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P67-1

OS/360 Customized Distribution

The OS/360 Customized Distribution is a new procedure that applies to users having only two IBM 2311 Disk Storage Drives.

OS/360 consists of a large number of separately orderable components. Through Release 7 PID distributed all of the available components of OS/360 regardless of the specific components ordered.

Release 8 of OS/360 included more components than could be generated easily with a 2-drive system. However, since there is a sizeable group of OS/360 users who have configurations with only two 2311 drives, the Customized Distribution procedure was set up and will be put into effect with Release 9.

The customization procedure applies only to users who have 2-drive configurations available to perform system generation. It is recommended that users plan to use a system configuration having 3 or more drives to perform the generation process. In cases where this is not practical the customization process will apply.

The Customization Process

The Program Information Department can selectively copy any combination of the individually-numbered orderable components of OS/360, from a master library to 2311 Disk Storage, in a format suitable for input to system generation. This process produces a customized distribution package on either magnetic tape or 1316 Disk Packs.

The customization process may introduce a delay in the shipments as compared with orders which do not require customization. Therefore, users should be discouraged from customizing if practical.

Ordering Procedures for Customized Distribution

All orders must state the number of 2311 drives available for system generation. For example, "4-drives to be used for SYSGEN." The customization process applies only to OS/360 orders which state "Two-Drives to be used for SYSGEN." All other orders will be filled by supplying the full set of available OS/360 components, as has been the practice with releases 1 through 7.

Orders requiring customization will be filled with either the exact combination of components ordered or a larger set which includes the ones ordered. To speed up order filling and prevent unnecessary delays, PID may decide to send extra components in which case there will be at least 500 tracks of unallocated space available.

There will be no audit by PID of the validity or usability of the ordered components, such validation is a branch office responsibility. The considerations involved in selecting combinations of components are described in the following sections of this letter.

The considerations apply to future releases of OS/360. The specific program library sizes given in Table 1 are examples only. Each succeeding OS/360 release will contain a table of component sizes and interdependencies which must be used when preparing an actual order.

Component Selection Considerations

There are two basic considerations: [1] that a minimum workable set of components is included that will meet the user's needs ... [2] that enough unallocated work space remains on each of the distributed disk packs (or equivalent reels of tape) for the system generation process.

Minimum Workable Combinations

The system generation process uses OS/360 itself. The Starter System (or an equivalent system already in use by a customer) meets this requirement. The minimum components needed to generate a workable system, capable of performing system generation, are identified by Note 1 in Table 1. Note that the Starter System is a system generation tool only; it is still necessary to order all of the minimum components (Primary Control Program, 360S-C1-505, etc.).

There are also specific component prerequisites, such as the requirement of COBOL E to have the COBOL E Library. This type of dependency is indicated in the chart by Note 3.

In other cases, either of two components (or both) may be selected according to a user's specific needs. An example of this type of choice is between Assembler E and Assembler F. The chart (Table 1) and its footnotes state all interdependencies.

Attachments [3]: P 1440.3, P 1800.1, and P 1800.3  
Release Date: January 9, 1967  
Distribution: All Areas

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OS/360 Customized Distribution ... new procedure.

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Work Space Considerations

The system generation process requires five different intermediate (work) data sets. These data sets are described in Table 2. The actual sizes required depend on specific system generation parameters. Space allocation is under control of the user as part of the system generation process. "Basic" space shown in the table has been used to perform generations of OS/360 configurations. Generation of larger configurations makes use of the secondary allocation capability of the system. There is no formula to predict work space use during system generation, other than experience.

The system generation process, composed of two distinct stages, is designed to operate without user modification of the job stream which is the Stage 1 output. For convenience of restart and modification, however, many users have found that the most satisfactory system generation procedure includes punching the Stage 1 output in cards, where it is easy to handle. By making relatively minor changes in the Stage 1 output, system generation can be done using varying amounts of work space in varying locations. Details on variations in the system generation procedure may be obtained through technical information sources such as the Field Systems Centers.

The rules followed by PID for space allocation during the customization process are given below. An understanding of the 2311 allocation rules will permit you to calculate the combinations of components which fit each user's needs best.

1. Fifteen tracks are allocated for the volume table of contents and other fixed elements on each pack, out of a 2000 track total.
2. The number of tracks needed by each ordered component are totalled to determine the space requirement for each of the libraries listed across the top of Table 1.
3. Space is allocated for each library, in the sequence shown across the top of Table 1, to each of the distribution volumes (DLIB01, DLIB02, etc.).
4. No single library is split (placed on 2 distribution volumes); if any library does not fit on a volume, it is placed on the next volume.
5. If the Starter System and the Primary Control Program are included, then the libraries SYS1.GENLIB and SYS1.MACLIB are always placed on different distribution volumes.  
If the Starter System and the Primary Control Program are not included, then the libraries SYS1.GENLIB and SYS1.MACLIB would be included on DLIB01 if space is available.

Tables, footnotes, and examples are on the reverse side.

  
John Fahey  
Director of DP Marketing

† The last letter of 1966 was P66-126.

**Table 1**

This table is for illustrative purposes only -- actual numbers will be given in subsequent OS/360 P-Letters.

Component Name	#360S-	Notes	Distribution volume library space (2311 tracks)										
			Starter System	DLIB01	SYS1. COBLIB	SYS1. FORTLIB	SYS1. SORTLIB	SYS1. PLILIB	SYS1. PROCLIB	SYS1. MODLIB	SYS1. GENLIB	DLIB02*	SYS1. MACLIB
Starter System	CI-514	7	530										
Primary Control Program	CI-505	1						2	100	670	71		
Primary Data Management	DM-508	1							44		122		
Direct Access Method (BDAM)	DM-509	5							6		2		
Indexed Sequential (ISAM)	IO-526	6							50		4		
Basic Telecommunications (BTAM)	CO-513								5				
Express Graphics	IO-523								13		70	16	
Assembler E	AS-036	1						4	47			10	
Assembler F	AS-037	4, 6						4	60			10	
TESTRAN & Editor	PT-516	2						5	28		57		
Sort/Merge	SM-023	3						2	61			24	
Linkage Editor E	ED-510	1, 3			7			3	15				
Linkage Editor F	ED-521	4						3	24				
OS/360 Utilities	UT-506	1						2	74			12	
Independent Utilities	UT-507	1										52	
COBOL E	CO-503	5						3	93			31	
COBOL E Library	LM-504	3		9									
COBOL F	CB-524	5						3	90				
COBOL F Library	LM-525	3							9				
FORTRAN IV E	FO-092	5						4	33			8	
FORTRAN IV G	FO-520	5						4	50			10	
FORTRAN IV H	FO-500							4	190			10	
FORTRAN IV Library	LM-501	3			1				13				
PL/I F	NL-511	5, 6						4	230				
PL/I Library	NL-512	3					53		20			4	
RPG	RG-038							3	57			5	
SERO, SERL, EREP Mdl 40	DN-527								12				
SERO, SERL, EREP Mdl 50	DN-528								13				
SERO, SERL, EREP Mdl 65	DN-529								14				

\*DLIB01 if space is available. Never split over two volumes.

\*\*May be placed on DLIB01 if there is enough space and if the Starter System is not ordered.

**Notes:**

1. Minimum component for a system able to perform system generation. See also Note 4 where appropriate.
2. Required for Customer Engineering Use; highly recommended as part of a minimum system.
3. Used by and required with the preceding component in the chart.
4. Alternative component to the preceding component(s) in the chart. Either or both can be selected.
5. BDAM is required by the direct access statements of COBOL, FORTRAN, and PL/I.
6. ISAM is required by PL/I programs using the Indexed Organization.
7. Required with initial order; subsequent orders may be processed by the user's own system. The Starter System actually contains several libraries, as described in the Starter Guide SRL (C28-6630).

Program Announcement letter P66-589, dated September 16, 1966, is cancelled. It was a reprint of an IBM Program Announcement made in the U.S.A. and advised of a PSM distribution service available only in the U.S.A. This same service is not presently available in the WT countries. When a similar service is available in WT, it will be announced in a Program Announcement Letter.

**Table 2**

**Work Space for System Generation**

Data Set	Normal Location	Two-Drive SYSGEN		Comment Regarding Allocation
		Basic Space (tracks)		
SYSUT1	DLIB02	240 Primary 10 Secondary		May be magnetic tape
SYSUT2	DLIB02	240 Primary 10 Secondary		May be magnetic tape
SYSUT3	DLIB01*	250 Primary 10 Secondary		Must be DASD
OBJPDS	DLIB01	40 Primary 2 Secondary 8 Directory		Must be DASD
for IEHMOVE Utility	DLIB01*	160		Self-allocated by the utility program on same volume as SYSUT3

\*May be placed on DLIB02 if space available. A possible variation to the SYSGEN process places SYSUT1 and SYSUT2 on tape, SYSUT3 on DLIB02. In this case, the user's "new system" pack must also have a SYSUT3 data set, and the user must modify the SYSGEN stage II job stream slightly.

**Example 1:**

A small system for normal 2-drive system generation. Components included are Starter System, Primary Control Program, Primary Data Management, Assembler E, TESTRAN & Editor, Sort/Merge, Linkage Editor E, OS/360 Utilities, Independent Utilities, COBOL E and Library, FORTRAN IV E and Library, RPG.

Space allocation (in tracks) by library and volume would be:

	DLIB01	DLIB02
VTOC, etc.	15	15
Starter System	530	
SYS1. COBLIB	9	
SYS1. FORTLIB	1	
SYS1. SORTLIB	7	
SYS1. PROCLIB	28	
SYS1. MODLIB	563	
SYS1. GENLIB		670
SYS1. MACLIB		250
SYS1. SAMPLIB		142
Total allocated space	1153 tracks	1077 tracks
Unallocated space available*	847 tracks	923 tracks

\*In this example, PID may choose to send additional components, leaving at least 500 tracks available on DLIB01.

**Example 2:**

A larger system, in which the user chooses to handle space allocation in a non-standard way, but still use two 2311 drives. Components included are those of Example 1, plus BDAM, ISAM, BTAM, Express Graphics, Assembler F, Linkage Editor F, COBOL F and Library, FORTRAN IV G and PL/I F and Library.

	DLIB01	DLIB02
VTOC, etc.	15	15
Starter System	530	
SYS1. COBLIB	9	
SYS1. FORTLIB	1	
SYS1. SORTLIB	7	
SYS1. PLILIB	53	
SYS1. PROCLIB	46	
SYS1. MODLIB	1120	
SYS1. GENLIB		670
SYS1. MACLIB		326
SYS1. SAMPLIB		182
Total allocated space	1781 tracks	1193 tracks
Unallocated space available	219 tracks	807 tracks



[A] System/360 Disk Operating System (DOS/360)  
DOS/360 System Release 7 is now available.

Beginning with System Release 7 a maintenance package will be available to users of DOS/360 System Release 6. This will permit users of DOS/360 System Release 6 to update their installed programs without going through a complete DOS/360 system generation process.

System Release 7 includes 2260 Display support under BTAM, and Vocabulary File Utility for 7772. No other changes are involved. For this reason, System Release 7 should be ordered only by users who have BTAM or desire to use the Vocabulary File Utility for 7772. Other users should wait for the availability of System Release 8. Refer to P66-111 for description of DOS/360.

[1] BTAM

The 2260 Display "remote" with the 2848 Control Unit is now supported under BTAM, 360N-CQ-469 (Change Level 2-1). This removes the restriction stated on page 8 of P66-111.

[2] Vocabulary File Utility for 7772

The DOS/360 Vocabulary File Utility Program for the 7772 Audio Response Unit, 360N-UT-472 (Change Level 2-0) is now available.

This program is designed for use within the System/360 Disk Operating System and uses the facilities provided by it, including logical IOCS and supervisor services.

The program provides for the creation and updating of an audio vocabulary file. The customer receives the Input Vocabulary File containing words in digitally coded form on either punched cards or magnetic tape. The program allows the user to select the words he needs, by means of control statements from this file and to organize them on disk (2311) in the manner best suited to his application.

The program also provides the ability to list the Input Vocabulary File and the Operating Vocabulary File created by the user.

The following will be supplied when 360N-UT-472 is ordered: System/360 Disk Operating System Vocabulary File Utility Program for 7772 Audio Response Unit, C27-6924-1.

Refer to P66-111 for system requirements.

Ordering Instructions

Current Users:

Current users will receive a prepunched Program Order Card and a letter announcing the availability of DOS Release 7 and its maintenance package. The letter instructs them to order these items through the branch office. Current users must use the prepunched card to order either the maintenance package or the replacement system for Release 7.

Complete ordering instructions are provided in the letter.

New Users:

Orders for new users of DOS should be submitted following the ordering procedure on P66-111.

[B] IBM 1401/1460 Timing Program for BPS/360 Sort/Merge Programs (8K Tape)

Modification Level 1 for Version 2, 1401/1460 Timing

C O N T E N T S

System/360 Disk Operating System (DOS/360) ... System Release 7 is now available. [A]

1401/1460 Timing Program for BPS/360 Sort/Merge Programs (8K Tape), 1401-LM-078 ... Modification Level 1 for Version 2 may now be ordered. [B]

System/360 Mathematical Programming System ... corrections to P66-124 item [A]. [C]

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Program for BPS/360 Sort/Merge Programs (8K Tape), 1401-LM-078, may now be ordered from PID.\* It provides timing estimates for BPS/360 tape sorts using 2401, 2402, 2403, or 2404 Magnetic Tape Drives, Models 4, 5, and 6. Support for Models 1, 2, and 3 was provided by Version 2, Modification Level 0 (See P65-33).

Also included in this modification level are improved diagnostic capabilities for errors in the timing control cards. The program description and minimum system requirements stated in P65-33 remain unchanged.

Reference Material: System/360 Basic Programming Support Specifications, Sort/Merge Programs (8K Tape), C24-3320.

Program Material:

Documentation -- Program Material List.

SRL Publications -- 1401/1460 Timing Program for System/360 BPS Sort/Merge Programs (8K Tape), C24-3345-1 plus TNLs N24-5019, N21-5014, N21-5039 (C24-3345-2 combines but does not obsolete C24-3345-1 and TNL N24-5019).

If only the form numbered manuals are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

Machine Readable -- Object deck in card form.

\*Since this program is on local maintenance (see P66-5 and P66-28), a current user file is not maintained. For this reason, the Branch Office should order the updated program, using the normal ordering procedure for those customers requiring it. The modification level will be shipped in the form of a complete object deck in card form.

The timing program will remain on local maintenance and no current user file will be established as a result of orders for Modification Level 1.

[C] System/360 Mathematical Programming System

Corrections to P66-124 item [A]:

- Under Figure 3, File Name ETA 2-4, the number referring to the footnote below should be (2) not (3).
- Under Basic Program Material, Documentation, the form number for the Control Language Users Manual should be H20-0290 not H29-0290; and the form number for the Linear Programming Users Manual should be H20-0291 not H29-0291.
- The note under Optional Program Material lists Y20-0065.\* Asterisk = do not order until availability is announced in a PRL.

SEE REVERSE SIDE FOR "NOTE TO WORLD TRADE READERS"

*John Fahey*  
John Fahey  
Director of DP Marketing

Attachments [5]: Will be mailed under separate cover.  
Release Date: January 12, 1967  
Distribution: All Areas

Note to World Trade Readers

This letter is a reprint of an IBM Programming Announcement and was mailed concurrently to USA and WT offices. The following changes, when appropriate, should be applied to the text for WT use.

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] If DTR distribution is indicated in the above, program distribution media may be different in your area based on local conditions.
- [5] All references made to the Program Information Department [PID] should be understood to mean the appropriate WT Program Library.
- [6] Any reference made to DPD Departments as sources of information or for manuals etc. should be understood to mean the comparable WT Department.
- [7] Communications facilities or services may be required which are not offered in all WT countries. In case of any doubt as to the availability of suitable communications facilities, the country Teleprocessing Coordinator should be consulted.
- [8] All references made to Engineering Changes required for programs should be verified with the local CE Branch Office. Although E/C requirements are identical for WT and IBM, E/C availability dates and shipping schedules may differ.



Operating System/360

Release 9 is now available. It includes:

- . OS/360 PL/I F Level (44K) Compiler. (Additional Function)
- . OS/360 FORTRAN IV G (128K).
- . OS/360 FORTRAN IV H (200K).
- . OS/360 Maintenance.

The majority of the OS/360 performance and usability improvements outlined below have been in those releases made since September 1966. For this reason, and because of maintenance improvements, it is strongly recommended that customers upgrade their installations to Release 9 of OS/360.

OS/360 Summary of Features

The availability of the new FORTRAN and PL/I components represents a significant step in the development of OS/360. Since the initial announcement in March 1966, a comprehensive set of packages has been made available and today all major functional areas are represented in OS/360. These include:

MULTIPROGRAMMING

- . Up to four user programs can be run concurrently.
- . Any processor or utility program can be used in any one of the partitions.
- . Full memory protection.
- . Multiple WAIT macro that allows several I/O requests to be made by a single program prior to its waiting for any one of the events to occur. This is an important consideration, particularly in a Tele-processing - DASD environment.
- . Use of Express Graphic Support - 2260 and 2250 in one or more partitions.

MULTIPROGRAMMING PERFORMANCE

A conventional, commercial batch stream of 40 minutes was run on a Model 40, with 513 seconds of WAIT time. Less than five minutes was added to the run time when a 1000 cpm reader and a 1100 lpm printer were run in a second partition. (This Reader/Printer program employed command chaining and EXCP logic.) 481 seconds of WAIT time was still left, and 44,900 cards had been read, and 46,800 lines printed.

DATA SET CONTROL

- . Data set location control, supported by a powerful cataloging system, enabling programmers to retrieve data and programs by symbolic name alone, without specifying volume serial number or location on that volume.
- . Classification of data sets stored within the cataloging system according to installation needs.
- . Successive generations of related data sets, controlled by a Generation Data Group feature.
- . A system of labels and label checking.
- . Control of direct access storage space allocation; allocating specific space or any available space as requested by the programmer. When the original space provided is not adequate, an automatic extension of space is provided.

DATA ACCESS

- . Programmer can select from a variety of access methods: BSAM, QSAM, BDAM, BPAM, QISAM, BISAM, and

C O N T E N T S

OS/360 Release 9 ... is now available.

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BTAM. A comprehensive set of macro instructions is provided with each feature.

