Logic handbook, germanium catalog, integrated circuits and silicon catalog schematics, product description, system manuals. Specialty is logic cards, all types, and custom acquisition systems / S 12 / E 1961 / *C 66

Computer Methods Corp. 470 Mamaroneck Ave., White Plains, N.Y. / Across-the-board service from consulting through implementation of real-time and batch-type commercial systems; six years average experience of staff in all phases of electronic data processing. CMC has designed and installed systems on the computing systems of all major manufacturers / Development of application packages for real-time and batch-type systems in airline reservations, retail credit, sales reporting, message switching, typesetting, data analysis and reduction, information retrieval, hardware and systems simulators, general commercial applications / S 30 / E 1961 / *C 66

Computer Sciences Corp., 650 N. Sepulveda Blvd., El Segundo, Calif. 90245 / Offices in seven major U.S. metropolitan areas, provide industry, science and governments with business and scientific data processing services, systems programming, communication systems analysis and engineering, and systems and project management. All levels of management include widely known professionals in the field of the information sciences / Areas of specialization among the broad range of services provided are the design and implementation of large-scale management information systems, development of operational systems for command and control, and scientific data reduction / S Approx. 1,400 / E 1959 / *C 66

Computer Usage Co., Inc. 655 Madison Ave., New York 21, N.Y., Offices in Washington, D.C.; Los Angeles, Calif.; Palo Alto, Calif.; Newton Upper Falls, Mass.; Houston, Tex. / A staff of over 300 specialists in systems design, analysis and programming for all digital computers / Problems in analysis, programming, facility management, business and scientific data processing, consulting and computer time sales / S 309 / E 1955 / *C 65

COMRESS, Inc., 2120 Bladensburg Rd., N.E., Washington, D.C. 20018 / Own 16,000 sq. ft. office building; 59 employees, 75% are on the technical staff with average experience of over 5 years; UNIVAC 1005 on premises with unlimited use of three large computing systems / Simulators, SCERT (Systems & Computers Evaluation & Review Technique), used in evaluation and management of hard-ware/software. Translators, TRANSIM (Translation via Simulation), used in machine-to-machine program translation. Documentation programs, DOPIC (Diagnostics of Programs). In Core, used to provide documentation (flow charts and program instructions) for computer programs / S 59 / E 1962 / *C 66

Control Data Corp., 8100 34th Ave., S., Minneapolis 20 Minn. / 1500 software specialists, including mathematicians, physicists, statisticians, and senior programmers, as well as application specialists, such as business data processing, command and control, communications, aerospace, linear programming, etc. / Compilers, operating systems, control programs, system analysis, and applied programs such as linear programming, operations research, business data processing, communications, industrial systems, military systems, etc. / S 8500 / E 1957 / *C 65

Control Technology, Inc., 1232 Belmont, Long Beach, Calif. / Specialists in digital simulation; hybrid and real-time software; numerical integration techniques and error analysis; structural design and drafting software / Digital simulation models, systems and utility routines, hybrid computer control, maintenance routines / S 20 / E 1960 / *C 66

The Data Center Corp., 3002 Midvale Ave., Los Angeles 34, Calif. / Over 100 man-years of programming and system design / Business application (inventory control, accounting systems, on-line and batch); management information systems; operations research applications / S 10 / E 1962 / *C 66

Data Processing, Inc., 1334 Main St., Waltham, Mass. 02154 / Publicly-owned corporation with proven capabilities in advanced computer applications consulting, problem analysis, and programming / Wide range of services is offered in both scientific and special business areas, including special-purpose programming and large systems work as well as research and development / S 4 / E 1957 / *C 66

Data Systems Analysts, Inc., 5900 Westfield Ave., Pennsauken, N.J. / Computer system definition, proposal development, and programming services mainly for real time and communications switching systems / S 12 / E 1963 / *C 65

Dataman Associates, 120 Boylston St., Boston, Mass. / Personnel recruiting for software and hardware backgrounds; executive search; exclusively in the electronic data processing field / — / S 6 / E 1958 / *C 66

Dela Data Corporation, 1718 San Pablo Ave., Pinole, Calif. / Programming staff and tabulating equipment in our shop; rent time on 1401 and 7094 / Specialize in unusual applications; test scoring, student scheduling, grade reporting services; programming, consulting / S 6 / E 1959 / *C 65

EAI Computation Center at Los Angeles, Inc., 1500 E. Imperial Highway, El Segundo, Calif. / HYDAC 2400 Hybrid Digital/Analog Computer, including 231R-V DOS 350 and DDP-24. Experienced engi-

neers in analog, logic, digital programming, and integration of hybrid systems / Digital, analog and logic software for hybrid computing, specifically HYDAC 2400. Provide conversion programs, orbital programs, diagnostic programs, etc. / S 19 / E 1956 / *C 64

EDP Management, Inc., P.O. Box 393, New York, N.Y. 10008 / Minimum of 6 (some 9) years of programming competence. Academically past the master level. AUTOCOM, FORTRAN, COBOL, OSAS, SICOM, sort-merge, etc. Machine language, real time, communications, command and control, input-output. Establish performance criteria and develop standards discipline / Programming packages such as: complete communications control executive with drivers; disk and drum monitors; full blown administrative and personnel systems; subscription fulfillment; report editing and file maintenance; accounting systems / S 2 / E 1965 / *C 65

Electronic Associates, Inc., Research & Computation Div., P.O. Box 582, Princeton, N.J. / 4 Model 231-R PACE 120 amplifier analog computers, 1 HYDAC 2400 Hybrid analog/digital computer, ADIOS (Automatic digital input-output system), 1 model DDP-24 digital computer, 5 TR-48 and 2 TR-20 desk-top analog computers, 1 model 3440 digital dataplotter, numerous 8 channel rectilinear and 11 x 17 x-y recorders, also 8 channel repetitive operation oscilloscope display / Aerospace simulation and weapons system analysis, electromagnetic propagation studies, signal processing, pattern recognition and other scientific applications: industrial process simulation and analysis: development of mathematical models for all types of scientific simulation, including bio-medical, economic, photogrammetric / S 45 / E 1954 / *C 65

Electronic Assoc. Inc., San Francisco Analysis and Computation Center, 4151 Middlefield Rd., Palo Alto, Calif. / Senior programmers (engineers) using EAI's 8400 at NASA Ames until delivery of own / Scientific applications for hybrid and digital simulation of real time problems; special purpose system; utility software / S 3 / E 1963 / *C 66

Fischback, McCoach & Associates, Inc., 30 East 42nd St., New York, N.Y. 10017 / General management consulting firm with strong specialization in problems related to the development of automated systems for business use, equipment selection and system installation / General surveys and appraisals; computer feasibility studies; design of systems for the use of computers in solving specialized business problems, forecasting, media selection, research / S 10 / E 1959 / *C 66

Dr. Ivan Flores, 931 President St., Brooklyn 15, N.Y. / Specialize in analysis, integration, and setup of software program rather than production / Systems analysis and software-hardware integration, for special and general purpose computers / S 3 / E 1960 / *C 65

GPS Instrument Co., Inc., 188 Needham St., Newton, Mass. 02164 / Experienced applications specialists; analog and hybrid computation center available for rental or complete analysis; advanced scientific and computer application training courses / Analog and hybrid computer programming for aerospace, bio-medical, communications, process control / S 60 / E 1951 / *C 66

IDC, Ingenieria de Computadoras, Esmeralda 356 Buenos Aires, Argentina / Professional staff with experience in scientific and management computing programming for industry and government / Applied programming, operations research and structural analysis programs, compilers and programming systems, problem-oriented languages, development of models for digital simulation / S 8 / E 1963 / *C 65

ITT Data Processing Center, Paramus, N.J. / Staff of 250 analysts, programmers, mathematicians and engineers. Backgrounds include every major computer system in existence. Experience includes a full range of applications including operations research, scientific and commercial data processing, real time, and management systems / Tailor-made data processing systems designed, programmed and run for any application / work done in any computer language for all major computing systems. Very extensive library of programs. Complete problems handled from initial analysis to coding, debugging and productive runs / S 300 / E 1958 / *C 65

Litton Systems, Inc., Mellonics Systems Development, 1001 W. Maude Ave., Sunnyvale, Calif. 94086 / More than 40 systems analysts and computer program design and development specialists; majority are senior personnel with five or more years in computing field / Real-time software systems; monitors and executive routines; compiler development; digital computer system simulation; military, scientific, industrial, commercial computer program design and development / S 82 / E 1961 / *C 66

Mathematical Engineering Associates, Inc. 2929 Cedar Springs, Dallas, Tex. 75219 / Professional staff with experience in data compilers, application-oriented in-line language program generators and report generators; applications background in engineering, banking, financial operations / Proprietary systems for petroleum valuations and acquisitions / S 13 / E 1959 / *C 66

Mellonic Systems Development, Div. of Litton Systems, Inc., Mellonic Systems Development

Mesa Scientific Corp. 2930 W. Imperial Highway, Inglewood, Calif. 90303 / 15,000 feet of offices in Inglewood, Los Angeles, Santa Ana, Calif.; Silver Spring, Md.; Huntsville, Ala. 200 people, mostly senior programmers, also computer and system engineers / Compilers, assemblers, operating systems - real time systems for data acquisition and processing and automatic checkout. Serving most computer manufacturers, U.S. Government agencies and major computer users / S 200 / E 1957 / *C 65

Philco, a subsidiary of Ford Motor Co., Information Systems Dept., Communication and Electronics Div., Willow Grove, Pa. / Over 100 programmers preparing developmental and operational programs and programming systems for Philco 2000 and 1000 computer systems / Provide users of Philco computers with full range of software. The upward program compatibility of computers within this system has enabled users to upgrade their equipment complement without reprogramming. Philco 2000 FORTRAN IV; ALTAC III-FORTRAN II compiler; Philco 2000 COBOL; TAC - Philco 2000 assembler-compiler; SYS-Philco 2000 operating system; LP-2000 - Linear programming system; STAT/2000 - Philco 2000 statistical system; CPS - Philco critical path scheduling system; sort and merge programs - Philco 2000 sort system; Philco 2000 - PERT III; PERT/COST; TOPS - total operating programming system; Philco 2000 XMAS, EXpandable machine accounting system; Philco 200 report generator / S ? / E 1958 / *C 65

Planning Research Corp., 1100 Glendon, Los Angeles, Calif. 90024 / Approximately 300 programmers, analysts, mathematicians and engineers; average experience 6 years / Scientific programming; cartographic data processing; biomedical data processing; simulation and gaming; command and control systems; intelligence systems; logistics systems; management information systems; ISR; real-time systems; compilers / S 700 / E 1954 / *C 66

Programmatics Inc., 12011 san Vicente Blvd., Los Angeles, Calif. 90049 / Offices in West Los Angeles; staff has extensive experience in systems and applications programming; programmatics has industry's only off-the-shelf assembly programs / Assemblers, compilers, operating systems, sort-merge, applications / S 14 / E 1963 / *C 66

Recording & Statistical Co., 176 Broadway, New York, N.Y. 10038 / Six locations with unit record and computer equipment up to 15,000 points in size. Computers include Burroughs 280 magnetic tape system, as well as 260's, Univac 1004's and IBM equipment providing facility to match job with most efficient piece of any particular manufacturer's equipment. Emphasis being on performance / While all locations provide a completely rounded service to any commercial application, all specialize in particular back up to the fire and casualty insurance field (companies and agents) with both package programs and customized systems / S 300 / E 1911 / *C 65

Telecomputing Services, Inc., 8155 Van Nys Blvd., Suite 250, Panorama City, Calif. 91402 / Computer software development and maintenance services provided by TSI at data centers located in Los Angeles, New York, and at government facility locations: Edwards AFB, Calif.; White Sands Missile Range, N. Mex.; Slidell, La.; and Huntsville, Ala. Capability exists for the development of software for IBM, GE, Honeywell, and Burroughs computing systems plus a variety of special purpose computers / Scientific computer software employed for the processing of missile flight, rocket static test, artillery fire control, intelligence, meteorological and satellite orbital data. Business computer software employed for management information processing, PERT, inventory control, payroll and labor distribution / S 510 / E 1947 / *C 65

URS Corp., 600 N. Garden Ave., Sierra Vista, Ariz. (corporate hq., 1811 Trousdale Dr., Burlingame, Calif.) / IBM 1440/131 system. IBM 360/30 on order. Staff of 70 software specialists with experience in the complete line of general software systems / Batch processing executive/monitor routines, I/O supervisor systems, debugging supervisor systems, on-line executive routines, real-time monitor and scheduling systems, sort generator of sort systems; compilers including COBOL and COMPACT COBOL, computer simulators, mathematical packages, PERT and PERT-COST systems, specific applications software for scientific and business data processing, special purpose compilers and assemblers for any customer including data acquisition systems, and information retrieval systems. Applications software for military systems including supply and personnel management and transportation scheduling / S 124 / E 1951 / *C 65

Westinghouse Electric Corp., Analytical Dept. E. Pittsburgh, Pa. / Experienced business systems analysts specializing in the application of computers to management information systems. Provide research development and design services, Digital: 7094-II; 2, 1401; auxiliary peripheral equipment; Prodac 580 control computer / Specific systems and packages available in the areas of data retrieval, job shop simulation, data generation. Systems or packages are characterized by the intent to incorporate maximum possible generality to be adapted by other users / S 100 / E 1929 / *C 65

Wolf Research and Development Corp., P. O. Box 36, Baker Ave., W. Concord, Mass. 01781 / Large staff of analysts and programmers with experience in most commercially available computing equipment / Data processing systems; hardware-software integration; problem analysis, programming for scientific, business, statistical, management information and documentation applications and hardware systems programs / S 300 / E 1954 / *C 66

- END -


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| KEY PUNCHES | 024, 026, ALPHA. |
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# CHARACTERISTICS OF GENERAL PURPOSE ANALOG COMPUTERS

Following is a survey of general purpose analog computers, based on returns from a current mailing and information previously published in "Computers and Automation". The editors will be glad to receive any additional entries, corrections, or comments for publishing in an early issue of "Computers and Automation".

Nearly all the abbreviations used in these summaries are like those used in a telephone book--contractions of words of such a kind that the words can be easily guessed, especially if the reader refers to the survey form summarized. "C" means "checked by the organization"; "66" means "in 1966", etc.

REPLY FORM (may be copied on any sheet of paper)

1. Name of Analog Computer:_____
2. Typical field(s) of application: ( )Scientific ( )Business ( )Real-time ( )Not real-time ( )Other (please describe)_____
3. Accuracy of numerical information the machine will take in and put out, in number of significant figures: ( )2 ( )3 ( )4 ( )5 ( )other (please describe)_____
4. Number of physical variables that the machine can store at one time:_____
5. Number of units in the computer for performing mathematical operations (OK to give maximum in largest existing installation): a. Adders:___ b. Multipliers:_____c. Integrators:_____ d. Branching operations:_____e. Other (please explain):_____
6. Programming: a. Automatic programming of new problem when a problem changes? ( )Yes ( )No b. Typical amount of time needed to change from one program to another:_____
7. Input-Output: method(s) of giving information or problems to the machine:_____
8. Reliability: a. Automatic checking? ( )Yes ( )No b. Typical operating percent (good time DIVIDED BY attempted-to-run time): _____%
9. Price range: a. One sum: between $_____and $_____ b. Monthly rental: between $_____and $_____
10. Sales: a. Number sold or rented:_____ b. Number on order:_____
11. Any remarks?_____

This data supplied by:_____
Title_____
Organization_____
Address_____

When filled in, please send this form to COMPUTERS AND AUTOMATION, Berkeley Enterprises, Inc., 815 Washington St., Newtonville, Mass. 02160

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Card Programmed Diode Function Generator / scientific, real-time or not / ACCUR: 5 signif figures; 15 "bit" binary code prvvides programming resolution of one part in 32,768 / CAPAC: store Y = f(X), equiv to approx 12 physical variables / LARGST INSTLN: 120 card programmed DFGs / PRGMG: no automatic programming, 10 seconds needed to change / IN-OUT: Insert punched card in integral card reader / RELIAB: has autom checkg; operg ratio, 99.83% / sale, $2,000 to $250,000 / 1238 sold or rented, 95 on order / General Computers, Inc., 5990 W. Pico Blvd., Los Angeles, Calif. 900035 / *C 66

DIAN 60, 120, 180, etc. / for scientific problems, real-time or not / ACCUR: 5 signif figures / CAPAC: store 200 physical variables of more / LARGST INSTLN: 450 adders, 70 multipliers, 200 integrators, 200 to 300 branching operations, also function generators (noise generators) / PRGMG: autom prgmg of a new problem when a problem changes; time needed depends on size of problem -- from a few minutes to an hour / IN-OUT: function generators, input-output tables, noise generators / RELIAB: has autom checkg; operg ratio, 99% to 100% / sold or rented; prices available on specific request / Dian Laboratories, Inc., 611 Broadway, New York 10, N.Y. / *C 65

EAI-8800 Analog/Hybrid Computing System / scientific, real-time, also 100 or 1000 times real-time / ACCUR: 4 signif figures / CAPAC: 120 physical variables / LARGST INSTLN: 60 adders, 72 multipliers, 66 integrators, 30 branching operations; 30 variable function generators, 6 resolvers, 30 limiters, 30 comparators, 240 potentiometers / PRGMG: autom prgmg, 15 minutes when using digital I/O system / IN-OUT: IBM card for arbitrary function generation, patch panel, small digital I/O system (small core GPDC), manual setting of poteniometers, function generators and limiters / RELIAB: autom checkg; operg ratio, 97% / sale, $75,000 to $550,000; rental between $2700 and $20,000 / 12 sold or rented, 20 on order / EAI (Electronic Associates, Inc.), West Long Branch, N. J. 07764 *C66

Electronic Associates 231R / scientific; real-time, slower than real-time or high-speed repetitive and iterative operation / ACCUR: 4 signif figures / REF: 100 volts / CAPAC: 216 amplifiers / LARGST INSTLN: 45 summers, 30 summer-integrators; multiplier-dividers, electronic resolvers, function generators, logic gates, comparators also avail / PRGMG CHANGEOVER: 10 min / IN-OUT: patch panels, keyboards, paper tape reader, paper tape punch, DVM, X-Y plotter, display scope, T-Y recorder, printer, typewriter / RELIAB: has autom checkg: operg ratio, 95% / sale, $33,000 to $500,000 / also integral sub-system of EAI HYDAC 2000 & HYDAC 2400 Hybrid Digital Analog Computers / Electronic Associates, Inc., West Long Branch, N. J. / *C 65

Electronic Associates HYDAC 2000 / scientific, real-time and faster than real-time; a general-purpose hybrid analog-digital computing system / ACCUR: 4 signif figures / CAPAC: 3000 digital words / LARGST INSTLN: 180 flip-flops, 200 AND gates, 12 delay lines, 40 conversion channels, 400 amplifiers / PRGMG: autom by removable patch panel and servo-set attenuators; 20 min changeover / IN-OUT: patch panel, paper tape, keyboard, typewriter, digital voltmeter, plotters, oscilloscope / RELIAB: has autom checkg; operg ratio, 95% / sale, $75,000 to $650,000 / a completely integrated hybrid system taking full advantage of both analog and digital techniques / Electronic Associates, Inc., West Long Branch, N. J. / *C 65

Electronic Associates HYDAC 2400 / scientific, real-time and faster than real-time; a complete general-purpose hybrid digital-analog computing system / ACCUR: 12 signif figures / CAPAC: 35,000 digital words / PRGMG: autom by removable patch panel and servo-set attenuators; 25 min changeover / IN-OUT: patch panel, paper tape, keyboard, typewriter, digital voltmeter, plotters, oscilloscope / RELIAB: has autom checkg; operg ratio, 95% / sale, $170,000 to $1,000,000 / combines the accuracy of a GPDC with the speed of a GPAC to best perform complex simulations / Electronic Associates, Inc., West Long Branch, N. J. / *C 65

Electronic Associates TR-20 / scientific; real-time or rep. operation / ACCUR: .01 to 0.1% / CAPAC: 20 amplifiers, 24 potentiometers, 18 integrators, 9 multipliers, 2 comparators, 6 diode function generators, 2 function switches / PRGMG CHANGEOVER: 20 min / IN-OUT: hand patch panel / RELIAB: has autom checkg and overload indicators / sale, $4350 to $12,000 / solid state portable machine / Electronic Associates, Inc., West Long Branch, N. J. / *C 65

Electronic Associates TR-48 / scientific; real-time or rep. operation / ACCUR: .01 to 0.1% / CAPAC: 58 amplifiers, 60 potentiometers, 40 integrators, 23 multipliers, 23 diode function generators, 29 limiters, 5 function switches / PRGMG CHANGEOVER: 20 min / IN-OUT: patch panel / RELIAB: has autom checkg and overload indicators / sale, $7520 to $40,000 / sold or rented / solid-state desk-top machine / Electronic Associates, Inc., West Long Branch, N. J. / *C 65

Hybrid 7 Series developed from 247 systems / scientific; real-time; hybrid, parameter optimisation / ACCUR: 5 signif figures / CAPAC: 50 physical variables / LARGST INSTLN: 80 adders, 50 multipliers, 40 integrators / PRGMG: autom prgmg; 10 minutes needed to change / IN-OUT: digital computer, paper tape, manual control / RELIAB: autom check / $10,000 to $200,000; contractual rental / sold or rented, 65; on order, 10 / Solartron, Ltd., Farnborough, Hants, England / *C 66

Leeds & Northrup small analog computers / control in industrial processes / ACCUR: accuracy function of measurements / LARGST INSTLN: systems using 50 functions have been provided / PRGMG: included for system / IN-OUT: Inputs -- transducers for flow, pressure, temperature, etc.; Outputs - 3-'5 PSI, Elect drive units, etc. / RELIAB: 100% / sale, $500 to $100,000 / 25 sold / primarily for control applications in industrial processes / Leeds & Northrup Co., North Wales, Pa. / *C66

Modan / real-time, process control / ACCUR: 0.5% of input signals / CAPAC: 7 pre-set constants in addition to 3 input variables / LARGST INSTLN: basic multiplier/divider circuit occupies 3 printed circuit boards. Other modules (power supplies, function generators, etc.) added as required / PRGMG: no automatic programming, 10 minutes needed to change / IN-OUT: 0 to 10 milliamperes d.c. (other d.c. inputs can be used) / RELIAB: no automatic checking / sales, $390 to $650 / nil sales, just introduced, 20 on order / Example of use -- computation of gas mass flow from measurement of flow, pressure & temperature / Evershed & Vignoles Ltd., Acton Lane, Chiswick, London W. 4, England / *C 66

SD 20 Analog Computer / scientific, real-time / ACCUR: 4 signif figures / CAPAC: 40 pots / LARGST INSTLN: 8 adders, 6 multipliers, 8 integrators, full 28 amplifier capacity / PRGMG CHANGEOVER: 15 min. / IN-OUT: removable problem board / RELIAB: has autom checkg, 95% / sale, $8000 to $15,000 / on order, 4 / Systron-Donner Corp., 888 Galindo St., Concord, Calif. / *C 65

SD 40 Analog Computer / scientific, real-time, repetitive and iterative operations / ACCUR: 4 or 5 signif figures / CAPAC: 65 pots / LARGST INSTLN: 14 adders, 8 multipliers, 14 integrators, 42 operational amplifiers / PRGMG CHANGEOVER: less than 15 min. / IN-OUT: removable problem board / RELIAB: has autom checkg, 95% / sale, $15,000 to $30,000 / on order, 3 / Systron-Donner Corp., 888 Galindo St., Concord, Calif. / *C 65

SD 80 Analog Computer / scientific, real-time, repetitive and iterative operations / ACCUR: 4 signif figures / CAPAC: 125 pots / LARGST INSTLN: 28 adders, 14 multipliers, 28 integrators, 84 operational amplifiers / PRGMG CHANGEOVER: 25 min. / IN-OUT: removable problem board / RELIAB: autom checkg, 95% / sale, $20,000 to $50,000 / on order, 2 / Systron-Donner Corp., 888 Galindo St., Concord, Calif. / *C 65

SK5 / scientific; real-time or not / ACCUR: 4 signif figures / CAPAC: modules / LARGST INSTLN: 70 adders, 20 multipliers, 70 integrators, function filters / PRGMG: no autom programming / IN-OUT: decade switches -- readout on multi-channel self-calibrating oscilloscope / RELIAB: no automatic checking, operg ratio, 99% / - / Philbrick Researches, Inc., 34 Allied Drive at Route 128, Dedham, Mass. / *C 66

Solartron 247S Solid-state hybrid system / scientific; real-time / ACCUR: 5 signif figures / CAPAC: 42 analogue / LARGST INSTLN: 96 adders, 48 multipliers, 32 integrators, 10 track/store, full complement of digital logic on separate patch board, digital 4 channel time delay with core store / PRGMG CHANGEOVER: 10 min / IN-OUT: punched tape, line printer, digital computer / RELIAB: autom checkg, 97% / sale, $90,000 to $240,000 / on order, 3 / Solartron Electronic Group, Farnborough, Hants, England / *C 65

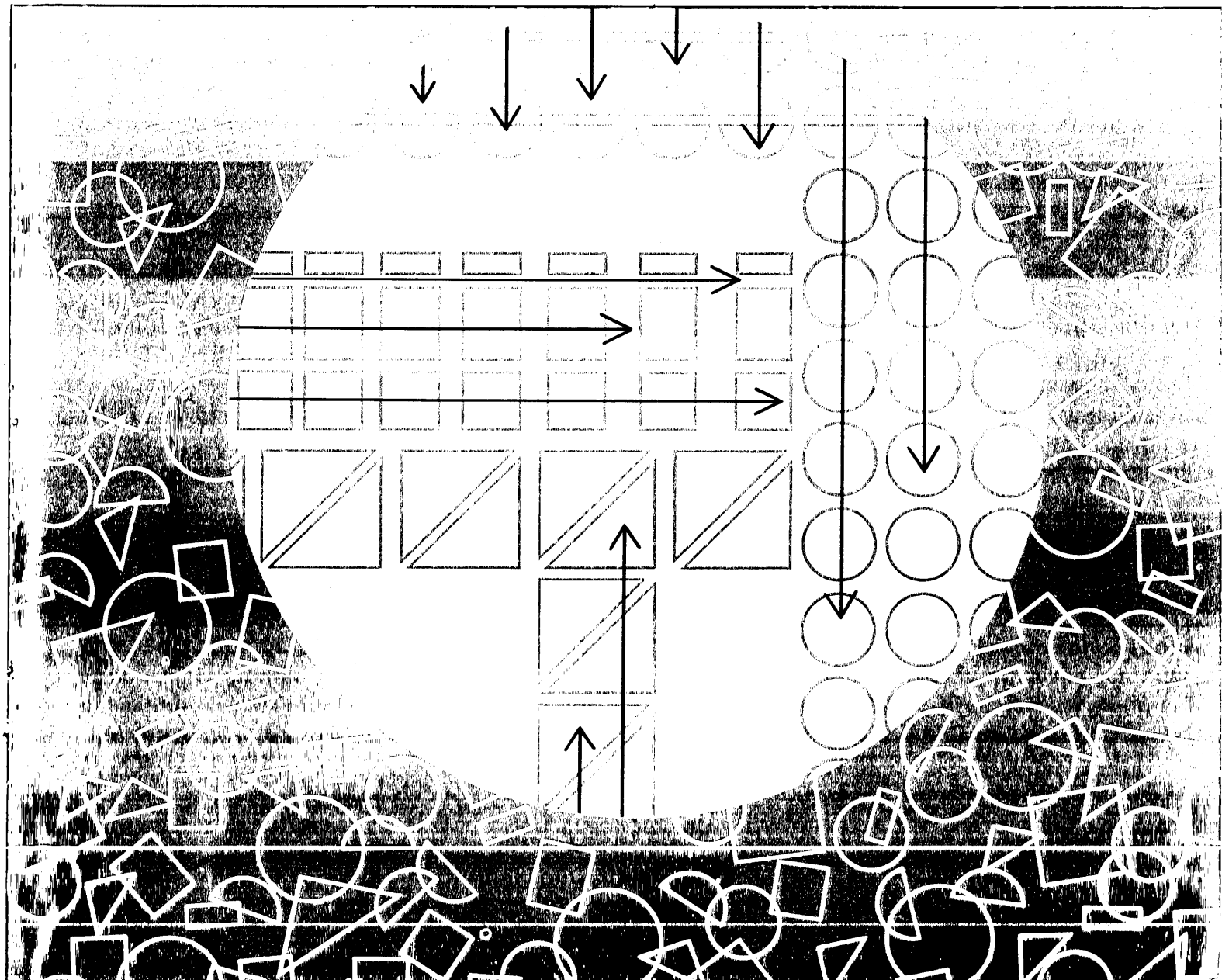
TDA-2 Electric Analog Computer, Potential Plane Simulator (field plotter) 2 and 3 dimensional representation / scientific, engineering / ACCUR: within 1% / CAPAC: any number / solves Laplace or Poisson equation, will handle any number of variables put into model being analyzed / average time to solve typical problem, including programming and solution, 6 hrs / IN-OUT: physical model is made and solution obtained directly from the model / RELIAB: autom checkg; operg ratio, 100% / sale, $685 / Carlson Computer Co., 13911 Malvern St., Poway, Calif / *C 65

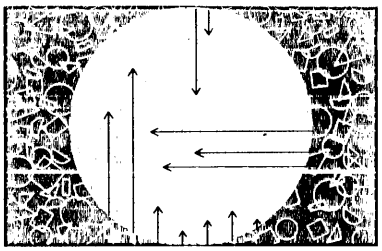
- END -

One of a series on topics of importance to data processing management

# Honeywell report on Operating Systems

**What's an operating system? What can it do? How much will it cost? Why should you use one? Today, "operating systems" — the generic term applied to software packages aimed at improving computer operating effectiveness — are a key topic of interest among users of data processing equipment. Operating systems, in one form or another, have been in use over the past decade. However, today's new generation of computer performance has done much to highlight the significant role an operating system can play in harnessing the full potential of a new generation data processing system.**





HONEYWELL REPORT ON OPERATING SYSTEMS

**New generation computers, such as Honeywell's Series 200, have the potential to do more work in less time; to perform individual operations faster, to perform multiple operations at the same time. Yet even the most casual observer will quickly realize that a new computer, by itself, is no guarantee of increased data processing efficiency. Thus the interest in operating systems — those impressive, if not mysterious, software packages that appear to "guarantee full computer performance when used as directed." This report describes Honeywell's progress in the development of operating systems, illustrates important design concepts, and offers several criteria for determining how successful an operating system will be in meeting your particular operating needs.**

## WHAT IS AN OPERATING SYSTEM?

An operating system can be viewed as a framework within which all of the user's data processing jobs can be scheduled and performed. More specifically, an operating system is a comprehensive set of language processing and service programs executed under the supervision and coordination of an integrated group of control routines.

From a management standpoint, however, the value of an operating system should be measured not in terms of what it is, but rather in terms of what it can do. The following list indicates how major data processing objectives can benefit from the use of an operating system.

| Objective | Operating System Benefits |
|---|---|
| 1 Minimize turnaround time — the interval between submittal of a job for processing and return of processed results. | All required operations receive maximum automation; the extent of human participation is limited and controlled.<br>Delays are eliminated through automatic processing of jobs from beginning to end on a single system. |
| 2 Maximize throughput — the total amount of work which the system can perform in a given period of time. | All available system resources are effectively allocated.<br>Idle system time and job setup time are reduced to an absolute minimum.<br>Job-to-job transition is handled automatically. |
| 3 Provide flexible and orderly growth potential. | Standards imposed by the operating system assure orderly expansion of functions and program compatibility.<br>The user's programs and data files can be consolidated into a unified system together with manufacturer-supplied utility programs. |
| 4 Make optimum use of computer memory and peripheral devices. | Through multiprogramming, an operating system can use central processor memory and peripheral units to maximum advantage.<br>Programs can be device independent, giving great freedom in selection of input/output media. |

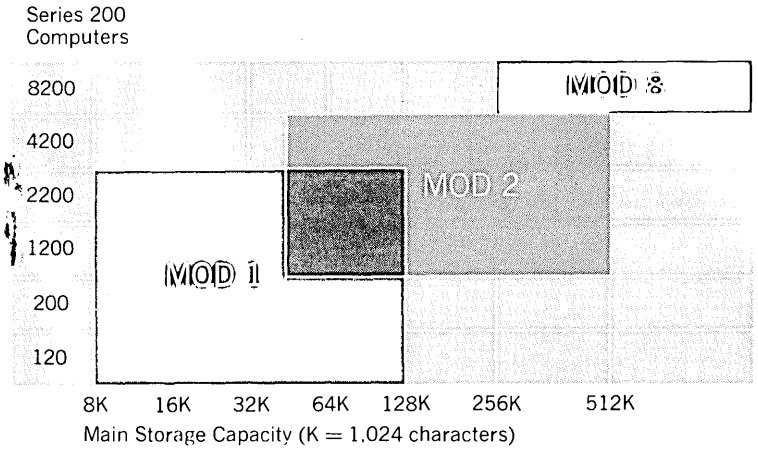
## DIFFERENT DESIGNS FOR DIFFERENT NEEDS

The functions that can be performed by an operating system range from relatively simple clerical tasks to highly complex operations such as dynamic allocation and control of system resources for multiprogram operation. In fact, a listing of all the functions which could be performed by an operating system would include dozens of entries. Yet extensive as it might be, such a list could not indicate how efficient a particular operating system would be in performing these functions.

In order for an operating system to do an effective job in meeting your operating requirements, it must be designed to be most efficient in those activities performed by your computer most of the time. This means that the basic design of an operating system is an important consideration because efficiency can come only by design, not by accident.

Realizing that one operating system design is not sufficient for handling the wide range of functions required by the users of Series 200 computers, Honeywell has developed an operating system which is divided into three models. This division reflects the fact that the operating requirements of a small-scale computer, such as Honeywell's Model 120, are better handled by an operating system with a basic design that is attuned to these requirements than by one designed to fit the requirements of a large-scale Model 4200.

Each model is designed to fit a specific range of core memory and system environment features. Furthermore, each model offers unique capabilities which reflect the needs of users at various levels of system development. For example, a major and important difference between Mod 1 and Mod 2 lies in the control of input/output functions. Mod 1, designed primarily for the smaller user, reduces equipment overhead to a minimum by decentralizing input/output control functions. Mod 2, designed to achieve maximum throughput efficiency, uses centralized control to permit greater flexibility in the larger equipment configuration. The following table shows the relationship between the models of the operating system and the various Series 200 computers.




## HARDWARE DESIGN AFFECTS ROLE OF OPERATING SYSTEM

In order for a computer to solve a user's problems it must first be able to solve its own problems. The computer's problems involve knowing what to do next and how to go about doing it. In computers, such as the members of Honeywell's Series 200, which can perform several input/output operations concurrent with computation, the magnitude of the computer's own problems is significant. Thus the way in which the computer solves its own problems is significant too.

An important design feature of every member of Series 200 is the ability to control all simultaneous input, output, and computational activities via automatic, built-in hardware. By building all basic control functions into the hardware, the following significant advantages are realized:

1. **The computer, large or small, in no way depends on an operating system as the basic form of system control. This eliminates the undesirable situation of having a potentially large memory overhead for the purpose of enabling the computer to solve its own problems.**

2. **With all basic control functions handled by automatic hardware, the operating system can devote its full attention to the area of greatest importance to the user: the efficient application of the computer's resources to the solution of the user's problems.**

3. **The overhead imposed by the operating system can be held to an absolute minimum, since it performs only those functions required by the user, not by the computer itself.**

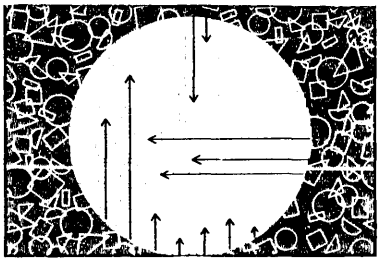
## HOW MUCH DOES AN OPERATING SYSTEM COST?

On the surface, operating systems appear to be free of charge. The computer manufacturer can supply one at no extra cost to the user. However, in actual operation, an operating system can be quite costly in terms of the equipment it uses and the time it takes to perform its functions. Here again, the basic design of the operating system and its ability to fit the user's requirements play an important role.

In order for the computer user to tolerate the overhead imposed by an operating system, it is imperative that the overhead yield significant advantages which could not otherwise be attained. In the case of a Honeywell Model 4200 user, for example, an operating system overhead of 32,000 characters out of a total memory of 262,000 characters is tolerable if such a trade-off enhances the responsiveness of his on-line real-time management information system. On the other hand, a Model 200 user applying the same operating system to his simple stacked job processing operations, may find the memory overhead to be intolerable because the level of performance offered by the operating system does not justify the cost of the memory overhead.

Honeywell has made it possible for the smaller user to avoid a major operating system overhead by offering an operating system model especially designed to fit his requirements. The following table lists the equipment necessary for the various operating system models as an indication of what it really costs to use them.

| Operating System Model | Minimum Memory Overhead (K = 1,024) | Input/Output Requirements For Program Execution |
|---|---|---|
| MOD 1 | 1.4K char. | 1 card reader<br>or<br>1 magnetic tape<br>or<br>1 mass storage unit |
| MOD 2 | 17.5K char. | 3 magnetic tapes<br>1 console |
| MOD 8 | 64K char. | 1 mass storage unit |



HONEYWELL REPORT ON OPERATING SYSTEMS

## THREE GENERATIONS OF OPERATING SYSTEM EXPERIENCE

The following timetable of developments highlights Honeywell's role as a major innovator in the design and production of operating systems.

**1957** Honeywell creates its first operating system for the D-1000 computer. Containing a monitor program and extensive program testing facilities, it was the first operating system of its kind to employ file updating techniques for program checkout operations.

**1960** Honeywell releases the Executive System, the industry's first multiprogram operating system. Developed to fully automate the simultaneous execution of up to seven programs, the Executive System provided several important features for job scheduling, equipment allocation and supervision of program execution.

**1963** The operating system concept is expanded significantly by the introduction of the Admiral operating system. Offering a dynamic scheduling facility, Admiral enables the user to stack job requests in a queue and obtain automatic processing with optimal utilization of all system components.

**Today** Models of the Series 200 operating system compress all of the necessary and desirable features for automated multiprogramming operations into the smallest possible amount of core memory. The Series 200 operating system is modular in design, enabling it to control a wide range of operating environments; including real-time, data communication, and random access file processing.

The experience gained from the development of three generations of operating systems has enabled Honeywell to offer users at all levels a full complement of automatic operating functions with truly minimal equipment requirements.

CDEFG

TO: Honeywell EDP
60 Walnut Street
Wellesley Hills, Mass. 02181
Attention: Information Services

Please send me your publication entitled "Operating System Orientation For Management."

Name_____

Title_____

Company_____

Address_____

City_____ State_____ Zip Code_____

## HOW TO GET TO A HONEYWELL OPERATING SYSTEM

Honeywell's unique Liberator concept makes it possible for users of IBM 1400 series equipment to automatically translate existing program libraries into Series 200 programs which operate under operating system control. Specifically, 1401, 1440, and 1460 programs can be translated into Series 200 programs which operate under control of Mod 1. Programs written for the 1410 can be translated to operate under control of Mod 2. In addition, users of small scale Series 200 computers in moving up to large equipment can take advantage of the extensive capabilities of Mod 2 without major reprogramming.

## CHECKLIST FOR EVALUATING AN OPERATING SYSTEM

The tremendous disparity in operating speeds between computer hardware and its user magnifies the importance of allowing the computer to control itself, by itself, with the aid of an operating system. The following checklist summarizes the major points to consider when evaluating operating systems.

o Check the functions performed by the operating system. How many of *your* operating requirements does it meet?

o Check *all* equipment requirements. How much memory does the operating system require? How many peripheral devices must be reserved for use by the operating system?

o Check the experiences of current users. Find out how the operating system has helped them.

o Determine to what extent reprogramming will be required to enable existing programs to fit into memory left after insertion of the resident portion of an operating system.

o Determine what additional expenditure will be required to provide hardware necessary to move up to a more comprehensive operating system.

## WRITE FOR MORE INFORMATION ON SERIES 200 OPERATING SYSTEM CAPABILITIES

For more detailed information on how major data processing objectives can be attained with the aid of an operating system, send for the publication listed in the coupon.

**Honeywell**

**ELECTRONIC DATA PROCESSING**

# DESCRIPTIONS OF GENERAL PURPOSE DIGITAL COMPUTERS

The purpose of this report is to give the characteristics of United States general-purpose digital computer currently available for sale or rent.

The three sections give: (1) Internal Characteristics; (2) Input and Output; and (3) Cost and Use.

Any additions, corrections, or comments are invited.

EXPLANATION OF HEADINGS

Internal Characteristics

Solid State?: If the computer is built with primarily solid state devices such as transistors, distinguished from non-solid state devices such as vacuum tubes, a "Y" appears in this column. Solid state devices are generally more reliable than non-solid state devices.

Number System:
- Number Base: the number base the machine uses internally (either binary, octal, or decimal).
- Bits/Digit: the number of binary bits per digit (digit is either a binary, octal, or decimal digit; SEE Number Base).
- Digits/Alphabetic: the number of digits used to represent an alphabetic character.
- Word Length: the number of numerical digits per machine word.

Memory:
- Number of Words: the number of machine words contained in the memory; may be broken into two or more memory types on two or more lines. Whenever the machine word length is "variable", the Number of Words refers not to the number of machine words but to the number of digits.
- Type: memory type, such as magnetic drum (abbreviated "drum"), core storage or delay line.
- Access Time: the time required to retrieve information from the memory.

Timing — Add, Multiply, Divide: the average time required to get and complete one operation instruction.

Machine Programming:
- Number of Instr.: the number of distinct instructions in the machine's repertoire.
- Addresses/Instr.: the number of operand addresses per instruction.
- No. Index Registers: a "0" indicates no indexing possible; a "Y" indicates that indexing is possible but information as to the number of index registers was not received.
- Indirect Addressing?: "Y" indicates indirect addressing is possible.
- Floating Point?: "Y" indicates that the machine can perform in a floating-point mode. (Floating-point arithmetic can be programmed on all machines.)

Input and Output

Magnetic Tape:
- No. of Units: maximum number of tape transports which can be directly connected to the computer.
- Tape Density: characters per inch.
- Tape Speed: speed of reading or writing on tape.
- Words/Tape: capacity of a reel of tape.

Punched Cards: speed of reading and punching cards.

Paper Tape: speed of reading and punching paper tape.

Printer Speed: speed of printing, complete lines printed per minute.

Cost and Use

Average Monthly Rental: the rental at an average installation.

Rental Range: the monthly rental range made possible by different configurations of available equipment.

One-Sum Price Range: the range of selling price.

Power: electricity requirements for an average installation.

Floor Space: floor space needed at an average installation.

Air Cond. — Tons: air conditioning required at an average installation.

Abbreviations Used

| | |
|---|---|
| A/D — analog to digital | MICR — magnetic ink character recognition |
| B — binary | MRWC — multiple read-write-compute |
| BTD — binary to decimal | N — no, none |
| D — decimal | O — octal |
| DA — digital to analog | OCR — optical character recognition |
| DTB — decimal to binary | P — punch, output |
| FBD — fast bands on memory drum | R — read, input |
| I/O — input/output | S — by subroutine |
| K — 1000 | u — microsecond, millionth of a second |
| KK — 1,000,000 | V — variable |
| m — millisecond, thousandth of a second | Y — yes |

## Manufacturers and Computers Included

Advanced Scientific Instruments Co., a div. of Electro-Mechanical Research, Inc., 5249 Hanson Court, Minneapolis 29, Minn.
ASI 210, ASI 420, ASI 2100, ASI 6020, ASI 6040

Alwac Computer Div., El-Tronics, Inc., 13040 S. Cerise Ave., Hawthorne, Calif.
ALWAC III-E, formerly made by above, no longer in production.

