FERROMAGNETICS

in computer technology, the science that deals with the storage of information and the logical control of pulse sequences through the utilization of the magnetic polarization properties of materials to store binary information.

FIELD

a set of one or more characters (not necessarily all lying on the same word) which is treated as a whole; a set of one or more columns on a punched card consistently used to record similar information.

FIELD, CARD

a set of card columns fixed as to number and position into which the same type of information is regularly entered.

FIELD, DECREMENT

a portion of an instructor word set aside specifically for modifying the contents of a register or memory location specified by the tag digits of the same instructor word.

FILE

a sequential or organized set of items.

FIXED-POINT

a notation or system of arithmetic in which all numerical quantities are expressed by a pre-determined number of digits with the arithmetic point implicitly located at some pre-determined position; contrasted with floating-point.

FLIP-FLOP

a bi-stable device; a device capable of assuming two stable states; a bi-stable device which may assume a given stable state depending upon the pulse history of one or more input points and having one or more output points. The device is capable of storing a bit of information; a control device for opening or closing gates; a toggle. See Eccles-Jordan.

FLOATING-POINT

a notation in which a number x is represented by a pair of numbers y and z (and two integers n and m which are understood parameters, m being the number base to which y is expressed and n the base of the exponent z, in any given representation) with y and z chosen so that $x = y.n^z$ where z is an integer and where m and n are usually 2 or 10. The quantity y is called the fractional or mantissa; the integer z is called the exponent or characteristic, e.g. a decimal number 241,000,000 might be shown as 2.41, 8, since it is equal to 2.41×10^8. Here the 2.41 is assumed to be the base 10.

FLOW-CHART

a graphical representation of a sequence of operations, using symbols to represent the operations such as compute, substitute, compare, jump, copy, read, write, etc. A flow chart is a more detailed representation than a diagram.

FORCE

to intervene manually in a routine and cause the computer to execute a jump instruction.

FOUR-ADDRESS

see Code, Multiple-address.

FUNCTION-TABLE

two or more sets of information so arranged that an entry in one set selects one or more entries in the remaining sets; a diectionary; a device constructed of hardware, or a subroutine, which can either (a) decode multiple inputs into a single output or (b) encode a single input into multiple outputs; a tabulation of the values of a function for a set of values of the variable.

FUNCTOR

a logical element which performs a specific function or provides a linkage between variables. Usage not recommended.

GATE

a circuit which has the ability to produce an output which is dependent upon a specified type of or the co-incidence nature of the input, e.g. an "and" gate has an output pulse when there is time coincidence at all inputs; and "or" gate has an output when any one or any combination of input pulses occur in time coincidence; any gate may contain a number of "inhibits", in which there is no output under any condition of input if there is time coincidence of an inhibit or "except" signal.

GENERATOR

a program for a computer which generates the coding of a problem; a mechanical device which produces an electrical output.

GRID, CONTROL

the electrode of a vacuum tube other than a diode upon which a signal voltage is impressed in order to control the plate current; usually electrode number 1.

HALF-ADDER

a circuit having two output points, S and C, and two input points, A and B, such that the output is related to the input according to the following table:

INPUT		OUTPUT	
A	B	S	C
0	0	0	0
0	1	1	0
1	0	1	0
1	1	0	1

If A and B are arbitrary input pulses, and S and C are "sum without carry" and carry, respectively, it may be seen that two half-adders, properly connected may be used for performing binary addition.

HARDWARE

the mechanical, magnetic, electronic and electrical devices from which a computer is fabricated; the assembly of material forming a computer or component thereof.

HEAD

a device which reads, records or erases information in a storage medium, usually a small electromagnet used to read, write or erase information on a magnetic drum or tape or the set of perforating or reading fingers and block assembly for punching or reading holes in paper tape or cards.

HOLD

the function of retaining information in one storage device after transferring it to another device; in contrast to clear.

HUNTING

a continuous attempt on the part of an automatically controlled system to seek a desired equilibrium condition. The system usually contains a standard, a method of determining deviation from this standard and a method of influencing the system such that the difference between the standard and the state of the system is brought to zero. See Servomechanism.

IGNORE

an instruction requiring non-performance of what normally might be executed; not to be executed; a typewriter character indicating that no action whatsoever be taken. (In Teletype or Flexowriter code, all holes punched is an ignore).

IMPEDANCE, CHARACTERISTIC

the ratio of voltage to current at every point along a transmission line on which there are no standing waves; the square root of the product of the open and short circuit impedance of the line. When a transmission line is terminated in its characteristic impedance, energy is not reflected, but is fully absorbed in the terminating impedance.

INCLUSIVE-OR-OPERATOR

see OR-OPERATOR. P or Q is True if P or Q or both is True; when the term OR is used alone, as in OR-gate, the Inclusive-OR is usually implied; buffer.

INFORMATION

an aggregation of data.

INPUT

the information which is transferred from external storage into the internal storage; a modifier designating the device performing this function.

INSTRUCTION

a set of characters which defines an operation together with one or more addresses (or no address) and which, as a unit, causes the computer to operate accordingly on the indicated quantities. The term "instruction" is preferable to the terms "command" and "order"; command is reserved for electronic signals; order is reserved for "the order of the characters" (implying sequence) or "the order of the interpolation", or "the order of the differential equation".

INSTRUCTION, BREAKPOINT

an instruction which, if some specified switch is set, will cause the computer to stop.

INSTRUCTION, BREAKPOINT, CONDITIONAL

a conditional jump instruction which, if some specified switch is set or situation exists, will cause the computer to stop, after which either the routine may be continued as coded or a jump may be forced.

INSTRUCTION, MULTIPLE-ADDRESS

see code, Multiple-address.

INSTRUCTION, ONE-ADDRESS

an instruction consisting of an operation and exactly one address. The instruction code of a single-address computer may include both zero- and multi-address instructions as special cases.

INSTRUCTION, ONE-PLUS-ONE or THREE-PLUS-ONE ADDRESS

a two- or four-address instruction, respectively, in which one of the addresses always specifies the location of the next instruction to be performed.

INSTRUCTION, TRANSFER

a computer operational step in which a signal or set of signals specifies the location of the next operation to be performed and directs the computer to that operation (or instruction).

INSTRUCTION, TWO, THREE or FOUR ADDRESS

an instruction consisting of an operation and 2, 3, or 4 addresses, respectively. The addresses may specify the location of operands, destination of results, or location of other or next instruction.

INSTRUCTION, ZERO-ADDRESS

an instruction specifying an operation in which the location of the operands are defined by the computer code, so that no address need be given explicitly.

INTEGRATOR

a device whose output is proportional to the integral with respect to the input variable.