The following features are represented in some or all of the above:

- . Device independence.
- . Reading and writing data randomly, sequentially or remotely.
- . Blocking and deblocking records.
- . Dynamic Buffer Management.
- . Overlapping reading/writing and processing operations.
- . Detecting error conditions and correcting them when possible.

OS/360 DEVICE SUPPORT

- . 2250 Display, 2301 Drum
- . BTAM support of a wide variety of terminals.
- . 2841-Feature Code 8100-Two Channel Switch on a single processor.
- . Wide variety of unit record, magnetic tape and DASD devices.

LANGUAGE COMPILERS

- . Assembler E and F
- . COBOL E and F
- . FORTRAN IV E, G and H
- . PL/I F
- . RPG

In addition, usability items will continue to be an area that will receive close attention. In 1966, these usability items were delivered:

- . Over 100 messages have been improved to aid in operator/programmer communication with the system.
- . Improved storage dump display for debugging.
- . Single case typewriter communication to the operator.
- . Revision of Public/Private volume specification to simplify operator handling of data sets.
- . Universal Character Set Utility.
- . A utility program to prepare tape labels.

Performance-related improvements, in addition to the faster compilers, that have been delivered since March 1966 include:

- . 44K and 88K Linkage Editor
- . Resident BLDL Table option
- . Resident Access Methods option
- . Utility program performance improved with more available core.
- . FORTRAN IV E Performance option
- . FORTRAN IV Subroutine Library improvements.
- . PCI FETCH

- . 2301 Drum for system residence
- . Fast IPL option
- . Channel separation and affinity
- . SER0/SER1
- . Multiprogramming - MFT option
- . Improved job schedulers, and 100K scheduler

This release of OS/360 represents the most comprehensive level of programming systems support ever provided to our computer users. OS/360 will continue to be improved by device support, improved function, and performance in 1967.

#### OS/360 PL/I F (360S-NL-511)

This version of the OS/360 PL/I F level (44K) Compiler is the second major step toward providing a modern tool for program development. It provides facilities for easier programming and debugging, plus performance improvements in compiling and the processing of data.

Specific areas of improvement include the increased capability in the processing and description of I/O data, the initialization of tables or arrays, and the handling of error conditions.

Language features have been added which make possible the programming of complex logic problems in addition to making more straight forward the programming of more normal problems. Compiler output has been changed to improve compile time and the associated printing time.

A highlight of this announcement is the availability of the compile time feature allowing for conditional program modification from pre-established libraries of PL/I statements. This facility had been scheduled for July 1967. PL/I features provided are:

Record I/O ... which allows collections of input/output data to be processed as records. Record I/O allows the efficient transmission of data in internal format without conversion. Programs written in PL/I can now use the Operating System/360 facilities for both the sequential and direct accessing of data using BSAM, QSAM, BDAM, and ISAM access methods. A full range of record formats are available to the user, which compliment the particular access method used. Blocked Record support is provided for both QSAM and ISAM.

Compile time facilities ... the compile time facility allows the conditional modification of PL/I source programs at compilation. Modifications can be selected from a previously prepared and stored library. To illustrate the use of this versatile facility, consider the case of predefined record layouts. Record layouts can be defined in PL/I and placed in a library. The application programmer can automatically call from the library and insert the definitions in his PL/I source programs during compilation. Another use of the compile time facility permits application programs to be maintained concurrently as production object programs and as test status source program decks. Thus, the same source deck can be conditionally compiled to include or exclude debugging statements.

Data Initialization ... Arrays (Tables) of data in STATIC storage can be initialized using the Initial attribute. Arrays of dynamic label variables may be initialized by using the elements as statement labels. Initialization of arrays of other data in AUTOMATIC or CONTROLLED storage is deferred from this release.

Printed Output Control ... The PAGESIZE and LINESIZE options are now available. These options permit improved control by the programmer in the format of printed output produced in the Stream I/O.

Recursion ... The preferred and standard mathematical recursion is provided.

Operators ... Users may now specify the operators "not greater than" and "not less than" represented by the symbols  $\nabla >$  and  $\nabla <$  in the 60 character set, and NG and NL in the 48 character set.

Paper Tape Support ... Paper tape can be used for PL/I source program input, and consecutive data set input to the PL/I object program.

Built-In Function Names ... Restrictions on the use of built-in function names if other contexts have been removed. This restriction was previously applied to the following cases:

- a) left-hand side of an assignment statement
- b) control variable of a DO statement
- c) data list of a GET statement

Where the variable is not contained in or followed by an argument list. Additional new features of the PL/I OS F Level Compiler which provide improved usability and function are:

. Improved PRINT file formatting:

- a) Non-splitting of numeric data across line boundaries.
- b) Implementation defined tabbing for all data items in LIST/DATA directed output.

. Object Time Error Handling ... new features provided are :

- a) Source program statement numbers are provided with object execution generated error messages as an option.
- b) SNAP output can be combined with SYSTEM action for ON statements. Thus, a trace of CALLS is automatically provided before executing the standard system action.
- c) Additional ONCODE values are provided to pinpoint specific conversion errors recognized by the CONVERSION ON-condition.

Compiler Produced Lists ... Double column listings of the object program are provided when the option LIST is specified. Double column listings can realize a time saving of up to 25% of total compile time over single column listings in addition to the savings in off line printing.

Significant improvements in object performance may be achieved with the availability of the features of this version. Applications for which Record I/O would have been more suitable, but were temporarily coded using Stream I/O should realize improved object performance when recoded with the Record I/O facilities.

Details of these language facilities and implementation features are provided in the two publications: System/360 Operating System PL/I Language Specifications, C28-6571-4\*... System/360 Operating System PL/I (F) Programmer's Guide C28-6594-1. \*Available only from the IBM Distribution Center, Mechanicsburg.

#### Notes on PL/I F

1. Use in the PL/I program of the TIME built-in function or the DELAY statement requires option 6A (Time).
2. Option 6A (Time) is required if time of compilation is to be printed by the compiler.
3. The specification by the user of a REGIONAL or INDEXED data set organization, requires the presence in his generated system of BDAM and ISAM modules respectively. The presence of BSAM/QSAM is always required.
4. Users who wish to reassemble modules of the PL/I Library require an assembly program with pseudo-register support. The OS/360 F assembler provides this.
5. Use of the compile time feature will require the additional data set SYSUT3, which may be either a DASD or magnetic tape. Note previous requirement for SYSUT3 when using 48 character set.

FORTRAN IV Library

This library contains the relocatable subprograms and serves FORTRAN IV E, G and H.

FORTRAN IV - H (360S-FO-500)

The H compiler provides the following extensions to the language beyond USA FORTRAN:

IMPLICIT statement allowing extended implicit classification by first character of a name.

An extended type statement, including length specification.

G-conversion, extended to cover all numeric and logical data types.

Multiple entry points to subprograms, and non-standard returns from subroutines.

Arrays of up to seven dimensions.

PAUSE statement extended to permit output of messages.

NAMelist statement permitting input/output and conversion without an explicit I/O list and FORMAT statement.

Extended subscripts.

Hexadecimal constants and FORMAT code.

The H compiler offers the user the ability to produce highly efficient code.

Note: Temporarily, this compiler will deviate from the USA standard concerning the ordering of variables in COMMON blocks and EQUIVALENCE groups, and requiring dimension information before certain uses of the EQUIVALENCE statements.

FORTRAN IV - G (360S-FO-520)

The G compiler provides the following extensions beyond USA FORTRAN, in addition to those listed under H:

Debugging Features.

Support of BDAM.

NOTE

Temporarily, this compiler will deviate from the USA standard concerning the ordering of variables in COMMON blocks and EQUIVALENCE groups.

OS/360 Maintenance

Release 9 contains changes that support new PL/I functions and a correction for 360S-UT-506, IEHMOVE.

Ordering Procedures

For new users the branch office must have the Program Order Form for System/360 Operating Systems (120-1411). Current users of 360 will receive a prepunched Program Order Card and a letter announcing the availability of Release 9, instructing them to order the new release through the branch office, using this prepunched card.

In either case, the order form used (120-1411), or the prepunched Program Order Card, must contain the program number for each OS/360 component (if being ordered for the first time) for which program documentation and maintenance material is required.

All orders must indicate the number of 2311 disk storage drives available to perform system generation. Only those orders stating "Two drives to be used for SYSGEN" will be customized, as described in letter P67-1. All other users will be sent the entire system, for which two disk packs or two reels of tape are required.

When ordering OS/360 on magnetic tape, either 9-track or 7-track tape must be specified. If not specified, 9-track tape will be forwarded.

The requester may forward or order magnetic tapes or

forward disk packs in accordance with current procedures as described in the DP Sales Activity section of the Branch Office Manual.

Special Notes for Two-Drive Users

1. See Table 1 of this P Letter for sizes of distributed components (reference P67-1 for descriptive information).
2. Branch offices are responsible to assure that valid combinations of components are ordered.
3. Individual components (such as FORTRAN IV H) require the corresponding level of SYS1.GENLIB, which is distributed as a part of the Primary Control Program (360S-CI-505). PCP should therefore be ordered in all cases.

Table 1

OS/360 Release 9 Component Sizes:

Component Name	360S-	Notes	Distribution volume library space (2311 tracks)																	
			Starter System	SYSL COBLIB	SYSL FORTLIB	SYSL SORTLIB	SYSL PLILIB	SYSL PROCLIB	SYSL MODLIB	SYSL GENLIB	SYSL MACLIB	SYSL SAMPLELIB								
Starter System	CI-514	7	510																	
Primary Control Program	CI-505	1, 8							2	94	686	91								
Primary Data Management	DM-508	1								41		112								
Direct Access Method (BDAM)	DM-509	5								6		2								
Indexed Sequential (ISAM)	IO-526	6								45		4								
Basic Telecommunications (BTAM)	CQ-513									5		18								
Express Graphics	IO-523									13		64	16							
Assembler E	AS-036	1								4	43	10								
Assembler F	AS-037	4, 6								4	54	10								
TESTRAN & Editor	PT-516	2								5	23	52								
Sort/Merge	SM-023	3				7				2	56	23								
Linkage Editor E	ED-510	1, 3								3	15									
Linkage Editor F	ED-521	4								3	23									
OS/360 Utilities	UT-506	1								2	65		12							
Independent Utilities	UT-507	1										48								
COBOL E	GO-503	5								3	85	29								
COBOL E Library	LM-504	3				9														
COBOL F	CB-524	5								3	79									
COBOL F Library	LM-525	3									9									
FORTRAN IV E	FO-092	5								4	30	8								
FORTRAN IV G	FO-520	5								4	24	7								
FORTRAN IV H	FO-500									4	199	7								
FORTRAN IV Library	LM-501	3				1					26									
PL/I F	NL-511	5, 6								4	240	5								
PL/I Library	LM-512	3								52	26									
RPG	RG-038									3	52	5								
SERO, SER1, EREP Model 40	DN-527										12									
SERO, SER1, EREP Model 50	DN-528										13									
SERO, SER1, EREP Model 65	DN-529										14									

\*DLB01 if space is available and if the Starter System or the Primary Control Program or both are not ordered.

NOTES:

1. Minimum component for a system able to perform system generation. See also Note 4 where appropriate.
2. Required for Customer Engineering Use; highly recommended as part of a minimum system.
3. Used by and required with the preceding component(s) in the chart.
4. Alternative component to the preceding component in the chart. Either or both may be selected.
5. BDAM is required by the direct access statements of COBOL, FORTRAN, and PL/I.
6. ISAM is required by PL/I object programs using the Indexed Organization.
7. Required with initial order; subsequent orders may be processed by the user's own system. The Starter System actually contains several libraries, as described in the Starter Guide (C28-6630).
8. Required with orders for processors, since the SYS1.GENLIB contains the related system generation macro instructions.

**Program Material:** The following SRL publications appropriate to the component ordered will be shipped by PID with each initial order. Some of these SRLs are new publications which obsolete previous editions. Additional copies of the SRLs are available from Mechanicsburg.

SRL Publications

System/360 Operating System:

Job Control Language TNLs N28-2128, N28-2149, N28-2176, N28-2189	C28-6539-2
Operator's Guide TNL N28-2178*	C28-6540-3
Control Program Services TNLs N28-2121, N28-2122, N28-2195 N28-2204*	C28-6541-2
System Programmer's Guide TNLs N28-2162, N28-2183, N28-2188 N28-2207*	C28-6550-1
Storage Estimates TNLs N28-2138, N28-2170, N28-2171 N28-2185, N28-2198, N28-2205*	C28-6551-1
System Generation N28-2206, * N28-2213*	C28-6554-1
Control Program Messages and Completion Codes TNLs N28-2148, N28-2194, N28-2190, N28-2200*	C28-6631
Starter Guide TNLs N28-2192, N28-2197, N28-2199*	C28-6630
Maintenance TNL N28-2160	C27-6918
Utility Programs TNL N28-2182	C28-6586-3
Sort/Merge TNL N28-2153	C28-6543-2
Assembler F Programmer's Guide	C26-3756-1
Assembler E Programmer's Guide TNL N28-2140	C28-6595
FORTRAN E Programmer's Guide	C28-6603-1
FORTRAN IV, Level G Programmer's Guide	C28-6639*
FORTRAN IV Library Subroutines	C28-6596-1*
FORTRAN IV, Level H Programmer's Guide	C28-6602*
COBOL E Programmer's Guide	C24-5029-1
Data Management TNLs N28-2131, N28-2146	C28-6537-1
Linkage Editor TNL N28-2201*	C28-6538-3
PL/I F Programmer's Guide	C28-6594-1*
PL/I F Library Computational Subroutines	C28-6590
Graphic Programming Services for 2250 Display Unit, Model 1 TNL N27-1251, N27-1262*	C27-6921
Graphic Programming Services for 2260 Display Station (Local) TNLs N27-1246, N27-1252	C27-6925
COBOL F Programmer's Guide	C28-6380
Basic Telecommunications Access Method	C30-2001

The following items will also be shipped by PID when the related component is ordered -- Program Material List ... OS/360 Prose.

If only the form numbered manuals are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

Components available with Release 9 are:

Starter System	360S-CI-514
Primary Control Program	360S-CI-505
Primary Data Management	360S-DM-508
OS/360 Utilities	360S-UT-506**
Independent Utilities	360S-UT-507
Assembler E	360S-AS-036
Assembler F	360S-AS-037
Linkage Editor E	360S-ED-510
Linkage Editor F	360S-ED-521
TESTRAN	360S-PT-516
Basic Direct Access Method (BDAM)	360S-DM-509
Basic Telecommunications Access Method (BTAM)	360S-CQ-513
Express Graphics	360S-IO-523
Indexed Sequential Access Methods (BISAM, QISAM)	360S-IO-526**
Sort/Merge	360S-SM-023
FORTRAN E	360S-FO-092 Note 1
FORTRAN G	360S-FO-520***Note 1
FORTRAN H	360S-FO-500***Note 1
FORTRAN Library	360S-LM-501**
COBOL E	360S-CB-524 Note 1
COBOL E Library	360S-LM-504
COBOL F	360S-CB-524 Note 1
COBOL F Library	360S-LM-525
PL/I F	360S-NL-511** Note 1
PL/I Subroutine Library	360S-LM-512**
SERO, SER1, & EREP for Model 40	360S-DN-527
SERO, SER1 & EREP for Model 50	360S-DN-528
SERO, SER1, & EREP for Model 65	360S-DN-529
Report Program Generator	360S-RG-038

\*Denotes change from previous release.

\*\*Component change from previous release.

\*\*\*Component new with this release.

Note 1: To use language compilers, the corresponding library is required.

Orders currently in transit to PID will not be filled with Release 8. Those orders that indicate two drive system generation capability will not be filled automatically with Release 9. The branch office will be contacted immediately by telephone or wire when the orders are received at PID to determine the user customization requirements as described in this letter.

*John Fahey*  
John Fahey  
Director of DP Marketing

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[A] System/360 Model 44 Programming System

Minimum system requirement for S/360 Model 44 PS has been revised to 64K bytes of core storage instead of the original 32K bytes. Requirement for the Basic Programming Support, presently available, remains at 32K.

The availability of the Model 44 Programming System has also been revised from March 1967 to June 1, 1967. It will include:

- Control Program
- IOCS
- FORTRAN IV
- Assembler
- Utilities
- 1600 BPI Support

Affected customers should be notified immediately.

The new Model 44 sales manual pages attached contain a description of the components, timing estimates, and statement capacities for FORTRAN IV and the Assembler.

[B] 1401/1460 Timing Program for DOS/360 and TOS/360 Tape Sort/Merge Program

PID is now distributing Modification Level 1 to current users of 1401/1460 Timing Program for DOS/360 and TOS/360 Tape Sort/Merge Program, 1401-LM-010.

This modification provides timing estimates for DOS/360 and TOS/360 tape sorts using 2400 Series Tape Drives, Models 4, 5, and 6. Support for Models 1, 2, and 3 was provided by Version 1, Modification Level 0 (see P66-35).

Also included in this modification level are improved diagnostic capabilities for errors in timing program control cards.

These changes are reflected in TNL N21-5040 to 1401/1460 Timing Program for System/360 Disk and Tape Operating Systems Tape Sort/Merge Program, C24-3439-1 or C24-3439-2.

The program description and minimum system requirements stated in P66-35 remain unchanged.

[C] OS/360

Correction to P66-122.

Under "Changes in Availability Dates" "Language Translators" change line --

PL/I F Improved Version	7/31/67	1/18/67
-------------------------	---------	---------

to read --

PL/I F level Version 2	12/30/66	1/18/67
PL/I F level compile time facilities*	7/31/67	1/18/67

\*The "Modify source programs at compile time" and "Macro facility" entries of previous sales manual pages are now identified as "Compile time facility."

[D] System/360 Tape Overlap Emulator for Model 30 with 1401/1440/1460 Compatibility Feature

The engineering change levels required for proper functioning of the Tape Overlap Emulator Program, 360C-EU-097, are:

For one selector channel configurations

- 2030 Microprogram level 128054
- 1400 Compatibility Feature Microprogram level 128118
- 2030 Hardware Logic level 126741

C O N T E N T S

System/360 Model 44 Programming System ... minimum system requirement has been revised. [A]

1401/1460 Timing Program for DOS/360 and TOS/360 Tape Sort/Merge Program, 1401-LM-010 ... Modification Level 1 now being distributed. [B]

OS/360 ... correction to P66-122. [C]

System/360 Tape Overlap Emulator for Model 30 with 1401/1440/1460 Compatibility Feature ... EC requirements. [D]

IBM Catalogs of Programs ... December 1966 -- available. [E]

Published by DP Sales Publishing Services, WTHQ

For two selector channel configurations

or

For two selector channel configurations with 2404 or 2804 Tape Control Unit (simultaneous read-while-write).