The Bunker-Ramo Corp., 8433 Fallbrook Ave., Canoga Park, Calif.
BR-133, BR-330, BR-335, BR-340

Burroughs Corporation, 6071 Second Ave., Detroit 32, Mich.
Burroughs E-103, 205, 220, 200 Series, 5000

Clary Corporation, 408 Junipero St., San Gabriel, Calif.
DE-60

Compagnie Europeene D'Automatisme Electronique, 151 Rue de Billancourt, Boulogne-Billancourt Seine, France.
CAE 510

Computer Control Co., Inc., Old Connecticut Path, Framingham, Mass.
DDP-24, DDP-224

Control Data Corp., 8100 34th Ave., S., Minneapolis 20, Minn.
CDC-160, CDC-160A, CDC-924, CDC-924A, CDC-1604, CDC-1604A, CDC-1606, CDC-3100, CDC-3200, CDC-3400, CDC-3600, CDC CDC-3800, CDC-6400, CDC-6600, CDC-6800, CDC-8090, CDC-8092, G-15, G-20

Digital Equipment Corp., Main St., Maynard, Mass.
PDP-1, PDP-4, PDP-5, PDP-6, PDP-7, PDP-8

Friden, Inc., 2350 Washington St., San Leandro, Calif.
Friden 6010

General Electric Co., Computer Dept., 13430 N. Black Canyon Highway, Phoenix, Ariz.
GE-115, GE-205, GE-210, GE-215, GE-225, GE-235, GE-415, GE-425, GE-435, GE-625, GE-635

General Precision, Librascope Group, 808 Western Ave., Glendale 1, Calif.
General Precision LGP-21, LGP-30, L-2010, L-3000, RPC-4000

H-W Electronics, Inc., 14 Huron Dr., Natick, Mass.
HW-15K

HRB-Singer, Inc., (Subsidiary of the Singer Mfg. Co.), Science Park, State College, Pa.
SEMA 2000, SEMAC

Honeywell Electronic Data Processing Div., 60 Walnut St., Wellesley Hilss 81, Mass.
DATAmatic 1000*, H-120, H-200, H-400, H-800, H-1200, H-1400, H-1800, H-2200, H-4200

Hughes Aircraft Company, Fullerton, Calif.
H-330

International Business Machines Corp., Data Processing Div., 112 E. Post Rd., White Plains, N.Y.
IBM Ramac 305, IBM 360, IBM 360/20, IBM 650, 704, 705 III, 709, 1130, 1401, 1410, 1440, 1460, 1620, 1620 MODEL II, 1800, 7010, 7030, 7040, 7044, 7070, 7072, 7074, 7080, 7090, 7094 II

Monroe Calculating Machine Co., Inc., 555 Mitchell St., Orange, N.J.
Monrobot XI

The National Cash Register Co., Main & K Sts., Dayton 9, Ohio
NCR 304, 310, 315, 315 RMC, 390, 500

Philco Corp., Government & Industrial Group, Computer Div., 3900 Welsh Rd., Willow Grove, Pa.
Philco 1000, 2000-210, 2000-211, 2000-212

Radio Corp. of America, Electronic Data Processing Div., Front & Cooper Sts., Camden 2, N.J.
RCA 301, 501, 601, 3301, RCA Spectra 70/15, 25, 45, 55

Raytheon Computer, 2700 So. Fairview St., Santa Ana, Calif. 92704
Raytheon 250, 520

Scientific Data Systems, Inc., 1542 Fifteenth St., Santa Monica, Calif.
SDS-910, SDS-920, SDS-930, SDS-9300

UNIVAC Division of Sperry Rand Corp., 1290 Ave. of the Americas, New York 19, N.Y.
Univac I, II, III, 60/120, 490, 1004, 1004 II, 1004 III, 1050, 1103A, 1105, 1107, Univac File Computer I, II, Univac Larc, Univac SS 80/90, SS 80/90 II

* Honeywell DATAmatic 1000 listed under DATAmatic

I. INTERNAL CHARACTERISTICS

| NAME OF COMPUTER | Solid State? | NUMBER SYSTEM: Number Base | Bits/Digit | Digits/Alphabetic | Word Length | MEMORY: Number of Words | Type | Access Time | TIMING: Add Time | Multiply Time | Divide Time | MACHINE PROGRAMMING: Number of Instr. | Addresses/Instr. | No. Index Registers | Indirect Addressing? | Floating Point? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALWAC III-E | N | D | 4 | 1.5 | 8 | 128<br>8192 | drum<br>drum | 1m<br>9m | 1m | 17m | 17m | 90 | 1 | 1 | Y | N |
| — Bit by bit checking to and from memory, overflow checking. | | | | | | | | | | | | | | | | |
| ASI 210 | Y | B | 6 | 6 | 21 | 8K | core | 2.0 | 6u | 50u | 52u | 67 | 1 | 3 | Y | S |
| — Automatic checking by trapped interrupt; communication between computers without buffering. | | | | | | | | | | | | | | | | |
| ASI 420 | Y | B | 3 | 2 | 42 | 4-32K | core | 2u | 6u | | | | 1 | see note | Y | Y |
| — Any memory location can be used as an index register. | | | | | | | | | | | | | | | | |
| ASI 2100 | Y | B | 6 | 6 | 21 | 4-8K | core | 1.1u | 4u | 30u | 44u | 67 | 1 | 3 | Y | S |
| — Automatic checking by trapped interrupt; multi-level priority interrupt. | | | | | | | | | | | | | | | | |
| ASI 6020 | Y | B | 6 | 6 | 24 | 4-8K | core | 1.9u | 4u | 32u | 50u | 120 | 1 | 3 | Y | S |
| — Memory parity check. | | | | | | | | | | | | | | | | |
| ASI 6040 | Y | B | 6 | 6 | 24 | 4-8K | core | 1.9u | 4u | 10u | 12u | 120 | 1 | 3 | Y | S |
| — Memory parity check; optional hardware for floating point | | | | | | | | | | | | | | | | |
| BR-133 | Y | B | | | 15 | 8-16K | core | 2u | 4u | 19u | 19u | | | 6 | Y | N |
| — Parity check; variable length multiply and divide. | | | | | | | | | | | | | | | | |
| BR-335 | Y | B | | | 28 | 4-16K | core | 1.7u | 3.4u | 9.5u | 17.9u | 65 | 1 | | Y | Y |
| — Parity and overflow checking. | | | | | | | | | | | | | | | | |
| BR-340 | Y | B | | | 28 | 4-65K<br>8-131K | core<br>drum | 8.3u | 12u | 14u | 20u | 173 | 1 | 3 | Y | Y |
| — Parity and overflow checking. Operation extension instruction allows programmer to design and call for automatically 320 special interpretive instructions. | | | | | | | | | | | | | | | | |
| Burroughs E-103 | N | D | | | 12 | 220 | drum | 10m | 50m | | | 32 | 1 | 2 | N | N |
| Burroughs 205 | N | D | 4 | 2 | 10 | 80<br>4000 | FBD<br>drum | .85m<br>8.5m | 1.7m<br>17m | 10.8m | 14m | 64 | 1 | 1 | N | N |
| — Checks for: forbidden combination, central timing, drum revolution, overflow. | | | | | | | | | | | | | | | | |
| Burroughs 220 | N | D | 4 | 2 | 10 | 2-10K | core | 10u | 185u | 2.9m | 3.9m | 96 | 1 | 1 | N | Y |
| — Running time clock. Checks for forbidden combination and overflow. Partial word operations. | | | | | | | | | | | | | | | | |

| NAME OF COMPUTER | Solid State? | INTERNAL CHARACTERISTICS: NUMBER SYSTEM: Number Base | Bits/Digit | Digits/Alphabetic | Word Length | MEMORY: Number of Words | Type | Access Time | TIMING: Add Time | Multiply Time | Divide Time | MACHINE PROGRAMMING: Number of Instr. | Addresses/Instr. | No. Index Registers | Indirect Addressing? | Floating Point? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Burroughs 200 Series | Y | D | 7 | 7 | V | 4.8K<br>9.6K | core | 10u | 740u | 2.25m | 6.05m | 27 | 3 | 0 | N | N |
| — Add time: 5 digits + 5 digits; mult. time: 5 digits x 2 digits; div. time: 5 digits ÷ 2 digits. Numerous variations of the 14 instructions. Multiprocessing. | | | | | | | | | | | | | | | | |
| Burroughs 5000 | Y | 0 | 3 | 2 | 13 | 4-32K<br>32-65K | core<br>drum | 6u<br>8.5m | 10u | 37u | 63u | 115 | V | 0 | Y | Y |
| — Binary, octal, decimal. Parity check. Multiprocessing with single processor; parallel processing with dual processors. Comprehensive interrupt system. Automatic memory exchange and input-output exchange. Simultaneous parallel memory access with multiple modules. Single format fixed and floating point representation | | | | | | | | | | | | | | | | |
| CAE 510 | Y | B | 1 | 6 | 18 | 8-32K<br>192K | core<br>drum | 6u<br>833u | 12u | 66u | 66u | 3000+ | 1 | 64 | Y | Y |
| — Parity check; variable length multiply and divide; 18 levels interrupt priority system; flexible micro-commands built-in logic. | | | | | | | | | | | | | | | | |
| CDC G-15 | N | D | 4 | 2 | 7 | 2K | drum | 14.5m | 14.5m<br>.54m | .54m<br>8m | 8m | 100 | 1 | N | N | N |
| — Repeat command, indexing by means of interpretive system only. | | | | | | | | | | | | | | | | |
| CDC G-20 | Y | 0 | 8 | 8 | 32 | 16-32K | core | 6u | 15u | 30u | 70u | 105 | 1 | 63 | Y | Y |
| — Overflow, parity, illegal address checks. Repeat command for add, subtract, test and logic. | | | | | | | | | | | | | | | | |
| CDC-160 | Y | B | 6 | 6 | 12 | 4K | core | 2.2u | 6.4u - 19.2u | | | 65 | 1 | 0 | Y | N |
| — Relative and direct addressing; multiply and divide are programmed. | | | | | | | | | | | | | | | | |
| CDC-160A | Y | B | 6 | 6 | 12 | 8-32K<br>32-64K | core<br>drum | 22u<br>17m | 6.4 - 19.2u | | | 134 | 1 | N | Y | N |
| — Relative and direct addressing. Parity check on I/O transfers. Automatic check on power failure. | | | | | | | | | | | | | | | | |
| CDC-160G | Y | B | 6 | 6 | 12 | 8-131K | core | .7u | 2.7u | 7u | 8.5u | 310 | 1 | 62 | Y | N |
| CDC-924 | Y | B | 6 | 6 | 24 | 8-32K | core | 5.3u | 9.9u | 27.9 - 47.1u | 38u | 64 | 1 | 6 | Y | N |
| — Parity checking on I/O transfers. Logical and masking operations, search instructions, parallel mode of operation, real time clock, program interrupt. | | | | | | | | | | | | | | | | |
| CDC-924A | | | | | | | | | | | | | | | | |
| — Same as 924 except: additional mask interrupt feature, faster data transfer rates (I/O). | | | | | | | | | | | | | | | | |
| CDC-1604 | Y | B | 6 | 6 | 48 | 8-32K | core | 4.8u | 7.2u | 25.2 - 63.6u | 65.2u | 62 | 1 | 6 | Y | Y |
| — Parity check on I/O transfers. 2 instructions per word. Real-time clock. Program interrupt. | | | | | | | | | | | | | | | | |
| CDC-1604A | | | | | | | | | | | | | | | | |
| — Same as 1604 except: additional mask interrupt feature, faster data transfer rates (I/O). | | | | | | | | | | | | | | | | |
| CDC-3100 | Y | B | 6 | 6 | 24 | 4-32K | core | 1u | 3.5u | 10.6 - 14.8u | 14.5u | 120 | 1 | 3 | Y | Y |
| CDC-3200 | Y | B | 3 | 6 | 24 | 64<br>8-32K | transistor<br>core | .5u<br>.7u | 1.25u - 2.5u | 8.75 - 12u | 12u | 100 | 1 | 3 | Y | Y |
| — Microprogramming available in character handling. Complete parity check - one parity bit associated with each 6 bit byte of 24 bit word. BCD arithmetic, character addressing, priority interrupts. | | | | | | | | | | | | | | | | |
| CDC-3400 | Y | B | 6 | 6 | 48 | 16-32K | core | .7u | 2.6u | 22u | 22u | 76 | 1 | 6 | Y | Y |
| — Parity checking on I/O transfers and storage. | | | | | | | | | | | | | | | | |
| CDC-3600 | Y | B | 6 | 6 | 48 | 32-262K | core | .7u | 2u | 2.12 - 6.5u | 2.12 - 14.9u | 86 | 1 | 6 | Y | Y |
| — Parity checking on I/O transfers and storage parity. Microprogramming option available. Storage expandable in 16K modules to 262K. Additional data channels to a total of 32 may be added. | | | | | | | | | | | | | | | | |
| CDC-3800 | Y | B | 6 | 6 | 48 | 32-262K | core | .4u | 1.3u | 5.25u | 11.7u | 95 | 1 | 6 | Y | Y |
| CDC-6400 | Y | B | 3 | 6 | 60 | 32-131K | core | .5u | 1.1u | 5.6u | 5.6u | 68 | 3 | 7 | | Y |
| CDC-6600 | Y | B | 3 | 6 | 60 | 32-131K | core | .5u | .4u | 1u | 2.9u | 68 | 3 | 7 | | Y |
| — Indirect addressing only in peripheral processor. Checking on I/O equipment and transfer to and from computer. 10 functional units, 32-15 bit stack with look-ahead and -back. | | | | | | | | | | | | | | | | |
| CDC-6800 | Y | B | 3 | 6 | 60 | 32-131K | core | .125u | .1u | .25u | .75u | 68 | 3 | 7 | | Y |

| NAME OF COMPUTER | Solid State? | INTERNAL CHARACTERISTICS | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NUMBER SYSTEM | | | | MEMORY | | | TIMING | | | MACHINE PROGRAMMING | | | | |
| | | Number Base | Bits/Digit | Digits/Alphabetic | Word Length | Number of Words | Type | Access Time | Add Time | Multiply Time | Divide Time | Number of Instr. | Addresses/Instr. | No. Index Registers | Indirect Addressing? | Floating Point? |
| CDC-8090 | Y | B | 3 | 6 | 12 | 4-32K | core | 6.4u | 6.4 - 19.2u | | | 134 | 1 | 0 | Y | N |
| — 3 I/O operation can. Relative (forward and backward) and direct microprogramming. | | | | | | | | | | | | | | | | |
| CDC-8092 | Y | B | 6 | 6 | 12 | 2-4K 2048-4096 | core | 4u | 8-12u | | | 42 | 1 | | Y | N |
| — Relative addressing. One buffer I/O channel and one normal channel are standard equipment. All 160A I/O equipment can be used. | | | | | | | | | | | | | | | | |
| DATAmatic 1000 | N | D | 4 | 6 | 48 | 2K | core | 12u | 115u | | | 69 | 3 | | N | N |
| DDP-24 | Y | B | 4 | 6 | 24 | 4-32K | core | 3u | 10u | 30u | 32u | 59 | 1 | 1-3 | Y | N |
| — Floating point on software only. Parity on I/O only. Interrupt standard, with specific memory destination. Eight level interrupt priority system, and interrupt of cascaded indirect addressed commands standard. | | | | | | | | | | | | | | | | |
| DDP-224 | Y | B | 4 | | | 4-65K | core | .8u | 3.8 | 6.45 | 17.0 | 72 | 1 | 1-3 | Y | |
| — Hardware optional. Parity on I/O. Arithmetic overflow checks. Mul/Div commands. Systems options for multiprocessor systems. Access distributer unit, time multiplex unit, fully buffered channels, memory lockout, processors. | | | | | | | | | | | | | | | | |
| DE-60 | Y | D | 4 | | 18 | 32-160 | drum | 7.5m | 55m | 130m | 112m | 45 | 5 | Y | N | N |
| — Overflow detection. Automatic decimal point alignment. Program trace routine built into hardware. External interchangeable function generators. | | | | | | | | | | | | | | | | |
| Friden 6010 | Y | B | 4 | | 64 | 15 | core | 100u | 1.3m | 50m | | 242 | 1 | | N | N |
| GE-115 | Y | B | 4 | 8 | 8 | 4-8K | core | 8u | 148u | | | 25 | 2 | N | N | N |
| GE-205 | Y | B | 6 | 6 | 20 | 4-16K | core | 36u | 72u | 198u | 504u | 300+ | 1 | 96 | N | Y |
| — Double precision arithmetic. Floating point arithmetic optional. 4-bit decimal add and subtract; 3 digits per word. Multiple read-write-compute. MICR document sorter-reader available. Disc storage unit with 199-ms access time; data communications equipment available. | | | | | | | | | | | | | | | | |
| GE-210 | Y | D | 4 | 2 | 6 | 4-8K | core | 32u | 64u | 550u | 1200u | 90 | 1 | 1 | N | N |
| — Double precision mode. | | | | | | | | | | | | | | | | |
| GE-215 | Y | B | 6 | 6 | 20 | 4-16K | core | 36u | 72u | 198u | 504u | 300+ | 1 | 96 | N | Y |
| — See GE-205 | | | | | | | | | | | | | | | | |
| GE-225 | Y | B | 6 | 6 | 20 | 4-16K | core | 18u | 36u | 162u | 468u | 300+ | 1 | 96 | N | Y |
| — See GE-205 | | | | | | | | | | | | | | | | |
| GE-235 | Y | B | 6 | 6 | 20 | 4-16K | core | 6u | 12u | 30u | 42u | 300+ | 1 | 96 | N | Y |
| — See GE-205 | | | | | | | | | | | | | | | | |
| GE-415 | Y | D | 6 | 6 | 24 | 4-32K | core | 5.8u | 17.4u | 390u | 646u | 200+ | 1-2 | 6+ | Y | Y |
| — Any-level indexing by any memory word; scatter/gather; automatic program interrupt; relocatable accumulator. Multiple read-write-compute. Floating point arithmetic available. MICR document sorter-reader available. Disc storage units available. Direct-access data communications provisions optional. | | | | | | | | | | | | | | | | |
| GE-425 | Y | D | 6 | 6 | 24 | 8-32K | core | 5.1u | 15.9u | 362u | 598u | 200+ | 1-2 | 6+ | Y | Y |
| — See GE-415 | | | | | | | | | | | | | | | | |
| GE-435 | Y | D | 6 | 6 | 24 | 16-32K | core | 2.7u | 8.8u | 250u | 450u | 200+ | 1-2 | 6+ | Y | Y |
| — See GE-415 | | | | | | | | | | | | | | | | |
| GE-625 | Y | B | 6 | 6 | 36 | 32-262K | core | 2u | 3u | 6u | 14.5u | 170 | 1 | 8+ | Y | Y |
| — All system memory is directly addressable by processors, I/O controllers, and real-time devices. Total mission compatibility for commercial, aerospace and ground-based military computers. | | | | | | | | | | | | | | | | |
| GE-635 | Y | B | 6 | 6 | 36 | 32-262K | core | 1u | 2.7u | 5.9u | 14.2u | 170 | 1 | 8+ | Y | Y |
| — See GE-625 | | | | | | | | | | | | | | | | |
| General Precision LGP-21 | Y | B | 6 | 4 | 32 | 4K | disc | 51m | .39m | 25m | 26u | 23 | 1 | N | N | N |
| — Oscilloscope display of registers. | | | | | | | | | | | | | | | | |
| General Precision LGP-30 | N | B | 4 | 6 | 32 | 4K | drum | 8.5m | .25m | 17m | 17m | 16 | 1 | 0 | N | N |
| — Interlacing of words on drum reduces memory access time. No automatic checking. Oscilloscope display of registers. Programmed subroutines. | | | | | | | | | | | | | | | | |
| General Precision L-2010 | Y | B | | | | 4K | disc | 5m - 7.8u | 78.1m | 2.42m - 1.56u | 2.5m - 2.34u | 32 | 1 | | N | N |
| — Overflow, multiplication checking, parity check on paper tape input. | | | | | | | | | | | | | | | | |

| NAME OF COMPUTER | Solid State? | INTERNAL CHARACTERISTICS | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NUMBER SYSTEM | | | | MEMORY | | | TIMING | | | MACHINE PROGRAMMING | | | | |
| | | Number Base | Bits/Digit | Digits/Alphabetic | Word Length | Number of Words | Type | Access Time | Add Time | Multiply Time | Divide Time | Number of Instr. | Addresses/Instr. | No. Index Registers | Indirect Addressing? | Floating Point? |
| General Precision L-3000 | Y | B | 6 | 6 | 48 | 4-64K | core | 2.5u | 16u | 23u | 36u | 97 | 1 | 11 | Y | Y |
| | — Parity checking throughout system, verified arithmetic unit, dual recording optional in files. Breakdown control, program branching via flip-flops. | | | | | | | | | | | | | | | |
| General Precision RPC 4000 | Y | B | 6 | 4 | 32 | 8K | drum | 8.5m | .25m | 17m | 17m | 32 | 1 | 1 | N | N |
| | — Parity checking of input. | | | | | | | | | | | | | | | |
| H-120 | Y | D,B | 4 | 6 | 6 | 2-32K | core | 1.5m | 105u | | | 38 | 1 | 6 | Y | N |
| H-200 | Y | D,B | 4 | 6 | 6 | 4-65K | core | 1.0m | 44u | | | 46 | 1 | 6 or 15 | Y | N |
| H-330 | Y | B | | | 48 | 16-131K | core | 1.8u | 1.8u | | | | 1 | 24 | Y | Y |
| | — Instruction look-ahead and overlapped core banks allow increased internal speed. Word size may be 24, 30, 36 or 48 bits. 24 decrement registers available. | | | | | | | | | | | | | | | |
| H-400 | Y | B,D,O | 4 | 6 | 48 | 1-4K | core | 4.5m | 111u | | | 48 | 3 | 3 | N | N |
| | — May be used as binary machine with 48 bit word. | | | | | | | | | | | | | | | |
| H-800 | Y | B,D,O | 4 | 6 | 48 | 2-65.5K | core | 31m | 24u | 150u | 312u | 61 | 3 | 64 | Y | Y |
| | — 8 multiple channel programming. Can be used as a 48 bit word size binary machine. | | | | | | | | | | | | | | | |
| H-1200 | Y | D,B | 4 | 6 | 6 | 8-131K | core | 750ns | 33u | | | 46+ | 1 | 30 | Y | Y |
| H-1400 | Y | B,D,O | 4 | 6 | 48 | 4096-32,768 | core | 3.25m | 78u | | | | 3 | 3 | N | Y |
| H-1800 | Y | B,D,O | 4 | 6 | 48 | 2-131K | core | 11m | 8u | | | 63 | 3 | 64 | Y | Y |
| | — May be used as 48 bit machine, with both binary and decimal instructions included. Up to eight programs can be processed simultaneously. | | | | | | | | | | | | | | | |
| H-2200 | Y | D,B | 4 | 6 | 6 | 16,384-262,144 | core | 500ns | 22u | | | 48 | 1 | 30 | Y | S |
| H-4200 | Y | D,B | 4 | 6 | 24 | 32,768-524,288 | core | 375ns/char. | 7.5u | | | 48 | 1 | 30 | Y | Y |
| HW-15K | Y | O | 6 | 6 | 24 | 4K | drum | 8.5m | 650u | 500u | 800u | 12 | 1 | 0 | N | S |
| | — Multiply, divide, floating point programmed. Parity checking on words read from drum. Words interlaced on drum. | | | | | | | | | | | | | | | |
| IBM Ramac 305 | N | B | | | V | 2000<br>5-20KK | drum<br>disk | 10m<br>600m | 50m | V | V | | 2 | 0 | N | N |
| | — Parity check. Variable word length. | | | | | | | | | | | | | | | |
| IBM System/360 | Y | B | 4 | 8 | 32 | 256-512K<br>8-128K | core<br>core | 1u<br>2u | 1.05u<br>39u | 2.8u<br>313u | 5.7u<br>560u | 142 | 0-2 | 16 | Y | Y |
| | — Parity checks at 8 points, arithmetic in parallel and checked; fault locating technique and diagnostics. Multiplex and selector channels employ separate logic facilities; storage protection, 4 floating point registers, separate fixed point, decimal and floating point logic; double density packing of decimal digits; automatic program switching with interrupt logic, I/O switching. | | | | | | | | | | | | | | | |
| IBM 360/20 | Y | B | 4 | 8 | 32 | 4-16K | core | 3.6m | 180m | 314.6m | 639m | 37 | 1 | 8 | Y | N |
| IBM 650 | N | D | | | 10 | 60<br>1-4K<br>6-12KK digits | core<br>drum<br>disk | .1m<br>2.4m<br>425m | .7m<br>.7m | 7.3m | 11m | 100 | 1 | 3 | N | Y |
| | — Multiply and divide timing refer to 5 digit fields. 60 core words and disk memory are optional. Disk access can be overlapped. Operation code, bi-quinary, and validity checks. Table look up. | | | | | | | | | | | | | | | |
| IBM 704 | N | B | 3 | 2 | 36 | 4-32K | core | 12u | 24u | 240u | 240u | 91 | 1 | 3 | N | Y |
| | — Overflow, underflow, transfer trapping mode, divide, floating point trap checks. | | | | | | | | | | | | | | | |
| IBM 705 III | N | D | 7 | 1 | V | 20-80K<br>60K | core<br>drum | 8m<br>— | .087m | .606m | 3.35m | 60 | 1 | 0 | Y | N |
| | — Internal parity check. | | | | | | | | | | | | | | | |
| IBM 709 | N | B | 3 | 2 | 36 | 4-32K | core | 12u | 24u | 24 - 240u | 36 - 240u | 196 | 1 | 3 | Y | Y |
| | — Overflow, underflow, divide, floating point trap checks. Multiple channel programming, sense indicator register. | | | | | | | | | | | | | | | |

| NAME OF COMPUTER | Solid State? | INTERNAL CHARACTERISTICS | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NUMBER SYSTEM | | | | MEMORY | | | TIMING | | | MACHINE PROGRAMMING | | | | |
| | | Number Base | Bits/Digit | Digits/Alphabetic | Word Length | Number of Words | Type | Access Time | Add Time | Multiply Time | Divide Time | Number of Instr. | Addresses/Instr. | No. Index Registers | Indirect Addressing? | Floating Point? |
| IBM 1130 | Y | B | 16 | | | 4-8K | core | 3.6m | 8m | 25.7m | 76m | 35 | 1 | 3 | Y | N |
| IBM 1401 | Y | D | 7 | 1 | V | 1.4 - 16K | core | 11.5u | 230u | 2.1m | 2.6m | 43 | 2 | 3 | N | N |
| | | | | | | 10-20KK | disk | 550m | | | | | | | | |
| | | | | | | 2-15KK | disk | 150m | | | | | | | | |
| | | — Parity, character code and address validity checks. Multiply divide instructions are optional. Easily adaptable to operate with the 7000 series. | | | | | | | | | | | | | | |
| IBM 1410 | Y | D | 7 | 1 | V | 10-80K | core | 4.5u | 110u | 1.2m | 1.3m | 190 | 2 | 15 | N | N |
| | | | | | | 10-280KK | disk | 160m | | | | | | | | |
| | | | | | | 2-15KK | disk | 150m | | | | | | | | |
| | | — Code and address validity checks, parity check. Dual channel, priority feature, overlap, table look up, synchronization. | | | | | | | | | | | | | | |
| IBM 1440 | Y | B,D | 4 | 6 | V | V | core | 11.5u | 99.9u | 1.3m | 1.5m | 43 | 2 | 3 | N | N |
| | | — Parity, operation code, validity. | | | | | | | | | | | | | | |
| IBM 1460 | Y | D | 7 | 1 | V | 8-16K | core | 6u | 108u | 1.1m | 1.4m | 43 | 1,2, 3 | 3 | N | N |
| | | | | | | 2-15K | disk | | | | | | | | | |
| | | — Parity, character code and address validity checks. Multiple printer, wide variety of tape drives, paper tape I/O, tele-processing capabilities. | | | | | | | | | | | | | | |
| IBM 1620 | Y | D | 6 | 2 | V | 20-60K | core | 20u | 560u | 4.96m | 16.86m | 32 | 2 | 0 | Y | Y |
| | | — Parity check. 5 additional instructions optional. Immediate addressing, branch transmit. | | | | | | | | | | | | | | |
| IBM 1620 MODEL II | Y | D | 6 | 2 | V | 20-60K | core | 10u | 140u | 1.21m | 3.23m | 42 | 2 | 0 | Y | Y |
| | | | | | | 2-8KK | disk | 250m | | | | | | | | |
| | | — Parity check. | | | | | | | | | | | | | | |
| IBM 1800 | Y | B | 16 | | 32 | 4-32K | core | 2-4m | 4.5u | 14.2u | 42.2u | 27 | 1 | 3 | Y | N |
| | | — Double precision standard. | | | | | | | | | | | | | | |
| IBM 7010 | Y | D | 6 | 6 | 6 | 40-80K | core | 2.4u | 35.2u | 260u | V | 114 | 0,1, 2 | 15 | N | N |
| | | — Parity and bi-quinary checking. One or two channels, process overlap, priority interrupt. | | | | | | | | | | | | | | |
| IBM 7030 (STRETCH) | Y | B | 4 | 6 | 64 | 16-262K | core | 2.2u | 1.5u | | | | 1 | 16 | Y | Y |
| | | — Instruction look ahead and overlapped core banks allow increased internal speed. | | | | | | | | | | | | | | |
| IBM 7040 | Y | B | 4 | 6 | 36 | 4-32K | core | 8.0u | 16u | 3.2 - 48u | 18.5 - 61u | 73 | 1 | 3 | Y | Y |
| | | 28-280KK | disk | 160m | | | | | | | | | | | | |
| | | — Optional additional instructions: 42. Memory parity, I/O parity, floating point trapping (overflow, underflow). Multiple channel — memory protection, clock interval timer, double precision floating point. | | | | | | | | | | | | | | |
| IBM 7044 | Y | B | 4 | 6 | 36 | 8-32K | core | 2.5u | 5u | 22.5 - 37.5u | 7.5 - 50u | 73 | 1 | 3 | Y | Y |
| | | 28-280KK | disk | 160m | | | | | | | | | | | | |
| | | — Optional additional machine instructions: 42. Memory and I/O parity, floating point trapping (overflow, underflow). Multiple channel — memory protection, clock-interval timer, double precision floating point. | | | | | | | | | | | | | | |
| IBM 7070 | Y | D | 5 | 2 | 10 | 5-10K | core | 6u | 72u | 924u | 792 - 984u | 200 | 1 | 99 | Y | Y |
| | | 28-430KK | disk | 160m | | | | | | | | | | | | |
| | | — Divide time refers to 5 digit quotient. Fully checked adder, transfer check. Priority processing. Zero suppression. Scatter read-write. | | | | | | | | | | | | | | |
| IBM 7072 | Y | D | 5 | 2 | 10 | 5-30K | core | 6u | 12u | 64u | 74u | 200 | 1 | 99 | Y | Y |
| | | — See remarks under IBM 7070. | | | | | | | | | | | | | | |
| IBM 7074 | Y | D | 5 | 2 | 10 | 5-30K | core | 4u | 10u | 56u | 70u | 200 | 1 | 99 | Y | Y |
| | | 28-430KK | disk | 160m | | | | | | | | | | | | |
| | | — See remarks under IBM 7070. | | | | | | | | | | | | | | |
| IBM 7080 | Y | D | 7 | 1 | V | 1K | core | 1u | | | | 106 | 1 | 0 | Y | N |
| | | 80-160K | core | 2u | | | | | 11u | 100u | 253u | | | | | |
| | | 28-280KK | disk | 160m | | | | | | | | | | | | |
| | | — Parity checking. | | | | | | | | | | | | | | |
| IBM 7090 | Y | B | 3 | 2 | 36 | 32K | core | 2.18u | 4.36u | 4.36 - 30.52u | 4.36 - 30.52u | 227 | 1 | 3 | Y | Y |
| | | 28-280KK | disk | 160m | | | | | | | | | | | | |
| | | 1-10KK | drum | 8.6m | | | | | | | | | | | | |
| | | — Floating point trap, transfer trapping, overflow, underflow, and divide checks. Multiple channel. | | | | | | | | | | | | | | |

| NAME OF COMPUTER | Solid State? | INTERNAL CHARACTERISTICS | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NUMBER SYSTEM | | | | MEMORY | | | TIMING | | | MACHINE PROGRAMMING | | | | |
| | | Number Base | Bits/Digit | Digits/Alphabetic | Word Length | Number of Words | Type | Access Time | Add Time | Multiply Time | Divide Time | Number of Instr. | Addresses/Instr. | No. Index Registers | Indirect Addressing? | Floating Point? |
| IBM 7094 II | Y | B | 3 | 2 | 36 | 32K<br>28-280KK<br>1-10KK | core<br>disk<br>drum | 1.4u<br>160m<br>8.6m | 2.8u | 2.8 -<br>5.6u | 2.8 -<br>9.8u | 268 | 1 | 7 | Y | Y |
| — Floating point, transfer trapping, I/O parity, divide checks. Multiple channel, double precision floating point, instruction overlap. | | | | | | | | | | | | | | | | |
| Monrobot XI | Y | B | 1 | 6 | 32 | 1-2K | drum | 6m | 3m | 28m | 7-2n | 27 | 1 | 0 | N | Y |
| — Two instructions per word. Parity. Tested by program. | | | | | | | | | | | | | | | | |
| NCR 304 | Y | D | 6 | 6 | 60 | 2.4-4.8K | core | 60u | 600u | 2820u | 2940u | 68 | 3 | 30 | N | Y |
| — Parity and echo checking. Instructions are 2 words long. A single-address microprogrammed instruction system is included. Off-line copy permits tape system to copy the 'father' tape offline until account being searched is found. Numbers may be packed and unpacked by command. Self-linking. Magnetic tape is gapless, with automatic repositioning. | | | | | | | | | | | | | | | | |
| NCR 310 | Y | 0 | 4 | 6 | 12 | 4K | core | 6.4u | 12.8u | | | 62 | 1 | 0 | Y | N |
| — Software package. Computer is a version of the CDC-160. Multiply and divide must be programmed. | | | | | | | | | | | | | | | | |
| NCR 315 | Y | D | 4 | 6 | 12 | 10-80K | core | 6u | 42u | 97u | 222u | 142 | 1 | 32 | N | N |
| — Parity and echo checking. Demand interrupt permits priority interrupt of processor by peripherals. | | | | | | | | | | | | | | | | |
| NCR 315 RMC | Y | D | 4 | 6 | 16 | 2K | rods | 800ns | 10.4m | 196m | 283m | 184 | 1 | 32 | Y | Y |
| NCR 390 | Y | D | 4 | | 48 | 200 | core | 107u | 11m | 75m+<br>2.38 | 119m+<br>2.36 | 20 | 3 | 0 | N | N |
| — There are 10 "string of address" type instructions, e.g., "sum A through D". Automatic address incrementing. | | | | | | | | | | | | | | | | |
| NCR 500 | Y | D | 4 | 8 | 24 | 400 | core | 22.5u | 99m | 125m | 190m | 50 | 4 | 3 | N | N |
| PDP-1 | Y | B | 4 | 6 | 18 | 4-65K | core | 5u | 10u | 20u | 30u | 28 | 1 | 0 | Y | N |
| — Microprogramming. Optional 16 channel sequence break, program resumes according to interrupting channel. Built-in marginal checking facilities. | | | | | | | | | | | | | | | | |
| PDP-4 | Y | B | 6 | 4 | 18 | 4-32K | core | 8u | 16u | 100u | 184u | 16 | 1 | N | Y | Y |
| — Multiply and divide operations programmed. Floating point programmed. Built-in marginal voltage checking, auto-indexing. | | | | | | | | | | | | | | | | |
| PDP-5 | Y | B | 4 | 6 | 12 | 1-32K | core | 6u | 18u | 150u | 162u | 8 | 1 | 8 | Y | N |
| — Built-in marginal voltage checking (with power supply). Auto-indexing: when locations 10-17 are indirectly addressed, contents are indexed by one, then used as effective address. | | | | | | | | | | | | | | | | |
| PDP-6 | Y | B | any | any | any | 16-262K<br>16 flip flop | core | 4.3u<br>.4u | 16.1u<br>2.7u | 12.4u<br>14.5u | 363<br>20.5u | 1 | 15 | Y | Y | |
| — Sum checking on I/O transfers. Parity on tape and drum transfers. Priority interrupt, variable size byte, block move, list processing instruction. | | | | | | | | | | | | | | | | |
| PDP-7 | Y | B | 4 | 6 | 18 | 4-32K | core | 0.45u | 3.5u | 6.1u | 9.0u | 8 | 1 | 8 | Y | S |
| PDP-8 | Y | B | 4 | 6 | 12 | 4096 to 32,768 | core | 1.6u | 32u | 15u | 30u | 31 | 1 | 8 | Y | S |
| Philco 1000 | Y | B,D | 6 | 6 | 6 | 4-32K | core | 3u | 80u | 700u | 2000u | 90 | 1-4 | 4 | N | N |
| — Parity checking to and from memory. Hardware insts. for BTD and DTB, BIN to OCT and OCT to BIN, BIN and DEC arithmetic available. Can communicate with a Philco 2000 by mem. to mem. transfer, all tapes in common, and through the real-time system. Asynchronous logic. Variable or fixed word length. Modular building block concept. | | | | | | | | | | | | | | | | |
| Philco 2000-210 | Y | D | 6 | 1 | 8 | 8-32K<br>32K | core<br>drum | 4u<br>25m | 14.8u | 69.9u | 73.8u | 225 | 1 | 8 | N | Y |
| — Repeat modes, asynchronous operation, automatic interrupt. | | | | | | | | | | | | | | | | |
| Philco 2000-211 | Y | D | 6 | 1 | 8 | 8-32K<br>32K | core<br>core | 4u | 4.1u | 34.9u | 36.7u | 225 | 1 | 8 | N | Y |
| — Transmission checking. Repeat modes, asynchronous operation, automatic interrupt. | | | | | | | | | | | | | | | | |
| Philco 2000-212 | Y | D | 6 | 1 | 8 | 32-65K | core | 7u | .55u | 4.3u | 9.8u | 250 | 1 | 8 | Y | Y |
| — Transmission parity checking. Four way processing, four repeat modes, automatic interrupt, asynchronous parallel memory access. Look ahead. 7 instructions may be processed simultaneously. High-density drum, high-speed disc file systems and real-time systems may be included. | | | | | | | | | | | | | | | | |
| RCA 301 | Y | D | 7 | 7 | 49 | 10-40K | core | 7u | 273u | 8.4m | 18m | 41 | 2 | 3 | Y | Y |
| — Multiply and divide are programmed. Scientific model of 301 processor provides high speed fixed or floating point arithmetic operations. | | | | | | | | | | | | | | | | |

# Digital Computers

| NAME OF COMPUTER | Solid State? | INTERNAL CHARACTERISTICS | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NUMBER SYSTEM | | | | MEMORY | | | TIMING | | | MACHINE PROGRAMMING | | | | |
| | | Number Base | Bits/Digit | Digits/Alphabetic | Word Length | Number of Words | Type | Access Time | Add Time | Multiply Time | Divide Time | Number of Instr. | Addresses/Instr. | No. Index Registers | Indirect Addressing? | Floating Point? |
| RCA 501 | Y | B,D,O | 7 | 7 | 7 | 16-262K | core | 12-15u | 384u | 12.43m | 3.45m | 49 | 2 | 7 | N | N |
| | — Indirect addressing limited to scatter and gather operations. | | | | | | | | | | | | | | | |
| RCA 601 | Y | B | 3-8 | 1 | 8-16 | 8-32K | core | .9-1.5u | 6u | 70u | 214u | 121 | 2 | 8 | Y | Y |
| | — Variable length instructions are 1/2 word, or 2-1/2 words long. Multiple program processing and memory overlap. Double precision arithmetic. | | | | | | | | | | | | | | | |
| RCA 3301 | Y | B,D | 6 | 6 | 6 | 200 | core | 214ns | 40m | .85m | 1.65m | 61 | 2 | 3 | Y | Y |
| | | | | | | 40-160K | core | 1.5u | 12u | 26u | 40u | | | | | |
| | — Parity checking to/from core, I/O parity. Fully compatable with RCA 301; 4-way simultaneous operations, real-time interrupt, multi-program operation, communications up to 160 lines, code translate instruction, memory to memory between 3301's or 3301 and 301. | | | | | | | | | | | | | | | |
| RCA Spectra 70/15 | Y | D | 4 | | 8 | 4-8K | core | 2m | 62m | S | S | 26 | 2 | | N | N |
| RCA Spectra 70/25 | Y | D | 4 | 8 | 32 | 16-65K | core | 1.5m | 36.75m | 196.5m | 330.5m | 31 | 2 | | N | N |
| RCA Spectra 70/45 | Y | D | 4 | 8 | 32 | 16-262K | core | 1.44m | 17.46m | 77.9m | 89m | 144 | 2 | | N | Y |
| RCA Spectra 70/55 | Y | D | 4 | 8 | 32 | 65-524K | core | .84m | 7.74m | 20.74m | 24.18m | 144 | 2 | 15 | N | Y |
| Raytheon 250 | Y | B | 1 | | 22 | 16 | delay | .09m | 12u | 276u | 252u | 59 | 1 | 1 | N | Y |
| | | | | | | 16K | delay | 1.5m | 24u | 276u | 252u | | | | | |
| | — Parity checking. Memory consists of magnetostrictive delay lines. | | | | | | | | | | | | | | | |
| Raytheon 520 | Y | B,D,O | | 6 | 24+ parity | 256-4096 | biax | 2u | 1u | 3u | 12.5u | 64 | 1 | 7+ | Y | Y |
| | | | | | | 4-32K | core | 2u | | | | | | | | |
| | — Instructions comprising a command set are completely microprogrammed. Memory parity, I/O parity, automatic and/or programmed interrupt. | | | | | | | | | | | | | | | |
| SDS-910 | Y | B | 4 | 6 | 24 | 2-16K | core | 8u | 16u | 248u | 500u | 42 | 1 | 1 | Y | N |
| | — Multiply and divide programmed. Memory parity check, input/output parity. | | | | | | | | | | | | | | | |
| SDS-920 | Y | B | 4 | 6 | 24 | 4-16K | core | 8u | 16u | 32u | 224u | 66 | 1 | 1 | Y | N |
| | — Has microprogrammed register. Memory parity check, input/output parity. | | | | | | | | | | | | | | | |
| SDS-930 | Y | B | 4 | 6 | 24 | 4-32K | core | .7u | 3.85u | 7.7u | 19.25u | 67 | 1 | 1 | Y | Y |
| | — Parity check on memory and I/O operations. | | | | | | | | | | | | | | | |
| SDS-9300 | Y | B | 4 | 6 | 24 | 4-32K | core | .7u | 1.75u | 7u | 15.75u | 115 | 1 | 3 | Y | Y |
| | — See SDS-930. | | | | | | | | | | | | | | | |
| SEMA 2000 | Y | D | 4 | 8 | 40 | 2-20K | drum | 8.5m | 350u | .5-50m | | 30 | 1 | 1 | N | N |
| | — Odd parity checking on read and write, checks synchronization of drums, checks on performance of all instructions. Negative, zero and flag selectors, address modification features. | | | | | | | | | | | | | | | |
| SEMAC | Y | D | 4 | 8 | 15 | 3½ | trans. | 1m | 340m | 170m | 170m | 64 | 1 | | N | N |
| | | | | | | 10K | drum | 8.5m | 8.5m | 170m | 170m | | | | | |
| | — Instructions defined by plugboard wiring. Parity, drum synchronization. | | | | | | | | | | | | | | | |
| Univac I | N | D | 7 | 1 | 11 | 1000 | delay | 242u | 525u | 2.15m | 3.95m | 45 | 1 | 0 | N | N |
| | — Duplicate arithmetic and comparison circuitry, parity check. | | | | | | | | | | | | | | | |
| Univac II | N | D | 7 | 1 | 12 | 2000 | core | 40u | 200u | 1.9m | 3.7m | 47 | 1 | 0 | N | N |
| | — Parity check, some duplicate circuits. | | | | | | | | | | | | | | | |
| Univac III | Y | D | 4 | 1.5 | 6 | 8-32K | core | 4u | 4u | 76u | 68u | 67 | 1 | 15 | Y | Y |
| | — Field selection, automatic checking, interrupt, multiple word operands, scatter read, gather write, addressable clock. Concurrent operation of 8 functionally independent programs. | | | | | | | | | | | | | | | |
| Univac 490 | Y | B | 1 | 6 | 30 | 16-32K | core | 4.8u | 6.7u | 29.76u | 69u | 62 | 1 | 8 | N | N |
| | | | | | | 78KK | drum | 17m | | | | | | | | |
| | — Illegal function and millisecond timeout checks. Concurrent program operation via automatic interrupts. Jump designators and operand designators. All peripherals have checking. | | | | | | | | | | | | | | | |
| Univac 60/120 | N | Biquinary | 6 | 6 | V | 60-120 digits | vacuum | | 10m | 50m | 50m | 10 | 3 | | N | Y |
| | — Automatic checking. Ability to read and punch in same card. | | | | | | | | | | | | | | | |
| Univac 1004 | Y | B | | | V | 961 char. | core | 8u | 160u | 4880u | 7668u | 62 | 2 | | N | N |
| | — Light-dark reader check; weighted hole count punch check. | | | | | | | | | | | | | | | |
| Univac 1004-II | Y | B | | | | 961 char. | | | | | | 62 | | | | |
| Univac 1004-III | Y | B | | | V | 961 char. | core | 8u | 160u | 4880u | 7668u | 62 | 2 | | N | N |

| NAME OF COMPUTER | Solid State? | Number Base | Bits/Digit | Digits/Alphabetic | Word Length | Number of Words | Type | Access Time | Add Time | Multiply Time | Divide Time | Number of Instr. | Addresses/Instr. | No. Index Registers | Indirect Addressing | Floating Point? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | INTERNAL CHARACTERISTICS | | | | | | | | | | | | | | |
| | | NUMBER SYSTEM | | | | MEMORY | | | TIMING | | | MACHINE PROGRAMMING | | | | |
| Univac 1050 | Y | B,D | 6 | 6 | 5 | 8-65K | core | 2u | 63u | 196u | 266u | 47 | 1 | 7 | N | N |
| | | | | | | 4-32K | core | 4.5u | 31u | 42u | 93u | | | | | |
| | — Odd parity checking. Automatic feature makes possible simultaneous processing of multiple applications. Eight channels, concurrent peripheral programs. | | | | | | | | | | | | | | | |
| Univac 1103A | N | B | 1 | 6 | 36 | 4-12K | core | 8u | 60u | 410u | 490u | 50 | 2 | 0 | N | Y |
| | | | | | | 16-32K | drum | 17m | | | | | | | | |
| | — Parity, overflow, lockout, main control checks. Interrupt feature and repeat command. | | | | | | | | | | | | | | | |
| Univac 1105 | N | B | 1 | 6 | 36 | 8-12K | core | 8u | 60u | 410u | 490u | 50 | 2 | 0 | N | Y |
| | | | | | | 16-32K | drum | 17m | | | | | | | | |
| | — Parity, overflow, lockout checking. Interrupt feature and repeat command. | | | | | | | | | | | | | | | |
| Univac 1107 | Y | B | 1 | 6 | 36 | 128 | film | .3u | | | | 115 | 1 | 15 | Y | Y |
| | | | | | | 65K | core | 1.8u | 4u | 12u | 31.8u | | | | | |
| | — Overflow check. Index addressing cascadable, 128 loop count registers, automatic incrementation. | | | | | | | | | | | | | | | |
| Univac File Computer I | N | D | 7 | 1 | 12 | 20 | core | .9m | 8.6m | 23.8m | 27.5m | 23 | 3 | 0 | N | N |
| | | | | | | 1020 | drum | 3.1m | | | | | | | | |
| | — Additional 19 plugboard instructions and 63 in/out instructions. Components partially solid state. | | | | | | | | | | | | | | | |
| Univac File Computer II | N | D | 7 | 1 | 12 | 2000 | core | .63u | 3.4u | | | 23 | 3 | 0 | N | N |
| | — See remarks under Univac File Computer I. | | | | | | | | | | | | | | | |
| Univac Larc | Y | D | 5 | 2 | 12 | 100 | core | 1u | | | | 76 | 1 | 99 | Y | Y |
| | | | | | | 10-97K | core | 4u | 4u | 8u | 28u | | | | | |
| | | | | | | 6KK | drums | 68m | | | | | | | | |
| | — "Processor" controls in/out and information transfer. 76 summary orders from computer to processor, 88 processor instructions, including in/out. Automatic checking and 20% duplicate circuits. All single-bit errors detected. Look-ahead permits fast add. 1, 2, or 3 addresses per instruction. | | | | | | | | | | | | | | | |
| Univac SS 80/90 | Y | D | 4 | 1.5 | 10 | 200-1600 | FBD | 425u | 510u | 2.2m | 2.4m | 53 | 1 | 3 | N | N |
| | | | | | | 2.4-7K | drum | 1.7m | | | | | | | | |
| | — Parity, overflow, logical checks. | | | | | | | | | | | | | | | |
| Univac SS 80/90 II | Y | Bi-quinary | 4 | 6 | 10 | 1280 | core | 17u | 136u | 688u | 1173u | 76 | 1 | 9 | N | N |
| | | | | | | 200-1200 | drum | 425u | 1470u | 1988u | 2490u | | | | | |
| | | | | | | 2400-7600 | drum | 1700u | | | | | | | | |
| | — Odd parity check. Multiword transfers drum to core and core to drum. Full alphanumeric compare (program interrupt is optional). | | | | | | | | | | | | | | | |