INTERLACE

to assign successive storage locations to physically separated storage positions, e.g. on a magnetic drum or tape, usually for the express purpose of reducing access time.

ITEM

a set of one or more fields containing related information; a unit of correlated information relating to a single person or object; the contents of a single message.

INTERPRETER

an interpretive routine.

JUMP

an instruction or signal which, conditionally or unconditionally, specifies the location of the next instruction and directs the computer to that instruction. A jump is used to alter the normal sequence control of the computer. Under certain special conditions, a jump may be forced by manual intervention. In other words a transfer of control is made to a specified instruction.

JUMP, CONDITIONAL

an instruction which will cause the proper one of two (or more) addresses to be used in obtaining the next instruction, depending upon some property of one or more numerical expressions or other conditions.

KEY

a group of characters usually forming a field, utilized in the identification or location of an item; a marked lever manually operated for copying a character, e.g. typewriter, paper tape perforator, card punch manual keyboard, digitizer or manual word generator.

LAG

a relative measure of the time delay between two events, states, or mechanisms.

LANGUAGE, MACHINE

expressions which define the operations of a computer, usually intelligible to the computer by means of its circuitry. It may be information recorded in a form which may be made available to a computer; coded information which can be sensed by a machine.

LATENCY

in a serial storage system, the access time less the word time, e.g. the time spent waiting for the desired word or unit of information to appear under the drum heads or at the end of an acoustic tank.

LIBRARY, ROUTINE

an ordered set or collection of standard and proven routines and subroutines by which problems and parts of problems may be solved, usually stored in relative or symbolic coding. (A library may be subdivided into various volumes, such as floating decimal, double-precision, or complex, according to the type of arithmetic employed by the subroutines.)

LINE, DELAY

a device capable of causing an energy impulse to be retarded in time from point to point, thus providing a means of storage by circulating intelligence bearing-pulse configurations and patterns. Examples of delay lines are material media such as mercury, in which sonic patterns may be propagated in time; lumped constant electrical lines; co-axial cables, transmission lines and recirculating magnetic drum loops.

LINE-PRINTING

printing an entire line of characters across a page as the paper feeds in one direction past a type bar or cylinder bearing all characters on a single element.

LINE TRANSMISSION

any conductor or systems of conductors used to carry electrical energy from its source to a load.

LOCATION

a unit storage position in the main internal storage, storing one computer word; a storage register.

LOCATION, STORAGE

a storage position holding one computer word, usually designated by a specific address or a specific register.

LOGGER

a device which automatically records physical processes and events, usually chronologically.

LOGIC

the science that deals with the canons and criteria of validity in thought and demonstration; the science of the formal principles of reasoning; the basic principles and applications of truth tables, gating, interconnection, etc. required for arithmetic computation in a computer.

LOGIC, SYMBOLIC

exact reasoning about relations using symbols that are efficient in calculation. A branch of this subject known as Boolean algebra has been of considerable assistance in the logical design of computing circuits.

LOGICAL

see Operation, Logical.

LOOP

the repetition of a group of instructions in a routine.

LOOP, CLOSED

repetition of a group of instructions which may be repeated indefinitely.

MALFUNCTION

a failure in the operation of the hardware of a computer. See Error.

MATRIX

in mathematics, an array of quantities in a prescribed form, usually capable of being subject to a mathematical operation by means of an operator or another matrix according to orescribed rules; an array of circuit elements, e.g. diodes, wires, magnetic cores, relays, etc. which are capable of performing a specific function, e.g. conversion from one numerical system to another or selection of a channel based upon the input signal pattern.

MEMORY

the term "storage" is preferred.

MERGE

to produce a single sequence of items, ordered according to some rule (i.e., arranged in some orderly sequence), from two or more sequences previously ordered according to the same rule, without changing the items in size, structure, or total number. Merging is a special case of collation.

MESSAGE

a group of words, variable in length, transported as a unit; a transported item of information.

MICROSECOND

a millionth part of a second. Abbreviated usec.

MILLISECOND

a thousandth part of a second. Abbreviated msec.

MISTAKE

a human blunder which results in an incorrect instruction in a program or in coding, an incorrect element of information, or an incorrect manual operation. See Error.

MNEMONIC

assisting, or intended to assist, memory; of or pertaining to memory; mnemonics is the art of improving the efficiency of the memory (in computers, storage).

MODIFIER

a quantity used to alter the address of an operand, e.g. the cycle index.

MODIFY

in an instruction, to alter the address of the operand; to alter a subroutine according to a defined parameter.

MULTIVIBRATOR

a type of relaxation oscillator used for the generation of non-sinusoidal waves in which the output of each of its two tubes is coupled to the input of the other to sustain oscillations.

MULTIVIBRATOR, ASTABLE

a free running type of relaxation oscillator used for the generation of non-sinusoidal waves.

MULTIVIBRATOR, MONOSTABLE

a type of relaxation oscillator used to sustain a trigger pulse for a specified time. The device assumes another state for a specified length of time at the end of which it returns to its original state, after being pulsed or forced into another state.

NORMALIZE

to adjust the exponent and mantissa of a floating-point result so that the mantissa lies in the prescribed standard (normal) range; standardize.

NOTATION

see "NUMBER-SYSTEM".

NOTATION, BIQUINARY

one of any number of mixed-base notations in which the term n^i in the definition of number system is replaced by the product $\prod_{j=0}^{i-1} m_j$. In the biquinary system, m_j is two for j odd, five for j even; a scale of notation wherein the base is alternately 2 and 5, e.g. the decimal number 3671 is biquinary 03 11 12 01, the first of each pair of digits counting 0 or 1 units of five and the second counts 0, 1, 2, 3 or 4 units. For comparison, the same number in Roman numerals is MMMDCLXXI. Biquinary notation expresses the representation of numbers by the abacus, and by the two hands and five fingers of man and is used in some computers.

NOTATION, CODED-DECIMAL

decimal notation in which the individual decimal digits are represented by some code.

NOTATION, MIXED-BASE

a number system in which the term n^i in the definition of number-system is replaced by the product $\prod_{j=0}^{i-1} m_j$, e.g. in the biquinary system m_j is two for j odd and five for j even.

NOTATION, POSITIONAL

in a number system, a notation in which the position of each digit determines the exponent to which the base is raised, the digit being the coefficient of the power of the base and the position of the digit indicating the power to which the base is raised, e.g. in decimal, positional notation, 264 is $2 \times 10^2 + 6 \times 10^1 + 4 \times 10^0$.

NUMBER, BINARY

a numerical value written in the base-two system of notation. Usually the characters 0 and 1 are used to express numbers, although any pair of arbitrary symbols could be used.