- 2030 Microprogram level 128054
- 1400 Compatibility Feature Microprogram level 128118
- 2030 Hardware Logic level 126741

These engineering change level requirements are indicated in the FE RETAIN file\* TOEP program basic record. All of the changes have been shipped and should now be available for field installation on systems that require them.

Questions regarding the above engineering change levels and/or the problems that may be corrected by them should be directed to the servicing FE branch office.

The Tape Overlap Emulator Program engineering change level requirements stated in P66-108 are no longer current.

Prior P-Letter references to this program are ... P65-9, P66-4, P66-43, P66-108, P66-110, P66-115, and P66-120.

\*RETAIN messages, transmitted to ITPS terminals at FE and DP branch offices and support locations, include APAR responses and other programming systems information, updated on a daily basis, until that information is published in a Programming Systems Memorandum (see P66-81).

[E] IBM Catalogs of Programs

The following December 1966 Catalogs of Programs are available from the IBM Distribution Center, Mechanicsburg for:

- IBM 305 and 650 Data Processing Systems C20-1600-4
- IBM 1240, 1401, 1420, 1440 and 1460 Data Processing Systems C20-1601-5
- IBM 705, 1410, 7010, 7070, 7072, 7074, 7080, 7740 and 7750 Data Processing Systems C20-1602-5
- IBM 1620 and 1710 Data Processing Systems C20-1603-5
- IBM 704, 709, 7040, 7044, 7090 and 7094 Data Processing Systems C20-1604-5
- IBM System/360 C20-1619-2
- IBM 1130 Computer System and the IBM 1800 Data Acquisition and Control System C20-1630-1

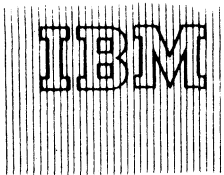
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Shared Hospital Accounting System (SHAS)

New marketing opportunities are now opened for hospitals considered "too small" for their own data processing system. Shared Hospital Accounting System (SHAS) will facilitate the sale and installation of shared systems for groups of hospitals ... hospital associations ... cooperative hospital groups ... larger hospitals cost sharing with one or more smaller hospitals ... associated hospital service organizations.

(SHAS), available 2Q68, provides hospital accounting for the multiple hospital environment. Tele-processing terminals connect the central computer to the member hospitals. The application programs are Patient Billing, Accounts Receivable and General Ledger, including cost allocation for Medicare. Accounting for both inpatients and outpatients is provided. SHAS also determines Medicare insurance proration, facilitating the preparation of the Medicare Inpatient and Outpatient billing forms.

A preliminary Application Description Manual can be obtained from your Medical Industry Marketing Representative. The availability of the Application Description, "Shared Hospital Accounting System," will be announced in a Publication Release Letter.

The following text will appear in the sales manual.

Shared Hospital Accounting System (SHAS) Provides hospital accounting for the multiple hospital environment. The member hospitals are tied to the central computer facility by Tele-processing terminals. The accounting applications are Patient Billing, Accounts Receivable, and General Ledger. Accounting for both inpatients and outpatients is provided. In addition to Medicare cost allocation, SHAS determines Medicare insurance proration facilitating the preparation of the Medicare Inpatient and Outpatient Billing forms. The design of SHAS facilitates the addition of clinical or administrative user written programs. SHAS programs are designed to provide better administrative and operational control and reduce the ever increasing clerical load associated with hospital administration.

Description: The SHAS programs and the System/360 using remote terminals encompass the application areas of Patient Billing, Accounts Receivable, and General Ledger for multiple hospitals.

The SHAS applications operate in two modes: on-line entry of data and receipt of reports by means of Tele-processing terminals and off-line data entry and reporting at the central data processing location. The SHAS programs provide the on-line facility for those applications where immediacy of the information is significant (entry of charges, cash payments, request for demand bills, etc.). For other applications, receivable statement writing, etc., the central facility (with its high speed printer) is used directly.

Features:

- Input-output Format Tables provide flexibility at the user's option to tailor the input and output for each application.
The SHAS Executive provides the capability for processing foreground and background programs. Several terminals can transmit and receive data concurrently through foreground programs while batch applications are processed by background programs.
Job accounting statistics including terminal and CPU utilization are logged internally and are available in report form.
Security is attained through input and data set identifications to limit access of data. Each hospital is permitted to inquire into or modify its data only.

Highlights of SHAS include:

Executive

Manage communications lines ... Handle the timer ... Initiate time-called programs (e.g., Census Pelist Report) ... Handle interrupts (e.g., demand bill request and inquiries) ... Queue messages ... Manage input/output.

Patient Billing

Setting up patient's files upon admission to hospital ... Central pricing of hospital services ... Charge posting ... Census ... Insurance proration (including Medicare) ... Record cash payments ... Daily Balance Forward printed back at the hospital ... Immediate inquiry on the status of patient accounts ... Automatic preparation of patient bills ... Automatic printing of insurance statements ... Patient bill on demand (detail or summary) ... Automatic transfer to accounts receivable ... Accumulation of revenue and usage data to fulfill Medicare requirements.

CONTENTS

Shared Hospital Accounting System (SHAS) ... application program to be available 2Q 68.

Published by DP Sales Publishing Services, WTR

Accounts Receivable

Preparation of statements ... Recording cash payments ... Receivable accounts stored either off-line or on-line ... Immediate inquiry on the status of on-line receivables ... On-line account validity check for off-line receivables ... Listing of accounts which require a final diagnosis ... Listing of receivables by financial class ... Aged trial balance ... Listing of accounts which have insurance receivables ... Listing of accounts which fail to meet installment payments ... Single statement for family billing.

General Ledger

Ledger posting ... Trial Balance ... Ledger Inquiry ... Comparative Income and Expense Report ... Balance Sheet ... Profit and Loss Statement ... Cost allocation methods suitable for Medicare - stepdown and double apportionment.

Special Sales Information: The application programs include the provision to read and write at the central computer facility all input and output data that is normally transmitted from terminals. This feature is applied to implement systems initially without Tele-processing capabilities.

Use: The SHAS system is implemented by loading all application programs onto disk storage. The SHAS Executive controls processing of terminal data flow through foreground programs and batch data initiated by job control cards through background programs. Data sets are established using customer files. Demand report or inquiry requests are handled by means of the 1050 Tele-processing system. Daily and periodic reports are printed at the central computer facility from the files established for control and reconstruction.

Customer Responsibilities: A thorough understanding of the system (by personnel in the central facility) before installation ... Selection of terminal site ... Creation of master files ... Terminal operation manuals for clerical personnel affected ... Pre-printed forms for certain reports ... Customized formats specified by the user by means of SHAS I/O Format Tables ... Make necessary arrangements for communication lines and equipment.

Programming Systems: The Shared Hospital Accounting System (SHAS) operates under the IBM System/360 Disk Operating System (DOS/360). The application programs are written in Assembler Language and COBOL. Also used are Sort/Merge and Utility Programs.

Minimum System Requirements: 2030F Processing Unit (65K), Decimal Arithmetic (#3237), External Interrupt (#3895), Interval Timer (#4760), Selector Channel - 1st (#6960), Selector Channel - 2nd (#6961), Storage Protection (#7520), with appropriate attachments ... 2821 Control Unit Model 1, 1,100 lines per minute Printer Adapter (#3615) ... 1403 Printer Model N1 ... 1416 Interchangeable Train Cartridge ... 2540 Card Read Punch Model 1 ... 2841 Storage Control Model 1, File Scan (#4385), Record Overflow (#6118) ... three 2311 Disk or Storage Drives Model 1 ... 2415 Magnetic Tape Unit and Control Model 1 ... 2702-1 Transmission Control, Terminal Control-Type I (#4615), Selective Speed (#9684), and IBM Line Adapters as required.

Terminal configuration at each hospital uses 1050 series equipment. Recommended are 1051 Control Unit Model 1, First Printer Attachment (#4408), First Reader, Attachment (#4411), IBM Line Adapter (#469X), Line Correction (#4795), Line Correction Release (#4796) ... 1052 Printer-Keyboard Model 1 ... 1056-1 Card Reader with High Speed Skip (#4595) ... 29 Card Punch Model A22\* ... 59 Card Verifier Model 2.

\*Self-Checking Number - Feature (#7062) may be additionally specified for card punch as desired by the user.

For further information contact your Medical Industry Marketing Representative.

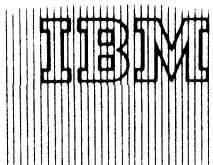
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[A] DOS/360 BTAM

Communications Serviceability capabilities are being added to DOS/360 BTAM to increase systems availability, customer satisfaction, and the serviceability of System/360. Availability will be with the next release of DOS/360 BTAM (2260 Local, 2740 and 7770/72 Audio Response Unit) which will be part of DOS/360.

The new serviceability features are significant for the high availability environment of telecommunications because they increase system availability by providing statistics and diagnostic aids for both effective system repair and preventative maintenance.

Also, communication line and/or terminal failures can be diagnosed and repaired while the unaffected portion of the Tele-processing application continues to run. After repair, components may be smoothly integrated into a running Tele-processing application program.

While these facilities were designed as optional modules, they are extremely beneficial to small Tele-processing configurations and are essential for intermediate and large networks.

It is DP's responsibility to assure that any decision to exclude these facilities, particularly error recovery, has had the joint consideration of FE and the customer, and that IBM has clearly stated in an appropriate letter to the customer, the implications of this decision.

These new facilities are:

1. Error Recovery Procedures

Provide for the recovery from recoverable errors, or the console print-out of pertinent information on non-recoverable errors.

Provide job termination and system operator print-out on certain non-recoverable errors.

Diagnostic Write/Read Commands (2701 only), are performed to isolate non-recoverable errors either to the control unit or external to it.

2. Error Counts

Counts will be maintained for errors on a line basis. These will be printed at the system operator console when any error rate is excessive. Error counts are not provided for 2260 (Local) or 7770/7772 Audio Response Units.

3. On-Line Terminal Tests

Terminal test procedures will operate on-line with the user problem program, and will not impact user operation other than the time required to perform their function.

Tests are not provided for Teletype Terminals or the terminals associated with the 7770/7772 Audio Response Units or the 2260 (Local).

The restriction limiting the 7770/7772 under DOS/360 BTAM to a separate Tele-processing application program is no longer valid. DOS/360 BTAM support for the 7770/7772 can now reside in the same application program with a mixture of other BTAM supported units.

Publication: System/360 Disk Operating System Extended Basic Telecommunications Access Method, C30-5001-2.\*

Minimum System Configuration: 32K bytes of main storage ... Standard Instruction Set ... one I/O channel (selector) when the only devices are a 2848 with 2260 Local ... one selector channel for system residence and one multiplexer channel for the

C O N T E N T S

DOS/360 BTAM ... Communications Serviceability capabilities added. [A]

BPS/360 Input/Output 1412/1419, 360P-IO-058 ... additional information. [B]

Shared Hospital Accounting System (SHAS) ... correction to P67-5. [C]

Published by DP Sales Publishing Services, WTHC

Communications Control Units ... one card reader\*\* ... one card punch\*\* ... one printer\*\* ... one 1052 Printer-KeyBoard ... one 2311 for system residence.

\*Availability will be announced in a Publication Release Letter.

\*\*See "Control Program Input/Output - DOS/360" on Programming page P360.23 (November, 1966 New) for acceptable units and possible substitution.

[B] BPS/360 Input/Output 1412/1419

Modification Level 2 for Version 3 BPS/360 Input/Output 1412/1419, 360P-IO-058, provides support for the System/360 Model 65. This modification and Modification Level 1, announced in P66-121, are being shipped together to current users automatically. The user will receive one program deck which includes the changes of both modifications.

[C] Shared Hospital Accounting System (SHAS)

Correction to P67-5.

The Minimum System Requirements did not include 1052 Printer-KeyBoard.

The following is a reprint of the Minimum System Requirements paragraphs:

"Minimum System Requirements: 2030F Processing Unit (65K), Decimal Arithmetic (#3237), External Interrupt (#3895), Interval Timer (#4760), Selector Channel - 1st (#6960), Selector Channel - 2nd (#6961), Storage Protection (#7520) ... 1052 Printer-KeyBoard with appropriate attachments ... 2821 Control Unit Model 1, 1,100 lines per minute Printer Adapter (#3615) ... 1403 Printer Model N1 ... 1416 Interchangeable Train Cartridge ... 2540 Card Read Punch Model 1 ... 2841 Storage Control Model 1, File Scan (#4385), Record Overflow (#6118) ... three 2311 Disk Storage Drives Model 1 ... 2415 Magnetic Tape Unit and Control Model 1 ... 2702 Model 1 Transmission Control, Terminal Control-Type I (#4615), Selective Speed (#9684), and IBM Line Adapters as required.

Terminal configuration at each hospital uses 1050 series equipment. Recommended are 1051 Control Unit Model 1, First Printer Attachment (#4408), First Reader Attachment (#4411), IBM Line Adapter (#469X), Line Correction (#4795), Line Correction Release (#4796) ... 1052 Printer-KeyBoard Model 1 ... 1056 Model 1 Card Reader with High Speed Skip (#4595) ... 29 Card Punch Model A22\* ... 59 Card Verifier Model 2.

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- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] If DTR distribution is indicated in the above, program distribution media may be different in your area based on local conditions.
- [5] All references made to the Program Information Department (PID) should be understood to mean the appropriate WT Program Library.
- [6] Any reference made to DPD Departments as sources of information or for manuals etc., should be understood to mean the comparable WT Department.
- [7] Communications facilities or services may be required which are not offered in all WT countries. In case of any doubt as to the availability of suitable communications facilities, the country Teleprocessing Coordinator should be consulted.
- [8] All references made to Engineering Changes required for programs should be verified with the local CE Branch Office. Although E/C requirements are identical for WT and IBM, E/C availability dates and shipping schedules may differ.



IBM World Trade Data Processing

Programming Announcements

[A] IBM 1130 Commercial Subroutine Package

Version 1, Modification Level 1, of the 1130 Commercial Subroutine Package, 1130-SE-25X, is now being distributed to current users and may also be ordered. This modification increases precision of the PUT subroutine. This subroutine, as corrected in Modification Level 1, will convert all whole numbers up to 1,000,000,000. (one million dollars expressed in mills) to EBCDIC.

The attached sales manual page contains information on this program as announced originally in P66-76. There are two changes:

1. The Minimum System Requirements section has been revised for purposes of clarification. The system requirements have not changed.
2. Two manuals, the Application Description (H20-0221-1) and the Program Reference Manual (H20-0241-1) have been updated and reprinted. These will be sent to current users with Modification Level 1.

For further information contact Systems Marketing Technique Development, DPD HQ.

[B] OS/360 Release 9

Program number correction on P67-3.

On page 4 under "Components available with Release 9" COBOL E was listed as 360A-CB-524. It should have been 360S-CO-503.

CONTENTS

1130 Commercial Subroutine Package  
(1130-SE-25X) ... an application  
program. (A)

OS/360 Release 9 ... correction to  
P67-3. (B)

Published by DP Sales Publishing Services, WTHQ

SEE REVERSE SIDE FOR  
"NOTE TO WORLD  
TRADE READERS"

  
John Fahey  
Director of DP Marketing

Release Date: January 25, 1967

Distribution: All Areas

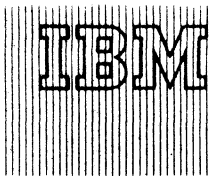
P67-7

Note to World Trade Readers

This letter is a reprint of an IBM Programming Announcement and was mailed concurrently to USA and WT offices. The following changes, when appropriate, should be applied to the text for WT use.

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 13 through 17, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] If DTR distribution is indicated in the above, program distribution media may be different in your area based on local conditions.
- [5] All references made to the Program Information Department (PID) should be understood to mean the appropriate WT Program Library.
- [6] Any reference made to DPD Departments as sources of information or for manuals etc. should be understood to mean the comparable WT Department.
- [7] Communications facilities or services may be required which are not offered in all WT countries. In case of any doubt as to the availability of suitable communications facilities, the country Teleprocessing Coordinator should be consulted.
- [8] All references made to Engineering Changes required for programs should be verified with the local CE Branch Office. Although E/C requirements are identical for WT and IBM, E/C availability dates and shipping schedules may differ.





[A] IBM 1130 Economic Evaluation of Petroleum Projects Program

The IBM Economic Evaluation of Petroleum Projects Program (1130-MP-01X) may now be ordered. Shipments will begin the week ending February 17. This program can be used to screen drilling proposals and rank them according to their profitability. Given the investment schedule and production forecast for an exploration and drilling prospect, the programs compute the payout period and rate of return using the discounted cash flow method.

The program considers producing rates, investment schedule, expense, taxes, working interest factors, product prices, time value of money and depreciation.

The program computes rate of return and payout for any given project. A project life of 30 years can be handled.

The program will accept directly the output of both the Decline Curve Analysis Program (1130-MP-03X) and the Gas Deliverability Program (1130-MP-07X).

**Programming Systems:** Program is written in FORTRAN language described in C26-5933. It is designed to run under control of the 1130 Disk Monitor System.

The IBM 1130 Dipmeter Program (1130-MP-15X) containing specific plotting subroutines necessary to running the Economic Evaluation program must be ordered from PID.

**Minimum System Requirements:** An IBM 1131 Model 2B, an IBM 1442 Card Read Punch, and an IBM 1627 Plotter. An IBM 1132 Printer is optional.

**Program Material:** Documentation-Basic -- Application Directory ... Programmer's Manual (H20-0402) ... Operator's Manual (H20-0403).

**Machine Readable-Basic --** FORTRAN source cards, including proper monitor control cards, and sample problem input data in card form.

**Reference Material:** Publications necessary for the use of this application are: Application Description (H20-0401) ... System Manual (Y20-0046) ... 1130 FORTRAN Language (C26-5933) ... 1130 Monitor Reference Manual (C26-3750) ... 1130 Principles of Operation (A26-5881) ... 1130 Input/Output Units (A26-5890).