II. INPUT AND OUTPUT

| NAME OF COMPUTER | MAGNETIC TAPE | | | | PUNCHED CARDS | PAPER TAPE | PRINTER SPEED |
|---|---|---|---|---|---|---|---|
| | No. of Units | Tape Density Char/Inch | Tape Speed Char/Sec | Words/Tape | Cards/Min | Char/Sec | Lines/Min |
| ALWAC III-E | 16 | 175 | 17.5K | 460K | 100R<br>100P | 200R<br>50P | 150 |
| | — Parity checking. Magnetic tape, card and paper tape editing. Simultaneous read-write-compute. Plotter may be added. | | | | | | |
| ASI 210 | 32 | 200 | 22.5K | 1.5KK | 800R<br>250P | 500R<br>110P | 400 |
| | — Peripheral equipment can operate independently and simultaneously; buffered communication; independent program interrupt. MRWC; plotters, typewriters, A/D, D/A. | | | | | | |
| ASI 420 | 64 | 200 | 22.5-62K | | 800R<br>250P | 500R<br>110P | 1000 |
| | — Analog buffer available with card reader. X-Y plotter available. 200 lpm printer available. | | | | | | |
| ASI 2100 | 32 | 200 | 22.5K | 1.5KK | 800R<br>250P | 500R<br>110P | 400 |
| | — MRWC; plotter, typewriter, A/D, D/A, remote capabilities, multi-computer-to-computer communication link. | | | | | | |
| ASI 6020 | 32 | 556 | 66KC | | 800R<br>250P | 300R<br>60P | 400 |
| | — Choice of communications I/O channels: permits serial character transfer, parallel word transfer, variable field transfer, and cyclic transfer. | | | | | | |

| NAME OF COMPUTER | INPUT AND OUTPUT | | | | | | |
|---|---|---|---|---|---|---|---|
| | MAGNETIC TAPE | | | | PUNCHED CARDS | PAPER TAPE | PRINTER SPEED |
| | No. of Units | Tape Density Char/Inch | Tape Speed Char/Sec | Words/Tape | Cards/Min | Char/Sec | Lines/Min |
| ASI 6040 | 32 | 556 | 66KC | | 800R<br>250P | 300R<br>60P | 400 |
| BR-133 | — I/O operations controlled through 3-level priority interrupt system. Optional high speed capability. | | | | | | |
| BR-335 | | | | | 100R<br>100P | 300R<br>110P | 400 |
| | — Magnetic tape available but not recommended for most on-line, closed-loop industrial process control applications. 128 word digital output buffer. Logging typewriter, over 1K analog inputs, over 100 analog outputs, over 500 digital I/O. | | | | | | |
| BR-340 | | | | | 200R<br>100P | up to 1000R<br>60P | 300+ |
| | — Magnetic tape available, but not recommended for most on-line, closed-loop industrial process control applications. All input-output peripheral devices are individually buffered. Logging typewriters, over 1000 analog inputs, over 100 analog outputs, over 3,500 digital I/O. | | | | | | |
| Burroughs E-103 | N | | | | * | 20R | * |
| | — *Card read at 17/20 columns per sec., card punch at 17 columns per sec. Printer, semi-ganged, prints at 24 digits per sec. Data plotter may be used. | | | | | | |
| Burroughs 205 | 10 | 100 | 6000 | 400K | 300R<br>100P | 540R<br>60P | 150 |
| | — Card and print editing via buffer drums and format bands. Datafile Multiple Tape Bin available as auxiliary storage — 20,000,000 digits per file, 10 files available. Dual lane magnetic tape, independent search in both directions, addressable tape. | | | | | | |
| Burroughs 220 | 10 | 208 | 25K | 1.3KK | 300R<br>100P | 1000R<br>60P | 1500<br>150 |
| | — Card and print editing via buffer drums and format bands. Datafile Multiple Tape Bin available as auxiliary storage — 65,000,000 digits per file, 10 files available. Dual lane magnetic tape, independent search and scan. High speed printer may be used on-line or off-line. | | | | | | |
| Burroughs B200 Series | 6 | 200-555 | 18-50-66K | 1.3KK | 800R<br>300P | 1000R<br>100P | 700 |
| | — Card readers, punches, printers, MICR sorter-reader fully buffered. Ledger record processor. Data communications disk file; Bull & ICT code compatibility; binary tapes (read & write). Automatic checking of paper tape. | | | | | | |
| Burroughs 5000 | 16 | 555<br>200 | 66K<br>24K | 2KK | 800R<br>300P | 1000R<br>100P | 700 |
| | — Complete multiple read-write-compute buffering. Tape format compatible with IBM 729II and 729IV units. Plotter may be added. Vertical and horizontal magnetic tape parity checking. Data communications, disk file. Automatic checking of paper tape. | | | | | | |
| CAE 510 | 16 | 200, 556 | 15-41K | | 800R<br>100P | 600R<br>60P | 600-1000 |
| | — I/O operations controlled through 18 levels priority interrupt system. Special linkage unit for visual display consoles and fast buffer memory blocks. Versatile I/O system for digital and analog signals. XY incremental plotters. | | | | | | |
| CDC G-15 | 4 | 57 | 430 | 300K | 100R<br>100P | 250R<br>17P | 100 |
| | — Tape search speed is 2600 char/sec. Optional paper tape punch speeds: 400R, 60P. Magnetic tape editing and checking. Tape reads in both directions. Tape and card operations buffered. Graph plotter, digital differential analyzer may be added. | | | | | | |
| CDC G-20 | 144 | 1100 | 240K | 1KK | 800R<br>250P | 500R<br>110P | 1000 |
| | — Magnetic tape editing, programmed print editing. High print speed refers to wholly numerical lines. Multiple read-write-compute. | | | | | | |
| CDC-160 | 32 | 200-556 | 15-41.7K | 7.6KK | 1200R<br>250P | 350R<br>110P | 1000<br>150 |
| | — Overlap start-top time. Magnetic drum, plotters, A/D converters, typewriter. | | | | | | |
| CDC-160A | 32 | 200-500 | 15-41.7K | 11.3KK | 250-1200R<br>100-250P | 350R<br>110P | 600-1000<br>150 |
| | — 1 buffer channel standard, second buffer channel optional. Mag-drum, plotter, A/D, typewriter, arithmetic unit. | | | | | | |
| CDC-160G | 512 | 200, 556, 800 | 30-120K | 11.5KK | 1200R<br>250P | 350R<br>110P | 1000 |
| CDC-924 | 48 | 200-556 | 15-41.7K | 4KK | 1200R<br>250P | 350R<br>110P | 1000<br>150 |
| | — 3 bi-directional buffer channels. Simultaneous read, write and compute. Mag-drum, plotter, A/D, typewriter. | | | | | | |
| CDC-924A | — Same as 924. | | | | | | |
| CDC-1604 | 48 | 200, 556, 800 | 30-120K | 2KK | 1200R<br>250P | 350R<br>110P | 1000 |
| | — Multiple read-write-compute. 3 bi-directional buffer channels. 1 high speed channel. | | | | | | |

| NAME OF COMPUTER | INPUT AND OUTPUT | | | | | | |
|---|---|---|---|---|---|---|---|
| | MAGNETIC TAPE | | | | PUNCHED CARDS | PAPER TAPE | PRINTER SPEED |
| | No. of Units | Tape Density Char/Inch | Tape Speed Char/Sec | Words/Tape | Cards/Min | Char/Sec | Lines/Min |
| CDC-3100 | 512 | 200,556<br>800 | 7.5-120K | 4KK | 1600R<br>250P | 350R<br>110P | 600-100<br>150 |
| CDC-3200 | 512 | 200-556 | 120K | 4KK | 1200R<br>250P | 350R<br>110P | 1000 |
| | — Multiple read-write-compute. | | | | | | |
| CDC-3400 | 512 | 200-800 | 7.5-120K | 2KK | 1200R<br>250P | 350R<br>110P | 1000 |
| | — Multiple read-write-compute. Disk, drum, typewriter. | | | | | | |
| CDC-3600 | 4096 | 200-556-<br>800 | 7.5-120K | 2KK | 1200R<br>250P | 350R<br>110P | 1000 |
| | — Multiple read, write, and compute. Up to 32 data channels. Satellite computer, disk and drum storage, data display device. | | | | | | |
| CDC-3800 | 4096 | 200-800 | 7.5-120K | 2KK | 1200R<br>250P | 350R<br>110P | 1000 |
| CDC-6400 | 1280 | 200,556,<br>800 | 120K | $11.5 \times 10^3$ | 1200R<br>250P | 350R<br>110P | 1000 |
| CDC-6600 | 1280 | 200,556,<br>800 | 120K | 1.6KK<br>$11.5 \times 10^3$ | 1200R<br>250P | 350R<br>110P | 1000 |
| | — 12 simultaneous read, write and compute. Disk, drum, display devices. | | | | | | |
| CDC-6800 | 1280 | 200,556,<br>800 | 120K | $11.5 \times 10^3$ | 1200R<br>250P | 350R<br>110P | 1000 |
| CDC-8090 | — I/O equipment same as 160A. | | | | | | |
| CDC-8092 | | | | 11.3KK | | | |
| | — Peripheral equipment same as for 160A. Buffer channel allows 2 I/O operations to take place simultaneously. | | | | | | |
| DATAmatic 1000 | 64 | | 133K | 3.1KK | 400R<br>150P | | 900 |
| DDP-24 | 16 | 200-555 | 6-41.6K | 4KK | 200R<br>100P | 300R<br>60P | 300 |
| | — Parity checking. Optional cycle stealing mode, or total overlap. Block transfers, standard commands, I/O directly with AU, max transfer, I/O rate 166,000 24-bit words/second. I/O options include Plotter, (digital) A/D-D/A channels, bulk storage (drum, core) real time clock, Data phone I/O, Kineplex, etc. | | | | | | |
| DDP-224 | 64 | | 45-112-150K<br>25-62.2-83.3K | | 200R<br>100P | 300R<br>60P | 300 |
| | — Longitudinal and horizontal parity generate and check. Multiple fully overlapped operation of processors and fully buffered I/O units. CRT, drum, disk, A/D, D/A, plotters, analog computers, discrete outputs, discrete inputs, word and character I/O channels, buffered word and character I/O channels, direct memory access units, fully buffered I/O control units for memory complex communication. Independent memories, multiple fully overlapped memory operation. | | | | | | |
| DE-60 | N | | | | N | N | 15 |
| | — Print and compute simultaneously. Typewriter, numeric keyboard. | | | | | | |
| Friden 6010 | | | | | 10R<br>10P | 10R<br>10P | 10cps |
| GE-115 | | | | | 600R<br>300P | 400R<br>100P | 600 |
| GE-205 | 8 | 200,556,<br>800 | 15K<br>42K<br>60K | 7.7KK | 1500R<br>300P | 1000R<br>110P | 900 |
| GE-210 | 13 | | 30K | | 1500R<br>100P | 500R<br>60P | 1000 |
| GE-215 | 8 | see GE-205 | see GE-205 | 7.7KK | 1500R<br>300P | 1000R<br>110P | 900 |
| GE-225 | 64 | see GE-205 | see GE-205 | 7.7KK | 1500R<br>300P | 1000R<br>110P | 900 |
| GE-235 | 56 | see GE-205 | see GE-205 | 7.7KK | 1500R<br>300P | 1000R<br>110P | 900 |
| GE-415 | 88 | 200,556,<br>800 | 7.5K<br>15K<br>21K<br>30K<br>42K<br>60K<br>83K | 5.5KK | 900R<br>100P | 500R<br>150P | 1200 |

| NAME OF COMPUTER | INPUT AND OUTPUT | | | | | | |
|---|---|---|---|---|---|---|---|
| | MAGNETIC TAPE | | | | PUNCHED CARDS | PAPER TAPE | PRINTER SPEED |
| | No. of Units | Tape Density Char/Inch | Tape Speed Char/Sec | Words/Tape | Cards/Min | Char/Sec | Lines/Min |
| GE-425 | 88 | see GE-415 | see GE-415 | 5.5KK | 900R<br>100P | 500R<br>150P | 1200 |
| GE-435 | 88 | see GE-415 | see GE-415 | 5.5KK | 900R<br>100P | 500R<br>150P | 1200 |
| GE-625 | no limit | 200,556,<br>800 | 30K<br>83K<br>120K | 3.8KK | 900R<br>100P | 500R<br>150P | 1200 |
| GE-635 | no limit | see GE-625 | see GE-625 | 3.8KK | 900R<br>100P | 500R<br>150P | 1200 |
| General Precision LGP-21 | N | | | | N | 10, 60R<br>10, 60P | N |
| General Precision LGP-30 | N | | | | N | 200R<br>20P | N |
| | — No simultaneous calculating. | | | | | | |
| General Precision L-2010 | N | | | | N | 60, 300R<br>100P | N |
| | — Parity check on input; reading, writing and computing simultaneously; incremental plotter. | | | | | | |
| General Precision L-3000 | 1023 | 555.5 | 50K | | 200-800R<br>100P | 350R<br>60P | 1000 |
| | — Simultaneous read-write-compute. Model 210 X-Y plotter, CRT display. File subsystems carry 200 million characters of disk storage each. | | | | | | |
| General Precision RPC 4000 | N | | | | | 200, 500R<br>20, 300P | |
| | — No simultaneous paper tape-compute. | | | | | | |
| H-120 | 12 | 200-800 | 7.2-88.8K | | 400-800R<br>400P | 600R<br>120P | 450-<br>1300 |
| H-200 | 64 | 200-800 | 7.2-88.8K | | 400-800R<br>400P | 600R<br>120P | 450-<br>1300 |
| H-330 | 128 | | 30-83K | | 1500R<br>300P | 350R<br>110P | 1000 |
| H-400 | 8 | 400,555 | 48-133K | | 800R<br>250P | 1000R<br>110P | 900 |
| | — Automatic magnetic tape error correction. Tape reads in both directions. | | | | | | |
| H-800 | 64 | 400,555 | 48-186K | | 800R<br>250P | 1000R<br>110P | 900 |
| | — Automatic magnetic tape error correction. Tape reads in both directions. | | | | | | |
| H-1200 | 64 | 200-800 | 7.2-88.8K | | 400-800R<br>400P | 600R<br>120P | 450-<br>1300 |
| H-1400 | 16 | 400,555 | 48-133K | | 800R<br>250P | 1000R<br>110P | 900 |
| | — Program interrupt available. | | | | | | |
| H-1800 | 64 | 400,555 | 48-186K | | 800R<br>250P | 500, 1000R<br>110P | 900 |
| | — Magnetic tapes read forward and reverse with orthotronic error correction. | | | | | | |
| H-2200 | 128 | 200-800 | 7.2-88.8K | | 400-800R<br>400P | 600R<br>120P | 450-<br>1300 |
| H-4200 | 256 | 200-800 | 7.2-88.8K | | 400-800R<br>400P | 600R<br>120P | 450-<br>1300 |
| HW-15K | N | | | | 100R | 20R<br>60P | 15.6cps |
| | — Typewriter input at 120 char/sec. Simultaneous read-write-compute. | | | | | | |
| IBM Ramac 305 | N | | | | 125R<br>100P | 60R<br>60P | 150 |
| | — Control panel editing. Simultaneous read-compute or write-compute. | | | | | | |
| IBM 360/20 | 8 | 800 bits | 22.5-340K | 18.5KK | 300-1000R<br>60-250P | 1000R | 150-1400 |
| | — Completely buffered I/O units, simultaneous read and write; I/O operations overlapped with processing. Remote inquiry terminals including process control units. Optical and magnetic character recognition devices. Random access devices: 400KK character strip file, 4KK character 1 2MC drum, 112KK character disk storage, 7.25KK char. interchangeable disk pack. Visual display: 12", 3848 char. display terminal w/buffer, 600 char./sec. low cost display station. Graphic data processing systems. Remote inquiry terminals include process control units. | | | | | | |

INPUT AND OUTPUT

| NAME OF COMPUTER | MAGNETIC TAPE | | | | PUNCHED CARDS | PAPER TAPE | PRINTER SPEED |
|---|---|---|---|---|---|---|---|
| | No. of Units | Tape Density Char/Inch | Tape Speed Char/Sec | Words/Tape | Cards/Min | Char/Sec | Lines/Min |
| IBM 650 | 6 | 200 | 15K | 450K | 155R<br>100P | 60 | 150 |
| | — Control panel editing. Automatic checking. Simultaneous read-write-compute. Bulk disk storage (see INTERNAL CHARACTERISTICS). | | | | | | |
| IBM 704 | 10 | 200 | 15K | | 250R<br>100P | | 150 |
| | — Control panel editing. Automatic checking. Limited overlap of computing with reading or writing. Cathode ray tube plotter may be attached. Physical tape records of any length: physical records can be broken into any number of logical records. | | | | | | |
| IBM 705 III | 100 | 556 | 62.5K | 16KK | 250R<br>100P | | 1000<br>500<br>150 |
| | — Automatic checking. Internal tape editing. Read-write-compute simultaneously. | | | | | | |
| IBM 709 | 48 | 200-556 | 15-62.5K | | 250R<br>100P | | 150 |
| | — Control panel editing. Physical tape records of any length; physical records contain any number of logical records. Read-write-compute simultaneously. | | | | | | |
| IBM 1130 | | | | | 300-400R<br>80-160 col/sec | 14.8R<br>14.8P | 80 alph.<br>110 numer. |
| IBM 1401 | 6 | 200-<br>556, 1511 | 7.2<br>62.5 | | 800R<br>250P | 500R<br>150P | 600<br>1285 |
| | — Programmed editing. Print is buffered. High speed for printer refers to the printing of entirely numerical lines. A magnetic ink reader-sorter, an optical character reader, and many other devices may be attached; Hypertape drive, Model 2, having 1511 char/inch density and 34K char/sec. speed. Can operate with 3022 digit/inch density and 68K digit/sec. speed. | | | | | | |
| IBM 1410 | 20 | 200-556,<br>800, 1511 | 7.2-90K | | 800R<br>250P | 500R | 600, 1100 |
| | — In/out editing commands. Automatic checking. Bulk disk storage (see INTERNAL CHARACTERISTICS). Read-write-compute. 1412 magnetic character reader may be added. TELETYPE remote inquiry data transmission, direct data entry. Hypertape drives, Model 2 having 1511 char/inch dnesity and 34K char/sec. speed. Can operate with 3022 digit/inch density and 68K digit/sec. speed. | | | | | | |
| IBM 1440 | | | | | 300-400R<br>V | 500R<br>150P | 120-600 |
| | — Printer buffer. 1311 disk storage drives—Max.5, 77K char. rate uses removeable and inter-changeable disk packs containing up to 3KK char. each. (Max. capacity up to 15KK char. on line.) | | | | | | |
| IBM 1460 | 6 | 200-800 | 7.5-90K | | 800R<br>250P | 500R<br>150P | 600-3300 |
| | — Overlap processing with reading or writing. Hypertape available. 1050 data communication terminal, console, 13" disk drives, 1060 data communications unit, 1009 data transmission unit, 7710 data transmission unit, magnetic ink, direct data channel connection to 1440, 1401 or 1460. | | | | | | |
| IBM 1620 | N | | | | 250R<br>125P | 150R<br>15P | 150-600 |
| | — Automatic checking. Card input-output buffered. 1711 Data Converter can be added for real-time input. | | | | | | |
| IBM 1620 MODEL II | — Same as Model I | | | | | | |
| IBM 1800 | 2401-2402 | 800 bits | 22.5-70Kc | 1.2KK | 300-400R<br>80-160 col/sec | 14.8R<br>14.8P | 120-600 |
| IBM 7010 | 20 | 200-800 | 23-90K | V | 800R<br>250P | 500R | 600 |
| | — Buffered unit record, paper tape, teleprocessing, inquiry and paper tape. Two channel tape and disk. 1301 and 1311 disk files. | | | | | | |
| IBM 7030<br>(STRETCH) | 256 | | 62K | | 1000R<br>250P | | 600 |
| | — Input and output usually under separate control. Access time of magnetic tape units varies from 51 to 231 msec, depending on file organization. | | | | | | |
| IBM 7040 | 50 | 200, 556,<br>800 | 7.2- | | 800R<br>250P | 500 | 600, 1100 |
| | — Simultaneous read-write-compute. Disk files, teletype, remote inquiry, data transmission unit, 1401. Direct data entry, up to 3 printers (total 3300 LPM) may be used. | | | | | | |
| IBM 7044 | 50 | 200,556,<br>800 | 90K | | 800R<br>250P | 500 | 600, 1100 |
| | — Simultaneous read-write-compute. Disk files, teletype, remote inquiry, data transmission unit, 1401. Direct data entry, up to 3 printers (total 3300 LPM) may be used. | | | | | | |
| IBM 7070 | 40 | 200, 556,<br>800 | 15K-90K | | 500R<br>250P | 500R | 600, 1100<br>150 |
| | — Automatic checking. Magnetic tape, paper tape, and printer editing. Paper tape off-line; 1100 & 600 line/min. printer off-line. Multiple read-write-compute. 1401 and 1460 used for input and output at high speeds. | | | | | | |

| NAME OF COMPUTER | INPUT AND OUTPUT | | | | | | |
|---|---|---|---|---|---|---|---|
| | MAGNETIC TAPE | | | | PUNCHED CARDS | PAPER TAPE | PRINTER SPEED |
| | No. of Units | Tape Density Char/Inch | Tape Speed Char/Sec | Words/Tape | Cards/Min | Char/Sec | Lines/Min |
| IBM 7072 | 40 | 200-556 | 7.2-20K | | 500R<br>250P | 500R | 600, 1100<br>150 |
| — Automatic checking. Magnetic tape, paper tape, and printer editing. Paper tape off-line; 1100 & 600 line/min. printer is off-line. Multiple read-write-compute. 1401 and 1460 used for data input and output at high speeds. | | | | | | | |
| IBM 7074 | 40 | 200, 556,<br>800, 1511 | 15K-170K | | 500R<br>250P | 500R | 600<br>150 |
| — Automatic checking. Magnetic tape, paper tape, and printer editing. Paper tape off-line. 1100 & 600 line/min. printer off-line. Multiple read-write-compute. 1401 and 1460 used for input and output at high speeds. Hypertape drives, Model 1, having 1511 char/inch density and 170K char/sec speed. Can operate with 3022 digit/inch density and 340K digit/sec. speed. | | | | | | | |
| IBM 7080 | 40 | 200, 556,<br>800, 1511 | 15-170K | | | | |
| — Uses 1401 & 1460 for card, paper tape and print. Complete overlap of read-write-compute. Hypertape drives, Model 1, having 1511 char/inch density and 170 char/sec speed can operate with 3022 digit/inch density and 340K digit/sec. speed. | | | | | | | |
| IBM 7090 | 80 | 200, 556,<br>800, 1511 | 15-170K | | 250R<br>100P | | 150 |
| — Card and print editing with panel. Automatic checking, full tape checking. Multiple read-write-compute using a 7606 Multiplexor and up to eight 7606 Data Channels. Direct data entry, teletype, remote inquiry, programmed transmission control. | | | | | | | |
| IBM 7094 II | 80 | 200, 556,<br>800, 1511 | 15K-170K | | 250R<br>100P | | 150 |
| — Card and print editing with panel. Simultaneous read-write-compute buffering. Disk files, teletype, remote inquiry, programmed transmission control. Data transmission, drum files. | | | | | | | |
| Monrobot XI | N | | | | 12 | 20R<br>10P | 60 |
| — Up to 4 in/out devices can be attached. Typewriter. 16 columns/sec. card read. Time between characters read, write, or print may be used for computation. X-Y plotter available. | | | | | | | |
| NCR 304 | 64 | 200 | 30K | 850K | 2000R<br>250P | 1800R<br>60P | 680, 900 |
| — Automatic checking of cards and paper tape. Complete magnetic tape checking, including read-back. In/out editing. Read-write on tapes simultaneously. Card and print buffered. Up to 4 MICR sorter-readers can be used, buffered if only 1 unit used. Printer skips blank lines at the rate of 5040 lines/min. | | | | | | | |
| NCR 310 | 20 | 200 | 15-30K | | | 600R<br>1000R<br>110P | 600<br>720<br>1620 |
| — High speed printer (24 characters/line) is buffered. Automatic magnetic tape checking; tape editing. Magnetic ink character reader can read 750 MICR documents per minute. | | | | | | | |
| NCR 315 | 16 | 200, 556,<br>800 | 12, 24,<br>66 | 2.8-11.1KK | 2000R-400R<br>100-250P | 600R<br>120P | 680, 900 |
| — Polysynchronous operation with demand interrupt permits simultaneous operation of a number of peripheral units. Automatic checking and editing facilities. 16 CRAM (magnetically encoded cards on a drum) random access memory (235m access time) units allow 240 postings per minute. Up to 4 buffered MICR sorter-readers can process 750 checks per minute. | | | | | | | |
| NCR 315 RMC | 16 | 200, 556,<br>800 | 12, 24,<br>66, 83Kc | 2.8-11KK | 2000R<br>100-250<br>cpm | 600R<br>120P | 1000 |
| NCR 390 | N | 10 | | V | 15 Col. R<br>15 Col. P | 650R<br>30P | 120 |
| — "Magnetic Tape" refers to a magnetic document (magnetic tape affixed to the back of printed documents) unit. Automatic checking. Editing of punched cards and paper tape. Programmable printer allows for different column arrangements on multiple forms. | | | | | | | |
| NCR 500 | | | | | 100R<br>100P | 650R<br>120P | 125 |
| PDP-1 | 24 | 200-800 | 1-90K | 2-7.5KK | 200R, 800R<br>100P, 300P | 400R<br>63P | 300<br>1000 |
| — Simultaneous read-write-compute. Tape editing. 3 tape units (each with 16 tapes) can be operating simultaneously. Visual cathode ray tube displays, 10" or 5" precision. Light pen for use with CRT. Relay buffers, real-time clocks, A/D, D/A, multiplexers, drums, plotters available. | | | | | | | |
| PDP-4 | 24 | 200-56 | 1-41K | 2-5.5KK | 200R, 800R<br>100P, 300P | 300R<br>63P | 300<br>1000 |
| — Simultaneous read-write-compute possible. All input/output devices are buffered. Microtape transport, CRT display, light pen, symbol generator. | | | | | | | |
| PDP-5 | 24 | 200, 556<br>800 | 15-90K | 2-7.5KK | 200R, 800R<br>100P, 300P | 10R, 300R<br>10P, 63.3P | 300<br>1000 |
| — All I/O devices are separately buffered; read, write, compute can be done simultaneously. Microtape, CRT displays, graph plotters, light pen, data communications subsystems. | | | | | | | |

| NAME OF COMPUTER | INPUT AND OUTPUT | | | | | | |
|---|---|---|---|---|---|---|---|
| | MAGNETIC TAPE | | | | PUNCHED CARDS | PAPER TAPE | PRINTER SPEED |
| | No. of Units | Tape Density Char/Inch | Tape Speed Char/Sec | Words/Tape | Cards/Min | Char/Sec | Lines/Min |
| PDP-6 | 24 | 800 | 90K | | 200R, 800R<br>100P, 300P | 400R<br>63.3P | 300<br>1000 |
| — Simultaneous read-write-compute. CRT, large drum, time-sharing via communication subsystem, TTY. Parity, sum check. | | | | | | | |
| PDP-7 | 8 | 200, 556, 800 | 15-90K | 2KK | 800R<br>100P | 300R<br>63.3P | 300 |
| PDP-8 | 8 | 200, 556, 800 | 15-90Kc | 3KK | 100-800R<br>100-200P | 300R<br>63-110P | 300-600 |
| Philco 1000 | 64 | 750<br>200,556,800 | 90K<br>25K | 19-66KK<br>19KK | 2000R<br>600R<br>100P<br>200P | 1000R<br>60P | 900<br>300 |
| — Simultaneous reading and writing. All slow-speed equipment may be buffered. I/O typewriters, X-Y digital plotters, data link (remote communications system, any competitive tape may be attached.) | | | | | | | |
| Philco 2000-210 | 16 | 750 | 90K | 2.4KK | 2000R<br>100P | 1000R<br>60P | 900 |
| — Parity checking, editing. Tape is addressable and reads in both directions. 4 tape units can operate simultaneously with computation. The addition of a buffer permits simultaneous printing and card handling with the above. A real-time scanner, clock, and data link with another computer may be added. | | | | | | | |
| Philco 2000-211 | 16 | 750 | 90K | 2.4KK | 2000R<br>100P | 1000R<br>60P | 900 |
| — Automatic checking; editing. Tape can be read in both directions and is addressable. 9 in/out devices can operate simultaneously, 4 can be magnetic tape units. A clock, interval timer, tape translator, and link with another computer may be added. | | | | | | | |
| Philco 2000-212 | 64 | 750<br>2200 | 90K<br>240K | 2.4KK<br>4.9KK | 2000R<br>100P | 1000R<br>60P | 900 |
| — Tape reads in both directions. Automatic checking and editing. 9 input-output devices can operate simultaneously with computation. 4 of the 9 can be magnetic tape units. Real-time devices, on-line disc and drum systems, IBM tape translator, clock, interval timer, and a data link system (communication between computers) can be added. Uses Philco 1000 as satellite system. | | | | | | | |
| RCA 301 | 12 | 333 | 10K | 4.8KK | 600-1500R<br>250P | 100-1000R<br>100P | 1000, 1075 |
| — Tape reads in both directions. Random access storage, 3 to 5.4 billion char. Data Disc files available 22-176KK capacity. Read-compute, write-compute, or read-write simultaneously. MICR, OCR, and data communication devices also available. Multiple tape lister, buffered printer, memory to memory 301 to 301 or 301 to 3301. | | | | | | | |
| RCA 501 | 62 | 333-667 | 33-66K | 9.6-19.2KK | 400R<br>100P | 1000R<br>100-300P | 600 |
| — Tapes read in both directions. Read-compute, write-compute, or read-write simultaneously. | | | | | | | |
| RCA 601 | 48 | 333-800 | 33-66-120K | 1.1-2.7KK | | 300R<br>10P | 1000 |
| — Tape reads in both directions. Multiple read-write-compute. Multiple operation of independent programs, variable data length operations. | | | | | | | |
| RCA 3301 | 24 | 200-800 | 30-120K | 5.6-23KK | 900-1470R<br>300P | 100-1000R<br>100P | 1000 |
| — Up to 4 simultaneous I/O operations plus computer and buffer device overlap. Buffered card punch and printer. Random access, interrogating typewriters, communication, and timing devices also available. | | | | | | | |
| RCA Spectra 70/15 | 96 | 800 | 23K | | 1435R<br>100-300P | 200R<br>100P | 600 or<br>1250 |
| RCA Spectra 70/25 | 243 | 800 | 23K | | 1435R<br>100-300P | 200R<br>100P | 600 or<br>1250 |
| RCA Spectra 70/45 | 256 | 800 | 23K | | 1435R<br>100-300P | 200R<br>100P | 600 or<br>1250 |
| RCA Spectra 70/55 | 256 | 800 | 23K | | 1435R<br>100-300P | 200R<br>100P | 600 or<br>1250 |
| Raytheon 250 | 6 | 200 | 2K | 1KK | 100R | 110R<br>110P | |
| — Automatic checking of magnetic tape. No editing facilities. Voltage plotters, incremental plotters, A/D and D/A converters, high speed buffers, commutators, etc. may be added. Computer can handle many in/out devices. Flip-flop resistor designed to accept parallel or serial information. | | | | | | | |
| Raytheon 520 | 8 | 200-556-800 | 9-120Kc | | 800R<br>250P | 300R<br>110P | 300, 600,<br>1250 |
| -- High speed paper tape reader with 500 char. per sec with spooler. Selectric typewriter, tape preparation unit with selectric typewriter, paper tape reader and paper tape punch. Disc Pack (8KK bits storage). Multidevice controller for Data Systems interface. | | | | | | | |

| NAME OF COMPUTER | INPUT AND OUTPUT | | | | | | |
|---|---|---|---|---|---|---|---|
| | MAGNETIC TAPE | | | | PUNCHED CARDS | PAPER TAPE | PRINTER SPEED |
| | No. of Units | Tape Density Char/Inch | Tape Speed Char/Sec | Words/Tape | Cards/Min | Char/Sec | Lines/Min |
| SDS-910 | 16 | 200<br>556 | 15K<br>41.7K | 1.5KK<br>4KK | 200R<br>100P | 300R<br>60P | 300<br>1200 |
| | — Parallel (by word) input/output commands. Optional 2nd input/output buffer. Optional levels of priority to 1024 levels. Magnetic drums, magnetic discs, SDS MAGPAK magnetic tape system, digital plotters, oscilloscope display equipment. | | | | | | |
| SDS-920 | 16 | 200<br>556 | 15K<br>41.7K | 1.5KK<br>4KK | 200R<br>100P | 300R<br>60P | 300 |
| | — See SDS-910. | | | | | | |
| SDS-930 | 64 | 200, 556<br>800 | 15-96K | 1.5-6KK | 200R<br>100P | 300R<br>60P | 300<br>1200 |
| | — Up to 4 Time-Multiplexed communication channels, and up to 4 Direct Access communication channels. Magnetic drums, magnetic discs, SDS MAGPAK magnetic tape system, digital plotters, oscilloscope display equipment, data communications equipment, up to 1,024 levels of priority interrupt. | | | | | | |
| SDS-9300 | 64 | 200, 556<br>800 | 15-96K | 1.5-6KK | 200R<br>100P | 300R<br>60P | 300<br>1200 |
| | -- See SDS-930 | | | | | | |
| SEMA 2000 | 8 | 50 | 375 | 72K | 650R<br>200P | 300R<br>30P | 150 |
| | — SIM configuration permits programmable typewriter, adding machine, telephone, cash register, direct keyboard inputs and printed hard copy, punched paper tape and vocal readouts. | | | | | | |
| SEMAC | 8 | 50 | 375 | 72K | 650R<br>200P | 300R<br>50P | 150 |
| Univac I | 10 | 128 | 12.8K | 137K | 300R<br>120P | 200R<br>50P | 600 |
| | — Card and paper tape equipment is off-line via magnetic tape. Simultaneous read-write-compute. Typewriter. Automatic magnetic tape re-read check. | | | | | | |
| Univac II | 16 | 250 | 25K | 420K | 300R<br>120P | 200R<br>50P | 600 |
| | — Plugboard editing. Card and paper tape off-line via magnetic tape. Simultaneous read-write-compute. Typewriter. | | | | | | |
| Univac III | 32 | 333<br>250 | 133K<br>25K | 20KK<br>.44KK | 700R<br>300P | 1000R<br>115P | 700-922 |
| | — Programmed editing. Multiple read-write-compute. Card punching printer may be used. XY plotter, AMA paper tape, FASTRAND random access storage, Kimble Tag Reader, A.B. Dick Strip Printer, 63 char. reader, printer and punch. | | | | | | |
| Univac 490 | 192 | 1027<br>250 | 100-125K<br>25K | 6.5KK<br>1.4KK | 600R<br>300P | 400R<br>350R<br>110P | 700-922 |
| | — Automatic checking. Multiple read-write-compute. System adaptable to analog devices. A variety of specialized inquiry-answering devices available. Allows peripherals to operate independently of computer processing. Univac Standard Communication System enables 490 to communicate with data transmission devices. Cal. Comp. plotter can be used on line to the 490. | | | | | | |
| Univac 60/120 | | | | | 125-150R<br>125-150P | 146R | |
| | — Parity check of punched paper tape. Card reading/processing; paper tape read/processing. System consists of a calculator, card reader and punch. Paper tape reader, Model 410, is optional. | | | | | | |
| Univac 1004 | | | | | 400R<br>200P | 400R<br>110P | 400 |
| | — Various simultaneous data handling operations. Basic system includes card processor, card reader and printer. Card punch is optional. Auxiliary card reader - 400 CPM - 3 stackers; DLT-1-communications - 342 CPS - leased line; DLT-2-communications - 300 CPS - leased line; read punch-200CPM. | | | | | | |
| Univac 1004-II | | | | | 615R<br>200P | 400R<br>110P | 600 |
| Univac 1004-III | 2 | 200, 556<br>800 | | | 615R<br>200P | 400R<br>110P | 600 |
| Univac 1050 | 16 | 1330 | 133K | 37.3KK | 900R<br>300P | 400R<br>1000R<br>110P | 922 |
| | — Tapes are not word oriented. Printer has buffer. Various simultaneous data handling operations. 8 channels available. In addition to normal printers, card tape equipment, FASTRAND mass storage — 66KK char. - 500KK char., UNIVAC 1004 card processor, communications which handles 32 simplex lines at all normal common carrier speeds. | | | | | | |
| Univac 1103A | 10 | 128 | 12.8K | 326K | 120R<br>120P | 200R<br>60P | 600 |
| | — Card plugboard editing. Automatic card checking. 2 input-output registers. Tape reads in both directions. Typewriter. | | | | | | |
| Univac 1105 | 24 | 208 | 21K | 846K | 120R<br>120P | 200R<br>60P | 600 |
| | — Simultaneous read-write-compute. Flexowriter output. Cathode ray tube output optional. Plotting feature on high speed printer. Off-line digital to analog devices available. | | | | | | |

# At Seaway, SYSTEM/360 pays for SYSTEM/360...

SYSTEM/360 showed Seaway Foods, Inc. a way to cut their frozen food inventory by 15%. That was just two weeks after it arrived.

A couple of months later, the system was handling all the billing, helping control inventories, computing advertising allowances and generating management reports. It was saving money for Seaway.

If you've ever installed a computer system, you know how remarkable this kind of speedy performance really is. Usually there are unexpected problems and delays.

But Seaway was prepared.

Bernie Peters, Seaway's Manager of Data Processing, had sent his programmers to an IBM Education Center to learn SYSTEM/360 ASSEMBLER language—one of five programming languages available for SYSTEM/360.

When they got back, they started writing and testing their computer programs with help from IBM System Engineers and the IBM Datacenter in Cleveland. SYSTEM/360 operated smoothly right from the start.

For a while it ran in parallel with Seaway's existing 1401 computer. But as it turned out, that really wasn't necessary. SYSTEM/360 performed better than Seaway expected.

Seaway has completed the first phase. Now they are writing programs for payroll, accounts receivable and accounts payable.

After that, they will tackle SYSTEM/360's IMPACT program for scientific inventory control.

When all these applications are on the air, there will still be room for more.

Seaway is pleased with SYSTEM/360. They like its performance, its reliability, its cost efficiency.

So do many hundreds of other companies in all kinds of industries who are solving problems with SYSTEM/360 and getting more work done faster.

And why not? After all, that's the way we designed SYSTEM/360.

IBM®

## and a lot of groceries, too.

/ determined by job requirements / I1
Aries Corp., *a / information retrieval / DESCR: information retrieval analysis and programming. Development of specialized file structure design and advanced file search techniques. Thesaurus construction / USE: development of information retrieval systems / determined by job requirements / I1
Aires Corp., *a / message switching systems / DESCR: development of specialized executive programs for receipt, storage, forwarding and processing of communications message data from multiple remote locations, on a real-time basis. / USE: computer controlled communications systems / determined by job requirement / I1
Aries Corp. -- see P12
Bonner & Moore Associates, Inc., 500 Jefferson Bldg., Houston, Tex. 77002 / information systems / DESCR: general accounting; data processing; operations accounting and control; process control; inventory control; maintenance systems / USE: management / consulting or contractual basis / I1
Bonner & Moore Associates, Inc. -- see P12
Booz, Allen Applied Reserach, Inc. -- see C14, C15
The Bunker-Ramo Corp., 277 Park Ave., New York, N. Y. 10017 / electronic systems study, research, development / DESCR: real-time systems; on-line operation / USE: business; industry; government (both military and non-military) / subject to requirements / I1
The Bunker-Ramo Corp. -- see D1
Celestron Associates, Inc. -- see C15
Documentation Inc., 4833 Rugby Ave., Bethesda, Md. 20014 / information systems engineering / DESCR: consulting, systems design and engineering, indexing, abstracting, cataloging, microfilming, mechanized publishing, microfilm and microfiche readers and reader-printers / USE: management information and selective dissemination of information / $500 to $1,000,000 / I1
HRB-Singer, Inc., Box 60, Science Park, State College, Pa. 16801 / information systems / DESCR: research, development, and production of information systems and components including operations research, systems analysis and system measurement and evaluation / USE: feasibility study, system design and development, and system production and operation / I1
Jonker Corp. -- see C15, D3, P13
Keystone Computer Associates, Inc. -- see P12
System Development Corp.
Merle Thomas Corp. -- see C15
URS Corp., 1811 Trousdale Drive, Burlingame, Calif. 94011 / information engineering / DESCR: management, command and control, logistics, transportation, inventory management, maintenance, production control, personnel, administrative support, communications, operations research / - / - / I1
Wolf Research & Development Corp., P.O. Box 36, Baker Ave., W. Concord, Mass. 01781 / information engineering / DESCR: requirements analysis for storage, retrieval of large-colume data files, including information flow, display; programming systems design; library science and communications / - / - / I1

## I2. INFORMATION RETRIEVAL DEVICES

Ampex Corp., Videofile Dept., 401 Broadway, Redwood City, Calif. 94063 / Videofile System / DESCR: videotape recording methods can provide hard copies of file page, even at remote monitor locations; push-button filing and retrieval by television possible in ten seconds or less / USE: information recording, storing, display and retrieval / - / I2
The Bunker-Ramo Corp. -- see D1
Control Data Corp., 8100 34th Ave. So., Minneapolis, Minn. 55440 / Control Data 210 System / DESCR: information retrieval (and man-machine communications) system employing visual input-output units for record keeping; automatic updating applications; as part of total management information systems / USE: with digital computer / - / I2
Data Trends, Inc.
General Precision, Inc., GPL Div., Bedford Rd., Pleasantville, N.Y. 10570 / PARD (precision annotation and retrieval display system) / DESCR: microfilm source, GPL microtelivisor, GPL CCTV cameras and display monitors. 250X magnification and complete annotation capability / - / - / I2
Honeywell, Inc., Electronic Data Processing Div. -- see S5
Houston Fearless Corp., 11801 Olympic Blvd., Los Angeles, Calif. 90064 / filmCARD reader / DESCR: compact, automatic, retrieval-display reader provides 4-second random access to 67,500 microfilmed pages; easily adaptable as computer peripheral equipment / USE: offline and online for fact, document or image retrieval / price on request / I2
Jonker Corp. -- see C15, D3, P13
Kyros Corp., P. O. 406, Madison, Wis. / Kyread computer tape developer / DESCR: visual reading better than 10-3 inches; continuous spray type; metered-spray type; non-toxic; non-flammable; zero readback error / USE: computer industry / various prices according to size / I2
Photon, Inc. -- see D1
Potter Instrument Co., Inc.
Programming Services, Inc.
Stromberg-Carlson Corp., Data Products Div., P.O. Box 2449, San Diego, Calif. 92112 / S-C 1100 inquiry display system / DESCR: instantaneous two-way communication from multiple stations to centralized computer memory; high-speed queuing with 25,000 per sec. maximum character rate; works with any present random access computer / USE: inventory scheduling, financial reporting, freight and traffic scheduling, management reporting, order processing, transportation reservations / approx. $4000 per station / I2

## I3. INTEGRATORS

Robertshaw Controls Co., Aeronautical & Instrument Div., Santa Ana Freeway @ Euclid St., Anaheim, Calif. 92603 / flow integrator-totalizer / DESCR: solid state integrator offered as a linear or optionally as a square root extracted unit with direct reading totalizer. Converts input current signal into proportional pulse-rate count / USE: with flowmeters where output is linear with flow / $375 to $425 / I3

## I4. INTEGRATORS, ELECTRONIC

Burr-Brown Research Corp., 6730 S. Tucson Blvd., Tucson, Ariz. 85706 / integrators, electronic models 1663, 1666 / DESCR: dual function modules: sample and hold amplifiers or switched integrators employing epoxy encapsulated submodules and all silicon construction / USE: to integrate incoming analog signal so that the voltage at output is proportional to the integral of input / $295 to $395 / I4
Digital Devices -- see D5
Philbrook Researches, Inc. -- see C9
Robertshaw Controls Co., Aeronautical & Instrument Div. -- see I3
Wang Labs, Inc. -- see C20, C36

## I6. INVENTORY SYSTEMS

Automated Systems International Ltd., P.O. Box 5201, Seven Oaks Station, Detroit, Mich. 48235 / ASI parts inventory control / DESCR: card oriented system; produces weekly replenishing stock order, sales and stock analysis and an updated card file. Field installation, service and consultation provided / USE: installed principally in automobile dealers / $150 and $1000 per month / I6
Bonner & Moore Associates, Inc. -- see I1
The Bunker-Ramo Corp. -- see C7, C14
Electron Ohio, Inc. -- see C7
Management System Corp., 209 Griffin St., Dallas, Tex. 75202 / inventory systems / DESCR: design merchandise control and material accounting; consideration of minimum order points, activity analysis, projected requirements and material cost accounting / USE: commercial manufacturing; retail industries / - / I6
Marksmen, Inc. -- see C29
URS Corp. -- see I1

## K1. KEYBOARDS

The Bunker-Ramo Corp. -- see C7, D1
Connecticut Technical Corp., 3000 Main St., Hartford, Conn. 06120 / keyboards / DESCR: alpha-numeric and numeric coded and uncoded, any code, power assisted or manual, interlocked or free, high data rates, single character memory / USE: graphic arts, data display systems, computer input, information retrieval, process control / $150 to $1500 / K1
DI/AN Controls, Inc. -- see C11
Invac Corp., 26 Fox Rd., Bear Hill Industrial Park, Waltham, Mass. 02154 / Model PK-144 and PK-164 photoelectric encoders generate any binary code up to 8 level, 10 to 75 key alphanumeric keyboard, keyboard interlock plus optional function switches / USE: entry device for data processing / $300 to $1200 / K1
Invac Corp. -- see D1
MICRO SWITCH, a Div. of Honeywell, 11 W. Spring St., Freeport, Ill. 61032 / KB Switch/Display Matrix / DESCR: lighted display in pushbutton switch modules and indicators. "Auto Coding" in monetary and alternate action switch modules with sliding contacts; coding by wiring; provide direct output to logic circuits / USE: on control panels and keyboards in data and other input applications / - / K1
Technical Measurement Corp., Telemetrics Div., 2830 S. Fairview St., Santa Ana, Calif. 92704 / Model 8096 photoelectric keyboard / DESCR: low price; one moving part per station long MTBF; versatile; compact; light weight; deleting electro-mechanical contacts / USE: loading programs into computers and data processors; preparing punched tapes; input to cathode ray tube data display systems / $725 (1 ea.) to $225 (1000 unit) / K1
Ultronic Systems Corp., 44 Wall St., New York, N.Y. / encoding keyboards / DESCR: allows the input of digital information by manual insertion; electro-mechanical and electrical models; various code output / - / $1.50 to $8 per key / K1
Wang Labs, Inc. -- see C20, C36, D6