NUMBER, OPERATION

a number indicating the position of an operation or its equivalent subroutine in the sequence forming a problem routine. When a problem is stated in pseudo-code, each step is sometimes assigned an operation number.

NUMBER, RANDOM

a set of digits constructed of such a sequence that each successive digit is equally likely to be any of n digits to the base n of the number.

NUMBER-SYSTEM

numerical notation; positional notation; a systematic method for representing numerical quantities in which any quantity is represented approximately by the factors needed to equate it to a sum of multiples of powers of some chosen base n. That is, a number x

$= a_q n^q + a_{q-1} n^{q-1} + \ldots + a_1 n + a_o + a_{-1} n^{-1} + \ldots + a_{-p} n^{-p}$

$= \sum_{i=p}^{i=q} a_i n^i$, with $n < a_i < 0$ for all i, is represented by $a_q a_{q-1} \ldots a_1 a_o a_{-1} \ldots a_{-p}$, with a point to the right of a_o to identify it. For example, in decimal notation familiar to all, in which n equals ten, $x = 371.426$ represents $3 \cdot 10^2 + 7 \cdot 10^1 + 1 \cdot 10^0 + 4 \cdot 10^{-1} + 2 \cdot 10^{-2} + 6 \cdot 10^{-3}$; in binary notation, in which n equals two, $x = 1101.01$ represents $1 \cdot 2^3 + 1 \cdot 2^2 + 0 \cdot 2^1 + 1 \cdot 2^0 + 0 \cdot 2^{-1} + 1 \cdot 2^{-2}$, which = 13.75 in decimal notation. In writing numbers, the base is sometimes indicated as a subscript (itself always in decimal notation) whenever there is any doubt about what base is being employed (e.g., $1101.11_2 = 13.75_{10}$); Binary, Ternary, Quatenary, Quinary, Octal (Octonary), Decimal, Duodecimal, Sexadecimal (Hexadecimal) or Duotricenary Notation - notation using the base 2, 3, 4, 5, 8, 10, 12, 16 or 32 respectively.

OCTAL

pertaining to the number base of eight, e.g. in octal notation, octal 214 is 2 times 64 plus 1 times 8 plus 4 times 1 equals decimal 140; octal 214 is binary-coded-octal 010, 001, 100; octal 214 is straight binary 10001100.

ONE-ADDRESS

single address; a system of machine instruction such that each complete instruction explicitly describes one operation and one storage location. See Instruction, One-Address.

ON-LINE OPERATION

a type of system application in which the input data to the system is fed directly from the measuring devices and the computer results obtained during the progress of the event, e.g. a computer receives data from wind tunnel measurements during a run, and the computations of dependent variables are performed during the run enabling a change in the conditions so as to produce particularly desirable results.

OPERAND

any one of the quantities entering or arising in an operation. An operand may be an argument, a result, a parameter, or an indication of the location of the next instruction; generally, the quantity being operated upon.

OPERATION

a defined action; the action specified by a single computer instruction or pseudo-instruction; an arithmetical, logical, or transferal unit of a problem, usually executed under the direction of a subroutine.

OPERATION, ARITHMETICAL

an operation in which numerical quantities form the elements of the calculation (e.g., addition, subtraction, multiplication, division).

OPERATION, AVERAGE-CALCULATING

a common or typical calculating operation longer than an addition and shorter than a multiplication; often taken as the average of nine addition and one multiplication time.

OPERATION, COMPLETE

an operation which includes (a) obtaining the instruction, (b) obtaining all operands from storage, (c) performing the operation, and (d) returning results to storage.

OPERATION, COMPUTER

the electronic action resulting from an instruction; in general, computer manipulation required to secure computed results.

OPERATION, FIXED-CYCLE

a type of computer performance whereby a fixed amount of time is allocated to an operation; synchronous or clock-type arrangement within a computer in which events occur as a function of measured time.

OPERATION, LOGICAL

an operation in which logical (yes-or-no) quantities form the elements being operated on (e.g., comparison, extraction). A usual requirement is that the value appearing in a given column of the result shall not depend on the values appearing in more than one given column of each of the arguments.

OPERATION, REAL-TIME or ON-LINE

the processing of data in synchronism or in coincidence with a physical process in such a fashion that the results of the data-processing are useful to the physical operation.

OPERATION, RED-TAPE

an operation which does not directly contribute to the result; i.e., arithmetical, logical, and transfer operations used in modifying the address section of other instructions in counting cycles, in rearranging data, etc.

OPERATION, SERIAL

the flow of information through a computer in time sequence, using only one digit, word, line or channel at a time. Contrasted with parallel operation.

OPERATION, TRANSFER

an operation which moves information from one storage location or one storage medium to another (e.g., read, record, copy, transmit, exchange). Transfer is sometimes taken to refer specifically to movement between different media; storage to movement within the same medium.

OPERATION, VARIABLE-CYCLE

computer action in which any cycle of action or operation may be of different lengths. This kind of action takes place in an asynchronous computer.

OPERATOR

the person who actually manipulates the computer controls, places information media into the input devices, removes the output, presses the start button, etc.; a mathematical symbol which represents a mathematical process to be performed on an associated function; generally, the quantity which indicates an operation to be performed upon an operand e.g. $d/dt, \nabla, \int dt$, etc.).

OR-CIRCUIT

an electrical or mechanical device which will yield an output signal whenever there are one or more inputs on a multichannel input, e.g. an OR gate is one in which a pulse output occurs whenever one or more inputs are pulsed; forward merging of pulses simultaneously providing reverse isolation. See Inclusive-OR and Exclusive-OR.

ORDER

a defined successive arrangement of elements or events. The word order is losing favor as a synonym for instruction, command or operation part sue to ambiquity.

OR-OPERATOR

a logical operator which has the property such that if P or Q are tow statements, then the statement "P OR Q" is true or false precisely according to the following table of possible combinations: (See Inclusive and Exclusive OR)

P		Q		P or Q	
False	0	True	1	True	1
True	1	False	0	True	1
True	1	True	1	True	1
False	0	False	0	False	0

The term disjunction is applied to this operator.

OSCILLATIONS, FREE

oscillating currents or voltages which continue to flow in a tuned circuit after the impressed voltage has been removed. Their frequency is the resonant frequency of the circuit. They are due to interchange electromagnetic and electrostatic energy and the fact that a time rate of change of charge is an electric current which stores energy in the form of a magnetic field and a time rate of change of magnetic field produces a voltage which stores energy in the form of an electric field. The energies of these two fields interchange.

OUTPUT

information transferred from the internal storage of a computer to secondary or external storage; information transferred to any device exterior to the computer.