For further information contact the IBM Petroleum Industry Marketing Representative in Houston, Texas.

[B] IBM 1130 Casing Design Program

The IBM Casing Design Program (1130-MP-02X), now available, allows the user to design the most economical combination casing string, in terms of grade and weight, that will meet the requirements of a given well. It will accept all possible casing-joint combinations. Each casing joint property card gives the properties of the casing and the joint to be used with it. A form of inventory control may be exercised by entering only the available casing-joint combinations.

The program takes into account mud weight, hole deviation, maximum differential pressure expected, minimum length of a given section, and initial joint selection for the bottom section.

The user may have the casing string designed from his own inventory of casing.

The casing string designed by the program will meet API standards.

**Programming Systems:** The program is written in FORTRAN language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System.

**Minimum System Requirements:** An IBM 1131 Model 2B and an IBM 1442 Card Read Punch. An IBM 1132 Printer is optional.

**Program Material:** Documentation-Basic -- Application Directory ... Programmer's Manual (H20-0406) ... Operator's Manual (H20-0407)

**Machine Readable-Basic --** FORTRAN source cards including proper monitor control cards, and sample problem input data in card form.

**Reference Material:** Publications necessary for the use of this application are: Application Description (H20-0405) ... System Manual (Y20-0047) ... 1130 FORTRAN Language (C26-5933) ... 1130 Monitor Reference Manual (C26-3750) ... 1130 Principles of Operation

Note: If only the form numbered manuals supporting a program are required, order from Mechanicsburg; not PID.

**CONTENTS**

1130 Programs for Petroleum Exploration and Engineering ... availability of application programs.

- Economic Evaluation of Petroleum Projects (1130-MP-01X) [A]
- Casing Design (1130-MP-02X) [B]
- Decline Curve Analysis (1130-MP-03X) [C]
- Turner Material Balance (1130-MP-04X) [D]
- Schilthuis Material Balance (1130-MP-05X) [E]
- Two-Dimensional Waterflooding (1130-MP-06X) [F]
- Gas Deliverability (1130-MP-07X) [G]
- Multi-Stage Flash Calculation (1130-MP-08X) [H]
- Velocity Functions from Time-Depth Data (1130-MP-09X) [I]
- Wave-Front Ray-Path Determination (1130-MP-10X) [J]
- Synthetic Seismogram (1130-MP-11X) [K]
- Gravity and Magnetics Continuations, Derivatives and Residuals (1130-MP-12X) [L]
- Theoretical Gravity of a 3-D Mass (1130-MP-13X) [M]
- Quantitative Log Analysis (1130-MP-14X) [N]
- Dipmeter (1130-MP-15X) [O]

Published by DP Sales Publishing Services, WTHO

(A26-5881) ... 1130 Input/Output Units (A26-5890).

For further information contact the IBM Petroleum Industry Marketing Representative in Houston, Texas.

[C] IBM 1130 Decline Curve Analysis Program

The IBM Decline Curve Analysis Program (1130-MP-03X) may now be ordered. Shipments will begin the week ending February 17. This program computes the coefficients in the equation best fitting past production data and the reserves associated with these data. Using a method of least squares for non-linear systems, the coefficients of the equation best fitting past production are determined. By means of the equation, future production rates and future cumulative production are computed. These figures are used to better evaluate a producing property. Output may be on the typewriter, 1132 Printer, or 1627 Plotter.

Up to 50 past production periods may be used. The user may select either a hyperbolic decline or an exponential decline. Results of the calculations may be tabulated or plotted. The output is directly available for input to the Economic Evaluation of Petroleum Projects Program (1130-MP-01X).

**Programming Systems:** The program is written in FORTRAN language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System.

The IBM 1130 Dipmeter Program (1130-MP-15X), containing specific plotting subroutines necessary to running the Decline Curve Analysis Program, must be ordered from PID.

**Minimum System Requirements:** An IBM 1131 Model 2B, an IBM 1442 Card Read Punch, and an IBM 1627 Plotter. An IBM 1132 Printer is optional.

**Program Material:** Documentation-Basic -- Application Directory ... Programmer's Manual (H20-0410) ... Operator's Manual (H20-0411).

**Machine Readable-Basic --** FORTRAN source cards, including proper monitor control cards, and sample problem input data in card form.

**Reference Material:** Publications necessary for the use of this application are: Application Description (H20-0409) ... 1130 FORTRAN Language (C26-5933) ... System Manual (Y20-0048) ... 1130 Monitor Reference Manual (C26-3750) ... 1130 Principles of Operation (A26-5881) ... 1130 Input/Output Units (A26-5890).

For further information contact the IBM Petroleum Industry Marketing Representative in Houston, Texas.

[D] IBM 1130 Turner Material Balance Program

The IBM 1130 Turner Material Balance Program (1130-MP-04X) may now be ordered. Shipments will begin the week ending

February 17.

Programming Systems: The program is written in FORTRAN language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System.

The IBM 1130 Dipmeter Program (1130-MP-15X) containing specific plotting subroutines necessary to running the Turner Material Balance Program must be ordered from PID.

Minimum System Requirements: An IBM 1131 Model 2B, an IBM 1442 Card Read Punch, and an IBM 1627 Plotter. The IBM 1132 Printer is optional.

Program Material: Documentation-Basic -- Application Directory ... Programmer's Manual (H20-0414) ... Operator's Manual (H20-0415).

Machine Readable-Basic -- FORTRAN source cards, including proper monitor control cards, and sample problem input data in card form.

Reference Material: Publications necessary to use this application are: Application Description (H20-0413) ... System Manual (Y20-0049) ... 1130 FORTRAN Language (C26-5933) ... 1130 Monitor Reference Manual (C26-3750) ... 1130 Principles of Operation (A26-5881) ... 1130 Input/Output Units (A26-5890).

For further information contact the IBM Petroleum Industry Marketing Representative in Houston, Texas.

#### [E] IBM 1130 Schilthuis Material Balance Program

This application program (1130-MP-05X) may now be ordered. Shipments will begin the week ending February 17.

The Schilthuis material balance equation, for a reservoir which is subject to water influx, is evaluated at each past production data point (for up to 28 points). These values are weighted according to oil production and subjected to a least-squares solution to compute a most probable value of the original oil in place.

A least squares fit program is provided to furnish coefficients for fitting the laboratory pressure, volume, and temperature data. The program uses Gaussian matrix solution and may be used as a general program. The program is versatile. It may be used for estimates of initial oil and gas present on reservoirs with water drives and with or without gas caps.

Programming Systems: The program is written in FORTRAN language described in C26-5933. It is designed to run under control of the 1130 Disk Monitor System.

Minimum System Requirements: An IBM 1131 Model 2B and an IBM 1442 Card Read Punch. An IBM 1132 Printer is optional.

Program Material: Documentation-Basic -- Application Directory ... Programmer's Manual (H20-0418) ... Operator's Manual (H20-0419).

Machine Readable Basic -- FORTRAN source cards, including proper monitor control cards, and sample problem input data in card form.

Reference Material: Publications necessary to use this application are: Application Description (H20-0417) ... System Manual (Y20-0050) ... 1130 FORTRAN Language (C26-5933) ... 1130 Monitor Reference Manual (C26-3750) ... 1130 Principles of Operations (A26-5881) ... 1130 Input/Output Units (A26-5890).

For further information contact the IBM Petroleum Industry Marketing Representative in Houston, Texas.

#### [F] IBM 1130 Two-Dimensional Waterflooding Program

This application program (1130-MP-06X) may now be ordered. Shipments will begin the week ending February 17.

The Two-Dimensional Waterflooding Program allows the user to determine the pressure distribution throughout a reservoir, taking into consideration the effect of water injection. The pressure distribution data may then be used to compute the rate of frontal advance through the reservoir, and the flood front may be plotted using an on-line plotter. As an additional feature, this program provides for analysis of complete injection patterns in a reservoir in order that the optimum pattern might be selected.

The solution considers reservoir geometry, boundary conditions, location

of producing and injection wells, rates of injection and production, reservoir conductivity, and reservoir condition.

Flood fronts are plotted on an on-line plotter which allows the user to watch the reservoir performance as the computations proceed. The user may stop the flood at any time and change conditions.

Programming Systems: The program formerly announced as an 1130 Assembler program is now written in FORTRAN language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System. The IBM 1130 Dipmeter Program (1130-MP-15X), containing specific plotting subroutines necessary to running the Waterflood Program, must be ordered from PID.

Minimum System Requirements: An IBM 1131 Model 2B, IBM 1442 Card Read Punch, and IBM 1627 Plotter. An IBM 1132 Printer is optional.

Program Material: Documentation-Basic -- Application Directory ... Programmer's Manual (H20-0422) ... Operator's Manual (H20-0423).

Machine Readable-Basic -- FORTRAN source cards, including proper monitor control cards, and sample problem input data in card form.

Reference Material: Publications necessary to use this application are: Application Description (H20-0421)\* ... System Manual (Y20-0051)\* ... 1130 FORTRAN Language (C26-5933) ... 1130 Monitor Reference Manual (C26-3750) ... 1130 Principles of Operation (A26-5881) ... 1130 Input/Output Units (A26-5890).

For further information contact the IBM Petroleum Industry Marketing Representative in Houston, Texas.

#### [G] IBM 1130 Gas Deliverability Program

The IBM Gas Deliverability Program (1130-MP-07X), now available, allows the user to project the annual rate at which volumes of gas reserves may be received into gathering systems. A printed report may be obtained by quarters showing a breakdown of the deliverability and daily takes for each well, and production, both daily and cumulative for the reservoir.

The program computes absolute open flow and future deliverabilities for up to 40 individual wells.

Daily production, cumulative production for the year, and total cumulative production are reported quarterly. Output can be read directly by the Economic Evaluation of Petroleum Projects Program (1130-MP-01X).

Programming Systems: The program is written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System.

Minimum System Requirements: An IBM 1131 Model 2B and an IBM 1442 Card Read Punch. An IBM 1132 Printer is optional.

Program Material: Documentation-Basic -- Application Directory ... Programmer's Manual (H20-0426) ... Operator's Manual (H20-0427).

Machine Readable-Basic -- FORTRAN source cards, including proper monitor control cards, and sample problem input data in card form.

Reference Material: Publications necessary to use this application are: Application Description (H20-0425) ... System Manual (Y20-0052) ... 1130 FORTRAN Language (C26-5933) ... 1130 Monitor Reference Manual (C26-3750) ... 1130 Principles of Operation (A26-5881) ... 1130 Input/Output Units (A26-5890).

For further information contact the IBM Petroleum Industry Marketing Representative in Houston, Texas.

#### [H] IBM 1130 Multi-Stage Flash Calculation Program

The IBM Flash Calculation Program (1130-MP-08X), now available, is a general purpose flash calculation program that can be used for a variety of the computations made by the Petroleum Engineer. The program may be used to design surface separators or to determine the physical properties of the oil and gas from a surface facility. A laboratory differential liberation may be simulated.

\*Do not order until availability is announced in a PRJ.

Note: If only the form numbered manuals supporting a program are required, order from Mechanicsburg; not PID.

The program will accommodate up to four stages of flash. The feed to the first stage may be entered directly, or computed from separator products. Under user option, the C7+ cut can be broken down into five cuts (C7, C8, C9, C10, and C11+).

Specific K values can be entered; or, optionally, the program will compute K values from the NGPA (Natural Gas Processing Association) Equilibrium Coefficients.

**Programming Systems:** The program is written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System.

**Minimum System Requirements:** An IBM 1131 Model 2B and an IBM 1442 Card Read Punch. An IBM 1132 Printer is optional.

**Program Material:** Documentation-Basic -- Application Directory ... Programmer's Manual (H20-0430) ... Operator's Manual (H20-0431).

Machine Readable-Basic -- FORTRAN source cards, including proper monitor control cards, and sample problem input data in card form.

**Reference Material:** Publications necessary to use this application are: Application Description (H20-0429) ... System Manual (Y20-0053) ... 1130 FORTRAN Language (C26-5933) ... 1130 Monitor Reference Manual (C26-3750) ... 1130 Principles of Operation (A26-5881) ... 1130 Input/Output Units (A26-5890).

For further information contact the IBM Petroleum Industry Marketing Representative in Houston, Texas.

#### [I] IBM 1130 Velocity Functions From Time-Depth Data Program

This application program (1130-MP-09X) may now be ordered. Shipments will begin the week ending February 17.

The IBM Velocity Functions from Time-Depth Data Program permits a geophysicist to derive a velocity function and to prepare a tabulated Time-Depth Chart from well velocity data. The principal use of the Time-Depth Chart is to provide an easy method for the geophysicist to convert seismic reflection times to depths.

Up to 80 time-depth points can be used. Five velocity function equations and a linear interpolation between the time-depth points can be selected by the user. Results can be tabulated or plotted. Coefficients developed in this program can serve as input to the Wave-Front Ray-Path Determination Program (1130-MP-10X).

**Programming Systems:** The program is written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System.

The IBM 1130 Dipmeter Program (1130-MP-15X), containing specific plotting subroutines necessary to running the Velocity Functions Program, must be ordered from PID.

**Minimum System Requirements:** An IBM 1131 Model 2B, an IBM 1442 Card Read Punch, and an IBM 1627 Plotter. An IBM 1132 Printer is optional.

**Program Material:** Documentation-Basic -- Application Directory ... Programmer's Manual (H20-0434) ... Operator's Manual (H20-0435).

Machine Readable-Basic -- FORTRAN source cards, including proper monitor control cards, and sample problem input data in card form.

**Reference Material:** Publications necessary to use this application are: Application Description (H20-0433)\* ... System Manual (Y20-0054)\* ... 1130 FORTRAN Language (C26-5933) ... 1130 Monitor Reference Manual (C26-3750) ... 1130 Principles of Operation (A26-5881) ... 1130 Input/Output Units (A26-5890).

For further information contact the IBM Petroleum Industry Marketing Representative in Houston, Texas.

#### [J] IBM 1130 Wave-Front Ray-Path Determination Program

The IBM Wave-Front Ray-Path Determination Program (1130-MP-10X) may now be ordered. Shipments will begin the week ending February 17. This program provides a flexible method to compute and tabulate a seismic wave-front ray-path chart; the geophysicist uses such a chart to restore seismic reflections to their true subsurface position.

Thirty ray paths are computed. Results are plotted to scale. Depth and

horizontal offsets can be obtained from a tabulation or from a wave-front ray-path plot.

**Programming Systems:** The program is written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System.

The IBM 1130 Dipmeter Program (1130-MP-15X), containing specific plotting subroutines necessary to running the Wave Front Ray Path Determination Program, must be ordered from PID.

**Minimum System Requirements:** An IBM 1131 Model 2B and an IBM 1442 Card Read Punch and an IBM 1627 Plotter. An IBM 1132 Printer is optional.

**Program Material:** Documentation-Basic -- Application Directory ... Programmer's Manual (H20-0438) ... Operator's Manual (H20-0439).

Machine Readable-Basic -- FORTRAN source cards, including proper monitor control cards and sample problem input data in card form.

**Reference Material:** Publications necessary to use this application are: Application Description (H20-0437) ... System Manual (Y20-0055)\* ... 1130 FORTRAN Language (C26-5933) ... 1130 Monitor Reference Manual (C26-3750) ... 1130 Principles of Operation (A26-5881) ... 1130 Input/Output Units (A26-5890).

For further information contact the IBM Petroleum Industry Marketing Representative in Houston, Texas.

#### [K] IBM 1130 Synthetic Seismogram Program

This application program (1130-MP-11X) may now be ordered. Shipments will begin the week ending February 17.

The IBM Synthetic Seismogram Program computes and plots a one-dimensional seismic model from well log data. The program aids the seismic interpreter in understanding the relationship between the geological section, as represented by a well log, and the seismic results obtained at the location of the wells.

The model of the layered earth can contain up to a maximum of 600 levels. Primaries only, multiples only, and combined primaries and multiples for both the transmission loss and no transmission loss cases can be computed. Results are plotted on an IBM 1627 Plotter.

**Programming Systems:** The program, formerly announced as an 1130 Assembler language program, is now written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System (1130-OS-001 modification level 2 with TMP2 corrections available through local Field Engineering).

The IBM 1130 Dipmeter Program (1130-MP-15X), containing specific plotting subroutines necessary to running the Synthetic Seismogram program, must be ordered from PID.

**Minimum System Requirements:** An IBM 1131 Model 2B, an IBM 1442 Card Read Punch, and an IBM 1627 Plotter.

**Program Material:** Documentation-Basic -- Application Directory ... Programmer's Manual (H20-0442) ... Operator's Manual (H20-0443).

Machine Readable-Basic -- FORTRAN source cards, including proper monitor cards and sample problem input data in card form.

**Reference Material:** Application Description (H20-0441)\* ... System Manual (Y20-0056)\*.

For further information contact the IBM Petroleum Industry Marketing Representative in Houston, Texas.

#### [L] IBM 1130 Gravity and Magnetics Continuations, Derivatives, and Residual Program

This application program (1130-MP-12X) may now be ordered. Shipments will begin the week ending February 17.

\* Do not order until availability is announced in a PRL.

Note: If only the form numbered manuals supporting a program are required, order from Mechanicsburg; not PID.

The IBM Gravity and Magnetic Continuations, Derivatives and Residuals Program provides a method for computing: (1) Upward and downward continuations of gravity and magnetic fields ... (2) First and second derivatives of these fields ... (3) Residuals of arbitrary type for gravity and magnetic values. All gravity and magnetics interpreters should be able to make use of this program to analyze potential field data.

The maximum gravity or magnetic station array size is 100 x 100.

Programming Systems: The program, formerly announced as an Assembler language program, is now written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System.

Minimum System Requirements: An IBM 1131 Model 2B and an IBM 1442 Card Read Punch. An IBM 1132 Printer is optional.

Program Material: Documentation-Basic -- Application Directory ... Programmer's Manual (H20-0446) ... Operator's Manual (H20-0447).

Machine Readable Basic -- FORTRAN source cards, including proper monitor control cards, and sample problem input data in card form.

Reference Material: Publications necessary to use this application are: Application Description (H20-0445) ... System Manual (Y20-0057)\* ... 1130 FORTRAN Language (C26-5933) ... 1130 Monitor Reference Manual (C26-3750) ... 1130 Principles of Operation (A26-5881) ... 1130 Input/Output Units (A26-5890).