## L1. LIGHTS, INDICATOR

AMP Inc., Eisenhower Blvd., Harrisburg, Pa. 17105 / AMPILLUME indicator lights / DESCR: neon and incandescent indicator lights / USE: panel, pilot, indicator lights / - / L1
Drake Mfg. Co., 4626 N. Olcott, Harwood, Ill. 60656 / indicator lights, lampholders and accessories / DESCR: miniature lighting specialists -- indicator, instrument, read-out lights, lenses and lampholders / USE: commercial; military equipment / 20¢ to $4.50 / L1
Engineered Electronics Co., 1441 E. Chestnut St., Santa Ana, Calif. 92702 / transistorized indicators / DESCR: sensitive device to provide an off-on indication where power is too small for direct operation of neon or incandescent lamps / USE: indicate state of a flip flop, storage, element, etc. / $5 to $18 / L1
General Electric Co., Electronic Components Sales Operation

## M1. MAGNETIC INK IMPRINTING

Transkrit Corp., 704 Broadway, N.Y. 10003 / "Transkoding" / DESCR: magnetic ink printing of checks and other documents. Also consecutive MICR numbering including Modulus-9 system / - / available through business forms dealers or printers exclusively / M1

## M2. MEMORY SYSTEMS

Ampex Corp., Computer Products Div., 9937 W. Jefferson Blvd., Culver City, Calif. 90230 / INCA core memory stack / DESCR: one array functions as stack in itself; each double-sided array provides to 8 bits in word sizes 128 through 1024, or to 18 bits in word sizes 2048 and 4096 / USE: memory systems / 3½ to 4 cents per bit for 4096-word stack / M2
Ampex Corp., Computer Products Div., *a / Rf-1, RF-2, RF-3 family of coincident current core memories / DESCR: capacities: from 512 to 16,834 words by 4 to 72 bits; expandable by modules, individually and from one Model RF to next larger RF; 600 nsec word access time / USE: general storage, buffer, off-line or main-frame applications with small to medium-large computers / $2600 to $42,000 / M2
Ampex Corp., Computer Products Div., *a / RS coincident current, large capacity memory / 1 usec cycle time. Capacities: 4096, 8192, 12,228 and 16,384 words by 8 to 56 bits / USE: large capacity computers / - / M2
Ampex Corp., Computer Products Div., *a / RZ coincident current, large capacity memory / DESCR: 1.8 usec cycle time. Capacities: 4096, 8192, 12,228, 16,384 words by 8 to 56 bits / USE: large capacity computer / - / M2
Ampex Corp., Computer Products Div. -- see T2
Anelex Corp., Anelex Bldg., 150 Causeway St., Boston, Mass. 02114 / disk files / DESCR: Series 80 and 81 provide unlimited capacity, fast access time through interchangeable six-disk disk kits, each has capacity of 60 million (81) or 24 million (80) bits / USE: medium and small scale date processing systems / - / M2
Bryant Computer Products, Div. of Ex-Cell-O Corp. -- see S4
Control Data Corp., 8100 34th Ave. So., Minneapolis, Minn. 55440 / memory systems / DESCR: complete line of computer-controlled electronic memory devices and systems / - / - / M2
Data Products Corp. -- see D8
DI/AN Controls, Inc., 944 Dorchester Ave., Boston, Mass. 02125 / magnetic core memories / DESCR: aerospace memories, memory core planes, buffer storage units of coincident current random access or sequential access organization, panel or rack mounted modular memory series / USE: computer and data acquisition oriented storage and buffering / $500 to $100,000 / M2
Digital Development Corp., 5575 Kearny Villa Rd., San Diego, Calif. 92123 / memory systems / DESCR: up to 13 commands; 8.5 ms average access; 6 modular capacities; 7.5 to 250 million bits per unit. Up to 8 disc units per system; simultaneous multiple access I/O channels / - / $15,000 to $2,000,000 / M2

INPUT AND OUTPUT

| NAME OF COMPUTER | MAGNETIC TAPE | | | | PUNCHED CARDS | PAPER TAPE | PRINTER SPEED |
|---|---|---|---|---|---|---|---|
| | No. of Units | Tape Density Char/Inch | Tape Speed Char/Sec | Words/Tape | Cards/Min | Char/Sec | Lines/Min |
| Univac 1107 | 192 | 1000<br>250<br>125 | 120K | 5.5KK<br>1.2KK | 700R<br>300P | 400R<br>100P<br>300P | 700<br>600 |
| | — Programmed editing, automatic checking. Complete simultaneous read-write-compute. System adapted to analog devices. | | | | | | |
| Univac File Computer I | 10 | 139 | 10K | 200K | 150R<br>150P | 200R<br>60P | 600 |
| | — Plugboard control for cards, paper tape and printer. Tape is read in both directions and is checked by re-read. Sorting-collating device, typewriter, Randex Mass Storage are available. Multiple read-write-compute. | | | | | | |
| Univac File Computer II | — See Univac File Computer I | | | | | | |
| Univac Larc | 40 | 250<br>125 | 25K<br>12.5K | 600K<br>300K | | 10R<br>10P | 600 |
| | — Input/output control is done by Processor, completely independent of computation. Almost any in/out device can be added to the system. | | | | | | |
| Univac SS 80/90 | 10 | 250 | 25K | 570K | 600R<br>150P | | 600 |
| | — Programmed editing and checking for card and print. Complete tape checks. Read-write-compute. Tape read and write cannot be overlapped. Randex Mass Memory and card punching printer available. | | | | | | |
| Univac SS 80/90 II | 10 | | | | 600R<br>150P | 500R<br>100P | 600 |
| | — Magnetic tape specifications same as for SS 80/90 Model I. Various simultaneous processes. | | | | | | |

III. COST AND USE

| NAME OF COMPUTER | Average Monthly Rental | Monthly Rental Range | One-Sum Price Range | Power | Floor Space — Sq. Ft. | Air Cond. — Tons |
|---|---|---|---|---|---|---|
| ALWAC III-E | $2,400 | $1,820-$3,600 | $50,000-$80,000 | 7.4KW | 35(computer) | 85°F |
| | — Scientific, real-time, business. Computer is modular and extra units are easily added. | | | | | |
| ASI-210 | $2,600 | $2,135-$6,000 | $70,000-$200,000 | 1.75KW | 50 | N |
| | — Scientific, and real-time. FORTRAN I and II available; diagnostic program. Assembler. | | | | | |
| ASI 420 | $12,500 | $8,500-$33,500 | $400,000-$450,000 | | | N |
| | — Scientific, business, and real-time. FORTRAN, Intercom Translator available. Data channel "traps" may be set to ignore or recognize an interrupt. | | | | | |
| ASI-2100 | $3,000 | $2,530-$6,000 | $75,000-$200,000 | 1.56KW | 14 | N |
| | — Scientific, real-time; Assembler (ASIST), FORTRAN II available; built on modular basis. | | | | | |
| ASI 6020 | $2,500 | $2,150-$4,000 | $73,500 | 110/120Kc | 50 | N |
| ASI 6040 | $3,000 | $2,420-$4,000 | $89,500 | 110/120Kc | 50 | N |
| BR-133 | | | | 1.5KW | | N |
| | — No extensive installation site preparation. | | | | | |
| BR-335 | $2,000 | $1,000-$6,000 | $35,000-$200,000 | 3KVA | 15 | |
| | — Real-time, industrial process control. PROCOMP, includes FORTRAN II and process control statements. | | | | | |
| BR-340 | $6,000 | | $200,000-$400,000 | 2000 | 48 | |
| | — Real-time, industrial process control. PROCOMP includes FORTRAN II and process control statements. | | | | | |
| Burroughs E-103 | $1,000 | $875-$1,200 | $20,000-$30,000 | 220V | desk size | |
| | — Scientific and business use, desk size. | | | | | |
| Burroughs 205 | $8,000<br>$5,760(3yr.) | $2,400-$10,000 | $48,000-$150,000 | 38KVA | 1600 | 12 |
| | — Scientific and business. Datacode compiler, STAR-0 assembly, ALGOL compiler, 604 simulator programs available. Peripheral equipment can be added on a modular basis. | | | | | |
| Burroughs 220 | $17,000 | $5,500-$20,000 | $250,000-$1,000,000 | 45KVA | 1600 | 12 |
| | — Scientific, business. STAR 2B, assembly; ALGOL compiler. Computer built on a modular basis, extra memory and peripheral units easily added. | | | | | |
| Burroughs 200 Series | | $3,300-$9,000 | $140,000-$375,000 | | 300-500 | |
| | — Business. Assembly system, report generator, sort generator available. Multiprocessing software package. | | | | | |
| Burroughs 5000 | $16,850 | $13,000-$50,000 | $533,000-$2,000,000 | 29KVA | 625 | 6 |
| | — Scientific and business. Completely modular in memory, input/output channels and peripheral equipment. ALGOL and COBOL compilers. Built-in operating systems. Simultaneous and multi-processing. Two central processors possible. | | | | | |

COST AND USE

| NAME OF COMPUTER | Average Monthly Rental | Monthly Rental Range | One-Sum Price Range | Power | Floor Space — Sq. Ft. | Air Cond. — Tons |
|---|---|---|---|---|---|---|
| CAE 510 | $3,000 | $2,000-$10,000 | $83,000-$400,000 | 3KVA | 30 | N |
| | — Scientific, real-time. | | | | | |
| CDC G-15 | $1,530 | $1,485 and up | $49,500 and up | 3.8KVA | 100 | N |
| | — Scientific and business. Intercom 500 and 1000, ALGOL compilers. Modular construction. Two computers can be joined. | | | | | |
| CDC G-20 | $15,500 | $8,750 and up | $390,000 and up | 20KVA | 600 | 6 |
| | — Scientific, real-time, business. SPAR, PAR, SNAP assemblies; ALCOM and COBOL compilers. Modular construction permits extra units to be added easily. | | | | | |
| CDC-160 | $2,500 | $1,500 and up | $60,000 and up | .7KW | 12 | Y |
| | — Scientific and business. Power requirements are for the computer only. Desk size. FORTRAN, OSAS (assembler). | | | | | |
| CDC-160A | $4,500 | $2,250 and up | $90,000 and up | 115V | 12 | Y |
| | — Scientific, real-time, business. Space stated for computer only. FORTRAN, AUTOCOMM (commercial compiler), OSAS, SICOM. | | | | | |
| CDC-160G | $12,800 | $4,182 and up | $175,000 and up | 115VAC | 200 | Y |
| CDC-924 | $11,000 | $8,000 and up | $180,000 and up | 3.8KW | 400 | 13 |
| | — Scientific, real-time. CAP (assembler). | | | | | |
| CDC-924A | $12,000 | $9,000 and up | $220,000 and up | | | |
| | — Same as 924. | | | | | |
| CDC-1604 | $47,000 | $22,500 and up | $750,000 and up | 7.5KW | 600 | 25 |
| | — Scientific, real-time, business. Power and floor space requirements refer to computer and console only. Real time clock. CODAP, FORTRAN, COBOL, JOVIAL available. | | | | | |
| CDC-1604A | $48,000 | $24,000 and up | $790,000 and up | | 200 | |
| | — Same as 1604. | | | | | |
| CDC-3100 | $3,500 | $2,700-$6,500 | $95,000-$263,500 | 440VAC | 200 | 2 |
| CDC-3200 | $12,000 | $8,000 and up | $280,000 and up | 8KVA | 200 | 2 |
| | — Scientific, real-time, business. SCOPE, (MONITOR), COBOL, FORTRAN, COMPASS (Assembly). Power and space requirements refer to computer and console only. | | | | | |
| CDC-3400 | $12,000 | $9,200-$14,000 | $394,000-$611,000 | 4.4KVA | 250 | 2.5 |
| | — Scientific, real-time, business. SCOPE, COMPASS, FORTRAN, COBOL, SORT. Power and space requirements refer to computer and console only. | | | | | |
| CDC-3600 | $40,000 | $28,000-$111,000 | $1,737,000-$6,600,000 | 7.1KVA | 1000 | 6 |
| | — Scientific, real-time, business. FORTRAN, COMPASS (assembler), SCOPE (MONITOR), COBOL, SORT. Typewriter included in main console; real-time clock. | | | | | |
| CDC-3800 | $60,000 | $32,000-$160,000 | $1,536,000-$7,500,000 | 8KVA | 1500 | 40,000BTU |
| CDC-6400 | $35,000 | $25,000-$50,000 | $1,250,000-$2,750,000 | 208V | 40,000 - 70,000 | 8-12 |
| CDC-6600 | $75,000 | $60,000-$110,000 | $3,500,000-$7,000,000 | 25KVA | 40,000 - 70,000 | 8-12 |
| | — Scientific, real-time, business. Air Con. on peripheral equipment only. Heat exchanger for cent. proc. unit. Assembler, FORTRAN operating system. Peripheral equipment and core storage. | | | | | |
| CDC-6800 | $80,000 | $60,000-$160,000 | $2,500,000-$7,000,000 | 208V | 40,000 - 70,000 | 8-12 |
| CDC-8090 | | | $29,000 and up | | | N |
| | — Scientific, real-time, not real-time, business. Industrial Control Processor, OSASA, FORTRAN, Inserfo, CEPS, Utility Routines. Small basic control computer expandable to medium-size general purpose computer. Compatibility between 160A programs. Field proven softwares. | | | | | |
| CDC-8092 | $1,300 | $725 and up | $20,000 and up | 850W | 10 | |
| | — Used principally as a data communication. Room temp. not to exceed 100°F. TOSAS. Highly flexible, multi-purpose, stored program data processor and converter. Word construction is 8 binary digits, parallel throughout, programmable to multiple-precision and to alphanumeric and binary-coded decimal. | | | | | |
| DATAmatic 1000 | $42,000 | $38,700-$78,000 | $1,100,000-$4,300,000 | | | |
| DDP-24 | $2,500 | $2,500-$17,500 | $79,000-$700,000 | 115V | 100 | |
| | — Scientific, real-time, data reduction, time-shared applications. Easily expanded. DIP, DAP, DEP, and FORTRAN II. | | | | | |
| DDP-224 | $6,800 | $3,050-$15,000 | $95,000-$1,000,000 | 2-30KVA | 100-300 | N |
| | — Real-time, digital simulation, hybrid simulation, command and control. DAP II, DEP II, FORTRAN (REAL TIME), MONITOR, Subroutine library, Diagnostics. Modular, processors, memories, I/O facilities, system modules for multiprocessor systems, satellite I/O units, modular packaging. Modularity to meet system requirements for multiprocessor speed, large or small memory complexes and I/O facility, featuring ease of use; programming, maintenance. | | | | | |
| DE-60 | $625 | $525-$725 | $20,000 and up | 115V | 8.4 | N |
| | — Scientific, process control. Desk size, 30" x 36". Hardware allows algebraic statements. Modular construction allows extra units to be added easily. One day programmer training. | | | | | |

| COST AND USE | | | | | | |
|---|---|---|---|---|---|---|
| NAME OF COMPUTER | Average Monthly Rental | Monthly Rental Range | One-Sum Price Range | Power | Floor Space — Sq. Ft. | Air Cond. — Tons |
| Friden 6010 | $750 | $600-$900 | $19,750-$29,750 | 115VAC | | N |
| GE-115 | $1,375 | | $66,000 | | | |
| | — Assembly program and TAB (conversion from punched card systems). | | | | | |
| GE-205 | $2,900 | | $140,000 | 10KVA | 550 | 3 |
| | — Program and peripheral-compatible with GE-215, 225 and 235. Available in program library: Assembly, GECOM compiler, COBOL-61 WIZ scientific compiler, FORTRAN II and IV, Report Generator, Card Program Generator, Critical Path Method and others. | | | | | |
| GE-210 | $14,000 | | $700,000 | 10KVA | 1200 | 3 |
| | — One pass compiler, report generator. | | | | | |
| GE-215 | $6,000 | | $290,000 | 17KVA | 700 | 5 |
| | — Program and peripheral-compatible with GE-205, 225 and 235. | | | | | |
| GE-225 | $8,000 | | $390,000 | 35KVA | 1100 | 12 |
| | — Program and peripheral-compatible with GE-205, 215 and 235. | | | | | |
| GE-235 | $10,900 | | $520,000 | 35KVA | 1100 | 12 |
| | — Program and peripheral-compatible with GE-205, 215 and 225. | | | | | |
| GE-415 | $7,300 | | $350,000 | 10KVA | 500 | 3 |
| | — Program and peripheral-compatible with GE-425 and 435. Available in program library: Macro-Assembly Program, GE-400 COBOL, GE-400 FORTRAN, Report Program Generator, Sort/Merge Generator, GE-400 Operating System, I/O System, Simultaneous Media Conversion, service routines and others. | | | | | |
| GE-425 | $9,600 | | $460,000 | 10KVA | 600 | 3 |
| | — Program and peripheral-compatible with GE-415 and 435. | | | | | |
| GE-435 | $14,000 | | $670,000 | 12KVA | 700 | 4 |
| | — Program and peripheral-compatible with GE-415 and 425. | | | | | |
| GE-625 | $41,000 | | $1,850,000 | 45KVA | 1500 | 15 |
| | — Program and peripheral-compatible with GE-635. Operates normally in multiprogramming mode. GECOS Executive Routine, Macro Assembly Program, FORTRAN IV, FORTRAN II to FORTRAN IV SIFT, COBOL-61 extended, with report writer and sort, application packages, utility and service routines, and others. | | | | | |
| GE-635 | $45,000 | | $2,000,000 | 45KVA | 1500 | 15 |
| | — Program and peripheral-compatible with GE-625. Operates normally in multiprogramming mode. | | | | | |
| General Precision LGP-21 | $750 | $695+ | $16,500-$25,000 | 110V | desk | N |
| | — Scientific, business, engineering education applications. | | | | | |
| General Precision LGP-30 | $1,300 | $1,100 | $24,000-$30,000 | 110V | desk | N |
| | — Business, engineering education, and scientific. Desk size. | | | | | |
| General Precision LGP-2010 | | | $248,000/basic unit | 750W | 2 cu. ft. | N |
| | — I/O units easily added; real-time, general purpose. | | | | | |
| General Precision L-3000 | $50,000 | $25,000 and up | $1,000,000 and up | 25KW | 1200 | |
| | — Scientific, real-time, business, command and control operation, management information system. Assembly and compiler programs: ATCOM, BUS, COBOL (1963), LAP 3055. | | | | | |
| General Precision RPC-4000 | $2,100 | $1,865+ | $47,000-$55,000 | 110V | desk | N |
| | — Business, education, scientific. ROAR assembler, COMPACT compiler, ACT IV compiler. | | | | | |
| H-120 | $2,600 | $1,710-$4,000 | $77,000-$180,000 | | | |
| | — Real-time, business. Easycoder assembly. FORTRAN IV and COBOL. Modular construction. | | | | | |
| H-200 | $3,800 | $2550-$12,000 | $115,000-$550,000 | | | |
| | — Same as 120. | | | | | |
| H-330 | $53,000 | $45,000-$75,000 | $1,500,000-$2,000,000 | | | |
| | — Scientific, business and real-time applications. FORTRAN IV compiler available. | | | | | |
| H-400 | $8,500 | $6,000-$14,000 | $270,000-$630,000 | 15KVA | 600 | 5 |
| | — EASY Assembly. | | | | | |
| H-800 | $22,000 | $19,000-$39,000 | $850,000-$1,500,000 | 30KVA | 1400 | 7 |
| | — Argus Assembly; Algebraic and Data Proc Fact compiler. | | | | | |
| H-1200 | $4,700 | $3,400-$18,000 | $153,000-$810,000 | | | |
| | — Scientific, real-time, business. Easycoder assembly. FORTRAN IV and COBOL. Modular construction. | | | | | |
| H-1400 | $14,000 | $10,000-$22,000 | $450,000-$990,000 | | | |
| | — Scientific, business and real-time applications. COBOL '61 and AUTOMATH programming systems available. | | | | | |
| H-1800 | $35,000 | $27,000-$60,000 | $1,200,000-$2,700,000 | | | |
| | — Business compilers: FACT, COBOL '61 (163). Algebraic compilers: AUTOMATH 800, AUTOMATH 1800 (163). | | | | | |
| H-2200 | $8,000 | $6,000-$23,000 | $270,000-$1,100,000 | | | |
| | — Same as 1200. | | | | | |

| NAME OF COMPUTER | COST AND USE | | | | | |
|---|---|---|---|---|---|---|
| | Average Monthly Rental | Monthly Rental Range | One-Sum Price Range | Power | Floor Space — Sq. Ft. | Air Cond. — Tons |
| H-4200 | $17,000 | $15,000-$30,000 | $675,000-$1,300,000 | | | |
| | — Same as 1200. | | | | | |
| HW-15K | $475 | $355-$600 | $19,750-$24,000 | 110V | 20 | N |
| | — Scientific, real-time, business, process control applications. | | | | | |
| IBM Ramac 305 | $3,600 | $2,875 and up | $167,850 and up | 12.6KVA | 370 | 4 |
| | — Business. Extra units easily added; computer built on a modular basis. 305 assembly program. Prices exclude tax. | | | | | |
| IBM System/360 | | $2,700-$115,000 | $133,500-$5,500,000 | 72KVA* 8.3KVA** | 1.7* 15** | |
| | — *Small tape-card system; **large 2 channel, tape, disk and extra memory. Scientific, real-time, not-real-time, business, process control. Autocoder, COBOL, FORTRAN, New Programming language. | | | | | |
| IBM 650 | $6,000 | $3,750-$21,500 | $182,400-$1,100,000 | 18KVA | 150 | 5 |
| | — Scientific, business. SOAP assembly. Extra units easily added. Prices exclusive of tax. | | | | | |
| IBM 704 | $35,000 | | $400,000 and up | 110KVA | 2200 | 45 |
| | — Scientific, real-time, business. Computer built on a modular basis; extra units easily added. UASAP and FORTRAN compilers. Prices exclude tax. | | | | | |
| IBM 705 III | $42,000 | $28,000-$50,000 | $1,400,000-$2,500,000 | 85KVA | 1500-2000 | 15-20 |
| | — Business and limited scientific. COBOL, PRINT, Autocoder III compilers. Modular construction; extra units easily added. Prices exclude tax. | | | | | |
| IBM 709 | $55,200 | | $2,630,000 and up | 150KVA | 3000 | 50 |
| | — Scientific, real-time, business. Compilers: IBM SOS, SHARE, FAP, FORTRAN. Modular construction; extra units easily added. Prices exclude tax. | | | | | |
| IBM 1401 | $6,500 | $1,900 and up | $125,150 and up | 7-16KVA | 450 | 3.5 |
| | — Scientific, business. SYMBOLIC, Autocoder assemblies; FORTRAN compiler. 7KVA without tape units. Prices exclusive of tax. Extra units easily added. | | | | | |
| IBM 1410 | $11,000 | $5,365 and up | $244,550 and up | 29KVA | 500 | 5 |
| | — Scientific, real-time, business. Basic Autocoder assembly; FORTRAN compiler. Extra units are easily added. Prices exclude tax. | | | | | |
| IBM 1440 | $2,800 | $1,540-$5,500 | $90,000 and up | 208,230V | 1441 | |
| | — Business. Autocoder, IOCS, File Organization, Utilities, Sort, RPG. Extra units provide upward growth to 1401, 1460, and 1410. Random access, low cost, processing system. | | | | | |
| IBM 1460 | $9,000 | $4,835 and up | $236,000 and up | 7-16KV | 450 | 3.5 |
| | — Symbolic, Autocoder assemblies, FORTRAN compiler. Built on modular basis with extra units easily added. | | | | | |
| IBM 1620 | $1,600 | $1,600-$5,000 | $74,500-$200,000 | 15A,230V | 22 | N |
| | — Scientific, real-time. FORTRAN, GOTRAN compilers. Symbolic Assembly Program. Floor space refers to computer area only. Extra units easily added. Prices exclude tax. | | | | | |
| IBM 1620 MODEL II | — Same as Model I. | | | | | |
| IBM 7010 | $20,000 | $18,000-$35,000 | $945,900 | 208V 230V | 500 | 20K |
| | — Scientific, real-time, business. Autocoder, COBOL, FORTRAN. Built on module basis with extra units easily added. | | | | | |
| IBM 7030 (STRETCH) | $160,000 | | $5,000,000-$7,000,000 | | | |
| IBM 7040 | $11,850 | | $625,600 | 13.9KVA | 1220 | 2.5 |
| | — Scientific, real-time, business. Assembly and compiler programs: FORTRAN, COBOL, 7090 simulator. | | | | | |
| IBM 7044 | $21,850 | | $1,400,000 | 19KVA | 1220 | 4 |
| | — Scientific, real-time, business. Assembly and compiler programs: FORTRAN, COBOL, 7090 simulator. | | | | | |
| IBM 7070 | $24,000 | | $1,077,400 | 45KVA | 1200 | 6 |
| | — Scientific and business. 7070 Basic AUTOCODER, AUTOCODER, Four-Tape AUTOCODER, Basic FORTRAN, IOCS compilers. Extra units easily added; computer built on modular basis. Program compatability with 7072, 7074. Prices exclude tax. | | | | | |
| IBM 7072 | $19,825 | | $860,550 | 45KVA | 1200 | 6 |
| | — Scientific, FORTRAN, Autocoder compilers. Program compatability with 7070, 7074. Extra units are easily added; computer is built on a modular basis. Prices exclude tax. | | | | | |
| IBM 7074 | $29,300 | | $1,284,350 | 45KVA | 1200 | 6 |
| | — Scientific, IOCS, FORTRAN, AUTOCODER compilers. Computer built on a modular basis; extra units easily added. Prices exclude tax. Program compatability with 7070, 7072. | | | | | |
| IBM 7080 | $55,000 | $45,000-$70,000 | $2,100,000-$3,200,000 | 50KVA | 1000-2000 | 7.5-10 |
| | — Business and limited scientific. AUTOCODER III, FORTRAN compilers. Modular construction; extra units easily added. Prices exclusive of tax and off-line 1401. | | | | | |

COST AND USE

| NAME OF COMPUTER | Average Monthly Rental | Monthly Rental Range | One-Sum Price Range | Power | Floor Space — Sq. Ft. | Air Cond. — Tons |
|---|---|---|---|---|---|---|
| IBM 7090 | $64,000 | | $2,898,000 | 35KVA | 1400 | 25 |
| | — Scientific, real-time, business, assembly and compiler programs: IBM SOS, SHARE, FORTRAN, FAP, and Commercial Translator. Prices exclude tax. | | | | | |
| IBM 7094 II | $76,000 | | $3,225,000 | 36KVA | 1400 | 25 |
| | — Scientific, real-time, business. Assembly and compiler programs: FORTRAN, COBOL, I/O, control system, Package, SORT, Simulators, Utility. 704/709/7090 compatibility. | | | | | |
| Monrobot XI | $700 | | $24,500 | 850W | 2 desks | N |
| | — Business and scientific. Uses wall outlet. 375 lbs., 48" x 22" x 28". | | | | | |
| NCR 304 | $14,760 | $12,500-$19,000 | $750,000-$1,140,000 | 53KVA | 1200 | 30 |
| | — Scientific, business. Extra units are easily added. NEAT compiler. COBOL compiler. | | | | | |
| NCR 310 | $2,450 | $2,450-$2,880 | $66,500-$120,200 | 310-750W | 525 | N |
| | — Scientific, business. Control sorting of MICR documents. 6' x 30" computer area, with extra 3' front and back clearance. OSAP assembly. Extra units are easily added. | | | | | |
| NCR 315 | $6,775 | $3,945-$30,000 | $203,750-$1,440,000 | 17KVA | 500 | 10 |
| | — Scientific, real-time, business. Modular construction permits extra units to be easily added. NEAT and COBOL compilers. Assembler, FORTRAN II, Flexible Algebraic Translator, FORTRAN IV. | | | | | |
| NCR 315 RMC | $12,000 | $5,000-$50,000 | $400,000-$2,000,000 | 17KVA | 500 | 10 |
| | — Elementary assembler. COBOL, FORTRAN II and IV. Modular construction, units easily added. | | | | | |
| NCR 390 | $1,270 | $995-$1,860 | $49,500-$79,000 | 230V | 247 | N |
| | — Business, engineering. | | | | | |
| NCR 500 | $1,435 | $765-$2,525 | $31,995-$116,445 | 230V | 450 | |
| | — Modular construction. | | | | | |
| PDP-1 | | | $120,000-$350,000 | 115V | 17 | N |
| | — Scientific, real-time. Floor space refers to computer and console only. Modular construction, and units easily added. DECAL algebraic assembler and compiler. | | | | | |
| PDP-4 | | | $56,000-$150,000 | 115V | 20 | N |
| | — Scientific, real-time. Modular construction, and units easily added. Symbolic Assembly Program, FORTRAN II. | | | | | |
| PDP-5 | | | $24,000-$80,000 | 115V | 10 | N |
| | — Scientific, real-time. Symbolic assembler and FORTRAN II available. | | | | | |
| PDP-6 | | purchase only | $240,000-$2,000,000 | 8-20KW | 1000 | N |
| | — Two special busses permit ease of expansion for I/O and memory. Built in time-sharing. Asynchronous operation permits large memories of different speeds. Directly addressable $2^{18}$ words of memory. Ultra-Fast memory, 15 index registers, 16 accumulators. | | | | | |
| PDP-7 | $1,300 | | $45,000-$200,000 | 2.1KW | 29 | N |
| | — Scientific, real-time, business. FORTRAN incorporated for S-coding, mixing symbolic and FORTRAN statements. | | | | | |
| PDP-8 | $525 | | $18,000-$75,000 | 7.5 amp @ 110VAC | 7 | N |
| | — Scientific, real-time, process control, monitoring. Modular construction, most units added on plug-in basis. Macro-type assembler with assoc. on-line debugging. | | | | | |
| Philco 1000 | $7,000 | $6,000-$15,000 | $250,000-$750,000 | 10KW | 400 | 4-6 |
| | — Scientific, real-time, business. Since built on modular basis, extra units easily added. OPAL program, utility routines, SORT, conversion programs, XMAS. | | | | | |
| Philco 2000-210 | $30,000 | $20,000-$50,000 | $1,000,000-$2,000,000 | 24KVA | 800 | 10-12 |
| | — Scientific, business, real-time. Computer is built on a modular basis and extra units are easily added. TAC, ALTAC, FORTRAN IV, COBOL, TOPS compilers. | | | | | |
| Philco 2000-211 | $35,000 | $25,000-$55,000 | $1,500,000-$2,900,000 | 24KVA | 1300 | 10-12 |
| | — Scientific, business, real-time. Computer built on a modular basis and extra units are easily added. TAC, ALTAC, FORTRAN IV, COBOL, TOPS compilers. | | | | | |
| Philco 2000-212 | $55,000 | $35,000-$100,000 | $1,800,000-$3,500,000 | 40KW | 1300 | 10-12 |
| | — Scientific, real-time, business. Extra units are easily added. TAC, ALTAC, FORTRAN IV, COBOL, TOPS compilers. | | | | | |
| Philco 213 | $78,000 | $55,000-$180,000 | $3,000,000-$6,000,000 | 50KW | 1800 | 12-14 |
| | — Scientific, real-time, business. Built on modular basis with extra units easily added. Multi-processing system, 240 KC tapes, fast drums and discs. FORTRAN IV, COBOL, etc. | | | | | |
| RCA 301 | $7,000 | $4,000-$19,000 | $203,000-$0,600,000 | 2.6KVA | 400 | 4 |
| | — Business, scientific. Assembly program, COBOL compiler, FORTRAN, File control processor. | | | | | |
| RCA 501 | $17,000 | $13,700-$29,900 | $611,400-$3,018,300 | 30KVA | 1200 | 8 |
| | — Business. Assembly and compiler programs. COBOL monitor. | | | | | |
| RCA 601 | $32,000 | $24,000-$68,000 | $1,750,000 | 55KVA | 900 | 12 |
| | — Assembly program. File control processor, Executive system, Generalized sort and merge. | | | | | |

COST AND USE

| NAME OF COMPUTER | Average Monthly Rental | Monthly Rental Range | One-Sum Price Range | Power | Floor Space — Sq. Ft. | Air Cond. — Tons |
|---|---|---|---|---|---|---|
| RCA 3301 | $14,000 | $10,500 | $536,000 | 23.2KVA | 900 | 5.3 |
| | — Assembly, COBOL, FORTRAN IV, Executive Control system Sort/Merge, Report Program Generator available. Hardware and functional modularity. Units easily added. | | | | | |
| RCA Spectra 70/15 | $5,000 | $2,600 and up | $135,000 | | | |
| | — Assembly system and IOCS. Modular construction. | | | | | |
| RCA Spectra 70/25 | $8,000 | $5,600 and up | $272,000 | | | |
| | — Assembly system. File control processor. Report program generator. Modular construction. | | | | | |
| RCA Spectra 70/45 | $13,000 | $8,000 and up | $394,000 | | | |
| | — Basic assembly, extended assembly system. COBOL, FORTRAN, Report Program Generator. Modular construction. | | | | | |
| RCA Spectra 70/55 | $20,000 | $13,900 and up | $749,000 | | | |
| | — Basic Assembly, extended assembly systems. COBOL, FORTRAN, Report Program Generator. Modular construction. | | | | | |
| Raytheon 250 | | $1,200-$1,350 | $23,500+ | 115V | 4 | N |
| | — Scientific, engineering. Floor space refers to computer and console only. Modular construction permits extra units to be added easily. SNAP assembly program, NELIAC compiler, FORTRAN II. | | | | | |
| Raytheon 520 | | $2460+ | $94,000+ | 110V | 24 | N |
| | — Scientific, real-time. Advanced Fortran I and II, assembler, monitor 1620 simulator. | | | | | |
| SDS-910 | $1,790 | | $53,000-$83,000 | .7KW | 10 | N |
| | — Scientific, real-time. Assembler and FORTRAN II for either computer. ALGOL, Monarch Monitor Routine. | | | | | |
| SDS-920 | $2,690 | | $53,000-$83,000 | .9KW | 10 | N |
| | — Same as SDS-910. | | | | | |
| SDS-930 | $4,000 | | $140,000 | 2.5KVA | 24 | N |
| | — Symbolic assembler, FORTRAN II, Monarch Monitor Routine. | | | | | |
| SDS-9300 | $7,000 | | $264,000 | 4KVA | 24 | N |
| | — Symbolic Assembler, FORTRAN IV, Monarch Monitor Routine. | | | | | |
| SEMA 2000 | $700 | $550-$1,150 | $22,500-$46,500 | 115V | 4 | N |
| | — Real-time, business. | | | | | |
| SEMAC | $1,350 | $1,200-$2,000 | $48,000-$75,000 | 115V | 16 | |
| | — Business. Built on modular basis with extra units easily added. | | | | | |
| Univac I | $25,000 | $20,000-$30,000 | | | | |
| | — Scientific, real-time, business. Assembly programs: FLOW-MATIC, MATH-MATIC, FLEXI-MATIC, XI. | | | | | |
| Univac II | $28,000 | $25,000-$30,000 | $1,250,000-$1,500,000 | 120KVA | 2000 | 30 |
| | — Scientific, business. FLOW-MATIC, MATH-MATIC, XI assembly programs. | | | | | |
| Univac III | $23,000 | $19,000-$75,000 | $925,000-$3,600,000 | 47KVA | 750 | 127,500BTU |
| | — SALT assembly system, FORTRAN IV, COBOL compiler. Scientific, not real-time, business. | | | | | |
| Univac 490 | $25,000 | $18,000 and up | $810,000 and up | 61KVA | 196 | 12 |
| | — Scientific, real-time, business. Extra units easily added. COBOL, SPURT compilers, FORTRAN in fall of 1964. Floor space requirements refer to computer area. | | | | | |
| Univac 60/120 | $1,350 | $740-$1,350 | $75,000-$97,500 | 9KV | 350 | |
| | — Scientific, business. Approx. 18 library routines available. Not built on modular basis, but minimum systems may be expanded by additional selection and program steps. Automatic verification. | | | | | |
| Univac 1004 | $1,400 | $1,150-$1,500 | $46,000-$66,000 | 3KV 220V | 190 | 8500BTU output |
| | — Scientific, business. Basic card processor cabinet includes card reader, printer and processor. High-speed I/O devices. | | | | | |
| Univac 1050 | $5,500 | $2,500-$15,000 | $100,800-$600,000 | 10KVA | 375 | 2000 cu. ft. min. air flow |
| | — Scientific, business, real-time. Memory capacity may be increased from 8K char. to 32K char. in increments of 4K char. The 1050 using IIIC tape units, is compatible with IBM 1410, 705, 7070, 7080, 7090 systems. PAL Assembly system COBOL and FORTRAN available. Modular and field expandable. | | | | | |
| Univac 1103A | $35,000 | $21,500-$45,000 | $922,000-$1,900,000 | 82KVA | 1800 | 20 |
| | — Scientific. Extra units easily added. USE UNICODE compilers. | | | | | |
| Univac 1105 | $43,000 | $33,060-$55,000 | $1,612,000-$2,700,000 | 175KVA | 3100 | 35 |
| | — Scientific, real-time, business. AIMACO and UNICODE and USE compilers. Extra units easily added. | | | | | |
| Univac 1107 | $50,000 | $40,000-$60,000 | $1,800,000-$2,700,000 | 93KVA | 1200 | 18 |
| | — Scientific, real-time, business. ALGOL, FORTRAN compilers. | | | | | |
| Univac File Computer I | $15,000 | $8,000-$21,000 | $384,000-$1,108,000 | 75KVA | 1400 | 60 |
| | — Scientific, real-time, business. FLAP assembly system. | | | | | |

COST AND USE

| NAME OF COMPUTER | Average Monthly Rental | Monthly Rental Range | One-Sum Price Range | Power | Floor Space — Sq. Ft. | Air Cond. — Tons |
|---|---|---|---|---|---|---|
| Univac File Computer II | — See Univac File Computer I. | | | | | |
| Univac Larc | $135,000 | $135,000 and up | $7,000,000 and up | 350KVA | 3000 | 90 |
| | — Scientific, business, real-time. Second computer unit can be added. SAL assembly. | | | | | |
| Univac SS 80/90 | $8,000 | | | 15KVA | 800 | 4 |
| | — Scientific and business. Extra units easily added. Assembly programs: COBOL, SOUP II, UNITRAN, PROGENY compilers. STEP is a modular version of the Solid State 80/90, for users not requiring a full system. | | | | | |
| Univac SS 80/90II | $8,500 | $6,970-$15,000 | $350,000-$750,000 | 20-38KV | 925 | 11 |
| | — Scientific, business. S-4 assembly system. Up to 20 tape units may be employed through use of a second synchronizer. | | | | | |

(Continued from page 49)

integral read punch / - / $2800 to $3400 / T17

V1. VISUAL OUTPUT DEVICES

Astrodata, Inc.
The Bunker-Ramo Corp., Defense Systems Div., 8433 Fallbrook Ave., Canoga Park, Calif. 91304 / BR-90 visual analysis console / DESCR: display console for man/machine interface; stored program control, combined electronic and photographic displays using rearported CRT / USE: graphical data analysis; data generation; computer control / quote on request / V1
The Bunker-Ramo Corp. -- see D1, C7
Burroughs Corp., Electronic Components Div., P. O. Box 1226, Plainfield, N. J. 07061 / NIXIE® numeric/alphanumeric indicator tube / DESCR: cold cathode tube which can display the numbers 0-9. Another version displays complete alphanumeric / USE: as a visual readout / $5 (in quantities of 1000) / V1
Control Data Corp., Data Display Div.
Digital Equipment Corp., 146 Main St., Maynard, Mass. 01754 / 338 cathode ray tube display system / DESCR: incorporates small, high speed, general purpose computer as buffer; 4096-word memory, display with light pen, subroutining, push-buttons / USE: satellite to larger computer system; off-line as self-contained, self-generating display / $55,000 and up / V1
Discon Corp. -- see C25, C26
Engineered Electronics Co. -- see L1
Ferranti-Packard Electric Ltd., Industry St., Toronto 15, Ontario, Canada / flip disc display / DESCR: magnetically flipped discs to produce alpha numerics in matrix form; requires no power to hold information visible in strong daylight / USE: stock exchange quote boards, airline arrival/departure displays / $20,000 to $500,000 / V1
General Precision, Inc., Kearfott Products Div. -- see C36
Industrial Electronic Engineers, Inc., 7720 Lemona Ave., Van Nuys, Calif. 91405 / rear-projection readouts and display devices / DESCR: designers and manufacturers of rear-projection systems, binary to decimal driver/decoders, and bina-view self-decoding readouts / USE: for visual display / V1
Information Displays, Inc., 102 E. Sandford Blvd., Mt. Vernon, N. Y. 10550 / computer controlled displays / DESCR: high speed presentation of symbols, lines and circles, includes 21" CRT, light pens, keyboards and hard copy devices / USE: as 1/0 computer device for man-machine interchanges / $5000 to $100,000 / V1
Janus Control Corp. -- see C36
Missouri Research Laboratories, Inc., 2109 Locust St., St. Louis, Mo. 63103 / Model 120/121 binary-to-decimal display / DESCR: converts parallel binary data and displays decimal equivalent. Single nine bit, dual nine bit and 17 bit units available; self-powered / USE: in conjunction with data acquisition systems / $1500 to $2600 / V1
Missouri Research Laboratories, Inc., *a / Model 123 decimal display computer / DESCR: converts up to 24 bit serial or parallel data of any weighted binary code and gray code; built in scaling; provides 8 visual decimal display, BCD, and binary electrical outputs / USE: with data acquisition systems / $7750 / V1
OPTOmechanisms Inc., 40 Skyline Drive, Plainview, N. Y. 11803 / visual display systems / DESCR: photographic type; high resolution; multi-color; screen size up to 16 x 20 ft; update time, less than 10 seconds / - / - / V1
Photomechanisms, Inc., 15 Stepar Place, Huntington Sta., N. Y. 11746 / DATACOPY / DESCR: generates high quality photographic hard copy directly from a CRT display; produces 5 pages/minute; 25 seconds access time / USE: to make permanent records of graphic or alpha numeric CRT displayed information / $4000 to $5000 / V1
Photomechanisms, Inc., *a / DATAFLO / DESCR: coupled processor-printer generating electrostatic hard copy from film exposed on-line with computer; page rate 30/minute; access time 10 minutes / - / $20,000 to $40,000 / V1
Photomechanisms, Inc., *a / DATASTAT / DESCR: generates electrostatic hard copy from CRT display using silver halide internegative; records 6 frames/second, produces 12 pages/min., 26 second access time / USE: to generate hard copy from graphic and alpha numeric CRT displays / $25,000 to $35,000 / V1
Photomechanisms, Inc., *a / DATASTAT II / DESCR: same as DATASTAT, except designed to fit in 24 inch rack / - / $25,000 to $35,000 / V1
Photomechanisms, Inc., *a / DATASTAT III / DESCR: generates electrostatic hard copy from CRT display using silver halide internative; records up to 30 frames/second; produces 24 pages/minute; access time is 35 seconds / - / $30,000 to $50,000 / V1
Photon, Inc. -- see D1
Straza Industries, 790 Greenfield Drive, El Cajon, Calif. 92021 / Mod. 52 line generator / DESCR: generates straight lines from end point coordinates; 10,000 lines/sec.; 4-line types, 2-line widths; constant velocity; .2% linearity, 1% end point accuracy / USE: with visual eisplay equipment / $7500 to $18,000 / V1
Straza Industries -- see D3
Technical Measurement Corp., Telemetrics Div., 2830 S. Fairview St., Santa Ana, Calif. 92704 / Model 650 display system / DESCR: bar-graph display holding 256 channels of changing information and displaying up to 128 channels / USE: high accuracy quick-look / $15,000 to $20,000 / V1
Westinghouse Electric Corp., Electronic & Specialty Products Group

- END -

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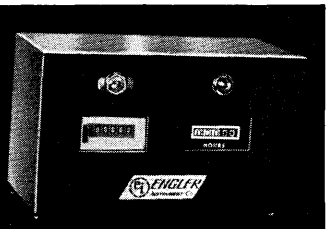


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# RANGES OF COMPUTER SPEEDS

# OF COMMERCIAL COMPUTERS

The following is a summary of the highest speed range and the lowest speed range of general-purpose computer systems (including peripheral equipment) currently being marketed commercially.

CURRENT COMPUTER SPEEDS — INTERNAL

| Type of Operation | Speed Unit | High Speed Range | Low Speed Range |
|---|---|---|---|
| Addition | Number per second | 6,000,000 | 100 |
| Multiplication | " | 2,000,000 | 5 |
| Average instruction execution | " | 6,000,000 | 100 |
| Access to fast memory | " | 13,300,000 | 27,000 |

CURRENT COMPUTER SPEEDS — EXTERNAL

| Type of Operation | Speed Unit | High Speed Range | Low Speed Range |
|---|---|---|---|
| Paper tape: a. Read in: | characters per second | 1,800 | 10 |
| b. Punch out: | " " " | 1,000 | 10 |
| Punch cards: a. Read in: | cards per minute | 2,500 | 10 |
| b. Punch out: | " " " | 800 | 10 |
| Line printer: | lines per minute | 1,600 | 80 |
| Magnetic tape: Read or write: | characters per second | 240,000 | 1,800 |
| Optical character reading: | " " " | 2,000 | 50 |
| Magnetic ink character reading: | " " " | 1,200 | 700 |

# Burroughs sets the pace for the computer industry

The new B 2500 and B 3500 are the latest Burroughs 500 Systems to be developed for business, scientific, and data communication tasks. In every measure of hardware and software performance, they far outpace other computer systems in the low- to medium-price range.

Two major factors are responsible for the exceptionally high performance-to-price ratio of the B 2500 and B 3500. The first is a design principle common to all Burroughs 500 Systems. In 1960, Burroughs Corporation determined that, in the future, computer performance would depend as much on software as on hardware. Events have proved this to be true. For this reason, *every* Burroughs 500 System has been *designed from the beginning* by *teams* of engineers and software experts.

Many economies result for the user. For example, the Master Control Program for the B 2500 and B 3500 not only performs many more useful functions than other automatic operating systems, but also reduces by a factor of 10 the amount of main memory that must be set aside for its exclusive use. Other gains are made in compiling times, programing ease, and speed and efficiency of operation. In short, the teamwork approach to computer design has allowed Burroughs to build a better bridge of communication between the B 2500 and B 3500 and their human users.