OUTPUT-BLOCK

a portion of the internal storage reserved primarily for receiving, processing and transmitting data which is to be transferred out.

OVERFLOW

in an arithmetic operation, the generation of a quantity beyond the capacity of the register or location which is to receive the result; over capacity; the information contained in an item of information which is in excess of a given amount.

PACK

to include several brief or minor items of information into one machine item or word by utilizing different sets of digits for the specification of each brief or minor item.

PARALLEL

handled simultaneously in separate facilities; operating on two or more parts of a word or item simultaneously; contrasted with serial.

PARAMETER

in a subroutine, a quantity which may be given different values when the subroutine is used in different main routines or in different parts of one main routine, but which usually remains unchanged throughout any one such use; in a generator, a quantity used to specify input-output devices, to designate subroutines to be included, or otherwise to describe the desired routine to be generated; in mathematics, a variable which can be held constant temporarily, usually giving rise to a family of curves.

PARAMETER, PRESET

a parameter incorporated into a subroutine during input.

PARAMETER, PROGRAM

a parameter incorporated into a subroutine during computation. A program parameter frequently comprises a word stored relative to either the subroutine or the entry point and dealt with by the subroutine during each reference. It may be altered by the routine and/or may vary from one point of entry to another.

PATCH

section of coding inserted into a routine to correct a mistake or alter the routine; explicitly transferring control from a routine to a section of coding and back again.

PENTODE

a five-electrode vacuum tube containing a cathode, control grid, screen grid, suppressor grid, and plate. The grids may be referred to as grids no. 1, 2, and 3, respectively.

PERFORATION, RATE of

number of characters, rows or words punched in a paper tape by a device per unit of time.

PHOSPHORESCENCE

the property of emitting light for some time after excitation.

PIEZOELECTRIC

the effect of producing a voltage by placing a stress variation, either by compression, by expansion, or by twisting, on a material, usually certain crystals and, conversely, the effect of producing a stress in a crystal by applying a voltage to it.

PLOTTING-BOARD

a device capable of graphically presenting information, usually as curves of one or more variables; analogue curve or point tracer.

PLUG-BOARD

a removable panel containing an ordered array of terminals which may be interconnected by short electrical leads according to a prescribed pattern and hence designating a specific program or machine step. The entire panel, pre-wired, may be inserted for different programs. Used to a large extent in CPC's, printers, tabulators, summary punches and some computers e.g. the Univac File Computer.

POINT

the dot that marks the separation between the integral and fractional parts of a quantity; i.e., between the coefficients of the zero and the minus one powers of the number base. It is usually called, for a number system using base two, a binary point; for base ten, a decimal point, etc; base point; radix.

POST MORTEM

a routine which, either automatically or on demand, prints information concerning the contents of the registers and storage locations at the time the routine stopped, in order to assist in the location of a mistake in coding.

POTENTIOMETER

a variable voltage divider, a resistor which has a variable contact arm so that any portion of the potential applied between its ends may be selected.

PRECISION

the degree of exactness with which a quantity is stated; a relative term often based on the number of significant digits in a measurement. See also Accuracy.

PRECISION, DOUBLE

retention of twice as many digits of a quantity as the computer normally handles, e.g. a computer whose basic word consists of 10 decimal digits is called upon to handle 20 decimal digit quantities.

PRE-STORE

to set an initial value for the address of an operand or a cycle index; to restore; to store a quantity in an available or convenient location before it is required in a routine.

PROGRAM

a plan for the solution of a problem. A complete program includes plans for the transcription of data, coding for the computer and plans for the absorption of the results into the system. The list of coded instructions is called a routine; to plan a computation or process from the asking of a question to the delivery of the results, including the integration of the operation into an existing system. Thus programming consists of planning and coding, including numerical analysis, systems analysis, specification of printing formats, and any other functions necessary to the integration of a computer in a system.

PROGRAM, ASSEMBLY

a program designed to place various sections of another program in their programmer designated locations. Some assembly programs also contain the elements of a translator or translation program.

PROGRAM SENSITIVE MALFUNCTION

a malfunction which occurs only when some unusual combination of program steps occur.

PROGRAMMER

a person who prepares instruction sequences without necessarily converting them into the detailed codes of a particular computer.

PROGRAMMING AUTOMATIC

any technique in which the computer is used to help plan as well as to help code a problem; e.g. compiling routines, interpretive routines.

PROGRAMMING, OPTIMUM

improper terminology for minimal latency coding, i.e., for producing a minimal latency routine; programming in order to make efficient use of hardware e.g. least storage usage, time share of peripheral equipment, use of time between operations, etc.

PROGRAMMING, RANDOM-ACCESS

programming without regard for the time required for access to the storage positions called for in the program; contrast with minimum access programming or minimal latency programming.

PSEUDO-CODE

an arbitrary code, independent of the hardware of a computer, which must be translated into computer code.

PSEUDO-RANDOM

having the property of satisfying one or more of the standard criteria for statistical randomness but being produced by a definite calculation process.

PULSE

a change in the intensity or level of some medium, usually over a relatively short period of time, e.g. a shift in electric potential of a point for a short period of time compared to the time period, i.e., if the voltage level of a point shifts from -10 to +20 volts with respect to ground for a period of 2 microseconds, one says that the point received a 30 volt 2 microsecond pulse.

PULSE-CODE

sets of pulses to which particular meanings have been assigned; the binary representations of characters.

PUNCH, CALCULATING, ELECTRONIC

a card handling machine which reads a punched card, performs a number of sequential operations and punches the result on a card.

PUNCH, CARD

a device which perforates or places holes in cards in specific locations designated by a program.

PUNCH-POSITION

the location of the row in a columniated card e.g. in an 80-column card the rows or "punch position" may be 0 to 9 and "X" and "Y" corresponding to position 11 and 12.

PUNCH, SUMMARY

a card handling machine which may be electrically connected to another machine, e.g. tabulator and which will punch out on a card the information produced, calculated or summarized by the other machine.

PUNCHING, RATE of

number of cards, characters, blocks, fields or words of information placed in the form of holes distribution on cards, or tape per unit of time.

QUANTITY

a positive or negative real number in the mathematical sense. The term quantity is preferred to the term number in referring to numerical data; the term number is used in the sense of natural number and reserved for "the number of digits", the "number of operations", etc.

QUANTITY, DOUBLE-PRECISION

a quantity having twice as many digits as are normally carried in a specific computer.

RANDOM-ACCESS

access to storage under conditions in which the next position from which information is to be obtained is in no way dependent on the previous one.

RANGE

all the values which a function may have; the difference between the limits imposed upon a variable.