For further information contact the IBM Petroleum Industry Marketing Representative in Houston, Texas.

#### IM] IBM 1130 Theoretical Gravity of a 3-D Mass Program

The IBM Theoretical Gravity of a 3-D Mass Program (1130-MP-13X), now available, allows the user to establish a synthetic gravity anomaly by computing the theoretical gravity of an assumed mass. It permits the comparison of the synthetic anomaly with an anomaly actually mapped and thereby allows the user to find out the reasonableness of his structural interpretation. The program will type and/or punch the gravity values for a grid of simulated gravity stations.

The mass is represented by a three-dimensional array with maximum dimensions of 30 x 30 x 10.

Each prism can be assigned a different density or the densities can be assigned on a layer-by-layer basis.

Programming Systems: The program is written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System.

Minimum System Requirements: An IBM 1131 Model 2B and an IBM 1442 Card Read Punch. An IBM 1132 Printer is optional.

Program Material: Documentation-Basic -- Application Directory ... Programmer's Manual (H20-0450) ... Operator's Manual (H20-0451).

Machine Readable-Basic -- FORTRAN source cards, including proper monitor control cards, and sample problem input data in card form.

Reference Material: Publications necessary to use this application are: Application Description (H20-0449) ... System Manual (Y20-0058) ... 1130 FORTRAN Language (C26-5933) ... 1130 Monitor Reference Manual (C26-3750) ... 1130 Principles of Operation (A26-5881) ... 1130 Input/Output Units (A26-5890).

For further information contact the IBM Petroleum Industry Marketing Representative in Houston, Texas.

#### IN] IBM 1130 Quantitative Log Analysis Program

The Quantitative Log Analysis Program (1130-MP-14X), now available, permits the user to compute the porosity and water saturation on prospective hydrocarbon zones in a well, using data from several log combinations. It aids in evaluating the zones in a well to enable decisions concerning the setting of casing, testing programs, reserve calculations, etc.

\*Do not order until availability is announced in a PRL.

Note: If only the form numbered manuals supporting a program are required, order from Mechanicsburg; not PID.

Note: A separate program order card must be submitted for each program this is required.

The Program allows fast quantitative analysis on an unlimited number of prospective hydrocarbon bearing zones in a well. Induction Logs, Electric Logs, Micrologs, and Sonic Logs can all be processed.

Both a detailed report giving many intermediate results of the calculations and a summary output report are available.

Programming Systems: The program is written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System.

Minimum System Requirements: An IBM 1131 Model 2B and an IBM 1442 Card Read Punch. An IBM 1132 Printer is optional.

Program Material: Documentation-Basic -- Application Directory ... Programmer's Manual (H20-0454) ... Operator's Manual (H20-0455).

Machine Readable-Basic -- FORTRAN source cards, including proper monitor control cards, and sample problem input data in card form.

Reference Material: Publications necessary to use this application are: Application Description (H20-0453) ... System Manual (Y20-0059) ... 1130 FORTRAN Language (C26-5933) ... 1130 Monitor Reference Manual (C26-3750) ... 1130 Principles of Operation (A26-5881) ... 1130 Input/Output Units (A26-5890).

For further information contact the IBM Petroleum Industry Marketing Representative in Houston, Texas.

#### IO] IBM 1130 Dipmeter Program

This application program (1130-MP-15X) may now be ordered. Shipments will begin the week ending February 17.

Dipmeter calculation is designed to assist in the analysis of the continuous dipmeter log by calculating the true dip of intervals in a well. Structural information is required in most phases of petroleum exploration and production; and, sometimes, the dipmeter is the only source of this information.

This program must be ordered from PID to provide the plotting sub-routines used by the IBM 1130 Petroleum Exploration and Engineering Programs.

The program allows fast calculation of the magnitude of dip and direction of dip of rock strata in a well bore.

Results of the calculations can be presented in typewritten tabular form, or polar coordinate plot, or a cartesian coordinate plot on the 1627 Plotter.

Programming Systems: The program is written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System.

Minimum System Requirements: An IBM 1131 Model 2B, an IBM 1442 Card Read Punch, and an IBM 1627 Plotter. An IBM 1132 Printer is optional.

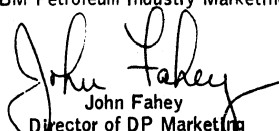
Program Material: Documentation-Basic -- Application Directory ... Programmer's Manual (H20-0458) ... Operator's Manual (H20-0459).

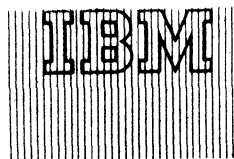
Machine Readable-Basic -- FORTRAN source cards, including proper monitor control cards, and sample problem input data in card form. Object card decks for the IBM 1627 plot subroutines.

Machine Readable-Optional -- Assembly Language and FORTRAN Language source card deck for the IBM 1627 plot subroutines.

Reference Material: Publications necessary to use this application are: Application Description (H20-0457) ... System Manual (Y20-0060) ... 1130 FORTRAN Language (C26-5933) ... 1130 Monitor Reference Manual (C26-3750) ... 1130 Principles of Operation (A26-5881) ... 1130 Input/Output Units (A26-5890).

For further information contact the IBM Petroleum Industry Marketing Representative in Houston, Texas.

  
John Fahey  
Director of DP Marketing  
Side 4 of 4



System/360 Disk Operating System  
BTAM with Binary Synchronous Communications (BSC)

DOS/360 using the Basic Telecommunications Access Method (BTAM) is being expanded to support Binary Synchronous Communications. BSC combined with various start-stop terminals gives BTAM flexibility in a wide range of applications. With it we have a programming package that supports low, medium, and high speed devices in one access method. Included within BSC BTAM are 2701/03 Error Recovery Procedures and Error Statistics.

DOS/360 supports an extended range of terminal configurations and terminal processors in a multiprogramming environment, which substantially enhances the BTAM now available.

For binary synchronous transmission, one of the following telecommunications control units must be attached to the S/360 channel:

- IBM 2701 Data Adapter Unit with Synchronous Data Adapter-Type II (SDA-II). The 2701 may be attached to either the multiplexer (switched or nonswitched lines) or the selector channel (nonswitched lines only).
- IBM 2703 Transmission Control Unit with Synchronous Base I. The 2703 may be attached only to the multiplexer channel.

Binary synchronous communication is supported for the following configurations:

Point-to-point, nonswitched lines:

- System/360\* to System/360\*
- System/360\* to 2780 Data Transmission Terminal

Point-to-point, switched lines:

- System/360\* to System/360\*
- System/360\* to 2780

Multipoint, nonswitched lines:

- System/360\* to multidropped 2780

\*Model 30, 40, 50, 65, or 75.

Availability: System/360 to System/360 BTAM will be available July 17, 1967. System/360 to 2780 BTAM will be available as follows:

6 Bit Transcode	2/16/68
EBCDIC	4/15/68
ASCII	To be announced

BTAM provides the following Binary Synchronous line control functions and features:

Computer-to-Computer

- Contention (pt to pt)
- Headers and normal text
- Inquiry and alternating replies
- WABT (optional reply)
- Full Transparent Text
- Dial/Auto Answer
- Dial with and without identification
- Disconnect
- Conversational
- EBCDIC Code
- ASCII Code
- Dual Communication Interface
- Dual Code Feature

CONTENTS

System/360 Disk Operating System ... Binary Synchronous Communications.

Published by DP Sales Publishing Services, WTHQ

Computer-to-Terminal\*

- Contention (pt to pt)
- Normal Text
- Inquiry and alternating replies
- EBCDIC Full Transparent Text
- Dial/Auto Answer
- Disconnect
- EBCDIC, ASCII and TRANSCODE (6-bit)
- Multipoint (Centralized)
- Multiple Record Transmission
- Intermediate Block Checking

\* 2780 Terminal Configurations

- Printer
- Printer - card reader
- Printer - card reader/punch
- Card Reader - punch

Devices Supported:

2701 Synchronous Data Adapter - Type II (#7698, #7697, #7699)

EBCDIC #9060, ASCII #9061, 6-bit Transcode #9062, Dual Communications Adapter (#3463, #3464, #3465), Full Transparency #8029, Auto Call #1314, Dual Code #3455.

2703 Transmission Control Unit with Synchronous Base - Type I (#7703, #7704)

Synchronous Terminal Control (EBCDIC #7715\*, ASCII #7716, 6-bit Transcode #7717\*), Full Transparency for ASCII (#9100), Autocall (#1340, #1341). \*includes full transparency

Note: Feature #8110 Two Processor Switch for the 2702, 2703 is not program supported.

2780 Data Transmission Terminal

Multipoint Line Control #5020, Automatic Answering #1340, Multiple Record Transmission #5010, Automatic Turnaround #1350, EBCDIC Transparency #8030.

Publications: System/360 Disk Operating System Extended Basic Telecommunications Access Method, C30-5001-2.

Minimum System Configurations: 32K bytes of main storage ... Standard Instruction Set ... one Card Reader\* ... one Card Punch\* ... one Printer\* ... one 1052 Printer-KeyBoard ... one 2311 for systems residence on a selector channel ... a 2701/2703 attached to a multiplexer channel and/or a 2701 attached to a selector channel ... System/360 Model 30, 40, 50, 65, 75 ... communications equipment necessary to interface to the communication lines.

\*See Sales Manual pages on Programming (DOS/360 - Control Program Input/Output) for acceptable units and possible substitutions.

*John Fahey*  
John Fahey  
Director of DP Marketing

SEE REVERSE SIDE FOR  
"NOTE TO WORLD  
TRADE READERS"

Note to World Trade Readers

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IBM World Trade Data Processing

67-10

Programming Announcements

[A] IBM System/360 On Line Teller

The present status of the On Line Teller Programs previously reviewed in P66-116 is as follows:

1. S/360 On Line Teller, 32K Capability availability remains February 1967.
2. S/360 On Line Teller with Background Mortgage Processing Capability (S/360 Mortgage Loan Program announced in P66-8), availability September 1967.

S/360 On Line Teller, 16K Capability is an integral part of the Background Mortgage Processing Capability and will also be available in September 1967.

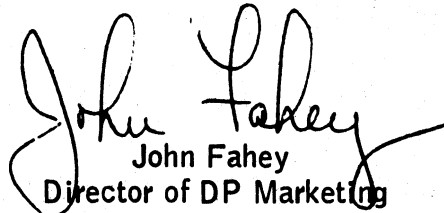
3. Savings Transaction Routines for use with OS/360 are withdrawn for lack of a sufficient market requirement.

Customers affected by these changes should be notified immediately.

For further information contact your Regional Finance Industry Marketing Representative.

[B] IBM 1130 Civil Engineering Coordinate Geometry (COGO)

The availability date for the local origin option in the 1130 COGO program announced in P66-125 will be July 15, 1967.

  
John Fahey  
Director of DP Marketing

SEE REVERSE SIDE FOR  
"NOTE TO WORLD  
TRADE READERS".

Release Date: January 31, 1967

Distribution: All Areas

P67-10

CONTENTS

System/360 On Line Teller ... present status of these application programs. (A)

1130 Civil Engineering Coordinate Geometry (COGO) ... availability of the local origin option is July 15. (B)

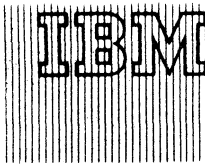
Published by DP Sales Publishing Services, WTHQ

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DOS/360

System Release 8 is now available. It includes:

- . DOS/360 BTAM Extensions
- . DOS/360 Autotest

DOS/360 BTAM, 360N-CQ-469 (Change Level 2-2)

Provides a comprehensive set of macro instructions which facilitate preparing telecommunication programs.

It has been extended to include:

- . 2740 Communication Terminal
- . 7770/7772 Audio Response Units
- . 2260 (Local) Display Station

Any combination of the units supported under BTAM may reside in the same application program. The restriction requiring a separate partition for the 7770/7772 Audio Response Units is no longer valid.

Communication serviceability features, available with BTAM, are designed to increase systems availability, customer satisfaction and serviceability of System/360.

These features are significant because they increase systems availability by ... recovery from temporary errors ... isolation of permanent errors ... error statistics and diagnostic aids. Also, communication line and/or terminal failures can be diagnosed and repaired while the unaffected portion of the Tele-processing application continues to run.

While these facilities were designed as optional modules, they are extremely beneficial to small Tele-processing configurations and are essential for proper functioning of intermediate and large networks.

It is DP's responsibility to assure that any decision to exclude these facilities, particularly error recovery, has had the joint consideration of FE and the customer, and that IBM has clearly stated in an appropriate letter to the customer, the implications of this decision.

These new facilities are:

1. Error Recovery Procedures

Provide for the recovery from recoverable errors, or the console print-out of pertinent information on non-recoverable errors.

Provide job termination and system operator print-out on certain non-recoverable errors.

Diagnostic Write/Read Commands (2701 only), are performed to isolate non-recoverable errors either to the control unit or external to it.

2. Error Counts

Counts will be maintained for errors on a line basis. These will be printed at the system operator console when any error rate is excessive. Error counts are not provided for 2260 (Local) or 7770/7772 Audio Response Units.

3. On-Line Terminal Tests

Terminal test procedures will operate on-line with the user problem program, and will not impact user operation other than the time required to perform their function.

Tests are not provided for Teletype Terminals or the terminals associated with the 7770/7772 Audio Response units.

C O N T E N T S

DOS/360 ... Release 8 available

Published by DP Sales Publishing Services, WTJQ

DOS/360 Autotest, 360N-PT-459 (Change Level 2-0)

A debugging aid for object programs assembled by the Assembler and executed under DOS/360. Autotest monitors the execution of the program under test and has the following facilities:

- . Creation of input data by means of standard utility programs.
- . Exchange, addition or deletion of instruction without reassembly.
- . "Snap-shot" of registers, main storage and permanent storage assignments.
- . Dump at normal or abnormal end of job.
- . List of all phases in sequence of calling.
- . Point of any output file.

Autotest runs in the background partition only with all other partitions reduced to zero.

Your customers should be encouraged to order Release 8 because of the extensive changes that have been made.

Program Material: The following SRL publications appropriate to the component ordered will be shipped by PID with each initial order. Some SRLs are new publications which obsolete previous editions. Additional copies of the SRLs are available from Mechanicsburg.

SRL Publications: System/360 Disk Operating System -- System - Autotest Specifications, C24-5062 ... TNL N24-5097 to Operating Guide, C24-5022-1 ... TNL N24-5150 to Performance Estimates, C24-5032-1 ... Basic Telecommunications Access Method, C30-5001-2 ... TNL N24-5214 to System Control and System Service Programs, C24-5036-1 ... TNL N24-5213 to Supervisor and Input/Output Macros, C24-5037-1 ... System Generation and Maintenance, C24-5033-2.

Ordering Instructions:

Current Users -- Current users will receive a prepunched Program Order Card and a letter announcing the availability of DOS Release 8 and its maintenance package. The letter instructs them to order these items through the branch office. Current users must use the prepunched card to order either the maintenance package or the replacement system for Release 8.

Orders for the Release 8 maintenance package should be accompanied by one 9-track magnetic tape or one 7-track magnetic tape (Data Conversion feature required) or one 1316 Disk Pack. Orders for a replacement system at Release 8 should be submitted following the procedures in P66-111.

Complete ordering instructions are provided in the letter to users.

Additional Comments -- Maintenance Packages will be available from the Program Library 60 days after its release. Release 7 will be obsoleted on March 13, 1967. Release 8 will be obsoleted on March 31, 1967.

It should be noted that P66-045 stated that Autotest would be shipped to users automatically when it became available, instead, it must be ordered by those users requiring it.

New Users -- Initial orders for DOS should be submitted following the ordering procedure in P66-111.

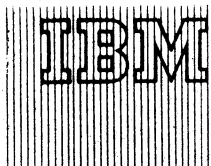
*John Fahey*  
John Fahey  
Director of DP Marketing

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**[A] System/360 Data Conversion Utility II, Version 2 (Sequential, Direct Access)**

Data Conversion Utility II, (360A-SE-20X), Version 2 (Sequential, Direct Access) may now be ordered from PID. It provides an effective and flexible capability for customers to convert their current IBM system data files to System/360 data sets. The program is designed to run under the control of the IBM Operating System/360. Version 2 supersedes the previous Sequential only version.

Designed as a general-purpose program, it will accept, as input, data sets in the format for use with the IBM 705/1410/7010 and 7000 series systems. System/360 data sets are also accepted as input as indicated below. The program produces as output the data format desired for System/360 tape or DASD. The program has data transformation capability that allows the user flexibility in "resystematizing" his data sets for System/360.

Data Conversion Utility II, Version 2 (Sequential, Direct Access) retains the routines from Data Conversion Utility II (Sequential) with these exceptions:

1. Corrections to miscellaneous errors.
2. New Non-Standard Label modules will accept the same JCL cards that were used in the Sequential Version, except that customers who have specified checkpoint in their JCL will be required to recode the checkpoint parameter. Directions are provided in the Programmer's Manual (H20-0313).
3. A new routine which will provide output onto System/360 DASD using the Direct Access Method.

Version 3, which will contain Index Sequential as well as Sequential and Direct Access capabilities, will be available in April 1967.

The Data Conversion Utility II Program accommodates the three general considerations in data conversions:

1. The physical characteristics of the I/O device (i.e., 7-track tape format).
2. Current IBM Programming Systems standards (i.e., labels, padding characters, checkpoint records, etc.).
3. Optimization of data representation (i.e., floating point, binary, packed decimal, etc.).

**Description:** Data Conversion Utility II is a set of special-purpose macros, subroutines, and modules. These may be combined in a large variety of ways to create a specific data conversion program that meets the exact requirements of the user's data set to be converted from current IBM system formats to System/360 formats.

There are two steps involved in using the Operating System/360 Data Conversion Utility II --

1. Creating a specific Operating System/360 Data Conversion Utility II program.
2. Executing this specific Operating System/360 Data Conversion Utility II program.

To perform the first step, the user creates a Data Conversion Utility II controller by combining in assembly language -- three controller macros ... data move/transform macros as required to perform field transformations ... test macros as required for record selection, etc. ... a common table macro that provides specific information about the input and output files that cannot be furnished via the DD card, such as 7070/7074 Form 3 records 35 words or less in size, etc. ... user code as required.

The controller is combined with an input module and an output module by use of the linkage editor to create the unique Data Conversion Utility II program.