A second major factor is the use of monolithic integrated circuitry in construction of virtually all logic and the two control memories. The Burroughs B 2500 and B 3500 make use of complementary transistor logic, plus some use of array monolithics—two proven design concepts at the forefront of this newest logic technology. The results are smaller, faster, more reliable circuits at lower costs—and operating speeds measured in billionths of a second.

Like the other Burroughs 500 Systems—the larger B 5500 and the very large B 8500—the two newest systems can handle a variety of input/output activities simultaneously—as many as 20 at a time with the B 3500—while the processor continues its work. They multiprocess many unrelated jobs at one time, keeping the whole system fully utilized and greatly speeding the turn-around time for jobs. *And, since no human being could manage and schedule their multiple split-second operations, they are self-managing through their control programs.* All this, in the low- to medium-price range.

No wonder Burroughs is regarded as the pacesetter for the computer industry.

**Burroughs Corporation**

Detroit, Michigan 48232

Designate No. 20 on Readers Service Card

# OVER 1000 AREAS OF APPLICATION OF COMPUTERS

I. Business and Manufacturing in General

1. Office

Absenteeism reports
Accounts receivable; posting, rebilling
Advertising effectiveness: analysis, data handling
Attendance records, analysis, and evaluation
Billing and invoicing
Budgeting
Capital investment analysis
Catalog indexing
Charitable contributions
Consumer credit verification
Contract lists
Correspondence: personalized letters to delinquent accounts
Cost accounting and analysis
Data gathering from multiple locations
Depreciation calculations
Directory advertising calculations
Dispatching
Equipment registers
Expenses: analysis, prompt reports
File maintenance
Filing operations, single and multiple
Financial statements
Fixed assets accounting
Forecasting
General ledgers: operation
Hiring: analysis
Information retrieval
Insurance records and schedules
Inventory control
Labor cost determinations
Lease and rental accounting
Libraries: classification, records
Linear programming
Mailing list operations
Management games
Management reports using the exception principle and others
Management simulation
Management statistics analysis
Management strategy analysis
Manhour records and analysis
Market research: studies
Message switching
Operations research applications
Optical character recognition
Order acknowledgment
Order analysis
Order processing
Overhead cost allocation
Overtime reports
Payroll changes for general increases
Payroll computation and payment
Payroll: overtime reports
Pension reporting and updating
Personnel records
PERT charts: automatic drawing and up-dating
Performance evaluation
Plastic plates: emboss, code-punch
Price analysis
Property accounting
Production forecasting
Punched tape: automatic production and reading
Purchase order writing
Questionnaire analysis
Record retention and destruction studies
Repair and maintenance: records, scheduling, control
Rent analysis
Retirement fund: records, valuation
Royalty processing
Salary advances
Sales analysis
Sales area distribution
Sales forecasting
Sales quota calculations
Savings bond deductions
Scheduling for traveling salesmen
Seniority records
Simulation of inventory systems
Social Security records
Systems: analysis, synthesis, evaluation
Taxes, calculation
Transportation optimization
Turnover analysis
Vacation scheduling
Voucher distribution
Wage and salary analysis
Wage and salary tax computations
Warehousing and stocking: records, analysis
Work-in-process records

2. Plant and Production

Assembly line balancing
Cartons: automatic manufacture and packaging
Construction accounting
Construction job scheduling
Critical path scheduling
Delivery scheduling
Dispatching control
Equipment capabilities: inventory, analysis
Factory operation simulation
Fuel consumption: records, analysis
Industrial accidents: analysis
Inspection: planning, scheduling
Job standards: determination
Labor utilization: schedules, analysis
Lathe operations: automatic control
Machine loading schedules
Machine tools: numerical control
Machine tools: control for automatic reproduction of complete parts
Machine utilization analysis
Maintenance: records, analysis, scheduling
Manpower utilization: analysis, schedules
Materials and parts: requirements, allocations, scheduling, control
Operational planning
Optimum ordering: determination
Parts catalogs: construction, changes, control
Power used: reports, analysis
Procurement
Product grading
Production forecasts
Production information analysis
Production operations: determination of optimum order
Production scheduling
Quality control
Repairs: records, analysis, scheduling, control
Route accounting (Bakeries, Bottling plants, Dairies, etc.)
Routing cable and electrical wiring
Salvage records
Scrap reporting
Shipping control
Shop scheduling, optimum
Shrinkage calculations
Traffic control
Work standards: coding analysis

II. Business — Specific Fields

1. Advertising

Consumer audiences: analysis
Direct mail advertising addressing
Effectiveness analysis
Expenditures: analysis, comparison, projection

2. Banking

Account reconciliation
Accrual settlement
Bond ownership and redemption records
Check cashing credit: verification
Check certification
Check processing accounting
Check reconciliation
Christmas clubs
Clearinghouse: reports
Corporate trust accounting
Demand deposit accounting
Deposit processing
Factoring accounts: processing
Float analysis
Fund accounting
Installment loan accounting
Interest calculation
Inter-office records: transmission, filing, recall
Loan accounting, records, and analysis
Money orders
Mortgage loan accounting
Payroll accounting
Personal trust accounting
Proof accounting
Ready credit
Real estate loan accounting
Savings and loan postings
Savings Club deposit accounting
Signature verification
Stockholder records
Teller windows: on-line transactions
Transit check handling
Trust accounting
Vacation clubs
Withdrawal processing

3. Educational and Institutional

Administration: records, analysis, determination of trends
Alumni records: maintenance, analysis
Audio-visual instruction: scheduling
College board examinations: scoring, interpreting
College selection: aiding high-school students to select colleges
Computer-assisted instruction
Education: forecasting administration trends and budgeting
Educational test results: compilation
Elementary reading instruction
Honor rolls: compilation
Identifying "underachieving" bright students
Laboratory experiments: automatic control
Language teaching
Personality test analysis for counseling
Registration of students
Report cards: preparation, issuance
Revenue and expense accounting
Scheduling of courses, classes, sections, instructors, rooms
Student attendance: records, analysis, summaries
Student loan applications: screening, approval or disapproval
Student records: interpretation, processing
Supply accounting
Teacher credential issuance
Teacher standards evaluation
Teaching
Test grading
Training manuals: preparation, maintenance

4. Finance

Amortization
Annual statements
Bond evaluation
Clearing house reports
Commodity trading: customer confirmation
Dividend calculation
Equipment trust accounting
Funds: accounting, analysis
Investments: analysis, evaluation
Losses: distribution, reserves
Margin accounts: commodities, securities

Monthly customer statements
Portfolio evaluation
Securities called for redemption: reports
Security information: on-line inquiry and response
Security rating
Stock analysis
Stock market data transmission
Stock price index computed hourly, etc.
Stock tabulations
Stock transfers

5. Government

Accident records: analysis for safety programs
Air mail extracting
Appropriation accounting
Budgetary control
Census analysis
Draft: investigation, analysis
Drug control
Economy: simulation of sections
Election return analysis
Excise tax bill preparation
Fire statistics
Fiscal accounting
Foreign policy analysis
Hack licenses recording
Highway toll and service area revenues processing
Highways: maximum speed determination
Income tax accounting
Land use surveys
Mail: sorting, routing, determing volume
Motor vehicle excise tax billing
Motor vehicles: registration
New drug application processing
Parts cataloging
Political district reapportionment
Property right-of-way analysis
Property value analysis
Public Health:
  Radiation studies
  Air pollution: records, analysis
  Water purification studies
Radio station licenses: issuance
Rubbish disposal planning, route analysis
Sales tax records, analysis
Statistical analysis
Supplies: inventory and control
Traffic: control
Traffic density: pictorial simulation
Traffic flow computation
Traffic interchanges: designs of angles and grades
Traffic light maintenance control
Traffic signal regulation
Traffic simulation
Urban renewal planning
Vital statistics (births and deaths)
Water and sewer rates revenue
Workload and manpower fluctuations

6. Hospitals

Administration: control
Billing
Blood banks: inventory, usage, needs, control
Clinical observations: analysis
Clinical research information: storage, analysis
Diagnosis and treatment: providing information on-line
Health insurance: hospital admission approval
Inventory
Outpatient traffic schedules
Patient billing
Patient data: on-line gathering and processing
Patient menus: planning
Patient prescriptions: checking
Patient records: collation, analysis, summaries
Patient's condition during operation: recording and reporting
Physiological systems and conditions: quantitative study
Supplies: records, control

7. Insurance

Actuarial research
Agency accounting
Agents' commission calculations
Annual statement preparation
Asset share calculations
Automobile coding
Claims
Commutation column calculations
Cost allocation
Dividend formula analysis
Dividend scale calculations
Gross premium calculations
Group annuity calculations
Group insurance commissions
Loss distribution
Loss reserves computation
Mean reserve calculations
Mortality tables
Net premium calculations
New issues: summaries, analysis
Non-forfeiture value calculations
Policy issuance
Policy registers
Policy reserve calculations
Policy writing
Premium billing
Premium and loss distribution accounting
Renewal rating calculations
Reserve calculations
Stock dividends: calculations
Valuation calculations

8. Law

Laws: analysis, consistency studies
Lawyers: court assignment for indigents
Legal research
Magistrate courts: records
Patent searching
Pre-testing of proposed legislation
Property right-of-way: analysis, determination
Property value: analysis
Reconstruction of decisions (using statistical methods) re: taxes, trust funds, public utility rates

9. Libraries

Card catalogs: maintenance and updating
Information retrieval
Records and control

10. Magazine and Periodical Publishing

Automatic typesetting
Classified advertisement preparation
Layout control
Mailing list maintenance
Mailing lists: geographic analysis
Mailing lists: high-speed label printer
Newspaper printing: long distance transmission of linotypesetting
Newspaper printing: high-speed linotype setting by punched paper tape and computer
Printing: automatic hyphenation of words
Printing: automatic line justification
Renewals: analysis, promotion
Subscription fulfillment

11. Military

Air Force engines and parts: regulation of supply
Distressed ships: dispatching aid
Plotting location of all ships and planes in operation
Stock priority items: speedy shipment

12. Oil Industry

Absorber calculations
Aerial surveys and exploration: analyses
Bulk stations: wholesale sales, billing, accounting
Credit card accounting
Crude oil: analysis of properties, evaluation, processing
Depletion accounting
Distillation tower design
Equilibrium flash calculation
Flow: control
Fuel deliveries: degree-day accounting
Gasoline blending
Gravity drainage analysis
Gravometric analysis
Heat and material balances
Heat exchange calculations
Instrument scanning
Lease and well expenses and investments: records and analysis
Map construction
Mass spectrometer data: reduction, analysis
Material and energy balances
Off-normal variables alarm
Off-shore installations: studies of design variations
Oil field analysis:
  Correlations of data from different drill holes;
  Correlation of data from seismic tests;
  Estimated amount and direction of flow of fluids through porous rocks
Oil pipe-line system: automatic control and operation
Oil purchase accounting
Operating records: logging
Petroleum reserves: calculations
Physical behavior of complex mixtures: predictions
Pipe stress analysis
Plate-to-plate distillation calculations
Product mix for oil refineries: determination
Refinery and gas plant components: design, operation
Refinery shutdown and maintenance: scheduling calculations
Refinery simulation
Remote control of crude oil production
Secondary recovery: analysis
Seismic data reduction
Well logs: corrections
Wells and fields: prorating analysis
Yield accounting

13. Police

Arrests: record
Crime occurrence: pattern analysis
Criminal identification
Fingerprints: processing, searching
Message switching
Stolen automobile: identification
Traffic law violations: recording, accounting, analysis

14. Public Utilities

Boiler control
Circuits and lines: mileage analysis
Compressor performance
Dispatch control
Electric distribution networks
Electric telemetering
Electrical power control
Engineering studies
Equipment: attrition and life expectancy
Fuel: records, analysis
Gas dispatching: on-line control
Gas distribution networks
Gas well probation
Load duration
Load flows
Market surveys
Meter reading
Meter test records
Natural gas measurement
New service areas: calculations
Operating reports, analysis
Pipe line design
Power distribution calculations
Power plants: stability of control
Power production scheduling
Pressure vessel flange designs: calculating, listing
Rate determination
Repair calls: dispatching, scheduling
Sag-tension studies
Steam turbines: output, control
Surety deposit records
Transformer thermal rating
Transmission line design and losses
Water reservoir management
Water supply evaluation

15. Sports

Airplane racing: final scoring, specialized category winners, up-to-the-minute standings
Bowling: averages, handicaps, records, scoring
Bridge tournaments: shuffling and dealing
Football: judging contest entries
Horse racing: handling lists, determining odds, calculating prices paid on winners
Indoor golf: measurement of shots
Olympic Games: registration, scoring, winners, up-to-the-minute standings

16. Steel Industry

Billet cut-up line: control
Power control: optimization
Smelting process: blast furnace stockhouse control
Steel mill simulation
Steel sample analysis

17. Telephone Industry

Assigning dial equipment
Automatic telephone exchange for private lines
Circuit deviations: determining and repairing
Coin telephone: collecting, accounting
Customer payments
Local service charge billing
Long-distance charge billing
Long-distance rates: split-second quotation
Long-distance transmission of data
Message register billing
Speech waves: generation, analysis
Toll ticket billing
Updating "yellow pages" directories
Written message telephoning

18. Textile Industry

Fabric quality control
Material availability evaluation
Monitoring clothing production
Production planning
Sales analysis
Style forecasting
Style reports

19. Transportation

Aircraft loading requirements charts
Aircraft maintenance: recording, scheduling, analyzing
Air traffic control
Air traffic prediction plots
Airline fare computation
Airline flight schedules: planning
Airline flight simulation
Airline passenger space control
Automatic toll registration
Bus scheduling
Cloud-height-data analyzer for airports
Collision warning systems
Crew training
Elevators: automatic control
Flight plan issuance
Flight simulation

Because making certain that *no one's* idea goes without a full hearing (or its author without full credit) is one reason we're racking up such a fast growing score in the computer systems business these days. It's the way we do business.

Right now we're tapping the military computer systems market with militarized versions of General Electric's "Compatibles/600." The potential is enormous. For you and for us.

MISTRAM is one of the contracts we've already salted away. MISTRAM is impressive because of its ability to measure a missile's position to fantastic accuracies and to utilize this information in real time. But it's unique because the computer is so utterly integral that you can't tell where it ends and the other hardware starts without a program.

Currently you'll find abundant (and, in some cases, monumental) challenges to your creativity, both at the proposal and at the advanced development level. In the latter case, nanosecond speeds are the present state-of-the-art. At the systems and hardware end this means everything from advanced circuit developments to memory developments, to man-machine interface developments. (Did we mention our aerospace computer development program?) Related to all this, at the software end of things, we're developing advanced languages as well as advanced real time and time-sharing executive and diagnostic programs.

# Are your ideas on computers worth shouting

## At SIPD you won't have to!

You'll be working for a company that is 100% committed to the success of your project. You'll be working for a management that has real savvy for your achievements. And, you'll be working in an organization where mutual respect and team motivation, not formal regulation, is the rule.

*Like they say, when you have good ideas you don't have to shout.*

**SOME CURRENT OPENINGS:**

**COMPUTER SYSTEMS AND APPLICATION ENGINEERING**

Analyze performance requirements, determine configuration, specify interface and performance requirements for hardware, software, and equation design groups. Develop application techniques for *real-time* systems. Analyze trade off between hardware and software techniques and organization. Positions available through group leader. Engineering or science degree and experience in computer field covering hardware, software and systems.

*More openings are listed to the right*

*Please write (include resume if available) in full confidence, to Mr. M. D. Chilcote, Special Information Products Department, General Electric Co., Sect.* **37F** *P.O. Box 1122, Syracuse, New York 13201.*

**GENERAL ELECTRIC**

Designate No. 16 on Readers Service Card

**DATA SYSTEMS ENGINEERS**
Program management and/or system engineering for major *real-time* control and information management systems using military computers with equipments and programs for data sensing, conversion, transmission, processing and display. Analyze mission performance requirements, determine system elements, configuration, and specifications. Conduct product requirements analyses. Broad data systems experience with emphasis on communications.

**PROJECT LEADER, PROGRAMMING SYSTEMS**
Provide high technical competence and project leadership to team of computer programmers in the specific areas of executive systems, compiling systems, hardware design support and diagnostics and applications programming. Computer programming and team leader experience. Also, formal education in Numerical Analysis—Machine Language—Computing Systems—Computing Applications.

**ENGINEERING COMPUTER PROGRAMMERS**
Program in the areas of executive systems, compiling systems, hardware design support and diagnostics and application programming. Computer programming experience. Also, formal education in Numerical Analysis—Machine Language—Computing Systems—Computing Applications.

**about?**

**LOGIC DESIGN ENGINEERS**
Advanced design and development of military computer systems equipment, i.e., processors, memories, peripherals, I/O controllers and adapters. Engineering degree with experience in advanced, high-speed logic design of digital equipment.

**MICROELECTRONIC CIRCUITS AND PACKAGING DESIGN ENGINEERS**
Advanced design and application of high-speed microelectronic circuits for computers and related digital equipments. Engineering or physics degree with experience in design, application and packaging of advanced high-speed microelectronic circuits.

**COMPUTER PERIPHERAL EQUIPMENT ENGINEERS**
Support product line equipment design, development and production following. Interface equipment design and factory following. Systems test and checkout support. Engineers to design the following peripheral equipment: magnetic tape and mass storage, display and control, digital data acquisition, analog data acquisition, and telemetry. Experience in at least one of the above equipments. Experience or education in logic design, computer hardware and computer software. BSEE or MSEE.

**GENERAL ELECTRIC**
*An equal opportunity employer*



Helicopter rotor evaluation
Motor freight records: analysis
Navigating systems
Parking garages: automatic control
Pilot training
Position plotting of airplanes
Preventive maintenance scheduling
Railroad car identification and recording
Railroad fares: collection, allocation
Railroad freight cars: accounting, allocation, distribution, control
Railroad inventory accounting
Rail traffic control, centralized
Reservation systems
Revenue tonnage statistics
Satellite orbit calculations
Ship arrival forecasting
Ship traffic: statistical analysis
Subways: automatic control
Terminal operation simulation
Ticket billing
Ticket validation
Trains: automatic control
Travel reservations
Trucking: central rating and automatic billing of each shipment
Trucking: reports on the composition of all loads dispatched
Trucking: simulating operating conditions
Trucking: split-second furnishing of status of any shipment

20. Miscellaneous

Agriculture: crop shifting indications
Animated film production
Automobiles: diagnostic testing
Automobile dealerships: profitability analysis
Automobile replacement parts: inventory and distribution
Automobile warranties: information storage and retrieval
Building construction schedules
Cement making: proportioning and control of raw materials
Clothes: design
Construction: estimates of electrical work costs
Construction: selection of housing materials
Contests: judgment of entries
Farm management simulation
Forestry: planting and cutting trees
Graphing of scientific data
Harbor and port facilities: planning, evaluation, fillin shallows calculations
Hotels: guest charge accounting and billing
Hotels: registration, reservations
Indexes: preparation
Inventions and patents: filing, retrieval
Literature searching: automatic location of scientific articles
Mail-order operations: classifying and coding customers
Mail-order operations: order processing
Mail-order operations: re-starting after fire
Map compilation and production
Meat packaging: mixture, optimization
Motion picture distribution
Motion pictures: producers settlement statements
Personnel selection
Real estate: building appraisal and valuation
Real estate: information retrieval system
Restaurant ordering
Retail store credit authorization
Specialized personnel-searching
Television stations: real-time program switching operations
Theatre: scheduling, planning productions
Vending machine programming

III. Science and Engineering

1. Aeronautics and Space Engineering

Aerodynamical formulas: evaluation
Airborne jet-engines: control, management
Aircraft safety: control of cargo weights and fuel supply
Airframe stress analysis
Astronaut training
Atmospheric re-entry studies
Automatic checkout for aircraft, missile, space vehicles
Behavior in space flights: analysis
Boost cut-off determination
Catastrophe simulation
Contour maps presentation
Critical speed problems
Curve fitting
Engine design for propelling space vehicles
Factor analysis
Flight control for missiles and space vehicles
Flight simulation
Flight test data reduction
Flight training devices
Flutter analysis
Ground controlled approach: programming
Guidance and flight control studies
Guidance sensitivity problems
Guidance systems design
Gyroscopic calculations
Heat transfer analysis
Helicopter piloting studies
High-altitude balloon flights
Horizon scanning
Hypersonic air data analysis
Inertial guidance for missiles and space vehicles
Interplanetary space probes control
Jet aircraft refueling
Lunar probes control
Moon flight simulation
Moon landing simulation
Navigation training devices
Orbit injection
Parachute recovery systems
Radar and telemetry antennas: positioning and pointing of
Re-entry vehicle development
Rocket flight simulation
Rocket motor propellants: analysis, control during firing
Rocket nozzle development for space boosters
Satellite photography rectification
Satellite research
Satellite tracking
Self-adjusting pilot
Simulation of physiological reactions of astronauts
Space platform "anchorage"
Spacecraft transmitted pictures: assembling, developing
Spaceship positions: precise determination
Static rocket engine checkout
Suspension reaction for airborne stores
Theodolite data reduction
Turbo jet engine testing
Vibration analysis
Wind tunnel data reduction

2. Astronomy

Artificial satellite orbit calculations
Comet orbits: calculations, analysis
Interplanetary probe calculations
Lunar orbit calculations
Planetary orbit calculations
Star density calculations
Stellar evolution calculations
Visual information: detecting, analyzing

3. Biology

Animals: behavior models
Brain: tracing messages from sense organs to the brain
DNA molecular code analysis
Hybrid optimization
Livestock breeding analysis
Livestock feeding control
Livestock-feed ingredient-mix; optimization
Molecules: determination of position of atoms
Species characteristics: correlation analysis
Species varieties: automatic classification

4. Chemical Engineering and Chemistry

Bound chemicals: simulation of reactions between
Chemical compounds: structure studies
Chemical kinetics: problem solving
Continuous-flow stirred-tank reactor: simulation and control
Crystal structure factors
Distillation processes: determination of starting times, etc.
Equilibrium equations: studies
Fertilizer-mix: optimization
Flash vapor calculations
Gas line calculation
Hydrocarbons: structure analysis
Ion exchange column: performance appraisal
Mass spectrometer analysis
Material flow to batch chemical plants: program simulation
Meteorite pattern charting
Molecular structure calculations
Organic compounds: classification
Organic compounds: file searching
Permeability, relative: computations
Process control
Process simulation
Reaction analysis
Spectrum analysis
X-ray crystallography analysis

5. Civil Engineering

Abutment design
Adjustment of level net
Area calculation by coordinates and by other methods
Azimuth calculations
Beam design
Bridge design
Construction tie computation
Curve, arc, line computations and intersections
Cut and fill calculations
Cylindrical shell analysis
Dam design
Distance, station and offset, to a point
Earthwork computations
Elevation calculations
Embankment stability design
Flood control systems: analysis, synthesis

Freeway assignment
Freezing and thawing of soils
Grade sheet processing
Highway profiles
Highways: determination of future needs
Levee design
Monthly equipment summary
Oceanographic currents: studies
Oceanographic salinity: studies
Oceanographic temperatures: studies
Pavement design
Photogrammetric data reduction
Pier design
Pile load computation
Pipe design
Pressure distribution in layered media
Prestressed concrete: design
Rainfall simulation
Ramp and interchange design and calculations
Reinforced concrete: design
Rerouting traffic during emergency conditions
Reservoir design
Retaining wall design
Roadway elevations
Route optimization
Wewage disposal studies
Shell structure design
Slab volumes and other calculations
Soil test analysis
Steel column design
Stress analysis
Survey closure: control
Three-point problem solutions
Transformation of coordinates
Traverse adjustment
Traverse closure
Triangulation
Vertical alignment
Water distribution systems: analysis, optimization

6. Economics

Household simulation
Industry: analysis, simulation of competition
Input-output analysis
Input-output: analysis, models
Leontief models
Mathematical models of investment planning
Non-linear economic models

7. Electrical Engineering

Antenna design
Cathode tube design
Circuit analysis and design
Circuit assembly: control
Component design
Computer logic circuits: design
Computer wiring: automatic design and control
Economic load dispatching
Electrical analysis of circuit types
Electromagnetic wave propagation in various media
Feedback system, single loop, finding the root locus
Field dynamic error computations
Filter analysis
Generator calculations
Load flow studies
Logical networks: design
Motor calculations
Power network transient studies
Radar echoes
Radio interference
Short circuit studies
Standard beam antenna patterns
Systems evaluation
Transformer design
Transient performance
Transient wave-tube calculations
Traveling-wave-tube calculations
Triode design
Turbo-generator thrust bearing: study, analysis

8. Hydraulic Engineering

Backwater profiles
Compressible and incompressible flow analysis
Culverts: analysis, geometry
Drainage systems design
Flood and flow forecasting
Flood control calculations
Flood frequency analysis
Flood routing
Flow in open channels
Ground water: flow of
Hydraulic circuits and components: design
Hydraulic network analysis
Hydroelectric dam design
Multi-purpose water-reservoir system management
Pipe stresses
Reservoir aggradation
Reservoir area computations
Sewer design
Shock-wave effect analysis
Surge-tank analysis
Turbine speed regulation
Unit hydrographs: determination
Water hammer analysis
Wave motion analysis
Wind-wave analysis

9. Marine Engineering

Beam shapes: structural analysis
Compartment pressures in emergency situations
Compartment ventilation calculations
Force analysis of space structures
Form calculations
Fuel rate analysis
Gyroscopic-compasses sea-test: data reduction
Hull structure plates: design, numerically controlled cutting
Hydrostatic functions
Mechanical analysis of machinery
Plate and angle combinations: calculations
Plate shapes: structural analysis
Ship displacement calculations
Ship maneuvering calculations and control
Ship models: extrapolation of observations
Ship waterline characteristics
Shock isolator calculations
Submarine hulls: Bon Jean calculations
Submerged cables: calculation of transient motion
Turbine reduction gear system: vibration analysis
Ullage tables

10. Mathematics

Bessel functions
Boolean algebra calculations
Calculus of variations
Computer programming produced by one computer for another one (boot-strapping)
Constants, important: evaluation
Convolution
Coordinate rotation and translation
Curve fitting
Determinant evaluation
Differentiation: numerical
Difference equations solution
Differential equations solution
Differentiating symbolically
Dynamic programming equations: solutions
Eigenvalues and eigenvectors: calculations
Fourier analysis and synthesis
Function tables: computation
Integral equations
Integration: numerical
Integration of functions
Intelligence: simulation of human thinking processes
Lagrange interpolation
Least wquares fit to inconsistent equations
Linear programming equations: solutions
List processing
Logarithms
Matrix inversion
Matrix multiplication
Multi-dimensional partial differential equations
Multiple integrals
Numerical base conversion
Partial difference equations: solutions
Partial differential equations: solutions
Polynomial roots
Proportional gain
Reciprocals
Recursive functions: computation
Simulation of mathematical equations and solutions
Simultaneous linear equations
Simultaneous non-linear equations
Simultaneous ordinary differential equations
Square roots
Stochastic difference equations
Table computation (evaluation of functions)

11. Mechanical Engineering

Air conditioning calculations
Arch analysis and design
Building frames for reinforced concrete construction: Hardy Cross analysis
Cam design
Casing design
Combustion computations
Composite stringers design
Compressors: horsepower calculations
Conveyor geometry
Crankshaft vibration analysis
Engine and piston computations
Flange cross sections, table of properties
Foundation settling: effects
Heat flow
Heat loss of rooms and buildings
Machine vibration analysis
Moments of inertia
Orifice factors: computations
Pipe-stress analysis
Piping systems, flexibility analysis
Pressure vessel computations
Propeller pitch correction
Reinforced concrete: bending, stress, etc.
Rigid body vibrations: analysis
Rigid frames: moment distribution analysis
Shell analysis: stress distribution
Temperature stresses
Throttling device computation
Torsional systems, bearing loads, and engine forces: Holzer analysis
Truss analysis: stress and deflections
Vehicle checkout calculations
Vibration analysis

12. Medicine and Physiology

Ambulatory clinic records control
Anesthesia control
Arterial physiology research
Alveolar gas parameter computation
Bacteria in photographs, slides: counting
Ballistocardiogram analysis
Biologic rhythm studies
Blood cells in photographs, slides: counting
Blood chemistry determination
Blood grouping and typing
Blood vessels — distensibility: determination
Blood volume: calculation of total amount in circulation and loss
Bone crystal structures: calculations
Cancer: diagnosis and treatment
Cancerous cell growth simulation
Cardiac output — dye dilution curves: studies
Cardiovascular physiology studies
Cerebral slow waves: correlation and spectral analyses
Cervical and vaginal smear screening
Chromosome screening
Clinical data: statistical analysis
Compartmental rate exchange parameters
Controlled artificial hand
Coronary artery disease prediction
Cytophotometric analysis
Dermatoglyphic diagnosis
Diagnosis of disease
Diagnostic possibilities: listing, suggestions, comments
Eating habit pattern
Ecological system simulation
Effect of drugs on animals: studies
Effect of drugs on human body: studies, analysis of effectiveness
Effect of radio-frequency waves on biological macromolecules: studies
Electrocardiogram integration and analysis
Electroencephalogram analysis
Enzyme kinetic representations
Evoked brain-wave response analysis
Eye muscle studies
Fatigue research
Fetal heart beat recording
Gastrointestinal tract pressures: detection and recording
Gene frequency calculation
General anesthetic simulation
Growth and physique studies
Hearing loss: testing analysis
Heartbeat analysis
Human brain simulation
Human ear simulation for speech analysis
Human retinal and brain responses to light simulation
Hypertensive pressure computations
Intestinal absorption rate measurement
Intracranial lesions, site stability, nature: studies
Iodine metabolism computation
Isotope tracer studies: analysis
Location of pain-transmitting area in brain
Malignant tissues, location
Medical data: telemetering and analysis
Medical literature: indexing, analysis
Medical tests: analysis
Medication administration schedules
Metabolic control involving chemical feedback
Motor system coordination testing
Neuroelectric data processing
Neuron signal conduction theory
Nutritional intake analysis
Ocular lesions, site, stability, nature: studies
Ophthalmologic disorders simulation
Optimum therapeutic procedure determination
Patient history recording
Pediatric psychiatric diagnosis
Pharmacological research: patient simulation
Phonocardiogram analysis
Physiology of the eye: analysis
Post mortem examination analysis
Probability in medical diagnosis
Psychiatric test scoring
Pulse analysis
Pupil servomechanism analysis
Radiation therapy
Red cell volume: calculation
Renal function simulation
Screening community population for the presence of heart disease
Shock therapy: monitoring of patient condition
Speech research
Symptom-disease complexes
Temperature of man: simulation
Toxicity data analysis
Tumors, location
Vessel wall properties and hemodynamic studies
Whole blood supply and distribution control
X-ray analysis

13. Metallurgy

Alloy calculations
Crystal structure computations

14. Meteorology

- Atmospheric turbulence and diffusion: simulation
- Cloud picture processing
- Flood control
- Global weather simulation
- Hurricane forecasting
- Ionospheric mapping
- Meteorite pattern charting
- Short-range storm observation and forecasting
- Weather forecasting
- Weather research: gridding of picture data
- Weather satellites: real-time assessment

15. Military Engineering

- Ballistic trajectories
- Bomb impact analysis
- Bombing tables
- City evacuation studies
- Command and control: systems, displays
- Fire control
- Firing tables
- Missiles: analysis, calculations:
  - Controlling
  - Designing
  - Directing
  - Drafting structural parts
  - Intercepting
  - Launching
  - Predicting impact points
  - Recovering
- Pursuit and combat: analysis, control
- Radar defense systems: analysis, calculations
- Reconnaissance data: analysis and interpretation
- Rocket trajectories
- Strategical weapons systems: studies, assessment
- Strategy analysis and optimization
- Submarine battles: simulation for crew training
- Tactical weapons systems: studies
- Trajectory calculations
- Weapons control
- Weapons systems analysis and evaluation

16. Naval Engineering (see also Marine Engineering)

- Anti-submarine warfare simulation
- Cavitation studies
- Component attrition rate analysis
- Decompression tables
- Minesweeper vessels navigation
- Submerged flow: potential patterns
- Underwater acoustic experiments

17. Nuclear Engineering

- Engines: tests, data control
- Multigroup criticality calculations
- Neutron diffraction
- Neutron flux distribution
- Neutron transport
- Power plant monitoring
- Radioactive fallout: analysis, prediction
- Radioactive level calculations
- Reactor control
- Reactor design and evaluation
- Reactor simulators

18. Photography

- Color analysis
- Color separation negatives: scanner for automatic production
- Lens coating calculations
- Optical ray tracing
- Optical system design

19. Physics

- Atom-human communications system
- Cosmic radiation: statistical analysis
- Crystallography analysis
- Elastic particle collision studies
- Electron distributions
- Electron trajectories
- Gamma ray particles: multiparameter analysis
- Interatomic bond lengths and angles
- Shock waves analysis
- Thermodynamic equations

20. Psychology

- Canonical analysis
- Cognitive processes simulation
- Data reduction and analysis
- Factor analytic studies
- Human language behavior: analysis, synthesis
- Learning and behavior studies
- Multiple regressive models for prediction
- Neural behavior simulation
- Pattern analytic methods: agreement analysis, configural analysis, multiple scalogram analysis, profile analysis
- Perception studies
- Psychological tests: analysis
- Space flights: study of behavior
- Time and motion studies: data collection and analysis


# "...I liked my job, but

I felt
more and more
I was just repeating myself.

There was plenty to do.
I was busy.
It's just — I don't know —
it's like that old line
about a specialist
being someone
who knows more and more
about less and less.
That was me.
That was our whole group . . .

Everything was an emergency,
no one seemed to know
what was important —
they were too busy with
"emergencies."

Deciding to leave
wasn't easy.
As I said,
they were a fine group.
But I needed
something different.
More responsibility.
Less red-tape.
And a company that
seemed to be growing.

. . . So I thought about it,
did some reading —
and decided to contact
Honeywell.

It's really amazing —
Honeywell's
figured out
how to keep all the advantages
of working in a small
company
and still be a big
operation.

I don't know how they
do it."
Interested individuals,
particularly with experience
in Compiler Development;
Peripheral Systems
Development; Executive
Routines; Conversion
Techniques; Technical
Writing; Product Test;
Software Support; Terminal
Equipment Development
and most other areas of
Software and Hardware
development are invited
to call or write to:

***Mr. Edwin Barr, Employment Supervisor***

200 SMITH STREET, DEPT. CA06
WALTHAM, MASSACHUSETTS 02154
(617) 891-8400

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## Application of Computers

21. Sociology

    Data reduction and analysis
    Social behavior simulation
    Social processes: hypothesis testing
    Sociometric data: analysis
    Voting behavior simulation

22. Statistics

    Bernoulli probability
    Beta function calculation
    Binomial coefficient calculations
    Chi squared function calculations
    Complex error function and integral
    Correlation
    Covariance
    Factor analysis
    Forecasting
    F-test
    Gamma function
    Gaussian probability
    Hypergeometric probability
    Least-square-polynomial fitting
    Maximum likelihood functions
    Moments
    Moving averages
    Multiple regression
    Non-linear estimation
    Period search
    Poisson probability
    Sampling
    Sampling implementation
    Time series analysis and adjustment
    T-test I (sample mean vs. population mean)
    T-test II (difference between two means)
    Variance: analysis

IV. Humanities

1. Archeology

    Artifacts found at sites: classifying, reconstructing
    Pottery shards found at sites: analyzing, classifying, reconstructing
    Stones found at sites: determination whether of natural or human origin based on analysis of angles and other characteristics

2. Art

    Designs by computer
    Graphic representation by computer

3. Games of skill

    Checkers: championship play
    Chess: rudimentary play
    Kalah: excellent play
    Nim: perfect play
    Quad: excellent play
    Tit-tat-toe: perfect play

4. History

    Census records — ecological implications: analysis, summaries
    Congressional voting records — social implications: analysis, summaries
    Court records and decisions — implications: analysis, summaries
    Diplomatic records — implications re prevailing attitudes: analysis, summaries
    Election statistics — implications: analysis, summaries
    Ship sailing records — historical and economic implications: analysis, summaries

5. Languages

    Ambiguity determinations
    Dead languages: deciphering, translating
    Language analysis
    Syntax pattern analysis
    Translation from one language to another
    Verification of translations
    Word classification: analysis, summaries
    Word frequency counts, analysis

6. Literature

    Author determination via style analysis
    Automatic abstracting
    Bibliography construction
    Concordance construction
    Index construction
    Proofreading
    "Quik-index" by keywork of titles in context

7. Music

    Composition
    Composition features such as range, phrases, patterns, refrains, cadences, etc.: analysis, synthesis, simulation
    Simulation and models
    Statistical analysis of style

- END -

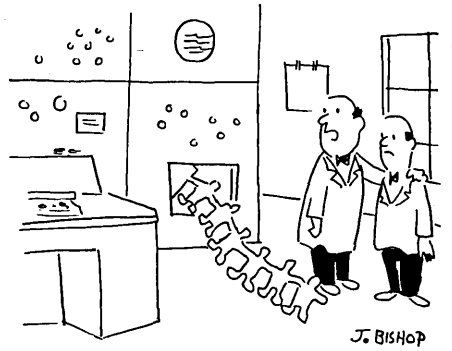

Computer for Sale

IBM 650 SYSTEM

2K DRUM—650 CONSOLE
655 Power Supply—533 Read Punch
$10,000

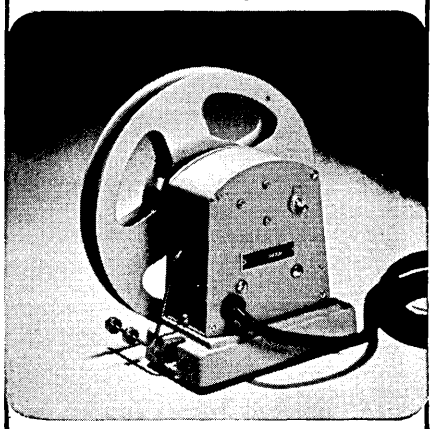
LMC DATA, INC.
116 E. 27 St. MU 9—4747
New York City
New York


CAPACITY LOADING




"Wilson, we haven't been keeping it busy enough."

When T.R. charged up San Juan Hill, BUNNELL had been making tape winders for 25 years



We still are!

When it comes to making tape winders, pullers, reels and accessories, no one knows more than Bunnell. Simply because we've 93 years of experience under our belt . . . 93 years of developing, producing and perfecting our broad product line. Bunnell's tape winders and tape pullers—both mechanical and fully automatic—are ideal for paper tapes—printed, perforated, chad or chadless.

Bunnell tape winders, pullers, reels and accessories have a wide range of applications—data processing, teletype, data speed, stock market tickers, automatic type setters, business machines, automation equipment and much more.

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# SURVEY OF
# SPECIAL PURPOSE COMPUTERS

Besides general purpose digital and analog computers, there are special purpose computers. Examples of them are:

Travel reservations machines
Simulators
Automatic training devices
Spectroscopic analysis equipment
Process industry plant flow analyzers
Geophysical seismic readers and profile plotters
Digital differential analyzers
Automatic bookkeeping machines
Information retrieval systems
Power company network analyzers
Airborne digital computers
Flight control computers
Machine tool control systems
Automatic elevator control systems
Remote control telemetering systems
Telemetered data reduction systems
Automatic graph readers
Air traffic control computers
Early warning analysis and response systems
Fire control computers
Automobile traffic light controllers
Automatic railway traffic controllers
Automatic data sampling systems
File-searching machines
Inventory machines
Automatic navigating systems
Character reading and recognizing systems
Telephone message accounting systems
Test scoring machines
Programmable electric typewriters

Following is a roster of organizations making special purpose computers and a description of their computers. The responses are reported in relation to the following reply form.

CHARACTERISTICS OF SIGNIFICANT SPECIAL PURPOSE COMPUTERS — REPLY SHEET

1. Brief description of the types of special purpose computers and data processors that you currently market?

| | Type | Purpose | Price Range |
|---|---|---|---|
| a. | _____ | _____ | _____ |
| b. | _____ | _____ | _____ |
| c. | _____ | _____ | _____ |
| d. | _____ | _____ | _____ |

(attach more paper if needed)

2. Do you also supply general purpose computers and data processors?_____
3. Any remarks?_____
_____
_____
4. Number of employees?_____
5. Year established?_____
This data supplied by_____Title_____
Organization_____
Address_____

Any additions, corrections and comments are welcome.

---

Adage, Inc., 1079 Commonwealth Ave., Boston, Mass. 02215/ SPEC PUR: Mass Spectrum Digitizer, Model VR16-MSD, for automatic digital readout and recording of mass spectrometer data ($17,470 to $20,540); Ambilog Computers (using digitally controlled analog switches), for automatic gaging systems, high speed automatic color measurements for production color sorting, analysis of stress-strain data ($5000 to $40,000); computer links, to permit simultaneous operation of digital and analog computers as a hybrid computer facility / GEN PUR: Ambilog 200, designed especially for on-line signal processing ($75,000 to $200,000)/ S 175 / E 1957 / *C 65

Aircraft Armanents, Inc., Cockeysville, Md. 21030 / SPEC PUR: automatic integrated circuit tester, to test microcircuit modules ($40,000 to $50,000); automatic test set, to test electronic modules ($100,000 to $200,000); radar target simulator, to evaluate overall performance of airborne radar equipment ($30,000 to $40,000). All prices dependent upon requirements / GEN PUR: None / S 1000 / E 1950 / *C 65

Carlson Computer Co., 13911 Malvern Ave., Poway, Calif. / SPEC PUR: TDA-2 field plotter will analyze 2 and 3 dimensional field problems of the Laplace or Poisson type equation, i.e. temperature distribution analysis, stress analysis (including solution of some problems impossible to solve on general purpose analog or digital computers), fluid flow, magnetic fields, electrostatic fields, electronic amplifier design (total price, $685) / GEN PUR: None / S 2 / E 1960 / *C 65

Computer Control Co., Inc., Old Connecticut Path, Framingham, Mass. / SPEC PUR: Coordinate Conversion Computer, positions parabolic antennas to track orbiting space vehicles; Incremental Digital Computer, computes real-time correction data for shipborne stabilized platform; Airborne Coordinate Rotation Computer, enables an airborne telescope tracking system to photograph missiles during re-entry; SPEC, teaches computer logic and programming techniques; Selector-Sorter System for Information Retrieval, performs logic and arithmetic operations concerned with searching and sorting in graphic information system; Space Data Conditioning System, digitizes and reformats data for telemetry to earth; Translator, translates magnetic tape format from one language to another; Random Access Business Computer, updates accounting system in real-time; Digital Chromatograph Analyzer, controls operation of a vapor chromatograph; 6B4, teaches fundamentals of digital computer organization, programming and operation; 6F2, large-scale digital computer maintenance trainer; 6F4, large-scale digital trainer for teaching computer operation and programming, computer logic demonstrator for classroom instruction in digital logic fundamentals and techniques / GEN PUR: DDP-24, a real-time, scientific computer with modular construction; expandability features; DDP-24 VM, a specially packaged DDP-24 for installation in moving vans; DDP-224, real-time scientific computer with modular construction, expandable features and multi-processor capabilities / S 1200 / E 1953 / *C 65

Control Equipment Corp., 19 Kearney Rd., Needham Hghts., Mass. 02194 / SPEC PUR: Chart Reader, for reading operations and recorder charts ($5,000); Spectrometer Data Logger for recording data from spectrometer while driving wave length shaft ($30,000); Air Passage Recorder for measuring and computing wind vectors in meteorological survey work ($7,500) / GEN PUR: None / S 25 / E 1956 / *C 66

Dian Laboratories, Inc., 611 Bradway, New York 12, N. Y. / SPEC PUR: reactor simulator, for study of reactor kinetics; submarine dynamics simulator and flight simulator, for training of personnel; process analyzer, for automatic control of plants; navigating system, for automatic tracking of missiles; (prices on request) / S 12 / E 1955 / *C 65

Digital Electronics Inc., 2200 Shames Drive, Westbury, N. Y. / SPEC PUR: automatic test key proof evaluator, inter bank communications encoding device ($7000 to $10,000); visual to magnet tape data converter, translates visual data for input to IBM type computer ($40,000); data converter, analog input to IBM and other compatible magnetic tape ($15,000 to $30,000); data communications terminal, enter, store, and forward digital data over telephone lines ($2000 to $10,000); training computer, FORTRAN training ($15,000) / GEN PUR: yes / S 50 / E 1961 / *C 65

General Precision, Inc., Tarrytown, N. Y. 10591 / SPEC PUR: Simulators, Automatic training devices, Process industry plant flow analyzers, Information retrieval systems, Airborne digital computers, Flight control computers, Remote control telemetering systems, Air traffic control computers, Fire control computers, Automatic navigating systems, Character reading and recognizing systems / GEN PUR: None / S ? / E ? / *C 66

Honeywell, Inc., Queen & S. Bailey Sts., Pottstown, Pa. / SPEC PUR: mass flow computer for flow measurement of gases reduced to standard conditions ($2000 to $5000); weight of coating for determining coating material weight per unit area; power demand, used as electrical load limiter; special purpose analog computer, custom circuitry describing mathematical equations / GEN PUR: yes, digital for process control / S 350 / E 1860 / *C 65

Leeds and Northrop Co., 4901 Stenton Ave., Philadelphia 44, Pa. / SPEC PUR: automatic economic dispatch, for electric power distribution ($200,000 to $300,000); performance computation and data logging, for steam power plants ($175,000 to $275,000); efficiency control and data logging, for hydro-stations ($250,000 to $350,000); automatic control computer for oxygen steel making process ($200,000 to $300,000) / GEN PUR: analog and digital data handling and computing systems available / S 3000 / E 1899 / *C 65

Otis Elevator Co., Defense and Industrial Div., 35 Ryerson St., Brooklyn 5, N. Y. / SPEC PUR: adaptive tracking simulator, for teaching tracking skills ($25,000) / GEN PUR: None / S 30,000 / E 1853 / *C 65

Pacific Data Systems, Inc., 1058 E. 1st St., Santa Ana, Calif. / SPEC PUR: None / GEN PUR: PDS 1068, control computer ($15,000); PDS 1020, engineering computer ($21,500 to $25,050) / S 40 / E 1961 / *C 65

Serck Controls Ltd., Queensway, Leamington Spa, Warwickshire, England / SPEC PUR: Remote control telemetering systems, Telemetered data reduction systems / GEN PUR: None / S 100 / E 1959 / *C 66

Telemetrics Division, Technical Measurement Corp., 2830 S. Fairview St., Santa Ana, Calif. 92704 / SPEC PUR: Geophysical seismic readers and profile plotters, Remote control telemetering systems, Telemetered data reduction systems / GEN PUR: None / S ? / E ? / *C 66

Wang Laboratories, Inc., 836 North St., Tewksbury, Mass. / SPEC PUR: ADPREP (Analog Data Preparation Unit for Digital Computation) with 10 analog inputs, A/D conversion and outputs on digital printer or punched paper tape ($4950 to $5450); telemetered data reduction systems, shaft encoder, synchro, voltage or frequency to digital, for radar range, AZ, EL, etc. ($5 to $50 K on special order); automatic data sampling systems, sequence of events, data, etc., on any output device or for direct computer entry ($5 to $50 K on special order); LINASEC I & II, automatic or semi-automatic justification of linotype tapes for printing industry using full scale computer with character display ($25 to $35 K) / GEN PUR: LOCI 1 & 2, LOgarithmic Computing Instruments, desk top personal computers for scientists and engineers ($2750 to $7500) / S 80 / E 1951 / *C 65

- END -

# ROSTER OF SCHOOL, COLLEGE, AND UNIVERSITY COMPUTER CENTERS

Following is a roster of school, college, and university computer centers. Much of the information is derived from a survey form returned by many organizations. This form asked for: 1. Brief description of your main purposes or mission? / 1a. Do you provide computing services commercially? / 2. Your equipment and facilities? / 3. Courses given in conjunction with your computing center? / 4. Any remarks? / 5. Number of your staff? / 6. Year established? / Filled in by: Name_____ Title_____Organization_____Address_____

In the following each entry contains: Name and address / Purpose or mission ? Equipment ? Courses / Notes.