RATIO, OPERATING

the ratio obtained by dividing the number of hours of correct machine operation by the total hours of scheduled operation, e.g. on a 168 hour week scheduled operation, if 12 hours of preventive maintenance is required and 4.8 hours of unscheduled down time occurs, then the operating ratio is (168 - 16.8)/168, which is equivalent to a 90% operating ratio.

READ

‹ to copy, usually from one form of storage to another, particularly from external or secondary storage to internal storage; to sense the meaning or arrangements of hardware; to sense the presence of information on a recording medium.

READ-AROUND-RATIO

in electrostatic storage tubes, the number of times a specific spot (digit or location) may be consulted before "spill over" will cause a loss of information stored in surrounding spots, immediately prior to which the surrounding information must be restored; read-around number.

READER, CARD

a mechanism that permits the sensing of information punched on cards by means of wire brushes, metal feelers, or a photoelectric device, converting the information into electrical pulses that are sensible to the computing system.

READER, TAPE, MAGENTIC

a device capable of restoring to a train or sequence of electrical pulses, information recorded on a magnetic tape in the form of a series of magnetized spots, usually for the purpose of transferring the information to some other storage medium.

READER, TAPE, PAPER

a device capable of restoring to a train or sequence of electrical pulses, information punched on a paper tape in the form of a series of holes, usually for the purpose of transferring the information to some other storage medium.

READING, RATE of

number of characters, words, fields, blocks or cards sensed by an input sensing device per unit of time.

REAL-TIME

the performance of a computation during the actual time that the related physical process transpires in order that results of the computations are useful in guiding the physical process.

RECORD

a listing of information, usually in printed or printable form; one output of a compiler consisting of a list of the operations and their positions in the final specific routine and containing information describing the segmentation and storage allocation of the routine; to copy or set down information in reusable form for future reference; to make a transcription of data by a systematic alteration of the condition, property or configuration of a physical medium, e.g., placing information on magnetic tape or a drum by means of magnetized spots.

REGENERATION

the process of returning a part of the output signal of an amplifier to its input circuit in such a manner that it reinforces the grid excitation and thereby increases the total amplification; periodic restoration of stored information.

REGISTER

the hardware for storing one or more computer words. Registers are usually nearby zero-access storage devices.

REGISTER, CIRCULATING or MEMORY

a register (or memory) consisting of a means for delaying information and a means for regenerating and reinserting the information into the delaying means.

REGISTER, CONTROL

the accumulator, register or storage unit which stores the current instruction governing a computer operation; an instruction register.

REGISTER, PROGRAM

a register in the control unit which stores the current instruction of the program and controls computer operation during the execution of the instruction; control register; program counter.

REGULATION, VOLTAGE

a measure of the degree to which an electrical power source maintains its output-voltage stability under varying load conditions.

REPETITION, RATE of PULSE

the number of electric pulses per unit of time experienced by a point in a computer, usually the maximum, normal, or standard rate of pulses.

REPRESENTATIVE-CALCULATING-TIME

a method of evaluating the speed performance of a computer. One method is to use one-tenth of the time required to perform nine complete additions and one complete multiplication. A complete addition or a complete multiplication time includes the time required to procure two operands from high speed storage, perform the operation, and store the result and the time required to select and execute the required number of instructions to do this.

RERUN

to repeat all or part of a program on a computer.

RERUN-POINT

that stage of a computer run at which all information pertinent to the running of the routine is available either to the routine itself or to a rerun routine in order that a run may be reconstituted.

RESET

to return a device to zero or to an initial or arbitrarily selected condition.

RESOLVER

a device which separates or breaks up a quantity, particularly a vector, into constituent parts or elements, e.g. to form the three mutually perpendicular components of a space vector.

RESPONSE, FREQUENCY

a measure of the ability of a device to take into account, follow or act upon a rapidly varying condition, e.g. as applied to amplifiers, the frequency at which the gain has fallen to the one-half power point or to 0.707 of the voltage gain factor; as applied to a mechanical controller, the maximum rate at which changes in condition can be followed and acted upon.

RESTORE

to return a cycle index, a variable address, or other computer word to its initial or preselected value; periodic regeneration of charge, especially in volatile, condenser-action storage systems; when sensing the contents of a storage location destructively, to return the contents or regenerate the contents after reading.

RETURN

to go back to a specific, planned point in a program, usually when an error is detected, for the purpose of rerunning the program. Rerun points are usually three to five minutes apart to avoid long periods of lost computer time. Information pertinent to a rerun is available in standby registers from point to point.

REWIND

to return a film or magnetic tape to its beginning or passed location.

ROLLBACK

equivalent to rerun when referring to tape-sequenced computers; to recapture tape-inscribed data.

ROLL-OUT

to read a register or counter by adding ones to the respective digits simultaneously obtaining a signal as each column returns to zero, until all columns have returned to zero, usually requiring n additions, where n is the number base.

ROUND-OFF

to change a more precise quantity to a less precise one, according to some rule, usually in order to keep the number of digits expressing the number.

ROUTINE

a set of coded instructions arranged in proper sequence to direct the computer to perform a desired operation or series of operations.

ROUTINE, COMPILING

an executive routine which, before the desired computation is started, translates a program expressed in pseudo-code into machine code (or into another pseudo-code for further translation by an interpreter). In accomplishing the translation, the compiler is required to decode, convert, select, generate, allocate, adapt, orient, incorporate, or record.

ROUTINE, DIAGNOSTIC

a specific routine designed to locate either a malfunction in the computer or a mistake in coding.

ROUTINE, EXECUTIVE

a set of coded instructions designed to process and control other sets of coded instructions; a set of coded instructions used in realizing "automatic coding"; a master set of coded instructions.

ROUTINE, FLOATING-POINT

a set of coded instructions arranged in proper sequence to direct the computer to perform a specific set of operations which will permit floating-point operation, e.g. enable the use of a fixed-point machine to handle information on a floating-point basis from an external point of view. Floating-point routines are usually used in computers which do not have built in floating-point circuitry, in which case floating-point operation must be programmed.

ROUTINE, GENERAL

a routine expressed in computer coding designed to solve a class of problems, specializing to a specific problem when appropriate parametric values are supplied.

ROUTINE, INTERPRETIVE

an executive routine which, as the computation progresses, translates a stored program expressed in some machine-like pseudo-code into machine code and performs the indicated operations, by means of subroutines as they are translated. An interpretive routine is essentially a closed subroutine which operates successively on an indefinitely-long sequence of program parameters (the pseudo-instructions and operands). It may usually be entered as a closed subroutine and exitted by a pseudo-code exit instruction.

ROUTINE, MINIMAL LATENCY

especially in reference to serial storage systems, a routine so coded, by judicious arrangement of data and instructions in storage, that the actual latency is appreciably less than the expected random-access latency.