The second step is performed by executing the utility program created in Step One. This is done by providing the IBM Operating System/360 with the necessary job control cards and the data set to be converted.

During program execution, Operating System/360 can make use of a set of modules provided with this program to simplify processing of current IBM system standard labels on input tapes, which are considered non-standard by System/360. In addition, linkage is provided to user-written header and trailer label modules if processing of current IBM system non-standard labels is required. These label checking modules also provide

**CONTENTS**

**System/360 Data Conversion Utility II, Version 2 (Sequential, Direct Access) 360A-SE-20X ... an application program now available. [A]**

Published by DP Sales Publishing Services, WTHQ

linkage for user-written label checking modules.

**Input Module:** For a particular data conversion run, the input module that is best suited to process the input data file is selected from --

**Card Data File Input** - These modules read data cards on an 80/80 basis. They are intended to assist in converting card data files, such as tab files, to System/360 tape or DASD data sets. There are two card input modules: one is provided to process Hollerith/EBCDIC cards, and the other handles column binary card input.

**705/1410/7010/7080 BCD Variable-Length Tape Record Input**

Three types of modules are provided to GET even-parity BCD variable-length records written on 7- or 9-track tape. The first type locates blocked or unblocked logical records whose length is established by terminal records marks. The second locates blocked or unblocked logical records of the size specified by a BCD length counter within the logical record. The third will locate an unblocked logical record where the record requires neither a terminal record mark nor a BCD length counter. All module types will bypass applicable checkpoint records.

**BCD Fixed-Length Tape Record Input** - This module will GET even-parity BCD fixed-length records written on 7- or 9-track tape. Interspersed checkpoint records or segment mark records will be deleted. The input tape may be zero-suppressed or non-zero-suppressed.

**Mixed Mode Tape Record Input** - This module will GET all binary or intermixed even-parity BCD records and odd-parity binary records. Records may be either variable-length unblocked or fixed-length blocked or unblocked.

**Sequential System/360 Tape/DASD Record Input** - This module will GET records from any System/360 sequential data set. Records may be either fixed or variable, blocked or unblocked.

**Output Modules:**

**System/360 Sequential Tape/DASD Output** - Fixed or variable-length, blocked or unblocked logical records can be created on System/360 tape or DASD with this module. The data records may then be processed sequentially by the application program.

**System/360 Direct Access DASD Output** - Fixed or variable-length unblocked records can be created on System/360 DASD with this module. The BDAM method is used to write the records, therefore, if blocking of records is to be done, the user has to set up the blocked physical record before calling the Direct Access Output module.

System/360 Indexed Sequential DASD Output will be provided with Data Conversion Utility II, Version 3 (Sequential, Direct Access, Indexed Sequential) available in April 1967.

**Features:**

- Provides the IBM System/360 users with a facility to reduce substantially the difficulties, time, and costs of performing the required data conversions.
- Allows greater flexibility for scheduling user manpower in new application areas where potential savings may be made. More of the manpower can be concentrated on the solution to the application problem, rather than the nature of the data.
- Encourages the user to write his IBM System/360 application programs using record organization and data formats which are optimum for the IBM System/360.
- Encompasses the requirements of current IBM system users, regardless of the machine size and configuration.
- Provides comparable data conversion facilities to users, regardless of the IBM System/360 language used.

is designed to allow the user to tailor the program to his individual requirements through modular program organization and the data move/transform and test macros.

Use: Data Conversion Utility II, Version 2 (Sequential, Direct Access) runs under control of Operating System/360. The program can be used for the permanent conversion of current IBM system data sets into System/360 sets and can also be used to obtain "live" test data from current IBM systems for use in testing System/360 application programs. Since input data may be on 7- or 9-track tape, customers whose initial conversion to System/360 is planned around emulation will be able to use the Data Conversion Utility II Program to convert their even-parity BCD 9-track emulator data sets when they convert their programs to System/360.

Customer Responsibilities: The object decks and the macro definitions which make up part of the Data Conversion Utility II package must be cataloged in a link library and the macro library respectively. Users of the Sequential version must delete the old Data Conversion Utility II macros before cataloging the new macros. The NSL modules must be cataloged in the SYS1, SVCLIB library. The user then writes the necessary Data Conversion Utility II macro statements (and user routines if required) to specify the desired data conversion program. The user also has to specify in the linkage editor run which input and output modules to include.

Programming Systems: The program is written in the IBM Operating System/360 Assembler Language as described in C28-6514. It is designed to run under control of the IBM Operating System/360, and uses the Operating System/360 Input/Output capability.

Machine Configuration: A System/360 Model 30 or above with Decimal Arithmetic. Storage requirements are dependent on the size of the IBM Operating System/360 supervisor used, the Data Conversion Utility modules selected, the maximum input physical record size, the maximum output physical record size, the maximum work area size (required for 7070 input module), the area used for the requested move/transformations (instructions, conversion subroutines, subroutine linkages, constants and literals), and user routines.

The OS/360 requirements for system operation and program assembly must be utilized to create a specific data conversion utility program.

For executing the created utility, the devices for Operating System/360 system operation are required; in addition, the following input/output devices may be used:

- . One 2400 Series tape drive for the input data set
- . 2540/2501 for data card input
- . One 2400 Series tape drive for the output data set
- . One DASD for the output data set

Note: The 2400 Series tape drives can be 9-track, unless they interface with 729 tape drives, in which case the 7-track Read/Write Head feature and a 7-track Compatibility feature are required.

Program Material: Documentation -- Programmer's Manual, H20-0313 ... Operator's Manual, H20-0314 ... Application Directory.

Orders for basic documentation only for this program will not be accepted at PID. Form numbered manuals should be ordered through the normal publication distribution channels.

Machine Readable -- Object cards, macro definition cards, source cards, and sample problems may be obtained on one 9-track or 7-track (Data Conversion feature required) DTR. Indicate whether 9-track or 7-track is required. If not specified, 9-track DTR will be forwarded.


Current users of Data Conversion Utility II (Sequential) will receive a prepunched order card and a letter announcing the availability of Version 2 (Sequential, Direct Access) instructing them to order it through the branch office. Current users must use this prepunched program order card to order Version 2 (Sequential, Direct Access).

DTRs will be supplied by PID; no tape submittal is required.

Optional Program Material: One 9-track or 7-track (Data Conversion feature required) tape containing assembly listings. (When ordering optional material, submit one 2400 foot reel of magnetic tape to PID.)

Reference Material: Application Description, H20-0194-1 ... Systems Manual, Y20-0067.

For further information contact Systems Marketing Technique Development, DPD HQ.

  
John Fahey  
Director of DP Marketing

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[A] Operating System/360

Availability dates for various OS/360 facilities have been changed to reflect the current status of their program development and testing. Customers affected by these changes must be notified promptly.

Program	Previous Availability Dates	New Availability Dates
Primary Control Program and Option 2		
Automatic Volume Recognition	4/15/67	5/15/67
Public/Private Volume Specifications Release 2	4/15/67	5/15/67
Multiprogramming with a Variable Number of Tasks (MVT)	2Q 67	7/31/67
Data Set Control		
Optional Protection of Specified Data Sets (Password)	3/15/67	3/31/67
Access Methods		
Sequential and Partitioned		
Track Overflow (Record Overflow Feature)	3/15/67	3/31/67
(BSAM, QSAM, BPAM)		
Chained Scheduling	3/15/67	3/31/67
(BSAM, QSAM, BPAM)		
Exchange Buffering (QSAM)	3/15/67	3/31/67
Update Mode (BSAM, QSAM)	3/15/67	3/31/67
Direct		
Read Exclusive	3/15/67	3/31/67
Track Overflow (Record Overflow Feature)	3/15/67	3/31/67
Telecommunications - Queued with Option 2	3/15/67	3/31/67
permits -- 2311 for queue storage	3/15/67	3/31/67
2314 for queue storage	7/31/67	10/31/67
Basic Graphics	4/15/67	5/15/67
Graphic Data Generation Subroutines	9/30/67	10/31/67
Light Pen Tracking	9/30/67	10/31/67
COBOL E (17K)		
Direct Access Statements		
BDAM and ISAM	3/15/67	3/31/67
Inverted Print Edit	3/15/67	3/31/67
USE verb after Standard I/O Error	3/15/67	3/31/67
COBOL F (80K)		
QSAM - Update Mode	4/15/67	10/31/67
BDAM - Read Exclusive	4/15/67	10/31/67
ISAM	4/15/67	10/31/67
Sort/Merge (17K Minimum)		
Improved Performance	3/15/67	3/31/67
Advanced Sort	3/15/67	3/31/67
2301 Support	3/15/67	3/31/67
2314 Support	7/31/67	10/31/67
Utilities		
Tape Volume Label Creation	3/15/67	3/31/67
ISAM Load/Unload Utility	3/15/67	3/31/67
Move/Copy - Record Overflow	3/15/67	3/31/67
Print/Punch Improvement	3/15/67	3/31/67
Input/Output Units		
2250 Display (Mdl's 1,2 and 3) Basic	4/15/67	5/15/67
2260 Display (Basic)	4/15/67	5/15/67
2260 Display (Remote)	4/15/67	5/15/67
2280 Film Recorder	4/15/67	5/15/67
2282 Film Recorder/Scanner	4/15/67	5/15/67
2301 ISAM	3/15/67	3/31/67
2302	3/15/67	3/31/67
2303	3/15/67	3/31/67
2314 Direct Access Storage Facility	4/15/67	5/15/67
2321 Data Cell Drive	4/15/67	10/31/67
2740 Communications Terminal	4/15/67	5/15/67
All devices scheduled for 1st QTAM release	3/15/67	3/31/67

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Operating System/360 ... availability dates changes. [A]

System/360 Model 50 1410/7010 Emulator Program ... Engineering Change corrections. [B]

Catalogs of Programs ... new supplements available. [C]

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Programs (cont'd)	Previous Availability Dates	New Availability Dates
Input/Output Features		
2703 Transmission Control with Autopoll Capability		
BTAM and QTAM	8/31/67	10/31/67
2740 Communication Terminal		
Dial Up Feature # 3255 (Optional)		
Record Checking Feature #6114 (Optional)		
Station Control Feature # 7479 (Required for Multi-drop Operation)		
BTAM and QTAM	4/15/67	5/15/67
2400 Magnetic Tape Units		
Dual Density 800-1600 bpi (#3471 and #3472)	3/15/67	3/31/67
2841 Storage Control Unit		
Record Overflow Feature #6118	3/15/67	3/31/67
All features scheduled for 1st QTAM release	3/15/67	3/31/67

[B] IBM System/360 Model 50 1410/7010 Emulator Program

Substitute the paragraph below for the corresponding paragraph in P66-126 Item A.

Engineering Change Levels

The following EC levels are required for proper functioning of the System/360, Model 50 1410/7010 Emulator program with phase encoded tape drives. EC257246 on the 1410/7010 Compatibility Feature ... EC730969 on the 2803 Tape Control Unit Model 2 ... EC730966 on the 2804 Tape Control Unit Model 2 ... EC730969 on the 2403 Model 4, 5, and 6. Version 2 Level 0 does not require the above EC's for Models 1, 2, and 3 tape drives.

[C] Catalogs of Programs

The January 1967 supplements to the catalogs of programs are now available from the IBM Distribution Center, Mechanicsburg for:

- IBM System/360 - December 1966, C20-1619-2 N20-0030-7
- IBM 1130 Computer System and IBM 1800 Data Acquisition and Control System - December 1966, C20-1630-1 N20-0031-3

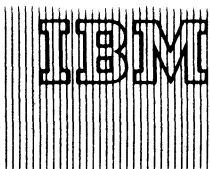
SEE REVERSE SIDE FOR "NOTE TO WORLD TRADE READERS"

John Fahey  
Director of DP Marketing

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IAI IBM Retail IMPACT System

Consistent with the requirements of the Retail Industry, the Retail IMPACT Fashion and Staple Systems will be made available for use under DOS/360 control for users of Model 30 and above. These versions will be in addition to the ones operating under control of OS/360 described in P66-51. Current evaluation of OS/360 versions indicates a need to alter these versions in terms of 360 configuration, systems features, and availability time tables.

While the Retail IMPACT Fashion System may still be used with a System/360 Model 30, those users who desire the Staple System under OS/360 control will require a Model 40 (131K) as a minimum.

The programs in this system will now be available as follows:

OS/360 Version

- 1. Retail IMPACT Fashion System 4Q 67 (unchanged)
- 2. Retail IMPACT Staple System Previously announced as being available 3Q 67, new Availability Date to be announced 3Q 67

DOS/360 Version

- 1. Retail IMPACT Staple System Availability Date to be announced 4Q 67
- 2. Retail IMPACT Fashion System Availability Date to be announced 4Q 67

The Retail IMPACT Staple System with stockcounting option is withdrawn.

Other features that have been withdrawn by this announcement include:

- Probability Forecasting - Staple System
- S.K.U. File (Black Book) - Fashion System
- Summary File - Fashion System
- Forecast for Planning

Industry Newsletters will be published to provide information regarding the type and degree of documentation and linkages which will be available to users who require Stockcounting Option or other features.

Description - Staple System: The Retail IMPACT Staple System uses an advanced forecasting sub-system which employs adaptive forecasting, probability and statistical and order up to levels. An advanced control sub-system is provided, tailored to the needs of the Retail Industry which creates Purchase Orders, controls merchandise on order and monitors the performance of the system in terms of inventory and level of service.

Provision is also made for simulation of the effect of a number of management policies as well as for projecting demand and inventory behavior over an extended period resulting from a particular policy or set of policies. This feature enables management to establish a priority for departments to be implemented, and obtain an estimate of the system's potential in these departments. The system substantially reduces the difficulty of maintaining large inventories in multiple locations, typical of today's retail industry. For the first time retail management can achieve the highest possible level of service for a specific level of inventory.

Optimum use of the system is achieved through the capture of daily sales information at the point of sale. For those few classes of merchandise or departments where the direct capture of daily SKU data is not feasible, the user may wish to employ stock counts to derive periodic sales.

Announced programs will include appropriate documentation and linkages to the Control Sub-system so that the Retail IMPACT Staple System can be used in conjunction with the customer's own stock counting procedures. Certain types of output, such as daily service measurement cannot be provided if stock counting is employed.

Features: An advanced Forecasting Sub-system which employs Adaptive Forecasting, Probability and Statistical Science for determining trends and seasonal behavior, editing "bad" data, and handling high and low

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Retail IMPACT System ... ability to operate under DOS/360, change in system requirements, features, and program availability dates. [A]

System/360 Model 20 ... 12K capability information. [B]

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volume items ... initial forecasting "models" developed automatically from sales history, buyer estimates, or by adapting models taken from similar items ... automatic correction and signaling of significant variation in items sales patterns ... purchase order creation for forecasted items ... on-order control ... vendor lead time control by signaling irregular lead times or changes in lead time patterns ... comprehensive file maintenance to replace manual records ... source records available for additional reports ... continual system monitoring of service level; inventory investment and sales ... store performance report for each department ... simulation - before and after installation - for determining effects of alternative management policies.

Description - Fashion System: The Retail IMPACT Fashion System utilizes probability science to help the buyer respond quickly to styles performing significantly above or below other similar styles, based on their profitability. The maintenance of complete records at the style level eliminates tedious and sometimes inaccurate updating of manual records. Appropriate documentation and linkages are provided for the user who wishes to maintain size and color detail. The combination of exception reporting and automatic maintenance of style records reduces the amount of clerical effort on the part of the buyer and his staff, and enables them to achieve optimum results by concentrating on the creative aspects of fashion merchandising.

Features: Automatic recommendations for re-order, return, markdown and transfers based on sophisticated statistical techniques which accurately analyze the potential of a style, early in its life ... the basic yardsticks used for making recommendations are dynamic class (or group) standards, based on profitability (which reflects the interaction of turnover and markup) to respond to the over-all seasonal changes ... automatic maintenance of files to replace manual records at the style level ... status inquiry at buyer request (vendor status, etc.) ... various merchandise management reports can be created from the style master records (aging, stock status, etc.)

Use: These systems are designed to initialize and operate a complete department. The library programs do both the initializing and regular operation. The user does not have to write any programs to use the systems. However, the user may desire to modify the operational programs in the Staple Control Subsystem and Fashion reporting areas and will probably write additional programs to extend the reports produced by the system.

Additionally the user may wish to employ the forecasting subsystem to aid in developing seasonal forecasts as inputs to the planning process at the department and class level. Appropriate documentations and linkages to the forecasting subsystems are provided.

Customer Responsibilities:

- 1. Program Requirements -- In general the staple and fashion systems are complete systems. However, since some users may have unique requirements in the way of significant transactions or reports, etc., some minor additions to the Retail IMPACT Programs may be necessary. The following represent areas where user-generated programs may be required.

Changes to existing output of Retail IMPACT -- As an example, a basic purchase order is provided as a part of the staple system. If the user desires his own purchase order format, a program must be provided by the user to print in his format from the files that contain the Retail IMPACT purchase order information.

Additional Merchandise management reports -- The user may wish to produce merchandise management reports beyond the basic reports provided by the staple and fashion systems. The user of report generation techniques makes the production of many additional reports feasible.

Any modification to the standard Retail IMPACT Program -- As an example, any transaction unique to a particular user would require a user-written subroutine. Linkage points will be provided where appropriate and instructions for their use will be supplied.

Users of the Fashion System who desire complete Black Book replacement, and/or maintenance of summary records, users of the Staple System who desire stock count inputs, and users who wish to employ the Forecasting Subsystem to aid in developing planning forecasts, will need to write required I/O and file maintenance routines. Appropriate flow charts and linkages to the Staple Control Sub-system, the forecasting sub-system and the Fashion System are provided.

2. **Staffing** -- Capable user personnel are requisite to positive results. Needed to insure Retail IMPACT System benefits are the following -- Top Management Representative ... Project Director ... Systems Analysts ... System/360 Programmers ... and Clericals.

The description of their needed qualifications as their duties is detailed in Chapter 11 of the Application Description Manual.

3. **Education** -- Knowledge of the Retail IMPACT System, its implementation requirements and its operation is achieved by user personnel through attendance in the following schools -- 2½ day Executive Retail IMPACT System ... 5 day Retail IMPACT System Implementation - Fashion ... 10 day Retail IMPACT System Implementation - Staple.
4. **Evaluation** -- A very important responsibility of the customer is to establish a base for comparison of Retail IMPACT System results with those of the system replaced. Sales, inventory, and level of service represent minimum parameters for comparison. Further information regarding the need to evaluate and techniques for evaluation is detailed in Chapter 11 of the Application Description Manual.