The abbreviations used include the following:

S - Size (number of employees)

E - Established (year of establishment)

*C, Information checked by the organization (C for checking) / 66: information furnished in 1966 /

EAM, Electric punch-card accounting machine

coml svc, Computing services provided commercially

K, thousand (words or digits of core storage)

CPM, cards per minute

For computer identifications, see the survey of digital and analog computers.

---

Academy of Aeronautics, LaGuardia Airport, Flushing, N. Y., 11371 / *C 66
Education / Burrough's E101 & Flexowriter / Computer Concepts & Programming; Analysis of Circuitry / S 4 / E 1962

Adelphi Univ., Garden City, N. Y. / *C 66
Research and education / RECOMP III / Programming I, II; Numerical Analysis I, II / S 3 / E 1962

Alfred Univ. Computing Center, Alfred, N. Y. / *C 66
Research and education (undergraduate and graduate) / coml svc / 40 K card 1620 Model I plus unit record equipment / Introduction to Computing Techniques / S 4 / E 1963

Allegheny College, Meadville, Pa. 16335 / *C 66
Academic and administrative functions / IBM 1620 plus unit record equipment / Course in Introduction to Computers / S 1 / E 1963

Amarillo College, Box 447, Amarillo, Tex. 79105 / *C 66
Instructional and administrative / Unit record equipment for instructional purposes / Several data processing certificate and degree programs offered day and evening / S 5 / E 1962

American River Junior College, 4700 College Oak Way, Sacramento, Calif. 95841 / *C 66
Training of data processing technicians — EAM & computer, operators and programmers / EAM complement; IBM 1620 with disk and printer; IBM 360 Model 30 - on order / Control Panel Wiring, Machine Language & Symbolic Programming; Fortran and Cobol / S 5 / E 1961

Anderson College, Anderson, Ind. / *C 66
Education and administration / coml svc / IBM 1620 Model I with 1622 card reader-punch and 2 IBM 1311 disk drives, plus other peripheral equipment and punch card equipment / Introduction to Computers and Data Processing; Computers (Hardware Oriented); Numerical Analysis; Electronic Data Processing in Business / S 3 / E 1965

Angelo State College, San Angelo, Tex. / *C 66
Education; administrative / IBM 1620 card I-O Model 30-360 on order; series 50 unit record equipment / Introduction to Computer Programming; Advanced Computer Programming; Machine Accounting; Electronic Data Processing; Statistics / S 3 / E 1963

Antelope Valley College, Lancaster, Calif. 93534 / *C 66
Train data processing technicians and handle student record systems / IBM punch card equipment / Several data processing courses; Electric Machine Accounting; Introduction to Computer Programming / S 2 / E 1963

Appalachian State Teachers College, Computer Center, Boone, N. C./ *C 66
Student records, accounts, business applications / IBM 1620, peripheral and punch card equipment / Math; Digital Computers; Numerical Analysis / S 5 / E 1961

Arlington State College, Arlington, Tex. 76010 / *C 66
Education and research / coml svc / IBM 1620 (60k card read punch); IBM 1620 II (60K card read punch, 1311 disk); IBM 1401 (16K 4 mag. tapes 1311 disk) / FORTRAN programming; Symbolic Programming / S 2 / E 1961

Auburn Community College, Franklin St., Auburn, N. Y. / *C 66
Prepare students for Business Management in data processing and programming (A.A.S. in Data Processing) / coml svc / IBM 1440 system with peripheral equipment / Introduction to Data Processing Machines (Unit Record); Introduction to Computers; Systems & Procedures; Programming I & II; Computer Case Studies I & II; Math of Data Processing I & II / plan workshops, seminars for educators and management / S 10 / E 1964

Auburn Univ., Computer Center, Auburn, Ala. / *C 66
Research and education / coml svc / IBM 7040-1401; IBM 1620 / Programming courses in Fortran and Cobol; Basic Computer Concepts / S 25 / E 1958

Augustana College, Rock Island, Ill. / *C 66
Education / IBM punch card equipment / Course in computer programming, FORTRAN / IBM 1130 system on order / S 3 / E 1965

Austin College, Sherman, Tex. 75091 / *C 66
Education / IBM 1620 Model I, with peripheral equipment / Basic Computer Programming; Numerical Analysis / S 1 / E 1964

Stephen F. Austin State College, Box 4607 SFA Sta., Nacogdoches, Tex. 75961 / *C 66
Administration, teaching, research / 1620 IBM with card reader-punch, 2 disk drives, on-line printer; IBM accounting machine and peripheral equipment / Business Administration; Math; Forestry / S 7 / E 1959

Abraham Baldwin College, Tifton, Ga. / *C 66
Instruction and service to all college departments / IBM 1401G and peripheral equipment / two year terminal program with a degree / S 3 / E 1965

Bakersfield College, 1801 Panorama Drive, Bakersfield, Calif. 93305 / *C 66
Education and administrative research / IBM 1620 card system 1-1311; Punch card equipment / Introduction to Data Processing; Basic Machines I & II; 1620 Programming; 1401 Programming; FORTRAN/ S 7 / E 1963

Baylor Univ., Waco, Tex. / *C 66
Education and research / coml svc / IBM 1620 Model I with peripheral equipment / Fortran courses / S 2 / E 1963

Bellarmine College, 2000 Norris Place, Louisville, Ky. 40205 / *C 66
Education; preparation for CDP certificate / None / Accounting 405 Principles; Accounting 406 Systems and Programming / S 2 / E 1962

Beloit College, Computing Center, Beloit, Wis. 53512 / *C 66
Education for all students, regardless of major field / coml svc / IBM 1620 with card I/O, indirect addressing; punch card equipment / IBM Fortran programming; Computer Programming for Engineers; Concepts of Data Processing; Fortran for 360 / S 5 / E 1962

Bethany College, Bethany, W. Va. 26037 / *C 66
Academic work / IBM series 50; IBM 360/20 on order / Data Processing / S 4 / E--

Bishop's Univ., Lennoxville, Quebec, Canada / *C 66
Research / IBM 1620, 20K storage, card input/output/ 4th year science students courses / S 1 / E-

Bloomsburg State College, Bloomsburg, Pa. 17815 / *C 66
Administration and education / IBM 1401 and peripheral equipment / Introduction to Data Processing and Business Education; Introduction to Computers and Programming / S 3 / E 1962

Boise College, Boise, Idaho / *C 66
Total systems installation / IBM 1440 / Curriculums for programmers; machine operators; console operators / S 3 / E 1966

Boston Univ. Computing Center, 700 Commonwealth Ave., Boston 15, Mass. / *C 66
Education and research services / IBM 1620-II, 60K, 2 Disks, 1443 Printer / Computers and Information Processing; Introduction to Computer Programming; Intermediate and Advanced Programming; Systems and Procedures; The Computer in Management Control and Research; Data Processing in Social Sciences and for School Systems; Scientific Computing; Computers and Accounting; Computers and Marketing; Logical Design of Electronic Computer Systems; Teaching Machines and Programmed Instruction / S 12 / E 1956

Bowdoin College, Computing Center, Brunswick, Me. 04011 / *C 66
Educational and administrative / coml svc / IBM 1620, 1622, 1311, 407, 2 keypunches / Fortran Programming; Numerical Analysis; Mathematical Statistics; Linear Programming; Economical Statistics / S 2 / E 1965

Bradley University Computer Center, Holmes & Laura Aves., Peoria, Ill. / *C 66
Education for undergraduates and graduates / coml svc / IBM 1620-I; 1622-II; DPC 4620-II on-line printer; IBM 1311 disk files; sorter and keypunches / Support vocational education program in data processing / S 5, Peoria Public School System / E 1963

Brigham [illegible] Univ., Computer Research Center, Pr[illegible] 84601 / *C 66
[illegible] research, and administration / [illegible] IBM 7040; IBM 1401 / Computers and Their Use; Computer Program Languages; Algorithmic Languages and Compilers; Information Systems Analysis; and others / S 47 E 1958

The Brooklyn Center of Long Island Univ., Brooklyn, N. Y. 11201 / *C 66
Education, research and administration / coml svc / 1620 IBM (Mark I) 20K and peripheral equipment / Fortran Programming; Operating Research; System and Proceedures; Statistics / S 5 / E 1962

Broome Technical Community College, Binghamton, N. Y. / *C 66
Education / IBM 1620 card I/O; IBM 407 plus supporting tab equipment / Introduction to Commercial Programming; Numerical Methods; Introduction to Digital Computers / S 3 / E 1963

Bucknell Univ., Freas-Rooke Computing Center, Lewisburg, Pa. 17837 / *C 66
Education / coml svc / IBM 1620 Model I with 2 Disks, plotter, printer, 60K, digital clock; 5-026's and 407 / Introduction to Computers; Programming; Numerical Analysis and Advanced Seminars / S 16 / E 1961

California State College, Hayward, Calif. / *C 66
Education / IBM 1620-I, 1622-I; auxillary equipment / Programming courses; numerical analysis courses; a data processing course / S 2 / E 1964

California State Polytechnic College, San Luis Obispo, Calif. 93401 / *C 66
Undergraduate instruction / G-15 (CDC); IBM 1620 Model I / Programming - mostly FORTRAN and S.P.S. techniques / Computational facilities for Engineering courses / S 5 / E 1960

Carleton College, Northfield, Minn. 55057 / *C 66
Education & administrative services / 1620 card system plus unit record equipment / Courses in FORTRAN, SPS, and Numerical Analysis / S 4 / E 1964

Carleton Univ., Ottawa, Canada / *C 66
University research, graduate and undergraduate teaching in Arts, Science and Engineering/ IBM 1620-I, 40K; Card, tape and disks / Programming; Numerical Methods; Introductory Computer Science / S 2 / E 1962

Carroll College, Waukesha, Wis. 53186 / *C 66
Education / IBM 1620 Model I; 20K card system; 407; sorter, 2 key punches / Elementary Programming; Digital Computing; Numerical Analysis / S 4 / E 1962

John Carroll Univ., Mirimar Blvd., Cleveland, Ohio 44118 / *C 66
Education and research / General Precision LGP-30; Goodyear GEDA / Ph-51 Basic Computer Programming; Ph-316 Applied Digital Computer Programming / S 1 / E 1960

Case Institute of Technology, University Circle, Cleveland, Ohio 44106 / *C 66
Education and research on software systems and languages / coml svc / Univac 1107 plus peripherals / Six, ranging from basic numerical methods to mathematical linguistics / S 15 / E 1956

Catholic Univ., Computing Center, Washington, D. C. 20017 / *C 66
Instruction and research / coml svc / IBM 1620-60K, plus peripheral equipment / Fortran programming / S 4 / E 1961

Central Connecticut State College, Stanley St., New Britain, Conn. / *C 66
Education / IBM 1620, 1311, 1622;unit record / Unit record; Introduction to Computers / S 3 / E 1965

Central Florida Junior College, Ocala, Fla. 32670 / *C 66
Education, research, administration / IBM punch card equipment / Programming; Basic Data Processing / IBM 1130 on order / S 3 / E 1962

Central Missouri State College, Computer Center, Warrensburg, Mo. 64093 / *C 66
Administrative; teaching; research / IBM 1620-20K (an additional 20K is ordered); IBM 1440-4K (both are card system) / Introduction to Unit Record; Basic Programming on both computers; Numerical Analysis, Linear Programming; Programming Business Applications on 1440 / S 5 / E 1961

Central State Univ., College of Business Administration, Wilberforce, Ohio 45384 / *C 66
Education / IBM equipment; Univac auxillary equipment / Keypunch; Introduction to Data Processing; Elementary Computer Operation / S 1 / E 1962

Central Washington State College, Ellensburg, Wash. / *C 66
Administration and education / IBM 1620-1622 with peripheral equipment / Elementary Programming; Advanced Programming; Numerical Analysis / S 5 / E 1964

Centre de Calcul, Universite de Montreal, C.P. 6128, Montreal 3, P. Que., Canada / *C 66
Research and teaching / coml svc / CDC-3400; CDC-3100; and peripheral equipment / Computer sciences / S 25 / E 1964

Cerritos Junior College, 11110 E. Alondra, Norwalk, Calif. / *C 66
Instruction and student record keeping / IBM 1440 computer & punch card equipment / All Data processing "major" courses / S 5 / E 1964

Chaffey College, 5885 Haven Ave., Alta Loma, Calif. 91701 / *C 66
Education / 407 and associated punched card equipment / Introduction to Machine Wiring / IBM 360 Model 20 on order; will be giving programming courses / S 4 / E 1966

Chico State College, Chico, Calif. 95922 / *C 66
Education / IBM 1620 Model I 20K, card, disk / Basic and Advanced Programming / S – / E 1962

The Citadel, The Military College of South Carolina, Charleston, S. C. / *C 66
Education and administration / coml svc / IBM 1620 computer system with disk pack and 1401 card system/ Fortran on 1620; Basic Autocoder on 1401 / S 8 / E 1964

Clarion State College, Clarion, Pa. 16214 / *C 66
Education, research and administration / IBM 1620 Model I 20K, 1622 card-read-punch, (2) 026 key punch; 407 accounting machine / Computer Principles I and II / S 1 / E 1963

Clark Univ., 950 Main St., Worcester, Mass. / *C 66
Public Health Research / IBM 1620 - 40K, 407, sorter / Language / S 5 / E 1963

Clarke College, Dubuque, Iowa 52001 / *C 66
Education and research / IBM 1130 installed in May (replaces 1620) includes printer, paper-tape I/O, disk storage, 2 Friden Flexowriters / Introduction to Computer Sciences; Information Science; Computer & Programming Systems; Theory of Automata; Systems Simulation; Heuristic Programming; Numerical Analysis I & II; Constructive Logic / Undergraduate minor in c.s. may be combined with any major; adult courses & special group seminars / S 6 / E 1965

Clarkson College, Potsdam, N. Y. 13676 / *C 66
Education and research / IBM 1620 Model I / Fortran programming; Computer science / S 7 / E 1960

Clemson Univ. Computing Center, Clemson, S. C. / *C 66
Teaching and research / coml svc / RPC-4000 / Computer Programming; Numerical Methods; Principles of Computing; Formal Languages / IBM 360 Model 40, July '66 / S 6 / E 1961

College of the Holy Cross, Data Processing Center, Worcester, Mass. 01610 / *C 66
Undergraduate education, faculty research, administrative services / IBM 1620, 1622, 026 (several) 056, 082, 085, 407, 514, bursting, deleaving equipment / FORTRAN (noncredit); Machine Language Programming / S 5 / E 1965

College of St. Thomas, 2115 Summit Ave., St. Paul, Minn. 55101 / *C 66
Education / coml svc / Control Data 160A, peripheral equipment and supporting tab equipment / Data Processing for Business; Numerical Analysis and Computer Programming; Applied Statistics; Computer Programming / S 13 / E 1964

College of San Mateo, 1700 W. Hillsdale Blvd., San Mateo, Calif. / *C 66
Education and administration / IBM 1620 with 1 disk file, 600 lpm printer; IBM 1440 system on order for August, 1966 / Introduction to Data Processing; Electro-Mechanical Equipment; Data Processing Systems and Procedures; Basic Computer Programming; Computer Programming Systems; Advanced Computer Systems; COBOL Programming; Key Punch; Data Processing Field Projects; Introduction to Numerical Methods; FORTRAN Programming / S 7 / E 1963

College of the Sequoias, Visalia, Calif. / *C 66
Coordinate data processing program; administrative / IBM 1130 system; unit record equipment / Introduction to Data Processing; Electro-Mechanical Machines; Computer Programming I & II / S– / E 1966

The College of Wooster, Wooster, Ohio 44691 / *C 66
Administrative and educational / IBM 1620, 20K; plus peripheral equipment / Computer Concepts; Programming / S 4 / E 1960

Colorado School of Mines, Golden, Colo. 80401 / *C 66
Education and research / CDC 8090, LGP-30 / Programming for all students, computing taught as integral part of engineering education by most departments / S 7 / E 1964

Colorado State College, Bureau of Research Services, Greeley, Colo. 80631 / *C 66
Education and research for undergraduate and graduate school / IBM 407 acct., unit record equipment / data processing in business education; programming course / S 3 / E 1966

Columbia Basin College, 2600 N. Chase, Pasco, Wash. / *C 66
Education / IBM 1620 with discs; punch card equipment / 2-yr. course training programmers; related courses in Economics, Math, Statistics, Accounting, etc. / S 7 / E 1964

Community College, Yakima, Wash. / *C 66
Student instruction / IBM 1620 disk system / Day & evening classes "Introduction to Computer Sciences"; Computer Programming; Languages; Techniques; Systems / S 1 / E1963

Compton College, 1111 E. Artesia Blvd., Compton, Calif. 90221 / *C 66
Education at all levels / Univac 1004 and optical scanner computer laboratory / Introduction to Data Processing; Punch Card Concepts; Computer Programming; Programming Techniques and Languages; Accounting Systems; Management Reporting; COBOL; Real-Time Systems; Computer Sales / Data Processing program is based on Data Processing Management Association (DPMA) requirements for the CDP / S 9 / E 1965

Concordia College, Moorhead, Minn. 56560 / *C 66
Education, research, administration / coml svc / IBM 1620-I, sorter, collator, 407 accounting machine / Elementary Programming (Fortran and SPS); Numerical Methods using computer / S 3 / E 1963

Contra Costa College, 2801 Castro Rd., San Pablo, Calif. / *C 66
Processing of all aspects of student records / IBM 1620 Model II; 1 disk drive; 20K core / Machine Language; FORTRAN; 141 SPS / S 4 / E 1963

Cornell Univ., Cornell Computing Center, Rand Hall, Ithaca, N. Y. 14850 / *C 66
Research and education / coml svc / Control Data 1604 with 160A peripheral computer / Fortran programming; other courses given by department of Computer Science / S 30 / E 1953

Dalhausie Univ., Halifax, Nova Scotia / *C 66
Research & education / coml svc / IBM 1620 (40K) card I/O printer, sorter / Numerical Analysis (full credit); short courses in programming / S 3 / E 1963

Dartmouth College, Hanover, N. H. / *C 66
Education and research / GE-265, time sharing system / No formal courses / computer available to all faculty and students / S 5 / E 1964

Davidson College, Davidson, N. C. 28036 / *C 66
Undergraduate instruction and faculty research / IBM 1620 model I with one disk drive; Monitor I system / Numerical Analysis using computer as laboratory / S 2 / E 1962

De Paul Univ., 25 E. Jackson, Chicago, Ill. / *C 66
Administrative and student research / IBM 1401 - 1311 / Introduction and Computer Programming Courses / S 5 / E 1964

Del Mar Technical Institute, Corpus Christi, Tex. / *C 66
Education of engineering technicians / Burroughs 205 Datatron / Computer Programming; Computer Circuit Applications / S 3 / E 1961

Delta State College, Cleveland, Miss. 38732 / *C 66
Administrative work; teaching; some research / IBM unit record equipment on campus; access to outside IBM 1620, 1440, 1401 / undergraduate lab taught in conjunction with Business Dept.; special Math course on programming offered at night / S 7 / E 1964

Denison Univ., Granville, Ohio / *C 66
Education, research, and limited administration / Burroughs 205 with cardatron input and output; datafile and 3 tape units; paper tape input/output; 407 output / Numerical Analysis; Algol Programming / S 3 / E 1964

Detroit College of Business, 4801 Oakman Blvd., Dearborn, Mich. / *C 66
Education / Unit record equipment / Computer Programming I & II; Systems and Procedures I & II; Automation Accounting; Punch Card Accounting; Introduction to Electronic Computers / S 2 / E 1959

Devry Technical Institute, 4141 Belmont Ave., Chicago, Ill. 60641 / *C 66
Educational / Rem Rand 409-2R; July, 1966, IBM 1401 / Digital and analog courses / S 6 / E 1931

East Carolina College, Greenville, N. C. 27834 / *C 66
Computer orientation and experience for graduates; research / coml svc / IBM 1620 and peripheral equipment / Introduction to Digital Computers; Introduction to Data Processing; Electronic Data Processing and Accounting / S 3 / E 1963

East Tennessee State University Computer Center, Johnson City, Tenn. 37601 / *C 66
Education, research and administration / coml svc / IBM 1620-22-23; IBM 870; IBM 026 keypunch / Programming; Introduction to Digital Computers; Mathematics Analysis; Linear Programming, etc. / S 4 / E 1962

East Texas State Univ., Commerce, Tex. / *C 66
Education, research, administration / IBM 1620-20K and peripheral equipment / Introduction to Computer Science; Digital Computer Programming; Computer Languages; Numerical Analysis; Advanced Programming; Punch-card Machines / S 8 / E 1963

Eastern Kentucky Univ., Faculty Box 310, Richmond, Ky. 40475 / *C 66
Education and administration / IBM unit record equipment; computer on order / 2 yr. data processing program / S 10 / E 1963

Eastern Washington State College / Cheney, Wash. 99004 / *C 66
Education for undergraduates and faculty research / IBM 1620 / Faculty programming courses; programming and numerical analysis courses; programming and systems analysis / S 7 / E 1963

El Camino College, El Camino College via Torrance, Calif. / *C 66
General education and vocational instruction in computing / Complete tab installation; IBM 1620 computer system with two disk drives and printer / Introduction to Data Processing; Punched Card Processing Machines; Business Computer Programming I & II; Computer Mathematics with Statistics; Business Systems Development and Analysis / S 9 / E 1964

Elizabethtown College, Elizabethtown, Pa. / *C 66
Education / IBM 1130 and supporting equipment / Computer Science I & II / S 3 / E 1966

Evansville College, Evansville, Ind. 47704 / *C 66
Education and administration / IBM 1620, 1622, 1443 and peripheral equipment / Computer Programming; Data Processing / S 4 / E 1963

Fayetteville State College, Fayetteville, N. C. / *C 66
—/ IBM 1620; keypunch, printer / Mathematics; Probability and Statistics; Introduction to Computer Science / S 2 / E 1965

Flint Community Junior College, 1401 E. Court St., Flint, Mich. 48503 / *C 66
Education for students, research for faculty and students / IBM 1620 with 1622 card read punch; punch card equipment / Introduction to Computer Programming; Introduction to Numerical Analysis and Digital Computing; Data Processing Mathematics; Data Processing Applications; Electric Accounting Machines / S 2 / E 1963

Fordham Univ., Bronx, N. Y. 10458 / *C 66
Instruction and research / IBM 1620-II with disk and supporting unit-record equipment / Fortran; SPS / S 8 / E 1965

Fort Hays Kansas State College, Hays, Kans. 67601 / *C 66
Process applications of registrar and business office / IBM 1620 and peripheral equipment / Vocational education courses in unit record operation; Computer Programming; Survey of Data Processing; Scientific Computer Programming / S 3 / E 1963

Fort Nicholls State College, Thibodaux, La. 70301 / *C 66

Administration and education / IBM 1620 with peripheral equipment / Fortran courses; IBA course / S 4 / E 1963

Franklin & Marshall College, Lancaster, Pa. / *C 66
Research and education / Burroughs 205 with paper tape, magnetic tape, floating point hardware / None / S 1 / E 1964

Fresno State College, Cedar and Shaw, Fresno, Calif. / *C 66
Education, research and administration / IBM 1620 Model II and peripheral equipment / FORTRAN and Business Applications; FORTRAN-engineering; COBOL; Operations Research / S 3 / E 1964

Fullerton Junior College, 323 E. Chapman Ave., Fullerton, Calif. / *C 66
Education and training for operators and programmers / IBM 1620 and peripheral equipment / Survey of Data Processing; Introduction to Data Processing; Programming; Systems; Work Experience / S 9 / E 1961

Gallaudet College, Washington, D. C. 20002 / *C 66
Education; research on deafness and related subjects / IBM 1620 Model I and peripheral equipment / Programming courses / S 4 / E 1962

General Motors Institute, 1700 W. Third Ave., Flint, Mich. 48502 / *C 66
Accredited engineering college / IBM 1620-II, 40K card, 1627 graph plotter; 1440 12K, 2 disk drives, card reader/punch, 1443 printer; punch-card equipment / Introduction to Computing, for all students; Numerical Methods; Advanced Digital Computing; Programming / S 9 / E 1961

The George Washington Univ. Computer Center, 2013 G St., N. W., Washington, D. C. / *C 66
Education and research / IBM 1620 Model II, 60K, Index Registers, 2 disk drives, on-line printer, card read-punch / number of courses with computer labs / S 3 / E 1963

Georgetown Univ., Computation Center, 37th and O Sts., N. W., Washington, D. C. 20007 / *C 66
Educational and research / IBM 1620 Model II computer with 60K core storage, IBM 1311 disk drives, peripheral equipment / Mathematics dept. offers credit courses; informal, non-credit courses by Center / S 8 / E 1963

Georgia Institute of Technology, Atlanta, Ga. 30332 / *C 66
Education and research / coml svc / Burroughs 5500 (2); Burroughs 220 / Non-credit seminars; computation courses given in Schools of Information Science, Industrial Engineering, Industrial Management, and Electrical Engineering / S 65 / E 1955

Georgia State College, Computer Center, 33 Gilmer St., Atlanta, Ga. 30303 / *C 66
Education and research for students and faculty / coml svc / IBM 1040 with 32K main memory; IBM 1301 disk storage unit; 5 IBM 729 tape drives; IBM 1402, 1403 / Introduction to Computer Programming and Logic; Computer Languages / S 12 / E 1959

Grays Harbor College, Aberdeen, Wash. 98520 / *C 66
Train programmers through a terminal, two-year vocational program / IBM 1620 card system with 1311 disk storage; IBM unit record equipment / Unit Record Operations & Wiring Computer Programming; Data Processing Applications; Systems Analysis; Systems Development & Design / S 2 / E 1964

L. A. Harbor College, 1111 Figuena Pl., Wilmington, Calif. / *C 66
Training and institutional research / IBM 1620 card system / Mathematics: Digital Computer Programming; Numerical Analysis / S 3 / E 1962

Harvard Univ., Computing Center, 33 Oxford St., Cambridge, Mass. 02138 / *C 66
Educational, research, and administrative use for students and faculty / Two IBM 7094's; three IBM 1401's; IBM 360/50; PDP 338; terminals for G.E. time sharing; 20,000 square feet of space / FORTRAN courses / S 100 / E 1962

Heald Business College, 1215 Van Ness Ave., San Francisco, Calif. / *C 66
Education / IBM punch card equipment / train tabulating, card punch operators and computer programmers / Installing 1401 card system (1401,1402,1403) June, 1966 / S 7 / E 1959

Hinds Junior College, Raymond, Miss. 39154 / *C 66
Education and administration / IBM 1620 and basic IBM tabulating equipment / Programming; Board Wiring; Systems and Procedures; etc. / S 4 / E 1964

Hofstra Univ. Computer Center, Hempstead, Long Island, N. Y. / *C 66
Student training in computer programming and faculty research / IBM 1620-20K; 1622, 407, three keypunch machines; verifer / Programming courses / S 6 / E 1963

Humbolt State College, Computer Center, Arcata, Calif. / *C 66
Educational and research / IBM 1620 Model I-40K, 407 sorter / Business, mathematics, scientific / S 6 / E 1964

Illinois Institute of Technology, Chicago, Ill. 60616 / *C 66
Education, research, administration / IBM 7040-1301; this summer IBM 360, model 40 / Introduction to the Computer, Programming, Iverson Notation; Numerical Calculus; Survey of the Fundamental Structures, Notations, and Programming Languages (both higher and machine level), used in algorithmic processes; Basis for creation and analysis of procedural and problem oriented computer languages and compilers; Freshman-level introduction to computers and computer programming / S 30 E 1962

Illinois State Univ., Normal, Ill. 61761 / *C 66
Instruction, research for faculty and students, administration / 60K IBM 1620-1443 with 4 disk drives plus auxilliary unit record equipment / Data Processing and Management Decision; Industrial Education; Numerical Analysis / S 9 / E 1965

Illinois Teachers College (South) 6800 S. Stewart Ave. Chicago, Ill. 60621 / *C 66
Train and develop teachers in the field of data processing / Complete punch card equipment; IBM 1440, 1460, 7074; availability of Honeywell 200 and Burroughs 200 / Program primarily designed for post-B.A. work for teachers / Introduction; 1401 Machine Language; 1401-Autocoder; Unit Record Methods; COBOL (total of 15 graduate hours) / S 3 / E 1963

Indiana State Univ., Terre Haute, Ind. / *C 66
Education / IBM 1620 disk-card-printer; 2 complete tab installations / Business; Mathematics; Computer Science / S 16 / E 1963

Indiana University of Pennsylvania, Clark Hall, Indiana, Pa. 15701 / *C 66
Education, research, student and university administration / IBM 1620-1622; peripheral equipment / Computer Programming; Numerical Analysis; Automatic Data Processing (for certified teachers only) / S 7 / E 1963

Indiana University Research Computing Center, HPER Bldg., Bloomington, Ind. / *C 66
Research and education / CDC 3600-CDC 3400 with shared core-65K and peripheral equipment / 3600 Fortran; Introduction to Computing / courses are non-credit / S 30 / E 1954

InterAmerican Univ., San German, P. R. / *C 66
Maintenance of academic & financial records / EAM current installation / None at present; plan to give several / IBM 1440 on order for Dec., 1966 / S 14 / E 1912

Iowa State Univ., Computation Center, 125 Service Bldg., Ames, Iowa 50010 / *C 66
Scientific computing & administrative data processing / coml svc / IBM 360 model 40 & model 50; two IBM 1401's; Cyclone (modified Illiac); also two SDS 910's and IBM 1401 in Ames Laboratory / Graduate program in Computer Science leading to M.S. and Ph. D. degrees / Undergraduate Dept. of Computer Science expected in immediate future / S 15 / E 1962

Johns Hopkins University Homewood Computing Center, Baltimore, Md. 21212 / *C 66
Research and education for faculty and students / IBM 7094-1401 linked by high speed data link / Informal courses in programming; other courses given by academic departments / S 12 / E 1960

Juniata College, Huntingdon, Pa. 16653 / *C 66
Education / coml svc / IBM 1620, 20,000 digits; card-read punch / Freshman Calculus; Digital Computer Programming; Linear Algebra; Physical Chemistry; Adv. Physical Chemistry / S 1 / E 1964

Junior College of Broward County, 3501 Southwest Davie Rd., Fort Lauderdale, Fla. / *C 66
Two-year technical degree and three-semester certificate program for programmers; administrative applications-registrar, counseling and financial offices / IBM 1620 and an IBM 1460 with various intervals; IBM 1460 and an IBM 360 are on order to replace above / Complete data processing program / S 12 / E 1962

Kalamazoo College, 1200 Academy, Kalamazoo, Mich. 49001 / *C 66
Education and administrative / coml svc / IBM 1620 - II, 1311-1622-20K; IBM punch card equipment / Programming; Numerical Analysis / S 2 / E 1964

Kansas State Teachers College, Emporia, Kansas 66801 / *C 66
Educational - instruction & administrative / IBM 1620 20K; IBM 1440 4K / Introduction to Computers & Programming; Computer Programming; Advanced Programming; Systems & Applications; several courses in Data Processing / S 3 / E 1962

Kansas State Univ. Computing Center, Manhattan, Kan. 66502 / *C 66
Education and research / IBM 1401; IBM 1410; IBM 1620 / Elementary Computing Techniques; Business Computing; Numerical Analysis / IBM 360-50 on order / S 12 / E 1958

Kellogg Community College, Battle Creek, Mich. 49016 / *C 66
Education and administration / IBM 1620-20K and peripheral equipment / EDP courses; some math courses include FORTRAN as required / S 8 / E 1963

Kent State Univ., 202 Merrill Hall, Kent, Ohio 44240 / *C 66
Education and research / IBM 1620,1622, 407, 40K core; Honeywell 2200 with peripheral equipment / Elementary and Intermediate Programming; Accounting Applications / S 3 / E 1963

Kilgore College, 1100 Broadway, Kilgore, Tex. / *C 66
Education, registration, business office reports / IBM 1620, 1622, 1443; two 1311's, and punch card equipment / Data processing; Introduction to EDP; Punch Card Accounting; Programming I & II / S 5 / E 1958

King's College, Wilkes-Barre, Pa. / *C 66
Education / coml svc / IBM 1620-1311 and unit record equipment / Electronic Data Processing; Fortran Programming; Operations Research; Linear Programming / S 3 / E 1961

Lamar State College of Technology, Lamar Research Center, Beaumont, Tex. / *C 66
Education and research / coml svc / Burroughs 205 with Cardatron / Engineering; Introduction to Digital Computers; Math; Introduction to Data Processing; Advanced Data Processing / S 2 / E 1956

Lansing Community College, 419 N. Capitol Ave., Lansing, Mich. 48914 / *C 66
Administrative work and education / coml svc / IBM 1620 and peripheral equipment / Introduction to Data Processing; 1620 Programming; 1401 Autocoder; Cobol; Fortran; System Development / S 8 / E 1964

Laredo Junior College, P. O. Box 738, Laredo, Tex. 78040 / *C 66
Education, administrative, research / IBM 360-20 on order, August delivery; presently, unit record equipment / Introduction to Unit Record; Introduction to Computers / S 5 / E 1948

LaSalle College, 20th & Olney Ave., Philadelphia, Pa. / *C 66
Education and business application / coml svc / IBM 1620-Model A-2 with peripheral equipment / Programming and Introduction to Electronic Data Processing / S 4 / E 1965

Lawrence Institute of Technology, 21000 N. 10 Mile Rd., Southfield, Mich. 48075 / *C 66
Education / Univac SS-80; Burroughs E-102 / Computing Techniques for Engineering; Computing Techniques in Business Systems; Numerical Methods / S 9 / E-

Lawrence Univ., Appleton, Wis. 54911 / *C 66
Research and administration / coml svc / IBM 1620-40K, Model I; 407; printing card punches; sorting machine / An Introduction to FORTRAN Programming, open to students and faculty / S 1 / E 1964

Lee College, Mont Belvieu, Tex. 77580 / *C 66
Instruction and administration / IBM 1620; punch card equipment / Introduction to Data Processing; Programming I and II; Unit Record Equipment Operations; Accounting Systems; etc. / S 4 / E 1963

Lehigh Univ., Bethlehem, Pa. / *C 66
Education and research / GE 225 for general use / Engineering and Math departments offer problem-solving, programming, languages, operating systems, and digital hardware courses / S 8 / E 1957

Lewis College, Educational Data Center, Route 66A, Lockport, Ill. 60441 / *C 66
Administrative / Honeywell 200 - 20K 5 tape computer, 500 points IBM tab equipment / Fundamentals of Data Processing / S 12 / E 1964

Linfield College, McMinnville, Ore. 97128 / *C 66
Educate students in the many applications of a computer / IBM 1620 Model I; 1622 card read-punch / Math; Introduction to Computer Programming / Plan to give course for Social Science & Business majors; also one in SPS / S 2 / E 1966

Loma Linda Univ., Scientific Computation Facility, Loma Linda, Calif. / *C 66
Research, education, and statistical computation / IBM 1620 Model II with peripheral equipment / non-credit programming courses / S 8 / E 1964

Long Beach City College, 1305 Pacific Coast Highway Long Beach, Calif. / *C 66
Education / IBM 1620, 1311 disk, and punch card equipment / Principles of Data Processing; Computer Programming; Fortran / S 15 / E 1960

Los Angeles Metropolitan College, 1601 S. Olive, Los Angeles, Calif. / *C 66
Education / IBM 1620; 2 disk drives, printer, and complete tabulating set-up; document writing system / Principles of Business Data Processing; Information Storage & Retrieval; Introduction to PERT and Critical Path Techniques; Introduction to Punched Card Machine Accounting; Business Computer Programming; Programming Laboratory; Cobol Programming; Computer Software Programming; Programming Language I; Business Data Processing Systems; IBM 1401 Programming; IBM 1620 Programming / S 25 / E 1960

Louisiana Polytechnic Institute, Ruston, La. 71270 / *C 66
Education, research and administration / coml svc / IBM 1620 with peripheral equipment / Senior-graduate course in programming and data processing; evening seminars in computer programming and machine operation / S 7 / E 1961

Lower Columbia College, Longview, Wash. / *C 66
Educational data processing / IBM 1620-1311; IBM punch card equipment / 2-yr curriculum leading to Assoc. of Technical Art in Data Processing / S 4 / E 1964

Loyola College, 7141 Sherbrooke St. W., Montreal, Que., Canada / *C 66
Educational / IBM 1620, card 20K / Computing Science; Fortran Programming; Elementary Numerical Analysis / S 4 / E 1964

Loyola Univ., New Orleans, La., 70118 / *C 66
Education and research / IBM 1620 with peripheral equipment and punch card equipment / Panel Wiring; Machine Operation; Programming; Numerical Analysis; Experimental Design / S 6 / E 1963

Loyola Univ. of Los Angeles, 7101 W. 80th St., Los Angeles, Calif. 90045 / *C 66
Education of students, both application and design / Alwac II; TR 48; and peripheral equipment / Introduction to Computers; Digita Computer Design I & II / S 2 / E 1958

Lyons Township High School and Junior College, 100 S. Brainard Ave., LaGrange, Ill. 60525 / *C 66
Programmer training, Junior College; administration, high school and junior college / Unit record plus Burroughs B160 / Two yr junior college curriculum — Business Data Processing Programmer / S 3 / E 1965

Manatee Junior College, 5840 26th St. West, Bradenton, Fla. / *C 66
Education (2 year Associate Degree); Administrative work of junior college and county school board / IBM 1620 and peripheral equipment; unit record equipment / Unit Record Equipment; Basic Computer Concepts; Computer Programming; Data Processing Applications; Systems Development & Design; Advanced Programming / S 8 / E 1962

Manhattan College, Bronx, N. Y. 10471 / *C 66
Education and administrative / coml svc / CDC 8090 with peripheral equipment; LGP-30, Clary DE-60; also IBM punch card equipment / Machine language; basic computers; Fortran programming / S 26 / E 1962

Mansfield State College, Mansfield, Pa. 16933 / *C 66
Administration and education / IBM 1620; IBM unit record equipment / Computer Programming; Numerical Analysis and Programming / S 4 / E 1962

Marin Junior College, Kentfield, Calif. / *C 66
Education / IBM 1440 with twin disc packs; IBM 1620 and tabulating equipment / Introduction to Business Data Processing; Electromechanical Machines; Computer Programming for Business; Data Processing Applications / students may graduate with a two year degree in electronic data processing / S 4 / E 1962

Marquette Univ., 1515 W. Wisconsin Ave., Milwaukee, Wis. 53233 / *C 66
Research and education / IBM 7040; misc. others / Various computer courses in several schools and colleges / S 11 / E 1958

Marshall Univ., Huntington, W. Va., 25701 / *C 66
Education, research, administration / IBM 1620-I with card I/O, 40K memory, 3-1311 disk drives and punch card equipment / General Engineering; Introduction to Fortran and Data Processing; Computational Methods; Fortran and Mathematical Methods / S 6 / E 1964

McMaster Univ., Data Processing & Computing Centre Hamilton, Ontario, Canada / *C 66
University data processing and computing needs provided / coml svc / IBM 7040 and peripheral equipment / FORTRAN IV programming / S 11 / E 1964

Medical College of Georgia, 1459 Gwineth St., Augusta, Ga. / *C 66
Administrative, research and education / coml svc / IBM 1620 / Graduate Division course in general computer principles and FORTRAN programming / S 20 / E 1964

Memorial University of Newfoundland, St. John's (Newfoundland), Canada / *C 66
Teaching and research / coml svc / IBM 1620 card input-output, 2 key punches; 407 printer; 083 card sorter / Math 308 (numerical analysis) / S 2 / E 1964

Memphis State Univ. Computing Center, Memphis, Tenn. / *C 66
Research and instruction / coml svc / IBM 1620-1311 and related machines / Programming course; Numerical Analysis; Engineering Analysis / S 5 / E 1963

Mesa College, Grand Junction, Colo. 81501 / *C 66
Education and administration / coml svc / IBM 1620 with disk; tab equipment thru 407 with storage / Data processing; programming for engineering students; operator courses / S 4 / E 1961

Metropolitan Junior College, 560 Westport Rd. Kansas City, Mo. 64111 / *C 66
Educational and service for college / IBM 1401; IBM 1440 tape-disc system; IBM 360-30 on order / Computer Programming; Programming Languages; Systems Design; FORTRAN; COBOL; RPG; ALGOL / S 6 / E 1964

Miami Univ., Oxford, Ohio 45056 / *C 66
Research, education / IBM 1620 - 1311 / Seminars — University has academic dept. of Systems Analysis / S 3 / E 1959

Michigan State Univ., Computer Center, East Lansing, Mich. 48823 / *C 66
Service and research / coml svc / CDC 3600 / 1200 students in associated programming courses / S 75 / E 1956

Middle Tennessee State Univ., Murfreesboro, Tenn. / *C 66
Education and research / Recomp II digital computer; Geda analog computers; IBM 360-30 on order / Digital computing; analog; supporting work in analysis and statistics / S 3 / E 1962

Milwaukee Vocational Technical & Adult School, 1015 N. 6th St., Milwaukee, Wis. / *C 66
Process student records and teach Business Data Processing / IBM 1401 & 1620 / Courses in Data Processing, Marketing, and Business Machines / S 10 / E 1960

Mississippi College, P. O. Box 796, Clinton, Miss. 39056 / *C 66
Educational and administration / coml svc / IBM 1620 Model I, 20K; 407 and peripheral unit record / Fortran Programming; SPS Programming; Introduction to Data Processing / S 3 / E 1964

Mohawk Valley Community College, Sherman Drive, Utica, N. Y. / *C 66
Academic records of all students / Univac 120 / Data Processing; Computer Programming; Computers I and II / S 3 / E 1962

The Monmouth College, 700 E. Broadway, Monmouth, Ill. 61462 / *C 66
Administration and research / IBM 403 and supporting equipment; computer on order / — / S 2 / E 1966

Montana State Univ., Computing Center, Bozeman, Mont. 59715 / *C 66
Education and research / coml svc / IBM 1620 Model II, 2-1311 disk drives; 1622 Model II-60K; 1443 printer; 1627 plotter / Introduction to FORTRAN; Advanced Programming / S 6 / E 1958

Monterey Peninsula College, 980 Fremont, Monterey, Calif. 93940 / *C 66
Education / coml svc / IBM 1620, 407 shop; IBM 1440, 1231 shop / EAM and programming instruction / S 10 / E 1961

Morrisville Agricultural and Technical College, Morrisville, N. Y. / *C 66
Service: Business office and administration; Education: Departments of Business and Engineering / Standard unit record, IBM series 50; terminal connection to a large computer through an IBM 1978 terminal / Several in Business Data Processing; one in Computer Logic and Fortran Programming / S 4 / E 1966

Morton Junior College, 2423 S. Austin, Cicero, Ill. 60137 / *C 66
Education / IBM 360 Model 30 with peripheral equipment / AA degree-2 year program; Operation, programming, systems analysis divisions / S 7 / E 1963

Muhlenberg College, Allentown, Pa. 18101 / *C 66
Education and some outside business / Burroughs 205 with magnetic tape; IBM sorter and keypunch / Fundamentals of Computer Programming / S 2 / E 1965

Nassau Community College, Stewart Ave., Garden City, Long Island, N. Y. / *C 66
Educational / IBM 026, 082, 548, 514, 402 / Principles of Data Processing; Introduction to Computers, Data Processing, Systems and Installations / S 3 / E 1966

New Haven College, 300 Orange Ave., West Haven, Conn. / *C 66
Education / Lease line to GE 235; Unit record IBM facilities / Programming; Introduction to Computers (Engineers); Business Games / S 3 / E 1964

New Mexico State Univ., University Park, N. M. 88070 / *C 66
Academic and research / IBM 1620; CDC 3300 / Computer Programming I, II, III / S 23 / E 1965

New York Univ., Heights Academic Computing Facility, University Heights, New York, N. Y. 10453 / *C 66
Education; unsponsored and academic research / IBM 360 Model 30, 64K; (2) 2311 disk files; 250 cps communication link, 5 typewriter terminals / 27 courses in undergraduate and graduate schools / S 6 / E 1961

Newark College of Engineering, Newark, N. J. 07102 / *C 66
Education and EDP services for college research / coml svc / IBM 1620-I; IBM 1620-II, 40K, 2 disks and printer / Programming and Numerical Analysis; FORTRAN Programming / S 8 / E 1961

North Dakota State School of Science, Wahpeton, N. D. 58075 / *C 66
Education / IBM 1620 (20K card); punch card equipment / Electromechanical Machines; Data Processing Applications; Systems; Computer Programming; Advanced Computer Programming / S 1 / E—

North Dakota State Univ., Fargo, N. D. / *C 66
Education, research / coml svc / IBM 1620 40K Card I/O / Fortran; Advanced Fortran; Symbolic Programming / S 4 / E 1961

North Texas State Univ., North Texas Station, Denton, Tex. 76203 / *C 66
Education, research and administrative / IBM 1620 with card and printer I-O; IBM 1440 and peripheral equipment / Digital Computer Programming; Numerical Analysis; Principles of Data Processing; Data Processing Systems Analysis; Problems in Electronic Data Processing / S 19 / E 1962

Northeast Louisiana State College, 4001 Desiard St., Monroe, La. 71201 / *C 66
Administration / IBM 1620-1622 with unit record system / Introduction to Digital Computers; Computer Programming (FORTRAN) / S 4 / E 1963