ROUTINE, RERUN

a routine designed to be used in the wake of a computer malfunction or a coding or operating mistake to reconstitute a routine from the last previous rerun point; roll back routine. See Rerun.

ROUTINE, SEQUENCE-CHECKING

a routine which checks every instruction executed, printing certain data, e.g., to print out the coded instruction with addresses, and the contents of each of several registers, or it may be designed to print out only selected data, such as transfer instructions and the quantity actually transferred.

ROUTINE, SERVICE

a routine designed to assist in the actual operation of the computer. Tape comparison, block location, certain post mortems, and correction routines fall in this class.

ROUTINE, SPECIFIC

a routine expressed in computer coding designed to solve a particular mathematical, logical, or data-handling problem in which each address refers to explicitly stated registers and locations.

ROUTINE, TEST

a routine designed to show whether a computer is functioning properly or not.

RUN

one performance of a program on a computer; performance of one routine, or several routines automatically linked so that they form an operating unit, during which manual manipulations are not required of the computer operator.

SCALE

to alter the units in which all variables are expressed so as to bring all magnitudes within the capacity of the computer or routine at hand.

SCANNER

an instrument which automatically samples or interrogates the state of various processes, conditions, or physical states and initiates action in accordance with the information obtained.

SEGMENT

to divide a routine in parts each consisting of an integral number of subroutines, each part capable of being completely stored in the internal storage and containing the necessary instructions to jump to other segments; in a routine too long to fit into internal storage, a part short enough to be stored entirely in the internal storage and containing the coding necessary to call in and jump automatically to other segments. Routines which exceed internal storage capacity may be automatically divided into segments by a compiler.

SELECT

to take the alternative A if the report on a condition is of one state, and alternative B if the report on the condition is of another state; to choose a needed subroutine from a file of subroutines.

SELECTOR

a device which interrogates a condition and initiates a particular operation according to the interrogation report.

SENSE

to examine, particularly relative to a criterion; to determine the present arrangement of some element of hardware, especially a manually-set switch; to read holes punched in paper.

SENTINEL

a symbol marking the beginning or the end of some element of information such as a field, item, block, tape, etc; a tag.

SEQUENCE, PSEUDO-RANDOM

an order of numbers produced by a definite recursive rule but satisfying one or more of the standard tests for randomness.

SEQUENCER

a machine which puts items of information into a particular order, e.g., it will determine whether A is greater than, equal to, or less than B, and sort or order accordingly.

SERIAL

handle one after the other in a single facility, such as transfer or store in a digit by digit time sequence.

SERVOMECHANISM

a closed loop system in which the error or deviation from a desired or pre-set norm is reduced to zero, and one in which mechanical position is usually the controlled variable, e.g., a synchronized drum storage system requires a servomechanism to insure synchronism between a crystal controlled electronic oscillator and a rotating cylinder; an AA fire control gun-positioning system requires a servo to insure that deviations are corrected.

SHIFT

to move the characters of a unit of information column-wise right or left. For a number, this is equivalent to multiplying or dividing by a power of the base of notation.

SHIFT, ARITHMETIC

to multiply or divide a quantity by a power of the number base, e.g. binary 1011 represents decimal 11, therefore two arithmetic shifts to the left is binary 101100, which represents decimal 44; which means 11 was multiplied by two twice when a binary number is shifted. If the decimal 11 was shifted twice, it would mean multiplication by 100, or a result of 1100.

SHIFT, CYCLIC

a shift in which the digits dropped off at one end of a word are returned at the other in a circular fashion; logical, non-arithmetical or circular shift.

SIGNIFICANCE

the arbitrary rank, priority, or order of relative magnitude assigned to a given position or column in a number; the significant digits of a number are a set of digits, usually from consecutive columns beginning with the most significant digit different from zero and ending with the least significant digit whose value is known are assumed relevant, e.g., 2300.0 has five significant digits, whereas 2300 probably has two significant digits. However 2301 has four significant digits.

SIMULATION

the representation of physical systems and phenomenona by computers, models or other equipment.

SKIP

an instruction to proceed to the next instruction; a "blank" instruction.

SOLVER, EQUATION

a calculating device, usually analog, which arrives at the solution to systems of linear simultaneous non-differential equations or determine the roots of polynomials or both.

SORT

to arrange items of information according to rules dependent upon a key or field contained in the items.

STACKER, CARD

a mechanism that accumulates cards in a bin after they have passed through a machine operation.

STANDARDIZE

to adjust the exponent and mantissa of a floating-point result so that the mantissa lies in the prescribed normal range; normalize; see Floating-point Representation.

STORAGE

preferred to memory, any device into which units of information can be copies, which will hold this information, and from which the information can be obtained at a later time; devices, such as plugboards, which hold information in the form of arrangements of physical elements, hardware, or equipment; the erasable storage in any given computer.

STORAGE, BUFFER

a synchronizing element between two different forms of storage, usually between internal and external; an input device in which information is assembled from external or secondary storage and stored ready for transfer to internal storage; an output device into which information is copied from internal storage and held for transfer to secondary or external storage. Computation continues while transfers between buffer storage and secondary or internal storage or vice versa take place.

STORAGE, CIRCULATING

a device using a delay line, or unit which stores information in a train or pattern of pulses, where the pattern of pulses issuing at the final end are sensed, amplified, reshaped and re-inserted in the delay line at the beginning end. See Delay-Line.

STORAGE, DYNAMIC

storage such that information at a certain position is moving or varying with time and so is not always available instantly; e.g., acoustic delay line, magnetic drum; circulating or re-circulating of information in a medium.

STORAGE, ELECTROSTATIC

a device possessing the capability of storing changeable information in the form of charged or uncharged areas on the screen of a cathode ray tube.

STORAGE, ERASABLE

media which may hold information that can be changed; i.e., the media can be re-used; e.g., magnetic tape, drum, or core.

STORAGE, EXTERNAL

storage facilities divorced from the computer itself but holding information in the form prescribed for the computer; e.g., magnetic tapes, magnetic wire, punched cards, etc.

STORAGE, INTERNAL

storage facilities forming an integral physical part of the computer and directly controlled by the computer; the total storage automatically accessible to the computer.

STORAGE, MAGNETIC

any storage system which utilizes the magnetic properties of materials to store information.

STORAGE, MERCURY

columns of a liquid mercury medium used as a storage element by the delaying action or time of travel of sonic pulses which are circulated by having electrical amplifier, shaper, and timer circuits complete the loop.

STORAGE, NON-ERASABLE

media used for containing information which cannot be erased and reused, such as punched paper tapes, and punched cards.