**Programming System:** The programs are designed to operate under the OS/360, PL/I Level F; or DOS/360, PL/I.

**Minimum System/360 Configuration for Fashion under OS/360 or DOS/360, PL/I and Staple under DOS/360, PL/I:** System/360 Model F30 (65K) with Decimal Arithmetic (#3237), Floating Point Arithmetic (#4427), 1051 Attachment (#7915) ... 1051 Control Unit Model N1, 3130 CPU Attachment (#3130) ... 1052 Printer-Keyboard Model 8 ... 1442 Card Read Punch Model N1 ... 1443 Printer Model N1, 24 Additional Print Positions (#5558) ... 2841 Storage Control ... 2311 Disk Units (4 required) ... 2415 Tape Unit Model 1.

**Minimum System/360 Configuration For Staple under OS/360, PL/I:** System/360 Model G 40 (131K) with Decimal Arithmetic (#3237), Floating Point Arithmetic (#4427), 1052 Adapter (#7920) ... 1052 Printer - Keyboard Model 7 ... 1442 Card Read Punch Model N1 ... 24 Additional Print Positions (#5558) ... 2841 Storage Control ... 2311 Disk Units (4 required) ... 2415 Tape Units Model 1.

Customers affected by these changes must be notified promptly.

**Reference Material:** Application Description "Retail IMPACT - Inventory Management Program and Control Techniques" (E20-0188-1)\*

Contact your Industry Marketing Representative for Distribution for further information.

\*Do not order until availability is announced in a PRL.

## [B] System/360 Model 20

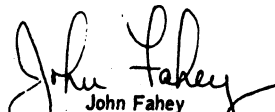
Initial shipments of 12K 2020 Processors have improved from November 1967 to April 1967. Because of the limited quantity that will be available, confirmation of improved scheduled shipping dates must be obtained from Regional Product Scheduling prior to making commitments to your customers.

The Model 20 Tape Programming System (TPS) programs, announced available in P66-118, support 12K core storage. The following card programs have been revised to support a 12K capability at the versions/modifications levels indicated:

	Version	Modification Level
RPG, 360T-RG-010	1	5
Punch Card Utilities,		
360T-UT-100	1	2
360T-UT-101	1	3
IOCS, 360T-IO-002	1	4
Basic Assembler,		
360T-AS-001	3	0
Basic Trace,		
360T-UT-103	1	2
360T-UT-104	1	2
360T-UT-105	1	2

Subsequent versions/modifications will support a 12K capability.

Initial shipments schedule of 2311 Models 11 and 12 is unchanged ... November 1967.

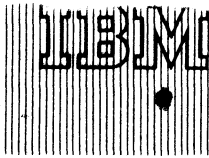
  
John Fahey  
Director of DP Marketing

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Operating System/360

An OS/360 release comprised of maintenance to Release 9 may now be ordered. First shipment will begin the week ending February 24, 1967. Designated as OS/360 Release 9.5 for ordering programs, it includes a significant number of program corrections. No new functions are included. OS/360 users should be encouraged to upgrade their installation to this release.

The components affected are listed in Table 2 below.

Special Notes for Two-Drive Users

- 1. See Table 1 of this P Letter for sizes of distributed components (reference P67-1 for descriptive information).
2. Branch offices are responsible to assure that valid combinations of components are ordered.
3. Individual components (such as FORTRAN IV H) require the corresponding level of SYS1.GENLIB, which is distributed as a part of the Primary Control Program (360S-CI-505). PCP should therefore be ordered in all cases.

Table #1

OS/360 Release 9.5 Component Sizes:

Table with columns: Component Name, 360S-, Notes, Distribution Volume Library Space (2311 tracks), DLIB01, DLIB02\*. Rows include Starter System, Primary Control Program, Primary Data Management, Direct Access Method (BDAM), Index Sequential (ISAM), Basic Telecommunications (BTAM), Express Graphics, Assembler E, Assembler F, TESTRAN & Editor, Sort/Merge, Linkage Editor E, Linkage Editor F, OS/360 Utilities, Independent Utilities, COBOL E, COBOL E Library, COBOL F, COBOL F Library, FORTRAN IV E, FORTRAN IV G, FORTRAN IV H, FORTRAN IV Library, PL/I F, PL/I Library, RPG, SERO, SERI, EREP Model 40, SERO, SERI, EREP Model 50, SERO, SERI, EREP Model 65.

\*DLIB01 if space is available and if the Starter System or the Primary Control Program or both are not ordered.

NOTES:

- 1. Minimum component for a system able to perform system generation. See also Note 4 where appropriate.
2. Recommended use.
3. Used by and required with the preceding component(s) in the chart.
4. Alternative component to the preceding component in the chart. Either or both may be selected.
5. BDAM is required by the direct access statements of COBOL, FORTRAN, and PL/I.

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Operating System/360 ... Release 9.5 available.

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- 6. ISAM is required by PL/I object programs using the Indexed Organization.
7. Required with initial order; subsequent orders may be processed by the user's own system. The Starter System actually contains several libraries, as described in the Starter Guide SRL (C28-6630).
8. Required with orders for processors, since the SYS1.GENLIB contains the related system generation macro instructions.

Program Material: The following SRL publications appropriate to the component ordered will be shipped by PID with each initial order. Some of these SRLs are new publications which obsolete previous editions. Additional copies of the SRLs are available from Mechanicsburg.

SRL Publications

System/360 Operating System:

Table listing SRL publications and their component numbers: Job Control Language (C28-6539-2), Operator's Guide (C28-6540-3), Control Program Services (C28-6541-2), System Programmer's Guide (C28-6550-1), Storage Estimates (C28-6551-2), System Generation (C28-6554-1), Control Program Messages and Completion Codes (C28-6631), Starter Guide (C28-6630), Maintenance (C27-6918), Utility Programs (C28-6586-3), Sort/Merge (C28-6543-2), Assembler F Programmer's Guide (C26-3756-1), Assembler E Programmer's Guide (C28-6595), FORTRAN E Programmer's Guide (C28-6603-1), FORTRAN IV, Level G Programmer's Guide (C28-6639\*), FORTRAN IV Library Subroutines (C28-6596-1), FORTRAN IV, Level H Programmer's Guide (C28-6602\*), COBOL E Programmer's Guide (C24-5029-1).

Data Management TNLs N28-2131, N28-2146	C28-6537-1
Linkage Editor TNL N28-2201	C28-6538-3
PL/I F Programmer's Guide	C28-6594-1
PL/I F Library Computational Subroutines	C28-6590
Graphic Programming Services for 2250 Display Unit, Model 1 TNL N27-1251, N27-1262	C27-6921
Graphic Programming Services for 2260 Display Station (Local) TNLs N27-1246, N27-1252	C27-6925
COBOL F Programmer's Guide	C28-6380
Basic Telecommunications Access Method	C30-2001

\*Denotes change from previous release.

If only the form numbered manuals are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

The following items will also be shipped by PID when the related component is ordered -- Program Material List ... OS/360 Prose.

#### Ordering Procedures

For new users the branch office must use the Program Order Form System/360 Operating Systems (120-1411). Current users of 360 will receive a prepunched Program Order Card and a letter announcing the availability of Release 9.5, instructing them to order the new release through the branch office, using this prepunched card.

In either case, the order form used (120-1411, or the prepunched Program Order Card) must contain the program number for each OS/360 component (if being ordered for the first time) for which program documentation and maintenance material is required.

All orders must indicate the number of 2311 disk storage drives available to perform system generation. Only those orders stating "Two drives to be used for SYSGEN" will be customized, as described in letter P67-1. All other users will be sent the entire system, for which two disk packs or two reels of tape are required.

When ordering OS/360 on magnetic tape, either 9-track or 7-track tape must be specified. If not specified, 9-track tape will be forwarded.

The requester may forward or order magnetic tapes or forward disk packs in accordance with current procedures as described in the DP Sales Activity section of the Branch Office Manual.

Orders currently in transit to PID will not be filled with Release 9. Those orders that indicate two drive system generation capability will be filled automatically with Release 9.5.

#### Table #2

Components available with Release 9.5 are:

Starter System	360S-CI-514
Primary Control Program	360S-CI-505**
Primary Data Management	360S-DM-508**
OS/360 Utilities	360S-UT-506**
Independent Utilities	360S-UT-507
Assembler E	360S-AS-036
Assembler F	360S-AS-037
Linkage Editor E	360S-ED-510**
Linkage Editor F	360S-ED-521**
TESTRAN	360S-PT-516**
Basic Direct Access Method (BDAM)	360S-DM-509**
Basic Telecommunications Access Method (BTAM)	360S-CQ-513
Express Graphics	360S-IO-523
Indexed Sequential Access Methods (BISAM, QISAM)	360S-IO-526**
Sort/Merge	360S-SM-023**
FORTRAN E	360S-FO-092** Note 1
FORTRAN G	360S-FO-520 Note 1
FORTRAN H	360S-FO-500 Note 1
FORTRAN Library	360S-LM-501**
COBOL E	360S-CO-503** Note 1
COBOL E Library	360S-LM-504
COBOL F	360S-CB-524** Note 1
COBOL F Library	360S-LM-525
PL/I F	360S-NL-511** Note 1
PL/I Subroutine Library	360S-LM-512**
SER0, SER1, & EREP for Model 40	360S-DN-527
SER0, SER1 & EREP for Model 50	360S-DN-528
SER0, SER1, & EREP for Model 65	360S-DN-529
Report Program Generator	360S-RG-038

\*\*Component change from previous release.

Note 1: To use language compilers, the corresponding library is required.

*John Fahey*  
John Fahey  
Director of DP Marketing

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[A] System/360 Emulator Program for 7040/7044

Version 2, Modification Level 1 is available, 360C-EU-733. In addition to all the features of Version 1\*, it supports 2401 and 2402 Magnetic Tape Units, Models 4, 5, and 6; 2403 Magnetic Tape Unit and Control, Models 4, 5, and 6; 2404 Magnetic Tape Unit and Control, Models 1, 2, and 3; 2501 Card Reader; 2520 Card Read Punch; 2803 Tape Control, Model 2; 2804 Tape Control, Models 1 and 2; and 2870 Multiplexer Channel.

\*See P66-104.

The basic machine requirement for using the Emulator is a System/360 Model 65 equipped with:

- . At least 524,288 bytes of main storage.
. Compatibility Feature #7119.
. A 1052 Printer-Keyboard Model 7 with 1052 Adapter (#7920) or with 2150 Console.
. A 2400-Series Magnetic Tape Unit (9-track or 7-track with the Data Conversion feature).
. Two additional units for initialization purposes from the following: 2400-Series Magnetic Tape Unit, 1442 Card Read Punch, 2501 Card Reader, 2520 Card Read Punch, or 2540 Card Read Punch. However, card read-punch facilities must be available either on- or off-line. If a 7-track 2400-Series Magnetic Tape Unit is used to contain the Edit file, the unit must be equipped with the Data Conversion feature.

A variety of System/360 input/output devices may be used to emulate the 7040-series devices if the System/360 devices satisfy certain requirements. System/360 card read-punch units must be equipped with the Card Image feature if the equivalent 7040 device has the Column Binary feature. All tape drives used for 7-track tapes must be equipped with the 7-track Compatibility feature.

As assembled and distributed, the Emulator supports 7040 channels A through E. Tapes on the 2870 Multiplexer Channel must be connected through selector subchannels. The maximum combined rate for tapes attached to the multiplexer channel is 360 KC.

Below shows the System/360 devices that may be used to emulate 7040-series devices:

IBM 7040 System/360 Equivalents

Table with 2 columns: 7040 Devices and System/360 Devices. Rows include 729 Tape Unit, 7330 Tape Unit, 1402 Card Reader, 1403 Printer Console Typewriter, 1402 Card Punch, and 1622 Card Punch.

\*The 1442 and the 2520 can be used to emulate either the 1402 Reader or Punch, but not both at the same time.

\*\*A 1052, 1403, or a 1443 can be used to emulate the printer or the typewriter, but not both at the same time.

\*\*\*2415 Magnetic Tape Unit and Control is not supported.

C O N T E N T S

System/360 Emulator Program for 7040/7044, 360C-EU-733 ... Version 2, Modification Level 0 is available. [A]

System/360 Model 65 Emulator Program for 709/7090/7094/7094II, 360C-EU-729 ... Version 2, Modification Level 0 is available. [B]

BPS/360 FORTRAN IV (Card) System, 360P-FO-205 ... Version 2, Modification Level 0 is available. [C]

Retail IMPACT System ... correction to P67-14, Item [A], [D]

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Equivalents

There is no requirement for emulator programs to assign all tapes of one 7040/7044 data channel to any one 2860 selector channel or to any one 2870 selector subchannel. Tapes on one 7040/7044 channel may be scattered across several System/360 selector channels or subchannels or several different 7040/7044 channels may be assigned to a single System/360 channel or subchannel. Performance of the emulators is highest when there is a direct correspondence between 7040/7044 and System/360 channels to utilize overlap capability to the highest extent.

Input/output devices are required for Emulator-Program residence, control-information input, message output, and console functions. Below shows the System/360 devices that may be used for each of the above-mentioned functions.

Emulator Device Requirements

Table with 2 columns: Emulator Function and Device. Rows include Emulator-Program Residence, Control-Information Input, Message Output, and Console Functions.

\*If 7-track, the Data Conversion feature is required.

Notes: 1. The indicated devices need not be in addition to the devices shown in Figure 1. Also, the 1052 may concurrently perform more than one Emulator function.

2. 2415 Magnetic Tape Unit is not supported.

Reference Material: System/360 System Summary, A22-6810 ... System/360 Principles of Operation, A22-6821 ... 7040/7044 Principles of Operation, A22-6649 ... System/360 Special Feature Description 709/7040/7044/7090/7094/7094II Compatibility Feature for System/360 Model 65, A27-2715 ... System/360 Basic Programming Support Programmer's Guide (8K Tape), C24-3354 ... System/360 Basic Programming Support Operating Guide: Basic Tape System (8K), C24-3391 ... SYMtem/360 Basic Programming Support Specifications: Card and Tape Utility Programs, C24-5026 ... System/360 Basic Programming Support Operating Guide: Card and Tape Utility Programs, C24-5027.

Engineering Change Considerations:

1. Engineering Change number 705256 REA 14492 is a prerequisite for use with the 7040/7044 Emulator Program.
2. The interval timer updating accuracy may be affected unless EC 705234 is installed.

Installations that require any of these Engineering Changes should notify Field Engineering Technical Operations, Kingston, N. Y.

Restriction: In most cases, memory protect traps are delayed for one 7040 instruction cycle. This restriction will be removed the second quarter of 1967.

Basic Program Material:

Documentation -- Program Material List.

SRL Publications -- System/360 Conversion Aids: The 7040/7044 Emulator Program for System/360 Model 65, C28-6585-1, and TNL N27-1261 ... System/360 Conversion Aids: Sample Problems for System/360 Emulator Programs, C27-6929.

If only the form numbered manuals are required, order them from the IBM Distribution Center, Mechanicsburg -not from PID.

Machine Readable -- 7040 Emulator Object Program, Initialization Deck, Sample Program and the Emulator Initialization Object Program Decks may be obtained on one 9-track or one 7-track DTR (Data Conversion feature required).

Current users will not receive the new version automatically. Instead, they will receive a prepunched program order card and a letter announcing the new version and instructing them to order it through the branch office.

When ordering, indicate whether 9-track or 7-track DTR is required. If not specified, 9-track DTR will be forwarded. DTRs will be supplied by PID -- no tape submittal is required.

[B] System/360 Model 65 Emulator Program  
For 709/7090/7094/7094II

Version 2, Modification Level 1 is available, 360C-EU-729. In addition to all the features of Version 1\*, it supports 2401 and 2402 Magnetic Tape Units Models 4, 5, and 6; 2403 Magnetic Tape Unit and Control Models 4, 5, and 6; 2501 Card Reader; 2520 Card Read Punch; 2803 and 2804 Tape Controls Model 2; and 2870 Multiplexer Channel.

\*See P66-41 and P66-95.

The basic machine requirement for using the Emulator is a System/360 Model 65 with:

- At least 524,288 bytes of main storage.
- The 7090 Compatibility Feature (#7119).
- An IBM 1052 Printer-Keyboard Model 7 with 1052 Adapter (#7920) or with 2150 Console.
- An IBM 2400-Series Magnetic Tape Unit (9-track or 7-track with the Data Conversion Feature)
- Two additional units (2400-Series Magnetic Tape Unit, 2501 Card Reader, 1442 Card Read Punch, 2520 Card Read Punch, or 2540 Card Read Punch) for initialization purposes. However, card read-punch facilities must be available either on- or off-line. If a 7-track 2400-Series Magnetic Tape Unit is used to contain the Edit file, the tape control unit must be equipped with the Data Conversion Feature.

A variety of System/360 input/output devices may be used to emulate the 7090-series devices if the System/360 devices satisfy certain requirements. System/360 card read-punch units must be equipped with the Card Image Feature and all tape drives used for 7-track tapes must be equipped with the 7-track Compatibility Feature. In addition, one or more 2860 channels or 2870 selector subchannels are recommended for each 7090 channel emulated.

As assembled and distributed, the Emulator supports 7090 channels A through D. Tapes on the 2870 Multiplexer Channel must be connected through selector subchannels. The maximum combined rate for tapes attached to the multiplexer channel is 360 kc. All emulated 7090 unit-record devices must have the same 7090 channel address (normally, this is channel A). This requirement does not, however, preclude using separate System/360 channels for the emulation of these devices.

Below shows the System/360 devices that may be used to emulate 7090-series devices.

IBM 7090 System/360 Equivalents

<u>7090-Series Devices</u>	<u>System/360 Devices</u>
729 Tape Unit	2400-Series Magnetic Tape Unit**
711 Card Reader	2540 Card Read Punch 1442 Card Read Punch* 2501 Card Reader 2520 Card Read Punch* 2400 Series Magnetic Tape Unit**
716 Printer	1052 Printer-Keyboard 1403 Printer 1443 Printer 2400 Series Magnetic Tape Unit**
721 Card Punch	2540 Card Read Punch 1442 Card Read Punch* 1442 Card Punch 2520 Card Read Punch* 2520 Card Punch 2400 Series Magnetic Tape Unit**

\*The 1442 and the 2520 can be used to emulate either the 711 or the 721, but not both at the same time.