Northeastern Oklahoma A&M College, Miami, Okla. / *C 66
Education / IBM 1620 - 1311 and unit record equipment / 2 year business data processing curriculum / S 9 / E 1961

Northern Oklahoma College, Tonkawa, Okla. 74653 / *C 66
Education / IBM 1620 with 1622 card reader and peripheral equipment / Six courses in data processing; programming / S 3 / E 1963

Northrop Institute, 1155 W. Arbor Vitae, Inglewood, Calif. 90306 / *C 66
To teach engineers how to program and to provide administration with reports / IBM 1620, 1622, 1311, 407 / 1620 programming in machine language and FORTRAN / S 10 / E 1962

Northwestern Michigan College, Traverse City, Mich. 49684 / *C 66
Education and administration / coml svc / LGP-30, off-line punch tape reader and punch / Introduction to Information Processing; Business Computer Programming; Scientific Computer Programming; Advanced Problems / S 10 / E 1964

Northwestern Univ., Vogelback Computing Center, 2129 Sheridan Rd., Evanston, Ill. 60201 / *C 66
Research and education / CDC 3400 Computer System / Computer used by students in approximately 125 courses / S 23 / E 1957

Norwich Univ., Northfield, Vt. 05663 / *C 66
Education / coml svc / IBM 1620 with peripheral equipment / Introduction to EDP; Introduction to Computer Programming; Numerical Analysis; Advanced Computer Programming / S 6 / E 1962

Oberlin College, Oberlin, Ohio / *C 66
Education and research for students and faculty / IBM 1620-I with peripheral equipment. Due January 1967 — IBM System/360 Model 30 and peripheral equipment / Fortran Programming / S 2 / E 1965

Occidental College, Los Angeles, Calif. 90041 / *C 66
Education / IBM 1620 Model II, 1311, 1622, 20K memory / Computer Programming and Applications; Numerical Analysis; Econometrics / S 3 / E 1963

Ohio Northern Univ., Ada, Ohio / *C 66
Educational / coml svc / IBM 1620-1311-1443-1622; 4-026 / Fortran Programming / S 1 / E 1963

Ohio Univ., Computer Center, Athens, Ohio 45701 / *C 66
Research, education, and administration / coml svc / IBM 360, model 40 and peripheral equipment / programming courses for business, engineering, and science / S 46 / E 1956

Ohio Wesleyan Univ., Delaware, Ohio 43015 / *C 66
Academic instruction and research / IBM 1620 Model I; 1622 / Non-credit programming; Numerical analysis courses / S 2 / E 1963

Oklahoma College of Liberal Arts, Chickasha, Okla. 73019 / *C 66
Education / IBM 1130 on order / Programming; Numerical Analysis; Statistics; Data Processing / using Univ. of Oklahoma's IBM 1620 and G-15 until own computer delivered / S 1 / E 1965

Oklahoma State Univ., Computer Center, Stillwater, Okla. 74074 / *C 66
Education & research / coml svc / IBM 7040; peripheral equipment / Non-credit language courses / S 5 / E 1956

Old Dominion College, School of Engineering, Box 6173, Norfolk, Va. 23508 / *C 66
Educational / coml svc / IBM 1620; IBM 1622; IBM 407; IBM 082; IBM 026 / Introduction to Computer Programming; Intermediate Computer Programming; Introduction to Engineering; Introduction to Digital Computers; Methods of Engineering Analysis; Statistics and Quality Control / S 22 / E 1964

Olympic College, Data Processing Dept., 16th & Chester, Bremerton, Wash. / *C 66
Training systems programmers / IBM 1620 & support equipment / Computer courses, 2-year curriculum students / S 4 / E —

Orange Coast College, 2701 Fairview Rd., Costa Mesa, Calif. / *C 66
Education / IBM 1401, IBM 1620, Unit record equipment / Intro; Unit Record; Programming; Systems courses / S 9 / E 1947

Orange County Community College, Middletown, N. Y. / *C 66
Administrative & education / Unit record equipment / Basic Machine Operation and Wiring; Programming. Full curriculum being planned for data processing / expect switch to a computer next few months / S 4 / E 1963

Oregon State Univ. Computer Center, Corvallis, Ore. 97331 / *C 66
Provide computing facilities for instruction, research, and administration / CDC 3300; IBM 1620; ALWAC IIIE; NEBULA (University designed & constructed) / courses related to computing given in Mathematics, Statistics, Elect. Engineering, Business Administration / S 20 / E 1966

Parsons College, Fairfield, Iowa 52556 / *C 66
Education / IBM 1460 with 5 disk drives; 1050 Teleprocessing system / Computer Programming and Systems Design / S 6 / E 1963

Peirce Junior College, Mid-City Center, 1622 Chestnut St., Philadelphia, Pa. 19103 / *C 66
Education on a post secondary level / IBM punched card equipment; Monrobot XI; June 1966 delivery IBM 1401G / Key Punch; Office Automation; Computer Programming; Business Automation Management / S 20 / E 1959

Plattsburgh State University College, Plattsburgh, N. Y. / *C 66
Education, research, and community service / coml svc / IBM 1440 / Computer Science / S 4 / E 1965

Polytechnic Institute of Brooklyn, Computer Center, 333 Jay St., Brooklyn, N. Y. 11201 / *C 66
Education for students and staff, research /

coml svc / IBM 7040 with full options and channel B; IBM 1401, 1402, 1403; 8-729V tape drives; punch card equipment / 10 half-semester and 2 one week non-credit courses in Fortran IV and MAP languages (open to all registered students and to staff); credit courses by academic departments / S 14 / E 1960

Pomona College, Computer Center, Millikan Laboratory, Claremont, Calif. 91713 / *C 66
Educational and administrative functions / IBM 360, Model 40; 32K, 1442 reader-punch, 1443 printer; peripheral equipment / Numerical Analysis; independent student and faculty research / S 1 / E 1965

Portland State College, Portland, Ore. / *C 66
Education and research / IBM 1620-1622; peripheral equipment / Fortran Coding; SPS Coding / S 8 / E 1963

Prince George's Community College, 5000 Silver Hill Rd., Suitland, Md. 20028 / *C 66
Junior College / IBM series 50 / two courses; Introduction to EDP, Basic Programming Concepts / S 3 / E 1964

Princeton University Computer Center, Princeton, N. J. 08540 / *C 66
Education and scientific research / IBM 7094-1410; IBM 7044-1401; IBM 1410; IBM 1620; IBM 360-40 / Junior level courses in Math. Dept.; senior and graduate courses in Dept. of Electrical Engineering; Elementary Programming; lecture series on FORTRAN, SNOBOL, etc. / S 32 / E 1961

Queensborough Community College, Bayside, N. Y. 11364 / *C 66
Education / DIGIAC 3080 / Computer Programming / S 2 / E 1964

Randolph-Macon College, Computer Center, Ashland, Va. 23005 / *C 66
Undergraduate liberal arts education / IBM 1620 Model I, 20K, card; off-line 407 / Introduction to Digital Computation (mostly programming); Numerical Analysis / S 3 / E 1963

Reed College, Portland, Ore. 97202 / *C 66
Education and research for faculty and students / coml svc / IBM 1620 with 1311 disk unit, plus associated card equipment / extensive use within a number of courses in natural and social sciences / S 2 / E 1965

Rensselaer Polytechnic Institute, Computer Laboratory, Troy, N. Y. / *C 66
Education / coml svc / IBM 360 Model 50 / courses given in conjunction with computing center / S — / E 1952

Rhode Island College Computer Lab., Mt. Pleasant Ave., Providence 8, R. I. / *C 66
Administration and education / coml svc / IBM 1440 disk system and peripheral equipment / Fortran Programming for faculty and students / S 5 / E 1965

Richmond Professional Institute, 901 W. Franklin St., Richmond, Va. 23220 / *C 66
Educational / IBM 1620 with keypunch, sorter, reproducer; 1004 UNIVAC / Functional Wiring; Computer Programming / S 3 / E 1965

Riverside City College, Riverside, Calif. / *C 66
Education / IBM 1620; peripheral equipment / Introduction to Data Processing; Electromechanical Machines; Keypunch Training for the Deaf; Problems in Punched Card Data Processing; Computer Programming; Problems in Computer Data Processing; Data Processing Systems / S 8 / E 1963

Rochester Institute of Technology, 65 Plymouth Ave. South, Rochester, N. Y. 14608 / *C 66
Educational / IBM 1620 Model I-20K / Programming and Numerical Methods / S 3 / E 1963

Roosevelt Univ., 430 S. Michigan Ave., Chicago, Ill. 60605 / *C 66
Research and education / IBM 1620 and peripheral equipment / Data Processing; Programming; Systems and Procedures / S 10 / E 1963

Rose Polytechnic Institute, 5500 Wabash Ave., Terre Haute, Ind. 47803 / *C 66
Engineering education and research / IBM 1130; CDC G15 / Fortran Programming; Numerical Analysis / S 1 / E 1960

Rutgers, The State University, Center for Information Processing, New Brunswick, N. J. / *C 66
Education and research computing / coml svc / IBM 7040; 1401; 1620; IBM 360-67 on order / Theory of Programming; Programming & Data Processing; Programming & Numerical Analysis; Numerical Solution of Differential Equations; Programming for Research / S 16 / E 1958

St. Cloud State College, St. Cloud, Minn. 56301 / *C 66
Educational / IBM 1620, 1622; peripheral equipment planned / Basic programming; Business programming; Math for Scientists & Engineers; Numerical Analysis / S 1 / E 1964

St. Edward's Univ., 3001 S. Congress, Austin, Tex. 78704 / *C 66
Education and administrative use / coml svc, limited / IBM 1620-1622 system, model I; 026 keypunch; 084 sorter / Introduction to Digital Computers; Numerical Analysis / Math required / S— / E 1964

St. Francis Xavier Univ., Computation Centre, Antigonish, N. S. / *C 66
Research and education / IBM 1620, 40K; Off line printer, sorter, two key punch / Numerical Analysis / S 3 / E 1964

St. Johns River Junior College, Palatka, Fla. 32077 / *C 66
Education; service for administrative & business offices / IBM punch card equipment / Unit record equipment courses, Key punch course, & beginning, intermediate and advance 1401 program courses / S 3 / E 1962

St. Mary's Univ., 2700 Cincinnati Ave., San Antonio, Tex. 78228 / *C 66
Education, research and administrative support / coml svc / IBM 1620 and peripheral equipment / Introduction to Programming; Numerical Methods for Computers / S 4 / E 1962

St. Michael's College, Winooski, Vt. 05404 / *C 66
Education, administration, research / Burroughs Datatron 205; tape punch 466; tape unit 544, 4K memory drum, photoelectric reader / Introduction to Electronic Data Processing; Advanced Electronic Data Processing / S 2 / E —

St. Peter's College, Kennedy Blvd., Jersey City, N. J. 07306 / *C 66
Education and research / LGP-30; tape typewriters; photo-electric reader; high speed punch unit / Digital Computer Programming; Numerical Analysis / S 3 / E 1964

Samford Univ., Birmingham, Ala. 35209 / *C 66
Education and administration / IBM 1620 Model I card system; supporting equipment / Business Data Processing; Introductory Programming / S 6 / E 1964

San Antonio College Computer Center, 1300 San Pedro, San Antonio, Tex. / *C 66
Education and administration / IBM 1440; punch card equipment / Programming; Punch Card Accounting; Computer Concepts; Advanced Programming; Systems and Procedures; Advanced Systems & Procedures / S 13 / E 1954

San Jacinto College, 8060 Spencer Hwy., Pasadena, Tex. / *C 66
Teaching / IBM 1620, unit record equipment / two unit record and four computer courses / S 3 / E 1963

San Joaquin Delta College, Processing Dept., Stockton, Calif. / *C 66
Education / IBM 1620; EAM equipment / Fundamentals of Data Processing; Machine Operation and Wiring; Programming; Business, Scientific, Fortran; Data Processing Systems / S 4 / E 1959

Santa Ana College, 1530 W 17th St., Santa Ana, Calif. 92706 / *C 66
Education and administration / IBM computer, 2 disk drives, peripheral equipment / AA degree in Business Data Processing; AA degree in Computer Science / S 4 / E 1964

Savannah State College, Savannah, Ga. / *C 66
Administration, instruction, research / IBM 1620 / Computer Programming; Computer Concepts / S 2 / E 1965

Seton Hall Univ., Computer Center, S. Orange, N.J. / *C 66
Support of faculty and student research; educational program and computer science; administrative data processing / IBM 1620-20K card I/O disk file; unit record support equipment / Numerical Analysis, Numerical Methods in Matrix Algebra; Numerical Methods in Ordinary Differential Equations; Numerical Methods in Partial Differential Equations; Computer Programming & Numerical Methods; Introduction to Electronic Data Processing / Plans for program in Computer Science and for Introduction of Remote Terminals / S 10 / E 1963

Shippensburg State College, Shippensburg, Pa. 17257 / *C 66
Education / coml svc / IBM 1620-20K, 1311 disk drive, 1622 / Computer programming; graduate and undergraduate data processing / S 2 / E 1963

Siena College, Loudonville, N. Y. 12211 / *C 66
Administrative applications / IBM 1620; punch card equipment / Introduction to Programming; Accting Systems; special ADP course / S 3 / E 1963

Slippery Rock State College, Slippery Rock, Pa. 16057 / *C 66
Administrative / IBM record equipment / Rental of IBM system / 360 Model 20 being considered, Computer courses will then be offered / S 2 / E 1963

Snow College, Ephraim, Utah 84627 / *C 66
Student records and library control / 402; 026; 082; will change over to 1130 as soon as one can be obtained / Key Punch / S 2 / E 1965

South Dakota School of Mines and Technology, Computation Center, Rapid City, S. D. 57701 / *C 66
Education and scientific research / IBM 1620 (card I/O); IBM 407 (on order) / Digital Computer Programming; Fall 1966, Numerical Methods / S 7 / E 1962

South Dakota State Univ., Brookings, S. D. 57006 / *C 66
Research and teaching / IBM 1620 40K with punch card equipment / FORTRAN programming course / S 3 / E 1961

Southeastern Mass. Technological Institute, New Bedford Branch, Purchase St., New Bedford, Mass. / *C 66
Education and faculty research / Burroughs Datatron 205; paper tape input-output / Introductory Digital Computer Programming / S 1 / E 1965

Southern Colorado State College, Pueblo, Colo. / *C 66
Education and research, business application / coml svc / IBM 1620; 1622, 1443, 1311, plus unit record equipment / Introduction to Digital Computers; Numerical Analysis; Linear Programming; Business Machine Accounting Systems / S 7 / E 1963

Southern Illinois Univ., Computing Center, Carbondale, Ill. / *C 66
Administration, research, education / equipment located on both Carbondale and Edwardsville campuses and at Vocational Technical Institute — IBM 7040, 1620, (2) 1401's, Optical Scanner (Carbondale campus); IBM 1401, 1620 (Edwardsville campus); and IBM 1401 (Vocational Technical Institute) / Carbondale, ten courses related to Engineering, Department of Accounting and Business, and Applied Science; Edwardsville, four courses (Management, Mathematics); and Vocational Technical Institute, twelve courses / S 56 (Carbondale campus) / E 1958

Southern Univ., Computing Center, Baton Rouge, La. / *C 66
Education / IBM 1620, IBM 1440; IBM 1622, IBM 1443, IBM 1311 and other peripheral equipment / Theory and Use of Computing Machines; Introduction to Data Processing I & II; Automations and Computers; Numerical Analysis / S 1 / E 1952

Southwest Texas Junior College; P.O. Box 70; Uvalde, Tex. 78801 / *C 66
Education / 2— 26 Key punch machines; 1-82 Sorter; 1-514 Reproducer; 1-402 Accounting machine; 1-85 Collator / Introduction to Data Processing; Card punch machines; Systems; Applications; Programming / IBM 360 Model 20, delivery January, 1967 / S 1 / E 1963

Southwestern State College, Dept. of Physics, Weatherford, Okla. 73096 / *C 66
Instruction in pure Sciences and Mathematics / IBM 1130 with card I/O (to be delivered Jan. 1967) / Computer Programming for Science (others being developed) / S 2 / E 1966

Stanford Univ., Computation Center, Stanford, Calif. / *C 66
Education / IBM 7090-1401, CDC 8090; Burroughs B5500; PDP-1 / some "Quickie" courses offered by Center itself; university has large well-rounded Computer Science Department / S 100 / E 1953

State College of Iowa, Cedar Falls, Iowa 50613 / *C 66
Administration, research and education / IBM 1401-8K and peripheral equipment; IBM 1620-20K; unit record / Center used for demonstration purposes at present / S 10 / E 1949

State Teachers College, Data Processing Center, Kirksville, Mo. / *C 66
Facilitate administration of the college / IBM 1440 / Programming the 1440, Information Systems and Computers / S 2 / E 1966

State University Agricultural & Technical College, Alfred, N. Y. 14802 / *C 66
Education / IBM 1620 and peripheral equipment / AAS degree offered in data processing / S 8 / E 1963

State University College at Buffalo, 1300 Elmwood Ave., Buffalo, N. Y. 14222 / *C 66
Education and research / IBM 1130 due in Nov., 1966 / Introduction to Computer Science; Introduction to Computer Programming / S — / E 1965

State University College, Cortland, N.Y. 13045 / *C 66
Primarily administrative; slowly moving toward computer education and research / IBM 024 (2); 056, 514, 548, 083, 085 for support of UNIVAC 1004-I with read punch / Introduction to Computing Science; Programming the UNIVAC 1004 / S 6 / E 1958

State University College at Potsdam, Potsdam, N.Y. 13676 / *C 66
Education, research, administration / Unit record equipment; Sept. 1966 IBM 1440 / S 5 / E 1965

State University of New York, Agricultural and Technical College, Cobleskill, N. Y. / *C 66
Educational facilities and administrative services / IBM 1401 card system and complete unit record / DP curriculum leading to AAS in Data Processing / S 3 / E 1964

State University of New York at Albany, Albany, N. Y. 12203 / *C 66
Education and research / CDC 3100 / Introduction to Computer Science / S 15 / E 1965

State University of New York, Binghamton, N. Y. 13901 / *C 66
Education / IBM 1460-1448; IBM 1130 / Computer Concepts / S 19 / E 1965

State University of New York at Buffalo, Computing Center, Goodyear Hall, Buffalo, N. Y. 14214 / *C 66
Research and education / coml svc / IBM 7044 32K, B, C channels, off-line 4K 1401; two IBM 1620-60K, one with 1311 disk; IBM 360-40 in October / Mathematics, statistics; education; engineering / S 30 / E 1961

State University of New York, College of Forestry, Syracuse, N. Y. 13210 / *C 66
Service and education / IBM 1620 Model II / Introduction to Computer Programming; Computer Concepts and Applications / S 3 / E 1962

State University of New York College at Oswego, Piez Hall, Oswego, N. Y. 13126 / *C 66
Provides computer facilities for instruction in their use / IBM 1620 Model I 20K card I/O; IBM 082 card sorter; two IBM 026 printing card punches / IBM 1130 on order for next year / Math, programming for students with and with-

out calculus background / S 4 / E 1964

State University of New York, Downstate Medical Center, 450 Clarkson Ave., Brooklyn 3, N. Y. / *C 66
Administrative and scientific computing needs / IBM 1620; 1410 coupled directly to 1440 real time system / Seminars on Fortran / S 50 / E 1963

State University of New York Maritime College, Fort Schuyler, Bronx, N. Y. 10465 / *C 66
Research and student instruction / LGP-30; 1130 system on order / Elementary programming all students / S 1 / E 1961

Stetson Univ., De Land, Florida / *C 66
Administration, education, research / coml svc / IBM 1620; IBM 407 and related tab equipment / Introductory programming course / S 8 / E 1962

Swarthmore College, Swarthmore, Pa., 19061 / *C 66
Education and research / coml svc / IBM 1620-II with 40K, disk pack and monitor / None / S 6 / E 1964

Syracuse Univ., Computing Center, Syracuse, N. Y. / *C 66
University research using Computers. Teaching and research on computers and in Computer Science / IBM 7074; IBM 1460; February 1967 delivery of IBM 360-50 / Numerical Analysis; Systems Programming; Mathematical Programming; etc. / S 22 / E 1956

Teachers College Computer Center, 525 W. 120th St., New York, N. Y. 10027 / *C 66
Research, administration, and education / IBM 1620 Model II with disk and printer; Digitek optical scanner, EAM equipment / FORTRAN II D programming / S 20 / E 1964

Temple Junior College, Temple, Tex. 76501 / *C 66
Instruction / IBM unit record equipment / Key punch; Principles of Unit Record Machines; Introduction to Computer Programming; 403 Acct. machine / anticipate computer installation soon / S 2 / E 1963

Tennessee Tech, D. W. Mattson Computer Center, Box 21A TTU, Cookeville, Tenn. / *C 66
Education / coml svc / IBM 1710; IBM 1620 and off-line equipment / courses offered by another dept / S 5 / E 1960

Tennessee Wesleyan College, Athens, Tenn. 37303 / *C 66
Education and training / IBM 402 series 50 / Function and operation of IBM machines; Introduction to EDP / S 2 / E 1963

Texas A & M Univ., Data Processing Center, College Station, Tex. / *C 66
Education and research / IBM 7094; three IBM 1401 / M.S. degree in computer science; expanding computer science graduate program; short course programs provide a teaching service to industry / S 75 / E 1958

Texas Tech Computer Center, Lubbock, Tex. / *C 66
Education and research / IBM 1620-I; IBM 1620-II; IBM 1401; IBM 7040 and peripheral equipment / Fortran programming for credit and noncredit / S 8 / E 1962

Thornton Township Junior College, 151st & Broadway, Harvey, Ill. 60426 / *C 66
Education; administrative needs / IBM 1440 with 2 disk drives; peripheral equipment / Data processing courses / S 3 / E 1965

Trenton Junior College, 101 West State St., Trenton, N.J. / *C 66
Data processing instruction for students; prepare reports for administrators; prepare statistical reports for administrative & academic staffs / coml svc / IBM 1620; IBM unit record equipment / Fifteen courses offered including: Introduction to Electronic Data Processing; Programming I & II; Basic Computer Systems I & II; Computer Systems & Applications I & II / S 4 / E 1962

Tri State College, Angola, Ind. / *C 66
Service bureau for various school departments, complete billing service for cities water utility / coml svc / IBM 1620 Model I; punch card equipment / Data Processing for business students; Computer Programming for all students; evening course in Management Decision / S 3 / E 1963

Trinidad State Junior College, Trinidad, Colorado / *C 66
Education / IBM 1401 with a 1402 punch reader, 1403 printer; G-15 Control Data Computer with magnetic tape storage; IBM unit record equipment / Data Processing Department offers several computer related courses which award an Associate of Applied Science Degree upon completion of program / S — / E 1964

Trinity Univ., 715 Stadium Drive, San Antonio, Tex. 78212 / *C 66
Research for university personnel and student education / Coml svc / LGP-30; CDC 1700 / Programming; Numerical Analysis; Computer Techniques; Pulse and Digital Techniques; Statistics / S 6 / E 1960

Tulane Univ., Tulane Computer Laboratory, 6823 St. Charles Ave., New Orleans, La. 70118 / *C 66
Educational and research for university / coml svc / IBM 7044 / Introductory courses in computer sciences / S 10 / E 1958

Tuskegee Institute, Computer Center, Tuskegee, Ala. 36088 / *C 66
Education and service to academic, research and administrative areas / coml svc / IBM 1620-60K; IBM 40F; keypunch; sorter / Introductory Computing; Advanced Computing / S 9 / E 1961

Tyler Junior College, Tyler, Tex. / *C 66
Education and administration / IBM 1620 card system and peripheral equipment / Electronic Data Processing I & II; Computer Programming I & II / S 2 / E 1964

Union College, Computer Center, Schenectady, N.Y. 12308 / *C 66
Computing and data processing services to students, faculty, and administration / IBM 1620 and peripheral equipment. Equipment to be replaced with larger computer shortly / Computer programming; starting next year, will offer Advanced Programming; System Design / S 7 / E 1962

U.S. Coast Guard Academy, Computing Center, New London, Conn. / *C 66
Education and research / IBM 1620-40K, peripheral equipment and punch card equipment / 2 semesters required of all students / S 3 / E 1963

United States Merchant Marine Academy, Kings Point, N.Y. / *C 66
Instruction in use of analog computers; simulation—Nuclear Ship Savannah / (2) EAI 231R analog computers; X-Y plotters, oscillographs, ship simulation equipment / Analog Computer Technology, NSS Savannah Nuclear Reactor Operator Training / planning expansion to digital computers / S 5 / E 1963

United States Military Academy, West Point, N.Y. 10996 / *C 66
Education, research, and academic administration / GE Datanet-30; GE-225 with peripheral equipment; time-sharing remote terminals / programming in first semester and use of computers in subsequent courses / S 16 / E 1959

United States Naval Academy, Annapolis, Md. / *C 66
Education / IBM 1620-1622-1311-407 / FORTRAN Programming; Digital Computing / S 5 / E 1962

U. S. Naval Postgraduate School, Monterey, Calif. 93940 / *C 66
Research and consulting / CDC 1604; 2-CDC 160; IBM 1401 / 25 courses on aspects of the computer field / S 21 / E 1960

The Univ. of Akron, 302 E. Buchtel Ave., Akron, Ohio 44304 / *C 66
Educational and administration / coml svc / IBM 1620-60K with peripheral equipment; Burroughs 205 magnetic tape system / Computer Science; special topics in computer science / S 16 / E 1961

Univ. of Alabama, P. O. Box 2511, University, Ala. / *C 66
Education, research, and testing analysis / Univac Solid-State 80; Univac 1004 with remote access to 1107 / Introduction to Computer Science; Programming; Numerical Analysis; Management and Marketing; Application courses / S 3 / E 1961

Univ. of Alberta, Calgary, Alberta, Canada / *C 66
Research, education, administrative service / IBM 360 Model 30 (64K) with 2 disk drives / Several computing science and extension courses / S 12 / E 1962

Univ. of Arkansas, Computing Center, Fayetteville, Ark. 72701 / *C 66
Education and research / coml svc / IBM 7040, 6 tapes; IBM 1401, 2 tapes / Digital Computer Programming; Computer Organization and Programming; Introduction to Computers / S 15 / E 1960

Univ. of California, P. O. Box 112, Riverside, Calif. 92502 / *C 66
Academic research and education / coml svc / IBM 7040 with peripheral equipment / Computer Methodology and programming; Numerical Analysis; extension courses in Business and Scientific Programming / S 13 / E 1963

Univ. of California Computer Center, 201 Campbell Hall, Berkeley, Calif. / *C 66
Research and maintenance of general purpose computer / IBM 7094-7040 / Non-credit courses in: Computer Programming; Computers in Engineering; etc. / S 53 / E 1956

Univ. of California, Computer Center, Davis, Calif. 95616 / *C 66
Education and research on computer application and development / IBM 7044; Calcomp plotter, Model 750 / Introduction to FORTRAN IV Programming Language (non-credit) / S 22 / E 1960

Univ. of California, UCLA Computing Facility, Los Angeles 24, Calif. / *C 66
Education and research for faculty and students IBM 7094 with 9-729 IV magnetic tape units and peripheral equipment; 2 IBM 1401 with 2-729 IV magnetic tape; on-line console; IBM 360-40 with peripheral equipment; SWAC computer with electrostatic memory and drum storage and peripheral equipment / Non-credit courses in Fortran IV, MAP, 1401 and 360 machine languages and others; various courses given by individual departments / S 30 / E 1950

Univ. of Chattanooga, Chattanooga, Tenn. 37403 / *C 66
Education / coml svc / IBM 1620 - 1443 printer and tab installation / Engineering and Business Administration / S 6 / E 1963

Univ. of Cincinnati, Computing Center, Cincinnati 31, Ohio / *C 66
Education and research / coml svc / IBM 1620 with 40K core, 1311 disk; 1410, five 729 (II) tapes, 1403 printer / Business Adm., engineering, arts, sciences, etc. / S 7 / E 1958

Univ. of Colorado, Graduate School Computing Center, Boulder, Colo. / *C 66
Research and education / coml svc / IBM 7044 (32K) and peripheral equipment; IBM 1401 (4K) and peripheral equipment; Calcomp plotter / Institute of Computing Science offers graduate level courses. Computing Center offers non-credit courses in basic programming / S 18 / E 1962

Univ. of Connecticut, University Computer Center, Storrs, Conn. / *C 66
Provide computer facilities for all types of University research and education / IBM 7040 with 10 tapes, 1401 in/out, IBM 1620 with disk; PACE 231R / FORTRAN programming workshops 5 times a year / S 9 / E 1961

Univ. of Delaware, Newark, Del. / *C 66
Research and education / coml svc / SDS 9300/ DES-1, IBM 1620-II, EAI 231R-V, EAI TR-48 / undergraduate and graduate degree programs in computer science / S 20 / E 1957

Univ. of Denver, Denver, Colo. 80210 / *C 66
Research and education / coml svc / Burroughs B 5500 / Programming; Numerical Analysis / engineering courses use computer / S 10 / E 1958

Univ. of Detroit, 4001 W. McNichols, Detroit, Mich., 48221 / *C 66
Research, instruction, and administration / coml svc / IBM 1410, 40K and peripheral equipment / Numerical Analysis, Engineering Graphics, Computer Technology / S 20 / E 1963

Univ. of Florida, Computing Center, Gainesville, Fla. 32601 / *C 66
Education and research / coml svc / IBM 1401; IBM 709; Calcomp 363 / Fortran programming; seminars in ADP / S 25 / E 1962

Univ. of Georgia, Athens, Ga. 30601 / *C 66
Education and research / coml svc / IBM 7094; (2) IBM 1401; IBM 1620 / Four computer science courses / S 47 / E 1958

Univ. of Hawaii, Statistical and Computing Center, Honolulu, Hawaii 96822 / *C 66
Academic research and teaching computing / IBM 1401; IBM 7040 / computing courses given / S 21 / E 1960

Univ. of Idaho, Moscow, Idaho 83843 / *C 66
General university computing / IBM 1620-40K; (2) 1311 disk files; unit record equipment / Computer programming and applications / S 7 / E 1962

Univ. of Illinois, Department of Computer Science, Urbana, Ill. 61801 / *C 66
Education and research for students and faculty / IBM 7094; Illiac II; Illiac III being built by University / Digital Computing; Data Processing; Programming; Numerical Analysis; Boolean Algebra; Logical Design of Automatic Digital Computers; Circuit Design; Threshold Logic; Semiconductor Computer Devices; Advanced Theory of Magnetic and Optic Computer Memory Devices; Switching Theory / S 32 / E —

Univ. of Iowa, Computer Center, Iowa City, Iowa / *C 66
Research and education / coml svc / IBM 7044-32K, 8 729 III & II tape units; 1301 disc; 1401; 360-30 16K; 4 tape units / Computer Science Dept. offers courses / S 53 / E 1958

Univ. of Kansas, Computation Center, 110 Summerfield Hall, Lawrence, Kan. 66044 / *C 66
Education and research / coml svc, limited / IBM 7040, 1401; GE 415, Datanet 30 / Four computing courses and thirty teaching applications / S 20 / E 1957

Univ. of Kentucky, Computing Center, Lexington, Ky. 40506 / *C 66
Educational, research and administrative activities / coml svc / IBM 7040 with peripheral equipment; IBM 1410 with peripheral equipment; IBM 1620 with peripheral equipment; IBM 1401 with peripheral equipment; IBM 1050 remore consoles; IBM punch card equipment / Automatic Data Processing; Fundamentals of Programming; Design of Digital Computer; Numerical Analysis; Introduction to Algorithmic Processes; Computer Organization and Programming; Information Processing Systems; Algorithmic Languages and Compilers; Analog and Hybrid Computer Techniques; System Simulation; Non-numerical Application of Computers; Computers and Programming Systems / full degree program in Computer Science at B.S. level / S 40 / E 1958

Univ. of Louisville, Speed Scientific School, Computing Lab., Louisville, Ky. 40208 / *C 66
Education and research / IBM 1620-1311-1710; IBM 704, 32K; PACE 221R / Numerical Math; Digital Computation; Analog Computation; Adv. Digital Computation; Eng. Appl. of Digital Computation / S 6 / E 1958

Univ. of Manitoba, Winnipeg, Manitoba, Canada / *C 66
Research and education / coml svc / IBM 1620-disc; IBM 360-65, 4 disc, 2 tapes; communications facilities, etc. / M. Sc. (computer science); Undergrad electives: Programming, Numerical Analysis, Statistics / S 25 / E 1964

Univ. of Maryland, Computer Science Center, College Park, Md. / *C 66
Education, Institutional and Academic Research, Central Computing Facility / IBM 7094-1401 system; IBM 360-30 system / Many computer-related courses / S 80 / E 1963

Univ. of Massachusetts Research Computing Center, Amherst, Mass. / *C 66
Provide computing facilities and service to the University community / coml svc / CDC 3600-32K, 6 tapes / M. S. in computer science; undergraduate minor in C. S. / S 20 / E 1960

Univ. of Miami, Coral Gables, Fla. 33124 / *C 66
Research and education in computer theory and applications / coml svc / IBM 7040-1401; card sorter, duplicator, interpretor / Computer Programming; Computer Applications; Computer Systems Simulation; Numerical Analysis / S 14 / E 1965

Univ. of Michigan, Ann Arbor, Mich. / *C 66
Education and research / IBM 7090 with IBM 1410 as a peripheral processor / Many courses concerned with one or more aspects of the theory, design, development, or programming of computers. Rackham School of Graduate Studies offers several courses in information and control / S 37 / E 1959

Univ. of Minnesota Duluth, Duluth, Minn. 55812 / *C 66
Provide computer services for research and instruction / IBM 1620 with 60K core storage, 1311 disk storage drive, 1443 line printer; peripheral unit record equipment / Math; Computer Programming (3 cr/quarter); Bus & Econ; Accounting Systems & Data Processing; Ed. Psych.; Data Processing in Education / S 2 / E 1965

Univ. of Minnesota, School of Business Administration, Computer Center, Minneapolis, Minn. / *C 66
Research and education / Univac Solid-State 80; IBM 1620 / Introduction to Computers; Fortran / S 12 / E —

Univ. of Mississippi, University, Miss. 38677 / *C 66
Education / coml svc / IBM 1620 Model I with 60K memory / Basic Fortran Programming / S 6 / E —

Univ. of Missouri, Computer Research Center, B & P.A Bldg., Columbia, Mo. 65201 / *C 66
Research for faculty and graduate students; education / IBM 7040 and peripheral equipment; IBM 1710 with 1620 Model II and peripheral equipment / Fortran IV; Fundamentals of Digital Computer Programming; Numerical Analysis; Advanced Numerical Analysis / S 25 / E 1960

Univ. of Missouri at Rolla, Rolla, Mo. / *C 66
Education / coml svc / IBM 1620; Calcomp Model 566 / Introduction to Computing Techniques; Introduction to Algorithmic Processes; Computer Organization and Programming; Introduction to Information Structures; Algorithmic Languages for Digital Computers; Business Data Processing Techniques; Introduction to Numerical Methods and Digital Computer; Computer and Programming Systems; Computational Methods of Numerical Analysis; Logic of Digital Computers; Digital Computer Programming Languages; Data Processing for Management; Techniques of Information Processing and Retrieval; Special Problems in Computer Science; and others / B.S. and M.S. degrees in Computer Science are offered / S 46 / E 1959

Univ. of Montana Computer Center, Missoula, Mont. 59801 / *C 66
Support University research and train students / coml svc / IBM 1620 / Introduction to Computer Programming; Digital Computers & Coding; Computer Methods; Application of Digital Computers; Numerical Analysis / S 5 / E 1964

Univ. of Nevada, Reno, Nev. / *C 66
University-wide computing service to the University / coml svc / IBM 1620 Model II 60K, 3 disk drives; 1013 teleprocessing unit / Principles of electronic data processing and computer programming / Center conducts numerous programming workshops / S 18 / E 1960

Univ. of New Brunswick, Fredericton, N.B., Canada / *C 66
Education and research / coml svc / IBM 1620-II; 60K memory, 2-1311 disk-packs; 1443 printer; 1627-II plotter / Programming; Numerical Analysis; Computer Logic / S 5 / E 1959

Univ. of New Hampshire, Computer Center, Durham, N.H. / *C 66
Research and instruction / coml svc / IBM 1620 with 2 tape drives, IBM 360, model 40 / Numerical Methods and Computers, 16 other courses / S 10 / E 1961

Univ. of North Carolina, Computation Center, Chapel Hill, N.C. 27515 / *C 66
Research and education / UNIVAC 1105, UNIVAC 1004 III, IBM 360, Model 30 / Introduction to Digital Computer Usage; Fundamentals of Information Processing; Metaprograms; Symbolic Logic; Intermediate Symbolic Logic; Business Data Processing; Introduction to Numerical Analysis; Introduction to Automatic Digital Control; related courses for graduates / S 70 / E 1959

Univ. of North Dakota, P.O. Box 8282, University Station, Grand Forks, N.D. / *C 66
Education / coml svc / IBM 1620; punch card equipment / Programming for Engineers; Numerical Analysis; Statistics / Expanding to IBM 360 Model 30 in Dec., 1966 / S 3 / E 1961

Univ. of Ottawa Computing Centre, 700 King Edward Ave., Ottawa 2, Ontario, Canada / *C 66
Education of undergraduates and graduates / IBM 1620 Model II; disk packs and 40K core storage; interpreting keypunches and card sorting facilities / Numerical Analysis; Computer Programming; Scientific Computations / IBM 360 model G40 expected early this fall / S 7 / E 1958

Univ. of the Pacific, School of Engineering, Stockton, Calif. 95204 / *C 66
Education, some research / LGP-30 with high speed read punch and off-line flexowriter / Basic Programming / S 1 / E 1964

Univ. of Pennsylvania, Computer Center, Philadelphia, Pa. / *C 66
Education and research / Two IBM 7040; two IBM 1401; two IBM 1620; RCP 4000; PDP-8; PDP-6 / computing courses given / S 40 / E 1956

Univ. of Portland Computer Center, 5000 N. Willamette Blvd., Portland, Oregon / *C 66
Education, research, administration / coml svc / Burroughs 205 with 4000 - 10 digit word memory, 6 magnetic tape units; IBM punch card equipment / —/ S 10 / E 1964

Univ. of Puerto Rico, Rio Piedras, Puerto Rico / *C 66
University administration and research / IBM 1401 with peripheral equipment / Introduction to Punched Card Methods; Punched Card Methods; 1401 Symbolic Programming System / S 25 / E 1962

Univ. of Rhode Island, Kingston, R. I. / *C 66
Research and education for entire university / IBM 360-40; 131k, disk oriented / Computer Science; Introduction to Digital Computers; Scientific Applications of Digital Computers; Problems in Computer Science; Digital Computation / S 10 / E 1959

Univ. of St. Thomas, 3812 Montrose Blvd; Houston, Tex. 77006 / *C 66
Programming education and computing facility for students and staff / coml svc / CDC G15 computer; Friden Flexowriter; IBM 026 Key Punch / Algebra for Computation; Digital Computer Programming; Differential Equations; Numerical Analysis / S 3 / E 1961

Univ. of Scranton, Scranton, Pa. 18510 / *C 66
Educational, administrative and commercial / coml svc / Burrough 205 cardatron & Datafile full system / Programming for 205 & Algol; Advance Programming & Numerical Analysis / S 7 / E 1965

The University of the South, Sewanee, Tenn. 37375 / *C 66
Education and research / IBM 1620-I with paper tape read-punch / Basic Programming; Introduction to Numerical Analysis / S 2 / E 1963

Univ. of South Carolina, Computer Science Center, Columbia, S. C. 29208 / *C 66
Provide computer service, guidance, and instruction for University community / coml scv / IBM 7040 - 32K, 8 tape; IBM 1401 - 8K, 4 tape / Fortran; Cobol; Computer Design; Systems Design / S 18 / E 1957

Univ. of South Dakota, Vermillion, S.D. 57069 / *C 66
Education / IBM 1620 Model I 40K, card I/O, disk; 1443 printer on order / Computer oriented courses given / S 1 / E 1963

Univ. of Southern California, Computer Sciences Laboratory, 1020 W Jefferson Blvd., Los Angeles, Calif. 90007 / *C 66
Academic and research; computers and governmental systems research; under and post graduate training / H-800; H-400, H-200 and supporting tabulating equipment / Compiler Languages; COBAL and FORTRAN; Assembly languages; Quantified Research Design; Statistics; Bio statistics / S 30 / E 1961

Univ. of Southern Mississippi, Box 48, Southern Station, Hattiesburg, Miss. 39401 / *C 66
Education and research / coml svc / IBM 1620-I and peripheral equipment / Basic Programming-Fortran; Linear Programming Techniques; Digital Computer Programming-symbolic, machine, and complier programming; Construction of Compliers; Advanced Digital Programming / S 4 / E 1963

Univ. of Southwestern Louisiana, Box 133, USL Station, Lafayette, La. 70501 / *C 66
Education, research, administration / coml svc / IBM 1620-40K with peripheral equipment / Advanced Digital Computer Programming; Construction of Compilers; Design of Computer Languages; Information Theory and Information Retrieval; Heuristic Programming and Artificial Intelligence; Real time and Hybrid Computation; Theory of Automata and Finite State Machines / S 5 / E 1960

The Univ. of Tennessee, University Computing Center, Knoxville, Tenn. 37916 / *C 66
Research / coml svc / IBM 7040-1401 / Mathematics; Fortran IV; Accounting; Engineering / S 48 / E 1960

Univ. of Texas Medical Branch, Research Computations Center, Galveston, Tex. 77550 / *C 66
Assist medical researcher in design and analysis of research / IBM 1620-I with 2 disks and 40K memory; IBM 1232 / — / S 11 / E —

Univ. of Toledo, Computation Center, 2801 Bancroft, Toledo, Ohio 43606 / *C 66
Academic, research / coml svc / IBM 1620 Model I 40K memory, 1311 disk file, 1627 plotter / Introduction to Computing Techniques; Digital Computing & Numerical Analysis; The Use of Computers in Engineering / S 4 / E 1962

Univ. of Toronto, Institute of Computer Science, Toronto, Ont., Canada / *C 66
Education and research / coml svc / IBM 7094 II; IBM 1460; Calcomp plotter / Degree program in computer science / S 25 / E 1948

Univ. of Tulsa, 600 S. College, Tulsa 4, Okla. / *C 66
Education for undergraduates and graduate research / coml svc / IBM 1620 and peripheral equipment / Fortran Programming / S 2 / E 1963

Univ. of Utah, Salt Lake City, Utah 84112 / *C 66
Research and education at university / coml svc / IBM 7044-1401; CDC 3200; Univac 1108 on order / Programming; Use of Computers in Science and Engineering; Computer Science / S 25 / E 1958

Univ. of Virginia, Computer-Science Ctre., Charlottesville, Va. 22903 / *C 66
Education and research support / coml svc / Burroughs B5500 / — / S 12 / E 1959

Univ. of Waterloo, Computing Centre, University Ave., Waterloo, Ontario, Canada / *C 66
Research and education / coml svc, limited / IBM 7040 with on-line; IBM 1401; IBM 1710; IBM 1620 II; Pace Tr-48; IBM 1620; and supporting peripheral equipment / Analogue Computation; Numerical Methods; Digital Computer Programming; Numerical Analysis; Principles of Computer Science; Series of graduate courses in Numerical Analysis; Computer Programming; Advanced Computer Techniques; many more / S 21 / E 1960

Univ. of Western Ontario, London, Ontario / *C 66
Research, teaching and administrative / IBM 7040 (32K) and peripheral equipment / Graduate and undergraduate, MA or BA in Computer Science / S 30 / E 1959

Univ. of Windsor, Computer Centre, Windsor, Ont. Canada / *C 66
Education and research, administrative work / coml svc / IBM 1620-II, 40K core memory, 2-1311 disc drives, card I/O, off-line 407 / Courses offered by departments of mathematics and electrical engineering / S 2 / E 1964

Univ. of Wisconsin, 3203 N. Downer Ave., Milwaukee, Wis. / *C 66
Administration, education and research / IBM 1401 and peripheral equipment; IBM 1620 Model 2 and peripheral equipment; Calcomp printer, Unit-record equipment / Fortran Programming; Systems Programming; Introduction to Computing Machinery / S 34 / E 1962

Univ. of Wisconsin, Computing Center, 5534 Sterling Hall, Madison, Wis. / *C 66
Education with satellites / coml svc / CDC 3600 with CDC 924 and link satellites; CDC 1604B/160; IBM 1460 / Introduction to Programming (no credit); credit courses given by Computer Sciences Dept. / S 77 / E 1964

Univ. of Wyoming, University Station, P.O. Box 3275, Laramie, Wyo. 82070 / *C 66
Educational and faculty research; theses / coml svc / Philco 211-1 / Introduction to FORTRAN; Introduction to Machine Language; Introduction to Metalanguage / S 9 / E 1963

Utah State Univ., Logan, Utah 84321 / * C 66
Education and research / coml svc / IBM 1620-I, 40k core, card I/O; IBM 1401 G 4K core, card I/O / Data Processing; Computer Programming; Programming Business Problems; Programming Scientific Problems; Advanced Programming; Compiler Languages; Monitors and Systems Designs; Techniques in Operations Research; offer degree program with emphasis in mathematics or in management science / S 10 / E 1961

Valparaiso Univ., Valparaiso, Ind. 46383 / *C 66
Scientific computation and liberal arts approach to computer and programming / IBM 1620 with disk-unit record / Introduction to Programming; Numerical Analysis / S 4 / E 1961

Vanderbilt Univ., Computer Center, Nashville, Tenn. 37203 / *C 66
Education, research, administrative / coml svc / IBM 1401-7072 complex, 10K memory; peripheral equipment; tab equipment / Aiming for graduate degree program in computer science / S 12 / E 1959

Vassar College, Poughkeepsie, N.Y. 12601 / *C 66
Faculty and student research; education / IBM 360, Model 30 E. — disks / Introductory programming (no credit); intermediate level semester course in Statistics; Numerical Analysis (full year) at advanced level in Math / Computer Center opens December, 1966 / S 5 / E 1966

Vincennes Univ., Vincennes, Ind. 47591 / *C 66
Education and administration / IBM 1620 card system 20K with 1443 printer / Machine Language; SPS courses; Fortran; Programming project / two year curriculum in Science Data Processing, and Industrial Data Processing / S 6 / E 1962

Virginia Military Institute, Lexington, Va. 24450 / *C 66
Education, research and administration / IBM 1620-40K with peripheral equipment / Introduction to Symbolic Programming; Introduction to Automatic Programming; Computer Programming Systems and Methods; Advanced Programming / S 5 / E 1963