STORAGE, NON-VOLATILE

storage media which retain information in the absence of power and which may be made available upon restoration of power; e.g., magnetic tapes, drums, or cores.

STORAGE, PARALLEL

storage in which all bits, or characters, or (especially) words are essentially equally available in space, without time being one of the coordinates. Parallel storage contrasts with serial storage. When words are in parallel, the storage is said to be parallel by words; when characters within words (or binary digits within words or characters) are dealt with simultaneously, not one after the other, the storage is parallel by characters (or parallel by bit respectively). Contrasted with Storage, Parallel.

STORAGE, SECONDARY

storage facilities not an integral part of the computer but directly connected to and controlled by the computer; e.g., magnetic drum, magnetic tapes, etc.

STORAGE, SERIAL

storage in which time is one of the coordinates used to locate any given bit, character, or (especially) word. Storage in which words, within given groups of several words, appear one after the other in time sequence, and in which access time therefore includes a variable latency or waiting time of from zero to many-times, is said to be serial by word. Storage in which the individual bits comprising a word appear in time sequence is serial by bit. Storage for coded-decimal or other non-binary numbers in which the characters appear in time sequence is serial by character; e.g., magnetic drums are usually serial by word but may be serial by bit, or parallel by bit, or serial by character and parallel by bit, etc.

STORAGE, STATIC

storage such that information is fixed in space and available at any time; e.g., flip-flop, electrostatic, or coincident-current magnetic-core storage.

STORAGE, TEMPORARY

internal storage locations reserved for intermediate and partial results.

STORAGE, VOLATILE

storage media such that if the applied power is cut off, the stored information is lost; e.g., acoustic delay lines, electrostatic tubes.

STORAGE, WORKING

a portion of the internal storage reserved for the data upon which operations are being performed.

STORAGE, ZERO-ACCESS

storage for which the latency (waiting time) is small at all times.

STORE

to transfer an element of information to a device from which the unaltered information can be obtained at a later time.

SUBROUTINE

the set of instructions necessary to direct the computer to carry out a well defined mathematical or logical operation; a subunit of a routine. A subroutine is often written in relative or symbolic coding even when the routine to which it belongs is not.

SUBROUTINE, CLOSED

a subroutine not stored in its proper place in the linear operational sequence, but stored away from the routine which refers to it. Such a subroutine is entered by a jump, and provision is made to return, i.e., to jump back to the proper point in the main routine at the end of the subroutine.

SUBROUTINE, DYNAMIC

a subroutine which involves parameters, such as decimal point position or item size, from which a relatively coded subroutine is derived. The computer itself is expected to adjust or generate the subroutine according to the parametric values chosen.

SUBROUTINE, OPEN

a subroutine inserted directly into the linear operational sequence, not entered by a jump. Such a subroutine must be recopied at each point that it is needed in a routine.

SUBROUTINE, STATIC

a subroutine which involves no parameters other than the addresses of the operands.

SUBSTITUTE

to replace an element of information by some other element of information.

SWITCH, ELECTRONIC

a circuit which causes a start-and-stop action or a switching action by electronic means.

SWITCH, FUNCTION

a circuit having a fixed number of inputs and outputs designed such that the output information is a function of the input information, each expressed in a certain code or signal configuration or pattern.

SYMBOL, LOGICAL

a symbol used to represent a logical element graphically.

SYSTEM

an assembly of components united by some form of regulated interaction; an organized whole.

TABULATOR

a machine which reads information from one medium, e.g., cards, paper tape, magnetic tape, etc. and produces lists, tables, and totals on separate forms or continuous paper.

TAG

a unit of information, whose composition differs from that of other members of the set so that it can be used as a marker or label; a sentinel.

TANK

a unit of acoustic delay line storage, containing a set of channels each forming a separate recirculation path; a circuit consisting of inductance and capacitance used for the purpose of sustaining electrical oscillations.

TAPE, MAGNETIC

a tape or ribbon of any material impregnated or coated with magnetic material on which information may be placed in the form of magnetically polarized spots.

TAPE, PROGRAM

a tape which contains the sequence of instructions required for solving a problem and which may be read by the computer.

TERNARY

pertaining to the system of notation utilizing the base of 3, employing the characters 0, 1, and 2.

TEST, CRIPPLED-LEAP-FROG

a variation of the leap-frog test, modified so that it repeats its tests from a single set of storage locations rather than a changing set of locations.

TEST, LEAPFROG

a program designed to discover computer malfunction, characterized by the property that it performs a series of arithmetical or logical operations on one group of storage locations, transfers itself to another group of storage locations, checks the correctness of the transfer, then begins the series of operations over again. Eventually, all storage positions will have been occupied and the test will be repeated.

TETRAD

a group of four, usually four pulses, in particular, a group of four pulses used to express a decimal digit, or a sexadecimal digit by means of four (binary) pulses.

TETRODE

a four-electrode vacuum tube containing a cathode, control grid, screen grid, and plate.

THERMISTOR

the thermistor is a solid state, semiconducting device made by sintering mixtures of the oxide powders of various metals. It is made in many shapes, such as beads, disks, flakes, washers, and rods, to which contact wires are attached. As its temperature is changed, the electrical resistance of the thermistor varies. The associated temperature coefficient of resistance is extremely high, nonlinear, and negative.

THERMOCOUPLE

a device made up of two bi-metal joints (usually wires forming a closed loop) having the property that if the two junctions are maintained at different temperatures, a difference of potential is brought into existence equally distributed between the two junctions.

THREE-ADDRESS

see Code, Multiple-address.

THYRATRON

a hot-cathode, gas-discharge tube in which one or more electrodes are used to control electrostatically the starting of an unidirectional flow of current.

TIME, CODE CHECKING

all time spent checking out a problem on the machine making sure that the problem is set up correctly, and that the code is correct.

TIME, ENGINEERING or SERVICING

all machine down time necessary for routine testing (good or bad), for machine servicing due to breakdowns, or for preventive servicing measures, e.g., block tube changes. Includes all test time (good or bad) following breakdown and subsequent repair or preventive servicing.

TIME, IDLE

time in which machine is believed to be in good operating condition and attended by service engineers but not in use on problems. To verify that the machine is in good operating condition, nachine tests of the leapfrog variety may be run.

TIME, NO CHARGE MACHINE-FAULT

unproductive time due to a computer fault such as the following: (1) non-duplication, (2) transcribing error, (3) input-output malfunction, (4) machine malfunction resulting in an incomplete run.

TIME, NO CHARGE NON-NACHINE-FAULT

unproductive time due to no fault of the computer such as the following: (1) good duplication, (2) error in preparation of input data, (3) error in arranging the program deck, (4) error in operating instructions or misinterpretation of instructions, (5) unscheduled good testing time, run during normal production period when machine malfunction is suspected but is demonstrated not to exist.