Virginia Polytechnic Institute, Blacksburg, Va. / *C 66
Education and administration / coml svc / IBM 7040, 2 IBM 1401 tape systems and unit record equipment / Introductory programming courses by academic departments / S 20 / E 1954

Virginia State College, Petersburg, Va. 23803 / *C 66
Education and research / coml svc / IBM 1620-60K, 407, 85 collator, 514 reproducing, etc. / Basic Computer Concepts; Computer Programming; courses in computer science are service courses / Institution has no major pursuit in computer science / S 5 / E 1964

Washburn Univ., Crane Observatory, Topeka, Kans. / *C 66
Education and research / coml svc - for service only, no solicitation / IBM 1620-1622; keypunch, verifier, sorter / Digital Computer Programming; Numerical Methods / S —/ E 1964

Designate No. 5 on Readers Service Card

Washington and Lee Univ., Computer Center, Lexington, Va. 24450 / *C 66
Education and administrative services / IBM 1620, data processing / one semester; Computer Programming / S 3 / E 1962

Washington State Univ., Pullman, Wash. / *C 66
Research and teaching / IBM 709, System 360-30; System 360-67 will be installed Nov. 1966 / Full graduate program in Information Science / S 35 / E 1957

Wayne State Univ., Computing and Data Processing Center, Detroit, Mich. 48202 / *C 66
Education, research and service to the University / IBM 7074; 2 IBM 1401; IBM 1460 / 64 courses offered / S 100 / E 1947

Weber State College, Ogden, Utah / *C 66
Two year programmer training course / coml svc / IBM 1401 4K with two 1311 disk drives / several courses in 1401 and related programmer training / S 4 / E 1963

Wesley College, College Square, Dover, Del. / *C 66
Education and administration; commercial / coml svc / IBM 1620, 402 printer, reproducer, sorter, punches, collator / Introduction to Data Processing; Scientific Data Processing / S — / E 1962

Westchester Community College, 75 Grasslands Rd., Valhalla, N.Y / *C 66
Education / Burroughs 205 with magnetic tape key punch / Basic programming & FORTRAN / S 1 / E 1964

West Chester State College, West Chester, Pa. 19380 / *C 66
Educational; maintain student records / IBM 1620; 1622 card-read punch; 407 accounting machine; and peripheral equipment / Basic Computer Science; Computer Programming / S 2 / E 1964

West Georgia College, Carrollton, Ga. 30117 / *C 66
Computational services for education and college administration / IBM 1620 model I-60K, 2 disk drives, on-line printer, peripheral equipment / Mathematics 200; Introduction to Computer Programming / S 5 / E 1964

West Texas State Univ., Canyon, Tex. 79015 / *C 66
Education, research, administration / IBM 1620 Model II with disk, 1401 tape, 360 in Nov. / 8 courses in School of Business; 2 courses in Math dept. / Degree program in School of Business with emphasis in data processing / S 14 / E 1964

West Virginia Institute of Technology, Montgome West Va. 25136 / *C 66
Education and administration / coml svc 1130 / Computer Programming (engineering science, business) / S 1 / E 1966

West Virginia University Computer Center, Ad. Morgantown, W. Va. 26506 / *C 66
Provide facilities for administration, tion and research / coml svc / IBM 32K [illegible] IBM 8K 1401; IBM 60k 1620 / Industrial Engineering; Math / S 53 / E 1963

Western Carolina Computer Operations, Western Carolina College, Cullowhee, N. C. 28723 / *C 66
Education, research, administration / IBM 1620 with disk, sorter; peripheral equipment / Courses range from introductory automatic and electronic data processing through systems analysis and data processing management / S 5 / E 1963

Western Kentucky Univ., College Heights, P.O., Bowling Green, Ky. / *C 66
Educational / estimated delivery date July, 1966 IBM 1130 / Introduction to Computers; Intermediate Computer Programming; EDP Systems Design; Unit-record Data Processing / S 6 / E 1966

Western Michigan Univ., Kalamazoo, Mich. / *C 66
Provide research, training and service facilities for faculty, staff and students / IBM 1620, Model I; 1622, 1311, IBM punch card equipment. IBM 360 Model H50, 262 storage, 1052, 1442-1443, 2504, 1403, 2701; 3 remote consoles on order / Fortran workshop (no-credit); Introduction to Computers I; Introduction to Computers II; Programming for Computers; Numerical Analysis; Automatic Programming Systems / S 5 / E 1962

Western State College, Gunnison, Colorado 81230 / *C 66
Education and administration / IBM 1620-1622 Model I; unit record equipment / Computer Programming / S 4 / E 1963

Western Washington State College, Computer Center, Bellingham, Wash. / *C 66
Education, research, administration / coml svc / IBM 1620-40K card with disk / Introductory Programming; Numerical Methods / S 4 / E 1962

Westminster College, Fulton, Mo. 65251 / *C 66
Education, student and faculty research, and school business / IBM 1620 Model I, disk drive, tape input / Basic Programming (Machine Language, SPS, FORTRAN), Advanced Programming, computer oriented research in other Depts. / S 1 / E 1963

Wheaton College, 501 E. Seminary Ave., Wheaton, Ill. 60187 / *C 66
Education, research, and business management and registration applications / coml svc / IBM 1620-1622 and peripheral equipment / Basic programming course using SPS and FORTRAN / S 6 / E 1958

Whitman College, Walla Walla, Wash. / *C 66
Student education, faculty research / IBM 1620 Model I; 1622 Model 2, 1311, 1443 / Introductory Programming; Numerical Analysis / S 2 / E 1964

Sir George Williams Univ., 2015 Drummond St., Montreal, Quebec / *C 66
Provides central computer center for academic and administrative needs / coml svc / IBM 1620 Model I with disk drives & 40K core; back-up auxiliary machines / Introduction to Computer Programming / S 9 / E 1963

Wilkes College, Wilkes-Barre, Pa. 18703 / *C 66
Scientific computation in conjunction with graduate and undergraduate program / Burroughs 205, with magnetic tape units / Advanced student individual study / S — / E 1965

Winston-Salem State College, Data Processing Center, Winston-Salem, N. C. / *C 66
Administration, research and testing / coml svc / IBM 1620 with punch card equipment / programming the IBM 1620 computer; keypunching / S 5 / E 1964

Wisconsin State Univ., Eau Clairr, Wis. 54701 / *C 66
Administrative / IBM 1620 Model I and peripheral equipment / Basic Programming; Advanced Mathematics; Business Courses / S 5 / E 1962

Wisconsin State Univ., LaCrosse, Wis. 54601 / *C 66
Just now establishing center for administrative, research & educational purposes / Data processing equipment in operation; IBM 360 and 1130 on order / One course at present; More courses next year / S 4 / E 1961

Wisconsin State Univ., Computer Center, River Falls, Wis. / *C 66
Instructional and faculty research / IBM 1620 20K / three courses in Computer Coding; Numerical Analysis / S 3 / E 1963

Wisconsin State Univ., 1800 Grand Ave., Superior, Wis. 54880 / *C 66
Administrative use & research / IBM 402, unit record equipment; IBM 1130 on order-to replace the 402 / Introduction to Data Processing; Computer Programming (FORTRAN) / S 5 / E 1964

Yale Computer Center, 60 Sachem St., New Haven, Conn. / *C 66
Education for faculty, students, and staff / IBM 1401-4K; IBM 7094-7040 DCS / Engineering and applied sciences courses; Fortran / S 35 / E 1958

York Junior College, Country Club Road, York, Pa. / *C 66
Educational and administrative / IBM 1620 with card reader and card punch / Introduction to Data Processing; Basic Computer Systems; Fortran Programming; 1440 Programming / S 4 / E 1962

The Youngstown Univ., 410 Wick Ave., Youngstown, Ohio 44503 / *C 66
Education and research / coml svc / IBM 1620 with card input/output; IBM 403 as printer and related auxiliary equipment / Computer Techniques; Principles of Business Computer / S 8 / E 1963

- END -

## Consulting Services

(Continued from page 55)

systems implementation - feasibility studies, systems design, programming, computer operations; scientific and statistical packages / S 55 / E 1965 / *C 66

Systems Research Laboratories, Inc., 500 Woods Dr., Dayton, Ohio 45432 / Consulting and mathematical services, research and development of scientific data processing systems, computer programming / S 255 / E 1954 / *C 65

Tabulating Service of Dallas, 1222 Ft. Worth Ave., Dallas 8, Tex. / Two 402's, two 514's, 083, three 082's, 552, 085, 602, 046, 026, six 024's, five 056's. Computer experience in 1401 and 1790 / Payrolls, sales analysis, inventories, census, surveys, general punched card and punched tape data processing / S 20 / E 1946 / *C 65

TASK FORCE, Division of Statistical Tabulating Corp., 104 S. Michigan Ave., Chicago 3, Ill. / Organizational problem-solving with one or more temporary office personnel in various skill families (data processing and computer operators, programmers, and supervisors; executive and technical; typing and stenographic; bookkeeping and office machines; clerical) for conversions, peak loads, unusual situations, second shift operations, etc. / Administrative management, scientific management, engineering and general data processing, programming, systems, analysis, and consultation / S 5000 / E 1933 / *C 65

Telecomputing Services, Inc., 8155 Van Nuys Blvd., Suite 250, Panorama City, Calif. 91402 / Consulting assistance available from TSI's L. A. and N. Y. Data Centers in the areas of both scientific and business computer applications / Data reduction involving raw data records from cinetheodolites, tracking telescopes, high-speed cameras, phototheodolites, ballistic cameras, radar, hydrophones, and telemetry; command and control problems as related to field artillery and early warning systems; engineering problems related to rocket motor development; business problems related to manufacturing / Services available on rate schedule or study-contract basis / S 510 / E 1947 / *C 65

United Nuclear Corporation, 5 New St., White Plains, N. Y. / CDC-1604-A computer, IBM 088, 523, 1000 line/minute printer, keypunch machines, interpreter, sorter, reproducer, etc. / Nuclear reactor and shielding calculations; Monte Carlo codes for neutron and gamma simulation in three dimensional geometry; diffusion and transport codes in one and two dimensional geometries; complete performance of problem analysis, coding and debugging and running or production problems / S 1500 / E 1940 / *C 65

URS Corp., 1811 Trousdale Dr., Burlingame, Calif. (Also Tucson and Sierra Vista, Ariz., Washington, D. C., and Burlingame, Calif.) / Personnel experienced in major software, such as compilers, executive routines and large scale business systems. Capabilities in applications analysis, feasibility studies, hardware and software evaluation and software design. Professional staff of 70 / Systems conversion or implementation, technical support on a demand basis in design, programming and/or documentation. Consultation concerning hardware design or modification from a software point of view. Evaluation of marketable software alternatives for computer manufacturers. Participation in design approaches to COBOL, FORTRAN and other large scale compiling systems / S 124 / E 1951 / *C 65

U. S. Naval Weapons Laboratory, Computation and Analysis Laboratory, Dahlgren, Va. / Research mathematicians, computer programmers, programming systems specialists, large-scale computer facility / Applied mathematics, numerical analysis, exterior ballistics, geoballistics, celestial mechanics, weapons effectiveness, computer simulations, general scientific and engineering problems / Services available to government activities and contractors / S 350 / E 1946 / *C 65

Westinghouse Electric Corp., Analytical Dept., E. Pittsburgh, Pa. / Experienced engineers and scientists in solution of advanced technical problems; experienced business systems analysts specializing in the application of computers to management information systems; full complement of computing equipment. Digital: 7094-II, 2, 1401; analog: Anacom, electronic differential analyzer. Prodac 580 on-line control computer and systems laboratory / Analytical studies and computer programming services in all branches of engineering, management sciences, and manufacturing. Special emphasis on electrical, mechanical, thermal and nuclear aerospace design in performance studies; design optimization of products and systems; analog and digital simulation studies; management information systems, information retrieval, list processing, system specification and documentation. Development of on-line and off-line programs; solution of problems requiring hybrid analog-digital methods / S 100 / E 1929 / *C 65

Wolf Research & Development Corp., P. O. Box 36, W. Concord, Mass. 01781 / Computer and programming specialists; management analysts; applied mathematicians; physical scientists; engineers / Computer systems and applications; information systems; technical and business management; operational analysis; telemetry; data processing; scientific and engineering analysis to include electronic and logic circuit design, communications, information theory, astrodynamics, spacecraft and rocket booster mechanics, aerothermodynamics, geodesy, meteorology, human factors / S 400 / E 1954 / *C 65

Zator Co., 140½ Mt. Auburn St., Cambridge, Mass. 02138 / Consulting and service / Information retrieval systems / S 3 / E 1947 / *C 65

- END -

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- General Alarm at the Fortress of Dreadeerie
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- The Submarine Rescue Chamber Squalux
- The Three Monkeys who Spurned Evil
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- Josephine's Man Trap
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- The Sign that Spells Alice
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- Jim's and Ed's Intercom

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# ROSTER OF COMPUTER ASSOCIATIONS

Following is a roster of computer associations, not including "Users' Groups"; for these, see elsewhere in this Directory.

All additions, corrections, and comments will be welcome.

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I.

International Federation for Information Processing,
c/o I. L. Auerbach, Pres., Auerbach Corp., 1634 Arch St., Philadelphia 3, Pa.

II.

National Information Processing Organizations included in the International Federation for Information Processing:

ARGENTINA

Sociedad Argentina de Calculo
c/o Mr. H. R. Ciancaglini
Facultad de Ingenieria
Universite de Buenos Aires
Buenos Aires, Argentina

AUSTRALIA

Australian National Committee on Computation and Automatic Control
c/o Dr. F. Hirst
Computation Laboratory
University of Melbourne
Parksville N2, Victoria, Australia

AUSTRIA

Austrian Working Committee on Automatization
c/o Dr. Heinz Zemanek
Science Group IBM
Parkring 10
Vienna 1, Austria

BELGIUM

Association Belge pour l'Application des Methodes Scientifiques de Gestion
c/o Professor M. Linsman
Centre Interdisciplinaire de Calcul
Universite de Liège
6, quai Banning
Liège, Belgium

BRAZIL

Brazilian Association for Electronic Computers
c/o Mr. Jose Andrade
Rua Araujo Porto Alegre
36-8º Andar - Divisao Electronica
Rio de Janiero, Brazil

BULGARIA

Bulgarian Academy of Sciences
c/o Professor Dr. Lyubomir Iliev, Director
1, "7th of November" Street
Sofia, Bulgaria

CANADA

Computing and Data Processing Society of Canada
c/o Prof. C. C. Gotlieb
Computation Centre
University of Toronto
Toronto 5, Ontario

CZECHOSLOVAKIA

Czechoslovak National Committee for the International Federation for Information Processing
c/o Ing. Jiri Kryze
Institute for Information Theory & Automation
Czechoslovak Academy of Sciences
Ceskomalinska 25
Prague 6, CSSR

DENMARK

Danish Academy of Technical Sciences
c/o Dr. Niels I. Bech
Regnecentralen
Gl. Carlsbergvej 2
Copenhagen-Valby, Denmark

FINLAND

The Finnish National Committee for Information Processing
c/o Prof. Pentti Laasonen
Finland Institute of Technology
Helsinki, Finland

FRANCE

Association Francaise de Calcul et de Traitement de l'Information (AFCALTI)
c/o Mr. J. Carteron
Institut d'Astrophysique
98 bis, Boulevard Arago
Paris 14e, France

GERMANY

Deutsche Arbeitsgemeinschaft für Rechen-Anlagen (DARA)
c/o Prof. Dr. A. Walther
Technische Hochschule
Darmstadt 16, Germany

ISRAEL

Information Processing Association of Israel
c/o Prof. Y. Bar-Hillel
Hebrew University of Jerusalem
Jerusalem, Israel

ITALY

Associazione Italiana per il Calcolo Automatico
c/o Prof. Aldo Ghizzetti
Instituto Nazionale per le Applicazioni del Calcolo
7, Piazzale delle Scienze
Rome, Italy

JAPAN

Information Processing Society of Japan
c/o Dr. Motinori Goto
Japanese Electronic Industry Development Association
35, Shiba Nishikubo Tomoe-cho
Minato-ku, Tokyo, Japan

MEXICO

Mexican Association for Computing and Information Processing
c/o Ing. Sergio F. Beltran, Director
Electronic Computer Center
National University of Mexico
Ciudad Universitaria
Mexico 20, D.F. Mexico

NETHERLANDS

Nederlands Rekenmachine Genootschap
c/o Prof. Dr. A. van Wijngaarden
Mathematisch Centrum
2e Boerhaavestraat 49
Amsterdam, Netherlands

NORWAY

Norwegian Society for Electronic Information Processing (NSEI)
c/o Mr. Jan V. Garwick
Chairman NSEI
Norwegian Defense Research Establishment
Kieller pr Lillestrom, Norway

POLAND

Polish Academy of Sciences
c/o Prof. Leon Lukaszewicz
Koszykowa 79, ZAM
Warsaw, Poland

SPAIN

Instituto de Electricidad y Automatica
c/o Prof. J. G. Santesmases
Instituto de Electricidad y Automatica
Facultad de Ciencias
Ciudad Universitaria
Madrid 3, Spain

SWEDEN

Swedish Society for Information Processing
c/o Mr. Borje Langefors
SAAB
Linköping, Sweden

SWITZERLAND

Swiss Federation of Automatic Control
c/o Dr. A. P. Speiser
IBM Research Laboratory
Saumerstrasse 4
Ruschlikon ZH, Switzerland

UNITED KINGDOM

British Computer Society
c/o Dr. S. Gill
Ferranti Ltd.
21 Portland Place
London W.1., England

UNITED STATES

American Federation of Information Processing Societies
c/o Mr. H. G. Asmus
211 East 43rd St.,
New York, N.Y. 10017

U.S.S.R.

Academy of Sciences of the U.S.S.R.
c/o Prof. A. A. Dorodnicyn
Computing Centre
Academy of Sciences of the U.S.S.R.
I-Academichesky Proezd 28
Moscow B-312, U.S.S.R.

VENEZUELA

Asociación Venezolana de Ingeniería de Computación Electrónica (A.V.I.C.E.)
c/o Ing. Manuel M. Ramos
Ministerio de Minas e Hidrocarburos
Centro de Computación
Centro Simón Bolívar, Torre Norte
Caracas, Venezuela

III.

Other Computer Associations or Associations or Symposiums with Computer Interests (not regional):

Annual Computer Applications Symposium, c/o Milton M. Gutterman, Illinois Institute of Technology, Research Institute, 10 West 35 St., Chicago, Ill. 60616

Association for Computing Machinery, Inc., c/o J.D. Madden, Exec. Director, 211 East 43rd St., New York, N.Y. 10017

Association of Data Processing Service Organizations, Inc., c/o W.H. Evans, Exec. Vice Pres., 947 Old York Rd., Abington, Pa. 19001

Association for Educational Data Systems (AEDS), c/o Con D. Bushnell, Pres., System Development Corp., 2500 Colorado Ave., Santa Monica, Calif.

Association for Machine Translation and Computational Linguistics, c/o Prof. H.H. Josselson, Wayne State Univ., Detroit, Mich.

Association Internationale pour le Calcul Analogique, 50 Ave. Franklin D. Roosevelt, Bruxelles, Belguim

BioInstrumentation Advisory Council (BIAC), c/o Lloyd E. Slater, Secretary, Case Institute of Technology, Cleveland, Ohio

Business Equipment Manufacturers Association (BEMA), 235 East 42nd St., New York 17, N. Y.

Data Processing Cards and Forms Manufacturers Association, 211 E. 43rd St., New York, N. Y. 10017

Data Processing Management Association (DPMA), c/o R. Calvin Elliott, Exec. Director, International Administrative Headquarters, 505 Busse Highway, Park Ridge, Ill. 60068

European Computer Manufacturers Association (ECMA), Rue du Rhône 114, 1204-Geneva, Switzerland

First International Conference on Programming and Control, c/o O.J. Manci, Jr., Frank J. Seiler Research Laboratory, USAF Academy, Colorado Springs, Colo.

Institute of Electrical and Electronics Engineers (IEEE), Box A, Lenox Hill Station, New York 21, N. Y.; One East 79 St., New York 21, N. Y.

Instrument Society of America, C/o Herbert S. Kindler, Exec. Director, 530 William Penn Place, Pittsburgh, Pa. 15219

IEEE Computer Group, c/o Keith W. Uncapher, Chairman, The RAND Corporation, 1700 Main St., Santa Monica, Calif. 90406

International Association for Cybernetics, Palais des Expositions, Place André Rijckmans, Namur, Belgium

International Computation Centre, Palazzo Degli Uffici, Zona Dell E.U.R., Rome, Italy

ISA Instrument-Automation Conference and Exhibit c/o Instrument Society of America, 313 Sixth Ave., Pittsburgh 22, Pa.

Institute of Information Storage and Retrieval, c/o Marvin M. Wofsey, Center for Technology and Administration, The American University, Washington 6, D.C.

International Automation Congress and Exposition, c/o Richard Rimbach Associates, 933 Ridge Ave., Pittsburgh 12, Pa.

Joint Automatic Control Conference, c/o Mr. Gene F. Franklin, Stanford Electronics Laboratories, Stanford, Calif.

Joint Computer Conference, c/o American Federation of Information Processing Societies, 211 E. 43 St., New York 17, N. Y.

Numerical Control Society, c/o Mary Ann DeVries, Admn. Sec., 44 Nassau St., Princeton, N.J. 08540

SHARE Design Automation Project, c/o J. Behar, IBM Corp., 425 Park Ave., New York, N.Y. 10022

Simulation Councils, Inc., c/o Stanley Rogers, Secretary, P.O. Box 2228, La Jolla, Calif. 92038

IV.

Regional Computer Associations

A. Chapters of the Association for Computing Machinery in the United States

ALABAMA

Auburn University Student Chapter, Larry Pearson, Computer Center, Auburn University, Auburn, Ala. 36830

University of Alabama Student Chapter, Mary Beth Wear, 900 10th St., Tuscaloosa, Ala.

ARIZONA

Southern Arizona Chapter, R. J. Blanken, 83 Cargil Drive, N. E., Sierra Vista, Ariz.

University of Arizona Student Chapter, Gordon Thompson, SU PO Box 10689, Tucson, Ariz.

CALIFORNIA

Antelope Valley Chapter, R. N. Barry, 45521 N. Genoa St., Lancaster, Calif.

Arrowhead (San Bernardino/Riverside) California Chapter, Roger A. Wells, Control Data Corp., 505 N. Arrowhead, San Bernardino, Calif.

Harvey Mudd College, John Halperin, Residence Halls, Harvey Mudd College, Claremont, Calif.

Los Angeles, California Chapter, Solomon Pollack, 817 25th St., Santa Monica, Calif.

Los Angeles Valley College Student Chapter, Russell Hogue, 8106 Bellingham Ave., N. Hollywood, Calif.

Orange County, Calif. Chapter, J. Earl Warren, Chevron Research Co., Box 446, La Habra, Calif. 90633

San Diego, Calif. Chapter, Sherman I. Klein, 3026 Poinsettia Drive, San Diego, Calif. 92106

San Diego State College Student Chapter, Eugene E. Holmerud, 4908 1/2 67th St., San Diego, Calif.

San Fernando Valley, Calif. Chapter, F. G. Jordan, IBM, 9045 Lincoln Blvd., Los Angeles, Calif.

Stanford University Student Chapter, Lawrence G. Tesler, Stanford University, Computing Center, Stanford, Calif.

U. S. Naval Postgraduate School Student Chapter, David L. McMichael, U. S. Naval Postgraduate School, Student Chapter of ACM SMC #1704, Monterey, Calif.

University of California (Berkeley) Student Chapter, Charles Brombaugh, 2521 Piedmont St. apt L., Berkeley, Calif.

COLORADO

Pikes Peak Chapter, Harvey E. McAnulty, 1206 Pike Drive, Colorado Springs, Colo.

Rocky Mountain Chapter, Bert Hall, 1100 West Littleton Blvd., Littleton, Colo.

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Hartford State Technical Institute Student Chapter, Ronald St. John, 401 Flatbush Ave., Hartford State Technical Institute, Hartford 6, Conn.

New Haven Area Chapter, Robert F. Rosin, Computer Center, Yale University, 60 Sachem St., New Haven, Conn.

FLORIDA

Central Florida Chapter, Charlie Ferguson (Pan American) Central Florida Chapter ACM, 2216 Cindy Circle, Eau Gallie, Fla.

Northwest Florida Chapter, Dr. Leland H. Williams, Florida State University, Computing Center, Tallahassee, Fla.

Palm Beach, Florida Chapter, Donald J. Beuttenmuller, 243 Russlyn Drive, West Palm Beach, Fla. 33405

GEORGIA

Georgia Inst. of Technology, Edgar L. Townsend, Box 30058, Georgia Industry of Technology, Atlanta, Ga.

Georgia State Student Chapter, T. Kenyon, Georgia State Student Chapter, ACM, 2455 Dodson Drive, East Point, Ga.

Mid Southeast Chapter, Dr. I. E. Perlin, Georgia Institute of Technology, Rich Electronic Computer Center, Atlanta, Ga. 30332

University of Georgia Student Chapter, John T. Camp, Georgia Univ. Station, Box 2033, Athens, Ga.

HAWAII

Honolulu Chapter, George Stepp, Management Services Division, State of Hawaii, P. O. Box 150, Honolulu, Hawaii 96810

ILLINOIS

Chicago, Illinois Chapter, Arthur Wachowski, 1238 Forest Rd., La Grange Park, Ill.

Southern Illinois Student Chapter, Ronald Bryant, Data Processing Comp. Center, 607 S. Dixon St., Carbondale, Ill. 62901

University of Chicago Student Chapter, R. J. Panos, University of Chicago Student Chapter of ACM, 196 Park Rd., Park Forest, Ill.

University of Illinois Student Chapter, C. D. Shepard, Digital Computer Laboratory, University of Illinois, Urbana, Ill. 61803

INDIANA

Central Indiana Chapter, James R. Reardon, Radio Corp. of America, RCA Victor Home Instruments Div., 501 N. LaSalle St., Indianapolis 1, Ind.

Michiana (Michigan-Indiana) Chapter, Prof. Allen H. Brady, Computing Center, University of Notre Dame, Notre Dame, Ind.

Purdue University Student Chapter, Thomas Collins, Computer Sciences Center, Engineering Administrative Bldg., Lafayette, Ind.

KENTUCKY

Kentucky Chapter, William M. Starcher, IBM Corp., 628 East Main St., Lexington, Ky.

University of Kentucky Student Chapter, Leland E. Rogers, Computing Center, University of Kentucky, Lexington, Ky.

LOUISIANA

Greater New Orleans Chapter, Carl E. Eiesen, 131 Techefuncte Drive, Covington, La.

Louisiana Polytechnic Inst. Student Chapter, James R. Herrington, 2910 Milton St., Shreveport, La.

Shreveport, Louisiana Chapter, Robert A. McKee, Texas Eastern Transmission Corp., P. O. Box 1612, Shreveport, La.

Univ. of Southwestern Louisiana Student Chapter, Sean Gayle, USL Computing Center, University of Southwestern Louisiana, Lafayette, La.

MARYLAND

Chesapeake Bay Area Chapter, James Torri, Westinghouse Corp., Friendship Airport, Friendship, Md.

University of Maryland Student Chapter, Dr. Richard A. Austing, Univ. of Maryland, Computer Sci. Center, College Park, Md. 20742

Washington D. C. Chapter, Richard C. Lemons, General Electric Co., 7800 Wisconsin Ave., Bethesda, Md.

MASSACHUSETTS

Greater Boston Chapter, Frank Engel, Jr., 179 Lewis Rd., Belmont, Mass. 02178

University of Massachusetts Student Chapter, Kathleen Coles, Research Computer Center, University of Massachusetts, Amherst, Mass.

MICHIGAN

Michigan State University, Chuck Kenoyer, 920A Cherry Lane, East Lansing, Mich.

University of Michigan Student Chapter, Computing Center, No. Union Bldg., University of Michigan, Ann Arbor, Mich.

Metropolitan-Detroit, Michigan Chapter, Professor B. Herzog, Dept. of Industrial Engineering, 231 W. Engineering Bldg., The University of Michigan, Ann Arbor, Mich.

MISSISSIPPI

University of Southern Mississippi Student Chapter, John Mims, Computing Center, University of Southern Mississippi, Hattiesburg, Miss.

MISSOURI

Kansas City, Missouri Chapter, Raymond A. Semrad, Natl. Bellas Hess Co., 715 Armour St., N. Kansas City, Mo.

St. Louis, Missouri Chapter, Jerry Lavick, McDonnell Automation Center, P. O. Box 516, St. Louis, Mo.

University of Missouri, Rolla Student Chapter, John C. Lamb, Director, Computing Center, Missouri School Mines & Metallurgy, Rolla, Mo.

Washington Univ. Student Chapter, William C. Finnie, School of Engineering and Applied Science, Washington University, St. Louis, Mo. 63130

NEW JERSEY

Delaware Valley Chapter, Ray Dash, RCA Bldg. 204-2, Cherry Hill, N. J. 08101

Northern New Jersey Chapter, J. W. Woythaler, 296 Summit Ave., Summit, N. J.

Stevens Institute of Technology Student Chapter, Lewis Goldklang, Stevens Institute of Technology, Castle Point Station, Hoboken, N. J.

NEW MEXICO

Greater Rio Grande Chapter, J. L. Tischhauser, Computing Programming, Sandia Corp., P. O. Box 5800, Albuquerque, N. M.

NEW YORK

City College of New York Student Chapter, P. S. Frosch, 2630 Linden Blvd., Brooklyn, N. Y. 11208

Hudson-Mohawk Chapter, Robert D. Burgess, Mechanical Technology Lab., 968 Albany-Shaker Rd., Lstham, N. Y.

Kingston, New York Chapter, Freeman D. Lewis, IBM, Dept. 867, Neighborhood Rd., Kingston, N. Y.

Long Island, New York Chapter, Hanan Rubin, General Applied Science Labs, Inc., Merrick & Stewart Aves., Westbury, L. I., N. Y.

New York City Chapter, Noel Zakin, UNIVAC, Sperry Rand Bldg., New York 19, N. Y.

New York Institute of Technology Student Chapter, Michael Pizzarelli, % N. Y. Inst. of Technology, 135 West 70th St., New York, N. Y. 10023

New York Southern Tier Chapter, Robert G. Salsbury, 324 Anderson Rd., Vestal, N. Y.

New York University Student Chapter, Martin Foont, 277 West End Ave., New York, N. Y. 10023

Niagara Frontier (Buffalo) Chapter, F. D. Robinson, Marine Midland Corp., Box 643, Buffalo, N. Y.

Polytechnic Institute of Brooklyn Student Chapter, Stephen L. Robinson, c/o Computing Center, Polytechnic Institute of Brooklyn, 333 Jay St., Brooklyn 1, N. Y.

Poughkeepsie, New York Chapter, John Burns Gilbert, Poughkeepsie Chapter of ACM, P. O. Box 27, Poughkeepsie, N. Y.

Queensborough Community College Student Chapter, Robert W. McManus, 89-38 86th St., Woodhaven, N. Y. 11321

Syracuse, New York Chapter, Ray Brown, 7207 Rosewood Circle, North Syracuse, N. Y.

Westchester-Fairfield County Chapter, Albert Chiappinelli, Jr., Allison Rd., Katonah, N. Y.

NORTH CAROLINA

Central Carolina Chapter, Dr. Robert T. Herbst, 260 Chester Rd., Winston-Salem, N. C.

OHIO

Cincinnati-Dayton Area, Ohio Chapter, Seymour V. Pollack, Univ. of Cincinnati, College of Medicine, Eden and Bethesda, Cincinnati, Ohio

Cleveland, Ohio Chapter, Raymond F. Hitti, SOHIO, Midland Building, Cleveland, Ohio, address correspondence to: Cleveland-Akron Chapter ACM, P. O. Box 4741, Cleveland, Ohio

OKLAHOMA

Bartlesville, Oklahoma Chapter, H. W. Curley, Cities Service Oil Co., Bartlesville, Okla. 74003

Tulsa, Oklahoma Chapter, Denos Lados, IBM Corporation, 1307 S. Boulder, Tulsa, Okla. 74119

OREGON

Willamette Valley Oregon Chapter, Miss June J.I. Houglund, Dept. of Mathematics, Oregon State University, Corvallis, Ore.

PENNSYLVANIA

Bucknell University Student Chapter, Robert Paul Bair, 203 South 3rd St., Lewisburg, Pa.

Carnegie Institute of Technology Student Chapter, E. Earley, Programming Res. & Rev., Carnegie Inst. of Tech., Schenley Park, Pittsburgh 13, Pa.

Pittsburgh Chapter, D. B. Breedon, Business Systems 4L13, Westinghouse Electric Corp., Computer Building, East Pittsburgh, Pa. 15112

RHODE ISLAND

Providence College Student Chapter, George P. McCabe, Jr., Box 133 - Friar Station, Providence College, Providence, R. I.

Rhode Island Chapter, Victor R. Basili, Hickey Building, Providence College, Providence 8, R. I.

SOUTH CAROLINA

Clemson University Student Chapter, Robert E. Jorger, Box 4471, Clemson, S. C.

TENNESSEE

University of Tennessee, Marcus L. Reed, Univ. Computing Centre, The University of Tennessee, Knoxville, Tenn. 37919

TEXAS

Arlington State College Student Chapter, C. Gordon Peadon, 2200 San Jose Drive, Fort Worth, Tex. 76112

Agricultural & Mechanical College of Texas (Texas A & M) Student Chapter, Billy Sewell, c/o Data Processing Center, Texas A & M University, College Station, Tex.

Dallas-Ft. Worth, Texas Chapter, L. B. Wadel, Graduate Res. Center, P. O. Box 30365, Dallas, Tex.

Houston, Texas Chapter, Lynn Hayward, c/o M. D. Anderson Hospital, Dept. of Biomathematics, 6723 Bertner, Houston 25, Tex.

Rice University Student Chapter, Forest Basket, III, Computer Project, Rice University, Houston, Tex.

Sabine-Port Arthur, Texas Chapter, P. C. Nettleton, IBM Corp., 2530 Calder Ave., Beaumont, Tex.

UTAH

Brigham Young University Student Chapter, Larry A. Richards, Brigham Young University, Provo, Utah

Utah Chapter, Robert E. Hoffman, General Electric Computer Dept., 2425 South Eighth West, Salt Lake City, Utah

VIRGINIA

Tidewater Virginia Chapter, Oscar Garcia, Old Dominion College, Box 6137, Norfolk, Va.

WASHINGTON

Inland Empire-Spokane, Ronald R. Rector, IBM Corp., 800 S. Stevens, Spokane, Wash.

Puget Sound (Seattle-Tacoma) Chapter, L. A. Rasmussen, Route 1, Box 350, Maple Valley, Wash.

Washington State University Student Chapter, Lee Lucas, Computing Center, Washington State University, Pullman, Wash.

WISCONSIN

Madison Area, Wisconsin Chapter, Larry E. Travis, University of Wisconsin, Computer Sciences Dept., 435 N. Park St., Madison, Wisc. 53706

Milwaukee, Wisconsin Chapter, Robert J. Robinson, 1515 West Wisconsin Ave., Milwaukee 3, Wisc.

CANADA

University of Toronto Student, D. C. Younger, 54 Thorncliffe Park Drive, Toronto, Ontario 17, Canada

University of Western Ontario Student Chapter, Chris Biggs, Computer Science Dept., University of Western Ontario, London, Canada

VENEZUELA

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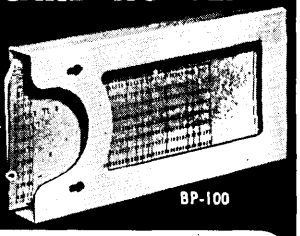

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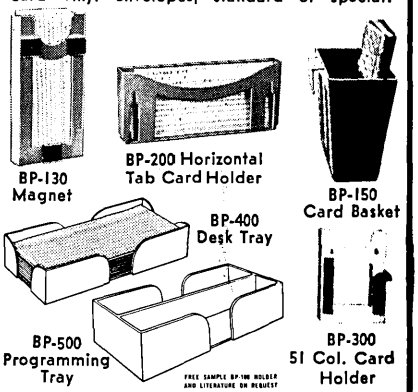

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# COMPUTER USERS GROUPS —ROSTER

Following is a roster of groups of computer users. All additions, corrections, and comments will be welcome.

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Abbreviations: *C: Information checked
G: Information gathered / 66: 1966
65: 1965, etc.

COMMON (formerly 1620 Users Group) IBM 1130, 1620/1710, 1800, 360 systems / Mr. Charles E. Maudlin, Jr., Int'l Sec'y-Treas., COMMON, Computer and EDP Labs., Univ. of Oklahoma, Norman, Okla. 73069 / S 1100 / E 1959 / *C 66

CO-OP / Control Data 1604, 3000 series, 6000 series / Mr. Robert G. Tantzen, Exec. Sec'y, CO-Op, c/o Digital Computation Div., Air Force Missile Development Ctre., Holloman Air Force Base, N.M. / 101 installations / E 1960 / *C 66

CUBE / Burroughs computers: B100, B200 (B260, B270, B280), B300, B5000, B5500, B220, B205 / Mr. Thomas Favello, Sec'y, CUBE, c/o Clevite Corp., 200 Smith St., Waltham, Mass. 02154 / *C 65

DECUS / PDP-1, PDP-4, PDP-5, PDP-6, PDP-7, PDP-8, and LINC / Angela J. Cossette, Exec. Sec'y, DECUS, Digital Equipment Computer Users Society, Maynard, Mass. 01754 / S 450 / E 1962 / *C 66

G-15 Users Exchange Organization / Control Data G-15 / Mr. Peter O. Cioffi, Sec'y, Control Data G-15 Users Exchange Organization, Control Data Corp., 8100 34th Ave., So., Minneapolis, Minn. 55440 / *C 65

General Electric 225 Computers Users Association / GE 210, 215, 225, 235 / Mr. Forrest L. Garrison, Jr., Sec'y, GE 225, c/o General Electric Co., P.O. Box 8555, Philadelphia 1, Pa. / *C 65

GUIDE / IBM 705, 1410, 7000 series with peripheral equip; or a System/360, Model 40 / Lois E. Mecham, Sec'y, GUIDE, c/o United Services Automobile Assoc., 4119 Broadway, San Antonio, Tex. 78215 / S 530 / E 1956 / *C 66

H-400 Users Group / H-400 and H-1400 computers / T. S. Ansel, Sec'y-Treas., H-400 Users Group, c/o Beech Aircraft Corp., 9709 E. Central, Wichita, Kan. 67201 / S approx. 110 organizations / E 1962 / *C 66

H-800 Users Association / Honeywell 800/1800 / Mr. Joseph Callahan, Sec'y, H-800 Users Assoc., c/o American Mutual Liability Ins. Co., Wakefield, Mass. / S 72 / E 1961 / *C 66

IBM 1620 Users Group / IBM 1620 / Mr. Charles E. Maudlin, Jr., International Sec'y-Treas., 162-Users Group, Computer Lab., Univ. of Oklahoma, Norman, Okla. / *C 65

JUG / Joint Users Group / Mr. Robert E. Rountree, Jr., Sec'y, JUG, c/o National Bureau of Standards, Conn. & Van Ness St., N.W., Rm. 414-South Bldg., Washington, D.C. 20234 / S 14 / User Groups / E 1960 / *C 66

NCR 304 Users Organization / NCR 304 / E. N. Barrett, Sec'y, NCR 304 Users Organization, c/o National Cash Register Co., Main and K Sts., Dayton 59, Ohio / *C 65

NCR 390 Users Organization / National Cash Register's NCR 390 Computer / Mr. C. Richard Fruth, Chairman, NCR 390 Users Organization, c/o Professional Bldg., Fostoria, Ohio / G 62

OPUS / OPCON Users / Mr. W. Spence Filleman, Sec'y, OPUS / c/o Datatrol Corp., 8115 Fenton St., Silver Spring, Md. / *C 65

Raytheon Users Group / Raytheon PB250 / Mr. E. David Phillips, Sec'y, Raytheon Users Group, Raytheon Computer, 2700 S. Fairview St., Santa Ana, Calif. / *C 65

SDS Users Group / SDS 92, 910, 925, 930, 940, 9300 / Mr. Harold J. Tuens, Sec'y, SDS Users Group, c/o SDS, 1649 Seventeenth St., Santa Monica, Calif. 90406 / S ? / E ? / *C 66

SHARE / IBM computers / Mr. David J. Farber, Sec'y, SHARE, c/o Bell Telephone Laboratories, Inc., Whippany, N. J. / G 62

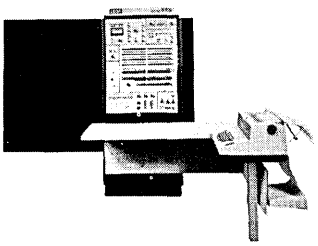
SNUG / NCR 315, NCR 315-100, NCR 315 RMC / Mr. Nick Spillson, Sec'y Treas., SNUG, c/o Scientific NCR Users Group, Main and K Sts., Dayton, Ohio 45409 / S 87 plus European / E 63 / *C 66

SWAP / Control Data 160, 160-A, 8090, 924, 3100, 3200, 3300 / Mr. Carl L. Hill, Exec. Sec'y, SWAP, c/o System Development Corp., 2500 Colorado Ave., Santa Monica, Calif. 90406 / S 200 / E 1962 / *C 66

TUG / Philco 2000 series / Mr. Omar Phillips, Sec'y TUG, c/o Western Development Lab., 3875 Fabian Way, Palo Alto, Calif. / *C 65

UNIVAC, Div. of Sperry Rand Corp., / Univac Solid State, Univac I, II, III, Univac 1050, Univac 490, Univac 418, Univac 1107 and 1108 / Mr. Murray F. Hepple, Sec'y, c/o UNIVAC, 503 West Sunset Rd., Mt. Prospect, Ill. 60057 / S 500 / E 1955 / *c 66

- END -

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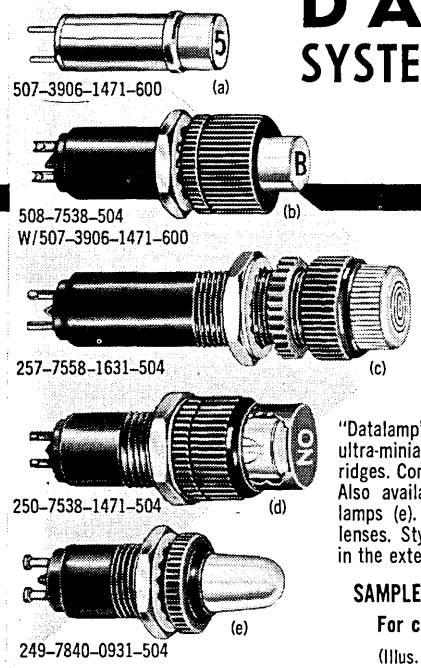


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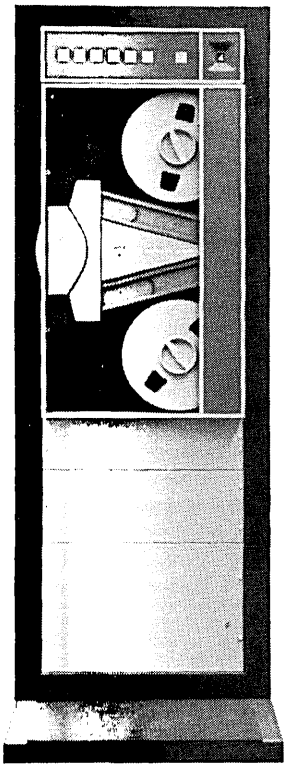

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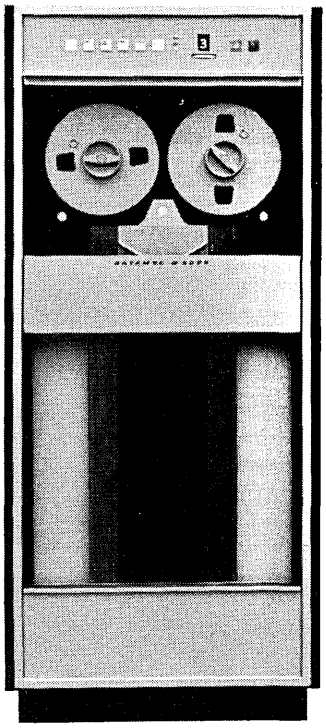

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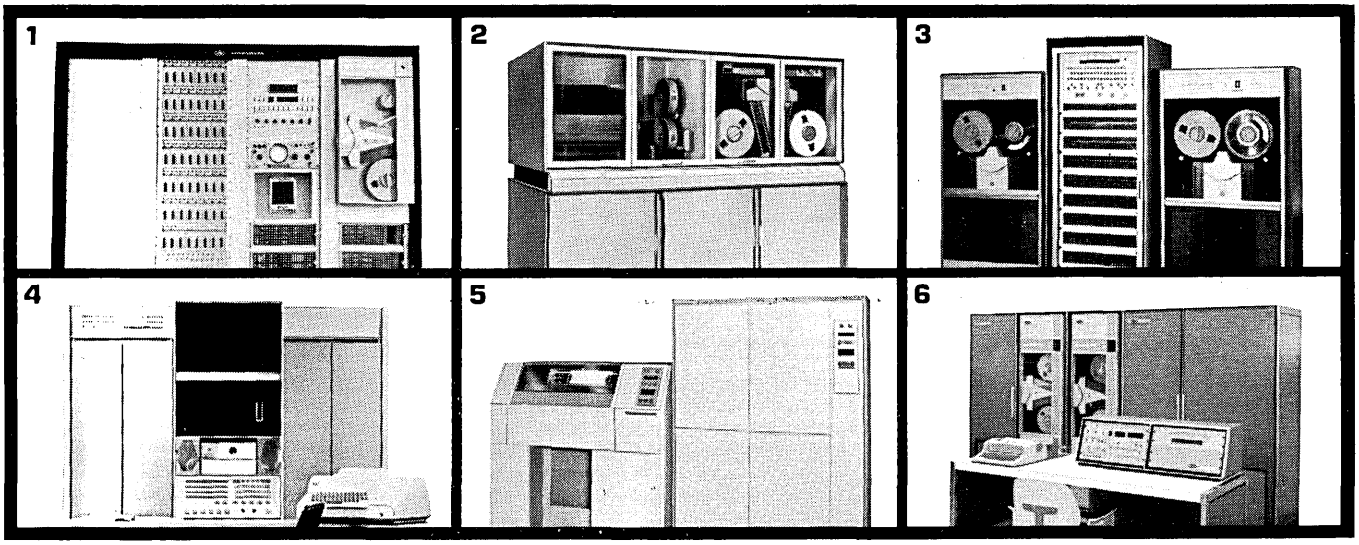


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