TIME, PRODUCTION

good computing time, including occasional duplication of one case for a check or rerunning of the test run. Also, duplication requested by the sponsor; any reruns caused by misinformation or bad data supplied by sponsor. Error studies using different intervals, convergence criteria, etc.

TIME, STANDBY UNATTENDED

time in which the machine is in an unknown condition and not in use of problems. Includes time in which machine is known to be defective and work is not being done to restore it to operating condition. Includes breakdowns which render it unavailable due to outside conditions (power outages, etc.).

TIME, SYSTEM, IMPROVEMENT

all machine down time needed for the installation and testing of new components, large or small, and machine down time necessary for modification of existing components. Includes all programmed tests following the above actions to prove machine is operating properly.

TRACK

in a serial magnetic storage element, a single path containing a set of pulses.

TRANSCRIBE

to copy, with or without translating, from one external storage medium to another.

TRANSDUCER

a device which converts energy from one form to another, e.g., a quartz crystal imbedded in mercury can change electrical energy to sound energy as is done in sonic delay lines in computer storage systems.

TRANSFER

to copy, exchange, read, record, store, transmit, transport, or write data; to change control; to jump to another location.

TRANSFER, CONDITIONALLY

to copy, exchange, read, record, store, transmit, or write data or to change control or jump to another location according to a certain specified rule or in accordance with a certain criterion.

TRANSFER, PARALLEL

a system of data transfer in which the characters of an element of information are transferred simultaneously over a set of paths.

TRANSFER, SERIAL

a system of data transfer in which the characters of an element of information are transferred in sequence over a single path in consecutive time positions.

TRANSFER, UNCONDITIONAL

an instruction which causes the subsequent instruction to be taken from an address which is not the next one in the sequence in a digital computer which ordinarily obtains its instructions serially from an ordered sequence at all other times.

TRANSFORM

to change information in structure or composition without altering the meaning or value; to normalize, edit, or substitute.

TRANSIENT

a phenomenon experiencing a change as a function of time; something which is temporary; a build-up or breakdown in the intensity of a phenonenon until a steady state condition is reached; an aperiodic phenomenon; the time rate of change of energy is finite and some form of energy storage is usually involved.

TRANSISTOR

an electronic device utilizing semi-conductor properties to control the flow of currents from one source in one circuit by currents from another circuit, e.g. a triod transistor permits the control of current in one circuit by the use of a smaller current in another circuit, with the transistor common to both circuits.

TRANSLATE

to change inforamtion (e.g., problem statements in pseudo-code, data, or coding) from one language to another without significantly affecting the meaning.

TRANSMIT

to reproduce information in a new location replacing whatever was previously stored and clearing or erasing the source of the information.

TRANSPORT

to convey as a whole from one storage device to another.

TROUBLE-SHOOT

to search for a coding mistake or the cause of a computer malfunction in order to remove same.

TRUNCATE

to drop digits of a number of terms of a series thus lessening precision, e.g. the number 3.14159265 is truncated to five figures in 3.1415, whereas one may round off to 3.1416.

TRUNK

a path over which information is transferred; a bus.

TUBE, ACORN

a small vacuum tube designed for ultra-high-frequency circuits. The tube has short electron transit time and low interelectrode capacity.

TUBE, CATHODE-RAY

an electronic vacuum tube containing a screen on which information may be stored by means of a multigrid modulated beam of electrons from the thermionic emitter, storage effected by means of charged or uncharged spots; a storage tube; a Williams tube; an oscilloscope tube; a picture tube.

TUBE, WILLIAMS

a cathode ray tube used as an electrostatic storage device of the type designed by F. C. Williams, University of Manchester, England.

TWO-ADDRESS

see Code, Multiple-address.

TYPEWRITER, ELECTRIC

a hand operated electric powered individual character printing device having the property that almost every operation of the machine after the keys are touched by human fingers is performed by electric power instead of manual power; a typewriter powered by electricity, in all other respects the same as a manually powered typewriter.

ULTRASONICS

the field of science devoted to frequencies of sound above the human audio range, i.e. above 20 kilocycles per second.

UNCONDITIONAL

not subject to conditions external to the specific instruction.

UNDERFLOW

the condition which arises when a machine computation yields a result which is smaller than the smallest possible quantity which the machine is capable of storing; in floating-point operations, when the exponent plus the excess becomes negative.

UNPACK

to decompose packed information into a sequence of separate words or elements.

UNWIND

to code explicitly, at length and in full all the operations of a cycle thus eliminating all red-tape operations in the final problem coding. Unwinding may be performed automatically by the computer during assembly, generation, or compilation.

VALIDITY

correctness; especially the degree of the closeness by which iterated results approach the correct result.

VARISTOR

a passive resistor-like circuit element whose resistance is a function of the current through it or voltage across its terminals, i.e. the current through it is a non-linear function of the voltage across its terminals, hence the linear form of Ohm's Law is not obeyed; a self-varying resistance.

VERIFIER

a device on which a manual transcription can be verified by comparing a retranscription with it character-by-character as it is being retranscribed.

VERIFY

to check a data transfer or transcription, especially those involving manual processes.

WIRE, MAGNETIC

wire made of a magnetic material along small incremental lengths of which magnetic dipoles are placed in accordance with binary information.

WORD

a set of characters which occupies one storage location and is treated by the computer circuits as a unit and transported as such. Ordinarily a word is treated by the control unit as an instruction, and by the arithmetic unit as a quantity. Word lengths are fixed or variable depending on the particular computer.

WORD, INFORMATION

an ordered set of characters bearing at least one meaning and handled by a computer as a unit, including separating spacing, which may be contrasted with instruction words.

WORD-TIME

especially in reference to words stored serially, the time required to transport one word from one storage device to another. See also Access Time.

WRITE

to transfer information to an output medium; to copy, usually from internal storage to external storage; to record information in a register, location, or other storage device or medium.

ZERO

nothing; positive binary zero is usually indicated by the absence of digits or pulses in a word; negative binary zero in a computer operating on one's complements by a pulse in every pulse position in a word; in a coded decimal machine, decimal zero and binary zero may not have the same representation. In most computers, there exist distinct and valid representation both for plus and for minus zero.

ZERO-SUPPRESSION

the editing or elimination of non-significant zeros to the left of the integral part of a quantity before printing operations are initiated; a part of editing.

ZONE

a portion of internal storage allocated for a particular function or purpose; any of the three top positions of 12, 11 and 0 on a punch card. In these zone positions, a second punch can be inserted so that with punches in the remaining positions 1 to 9, alphabetic characters may be represented.

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