\*\*2415 Magnetic Tape Unit is not supported.

Equivalents

*There is no requirement for emulator programs to assign all tapes of one 7090/7094 data channel to any one 2860 selector channel or to any one 2870 selector subchannel. Tapes on one 7090/7094 channel may be scattered across several System/360 selector channels or subchannels or several different 7090/7094 channels may be assigned to a single System/360 channel or subchannel. Performance of the emulators is highest when there is a direct correspondence between 7090/7094 and System/360 channels to utilize overlap capability to the highest extent.*

Input/Output devices are required for Emulator-Program residence, control-information input, message output, and console functions. Below shows System/360 devices that may be used for each of the above mentioned functions.

Emulator Device Requirements

<u>Emulator Function</u>	<u>System/360 Device</u>
Emulator-Program Residence	2400-Series Magnetic Tape Unit*

(cont'd)

Emulator Device Requirements (cont'd)

Control-information Input	1052 Printer-Keyboard 2400-Series Magnetic Tape Unit* 2540 Card Read Punch 1442 Card Read Punch 2501 Card Reader 2520 Card Read Punch
Message Output	1052 Printer-Keyboard 1403 Printer 1443 Printer 2400-Series Magnetic Tape Unit
Console Functions	1052 Printer-Keyboard

\*If 7-track, the data Conversion Feature is required.

Notes: 1. The indicated devices need not be in addition to the devices shown in Figure 1. Also, the 1052 may concurrently perform more than one Emulator function.

2. 2415 Magnetic Tape Unit is not supported.

Reference Material: 7094 Data Processing System, A22-6703 ... System/360 System Summary, A22-6810 ... System/360 Principles of Operation, A22-6821 ... System/360 Special Feature Description 709/7040/7044/7090/7094/7094II Compatibility Feature for System/360 Model 65, A27-2715 ... System/360 Basic Programming Support Programmer's Guide (8K tape), C24-3354 ... System/360 Basic Programming Support Operating Guide: Basic Tape System (8K), C24-3391 ... System/360 Basic Programming Support Specifications: Card and Tape Utility Programs, C24-5026 ... System/360 Basic Programming Support Operating Guide: Card and Tape Utility Programs, C24-5027.

Basic Program Material:

Documentation -- Program Material List.

SRL Publications -- System/360 Conversion Aids: The 709/7090/7094/7094II Emulator Program for System/360 Model 65, C28-6565-3 ... System/360 Conversion Aids: Sample Problems for System/360 Emulator Programs, C27-6929.

If only the form numbered manuals are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

Machine Readable -- The Emulator Object Program, the Emulator Initialization Deck, the sample program, and the Emulator Initialization Object Program are available on one 9-track or one 7-track DTR (Data Conversion feature required).

Current users will not receive the new version automatically. Instead, they will receive a prepunched program order card and a letter announcing the new version and instructing them to order it through the branch office.

DTRs are supplied by PID -- no tape submittal is required.

[C] BPS/360 FORTRAN IV (Card) System

Version 2, Modification Level 0 of the System/360 BPS FORTRAN IV (Card) System, 360P-FO-205, is available.

It supports the read function of the 2520 Card Read Punch Model B1 (the punch function is already supported ... see P66-27). Full error recovery is provided. Documentation describing the support is included in TNL N21-5043, to System/360 Basic Programming Support FORTRAN IV (Card) Programmer's Guide, C21-5000.

Version 2 also has a more efficient object time conversion routine for Real and Double-Precision numbers, resulting in decreased object print time; and corrections to several APAR reported errors.

Except as noted above, machine requirements and system facilities for Version 2 are the same as for Version 1.

Basic Program Material:

Documentation -- Program Material List.

SRL Publications -- System/360 FORTRAN IV (16K Card) Programmer's Guide, C21-5000, and TNLS N21-5010 and N21-5043 ... System/360 BPS FORTRAN IV (16K Card) Basic Programming Support Specifications, C21-9040, and TNL N21-5007.

If only the form numbered manuals are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

Machine Readable -- The program, which consists of the compilation system, execution system, library and I/O routines, and sample program, is available on a 9-track DTP, a 7-track DTR (Data Conversion feature required) or in card form. When ordering, indicate either 9-track DTR, 7-track DTR or cards. If not specified, 9-track DTR will be forwarded.

DTRs are supplied by PID - no tape submittal is required.

Current users will not receive the new version automatically. Instead, they will receive a prepunched program order card and a letter announcing the new version and instructing them to order it through the branch office.

[D] Retail IMPACT System

Correction to P67-14, item [A].

The first paragraph under Description - Staple System should read:

The Retail IMPACT Staple System uses an advanced forecasting sub-system which employs adaptive forecasting, probability and statistical science with appropriate decision rules to forecast demand, determine order points, and order up to levels. An advanced control sub-system is provided, tailored to the needs of the Retail Industry which creates purchase orders, controls merchandise on order and monitors the performance of the system in terms of inventory and level of service.

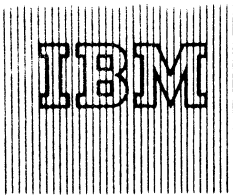
*John Fahey*  
John Fahey  
Director of DP Marketing

SEE REVERSE SIDE FOR  
"NOTE TO WORLD  
TRADE READERS"

Note to World Trade Readers

This letter is a reprint of an IBM Programming Announcement and was mailed concurrently to USA and WT offices. The following changes, when appropriate, should be applied to the text for WT use.

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 13 through 17, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] If DTR distribution is indicated in the above, program distribution media may be different in your area based on local conditions.
- [5] All references made to the Program Information Department [PID] should be understood to mean the appropriate WT Program Library.
- [6] Any reference made to DPD Departments as sources of information or for manuals etc. should be understood to mean the comparable WT Department.
- [7] Communications facilities or services may be required which are not offered in all WT countries. In case of any doubt as to the availability of suitable communications facilities, the country Teleprocessing Coordinator should be consulted.
- [8] All references made to Engineering Changes required for programs should be verified with the local CE Branch Office. Although E/C requirements are identical for WT and IBM, E/C availability dates and shipping schedules may differ.



[A] IBM System/360 On Line Teller

The S/360 On Line Teller Program 32K Capability, 360A-FB-16X, is now available. The program provides support for 1060 systems with S/360 processors. Included with the On Line Teller program are File Conversion and File Reorganization programs to assist in establishing and maintaining the on line savings master file.

On Line Teller with Background Mortgage Processing Capability will be available in September 1967 as announced in P67-10.

Description: The application performs the basic accounting normally associated with teller activity at the savings window. It accepts entries from the 1060 system, maintains depositors records on 2311 disks, responds to the teller terminal tape or the passbook, accumulates teller totals, and develops a journal of savings transactions. It keeps control totals which, with teller totals and the journal, make possible a daily audit of the depositors' records.

The Mortgage Logging and Inquiry transaction and multiple account pack capability originally announced with the program in P65-4 are withdrawn.

However, the number of transactions included in the system has been doubled to more than 80, increasing the capability of the program.

Customers affected by these changes should be notified promptly.

Program Material: Machine readable -- the programs are available in source card image format on one 9-track tape or on one 7-track tape (Data Conversion feature required) or on one 1316 Disk Pack. The tape or disk pack should be submitted in accordance with procedures established in the DP Sales Activity Section of the IBM Branch Office Manual.

Documentation -- Application Directory; Programmers Manual, H20-0305; Operators Manual, H20-0325; Systems Manual, Y20-0071.

Orders for basic documentation only for this program will not be accepted at PID. Form numbered manuals should be ordered through the normal publication distribution channels.

Reference Material: IBM 1060 Data Communications System, A21-9001-0 ... Application Description, H20-0149-1.

For further information contact your Regional Finance Industry Representative.

The following text will appear in the sales manual.

On Line Teller Program: Performs the basic accounting normally associated with teller activity at the savings window. It accepts entries from the 1060 system, maintains depositors records on

2311 disks, responds to the teller terminal tape or the passbook, accumulates teller totals, and develops a journal of savings transactions. It keeps control totals which, with teller totals and the journal, make possible a daily audit of the depositors' records. (360A-FB-16X)

The programs furnished are: Master File Conversion, On-Line Processing, and File Reorganization.

On Line Teller 32K Capability requires a 2030 Model E (32K). In addition to real time savings accounting, the user will be able to perform limited SPOOL operations such as card to disk, disk to printer, and disk to card. Up to 44 subchannels can be handled by the 32K program.

On Line Teller with Background Mortgage Processing Capability has the capability of running batch type mortgage loan processing as background to the S/360 On Line Teller System utilizing the S/360 Mortgage Loan program. This program can handle up to 16 subchannels on a 2030 Model E (32K) or up to 44 subchannels on a 2030 Model F (64K). This program without background mortgage will handle up to 16 subchannels in a 16K system (SPOOL capability is not available in the 16K program).

The On Line Teller program is designed to control the operation of multiple 1060 and 1050 terminals for on line savings accounting with S/360.

Customer is responsible for the customary off-line operations (i.e., history files, form 1099, interest calculations).

Programming Systems -- Source language is System/360 Assembler.

The following Type I programs are required for program assembly and use with the conversion and reorganizations programs: Program Numbers -- 360B-CL-302, 360B-IO-303, 360B-IO-305, 360B-UT-300, 360B-AS-309, and 360P-UT-069.

System Requirements -- 32K Capability, with a maximum of 44 subchannels -- 2030 Model E with Decimal Arithmetic, Interval Timer, Storage Protection, Selector Channel, Console Typewriter, 1060 and/or 1050 terminals as required to a maximum of

CONTENTS

System/360 On Line Teller ... 32 Capability (360A-FB-16X) now available.

Published by DP Sales Publishing Services, WTHQ

88 ... 2701 (from 1 to 4 subchannels) Terminal Adapter Type I (one per line), Expansion Features (one for each line beyond one), Expanded Capability (one for lines 3 and 4), Line Adapter (one per line) ... or two 2702s (from 1 to 31 subchannels), Terminal Control Type I (two), Line Adapters (one per line), 31 Line Expansion Feature (one per 2702 with more than 15 lines) ... 2311 Disk Storage Drive (minimum of 2\*) ... 2841 Storage Control.

\*Customers using SPOOL must have an additional 2311 disk drive for this purpose and the system must be 32K minimum.

Devices supported by SPOOL include:

2821 control unit required	2540	Model 1
	1403	Models 2, 3, 7, N1
	1443	Model N1

System Requirements -- 16K Capability, with a maximum of 16 subchannels -- 2030 Model D with Decimal Arithmetic, Interval Timer, Storage Protection, Selector Channel, Console Typewriter, 1060 and/or 1050 terminals as required to a maximum of 32 ... 2701 (from 1 to 4 subchannels) Terminal Adapter Type I (one per line), Expansion Features (one for each line beyond one), Expanded Capability (one for lines 3 and 4), Line Adapter (one per line) ... or 2702 (from 1 to 31 subchannels) Terminal Control Type I, Line Adapters (one per line), 31 Line Expansion Feature (one per 2702 with more than 15 lines) ... 2311 Disk Storage Drive (minimum of 2) ... 2841 Storage Control.

System Requirements -- Background Mortgage Loan processing capability.

	Number of Subchannels	
	16	44
2030 Processor with Decimal Arithmetic		
Model E	x*	
Model F		x*
Interval Timer	1	1
Storage Protection	1	1
Selector Channel	1	1
Console Typewriter	1	1
1060 and/or 1050 terminals as required to maximum of	32	88
2701 (from 1 to 4 subchannels)		
Terminal Adapter Type I		one per line
Expansion Features		one for each line beyond one
Expanded Capability		one per lines 3 and 4
Line Adapter		one per line
OR		
2702 (from 1 to 31 subchannels)	1	2
Terminal Control Type I	1	2
Line Adapters		one per line
31 Line Expansion Feature		one per 2702 with more than 15 lines
2311 Disk Storage Drive		minimum of 4**
2841 Storage Control	1	1
EITHER***		
2540 Card Read Punch	1	1
1403 Printer Model 2	1	1
2821 Control Unit Model 1	1	1
OR ***		
1442 Card Read Punch Model N1	1	1
1443 Printer Model N1	1	1
5558 24 Additional Print Positions		

Program Material: Machine readable -- the programs are available in source card image format on one 9-track or 7-track tape (Data Conversion feature required) or on one 1316 Disk Pack. The tape or disk pack should be submitted in accordance with the procedures established in the DP Sales Activity section of the Branch Office Manual.

Documentation -- Application Directory; Programmers Manual, H20-0305; Operators Manual, H20-0325; Systems Manual, Y20-0071.

Orders for basic documentation only for this program will not be accepted at PID. Form numbered manuals should be ordered through the normal publication distribution channels.

Reference Material: IBM 1060 Data Communications System, A21-9001 ... Application Description, H20-0149.

For further information contact your Regional Finance Industry Representative.

\*Includes additional storage required to support background mortgage processing. \*\*minimum for System/360 On Line Teller plus 2 for System/360 Mortgage Loan. \*\*\*Required by the System/360 Mortgage Loan Program. †Standard 52 Character set.

SEE REVERSE SIDE FOR "NOTE TO WORLD TRADE READERS"

John Fahey, Director of DP Marketing

Note to World Trade Readers

This letter is a reprint of an IBM Programming Announcement and was mailed concurrently to USA and WT offices. The following changes, when appropriate, should be applied to the text for WT use.

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**[A] 1401/1440/1460 Tape Overlap Emulator Program for System/360 Model 30**

Version 2 of the 1401/1440/1460 Tape Overlap Emulator Program for System/360 Model 30, 360C-EU-097, is now available. The improvements incorporated by it are:

**Additional Error Recovery Procedures**

Error recovery procedures have been provided for conditions such as intervention required and file protect. A retry option has been added for the permanent write error condition. Routines have been added to recognize and bypass noise records on both read and backspace operations.

**Support of Blocked Variable Length Records**

Variable length 1400 series tape files may now be reblocked. Using this facility, any 1400 series tape file (fixed length or variable length, labeled or unlabeled) may now be blocked using the Variable Blocked Tape Option.

**Support of 2401, 2402, and 2403 Models 4, 5, and 6, and of 2415 Models 1 - 6**

The program now supports use of the 2401 and 2402 Magnetic Tape Units, Models 4, 5, and 6; 2403 Magnetic Tape Unit and Control, Models 4, 5, and 6; and 2415 Magnetic Tape Unit and Control, Models 1-6 for emulation of 729 tape drives. 2401, 2402, and 2403 Model 6 tape units can only be used in System/360 (2030) mode operations. They cannot be used in Compatibility mode operations.

**Increased Loading Flexibility**

Users now have the options of writing the Tape Overlap Emulator Program on a 2311 Disk Storage Drive as a loadable file or of creating a loadable tape file from the distributed card deck. A new Emulator CID file can be loaded with the Emulator Program from card, tape, or disk, eliminating the necessity of a separate IPL for CID.

**Padding**

The tape Overlap Emulator Program can now use a user-supplied padding character when writing fixed-length blocked records. However, when the padded records are read, the 1400 program must be capable of recognizing and processing these records.

**Support of Checkpoint Records**

If it is not possible to define a buffer area large enough to hold any number of large records which may be contained in the 1400 series tape file, and the buffer is defined in such a way as to be large enough to contain most of the records, the Tape Overlap Emulator Program will now read or write the large records in Compatibility Mode. This applies specifically to exceptionally large records such as checkpoint records in sort and merge programs.

**Note:** Because of its speed, a 2400 series Model 6 tape unit cannot operate in Compatibility Mode. Therefore, if a 2400-series Model 6 tape unit containing records longer than the assigned buffer is used with the Tape Overlap Emulator Program an overrun will result.

Version 2 also provides corrections for all errors reported against Version 1 Modification Level 1. The APAR number on which each error was reported, as well as a brief description of the error symptom, is:

- **K-380**-When several rewinds and rewind unloads precede a halt instruction, only the first rewind and rewind unload is executed.
- **K-412**-Program check when a device is made ready on the multiplexer channel while the TOE program is being loaded.
- **K-413**-Program check during execution.
- **K-420**-Duplicate of K-380.
- **K-517**-1401 Sort 7 will not sort the input of one tape record when running under control of TOE.
- **K-521**-Program comes to a 99 halt when the 2311 is made ready during the execution of a 1401 program under control of TOE.
- **K-538**-When the 1401 program requires the request key to be depressed, the type writer will not function.

**CONTENTS**

- 1401/1440/1460 Tape Overlap Emulator Program for System/360 Model 30, 360C-EU-097 ... Version 2 is available. [A]
- 1130 Numerical Surface Techniques and Contour Map Plotting Program ... availability announcement. [B]
- S/360 Programming Page Numbering ... new method of numbering. [C]

Published by DP Sales Publishing Services, WTHQ

- **K-547**-On a Write Tape Mark operation when you sense End of Reel, the GMWM is destroyed.
- **K-624**-On a Write Tape Mark operation End of Reel is being passed to the 1401 after the reflective spot has been encountered.
- **K-625**-The output tape is being positioned wrong after an intermediate label has been written.
- **K-651**-An extraneous control unit end is developed by one of the interfaces of the simultaneous read/write tape control unit.
- **K-668**-When the input tape has a check point record at the beginning, the check point record is processed as the first data record.
- **K-686**-The first tape record is dropped and the second record is duplicated on multi-file output when running TOE.
- **K-721**-Specification error when data is brought into the TOE buffer in Load mode, and the 1401 input area is scanned for a GMWM.

Other highlights associated with the availability of Version 2 of the Tape Overlap Emulator Program are:

- Comprehensive product testing involving FE participation, followed by field testing at five selected customer locations ...
- A significantly improved SRL publication, expanded from 21 to 42 pages ...
- Special training of FE area specialists in the use and operation of the program ...
- Diagnostic Trace Routine designed specifically for the Tape Overlap Emulator Program to facilitate any required FE debugging activity.

**Basic Program Material**

**Documentation -- Program Material List**

SRL Publications -- System/360 Model 30, Specifications and Operating Guide, Tape Overlap Emulator, C26-3564-2 --- IBM System/360 Conversion Aids: Sample Problems for IBM System/360 Emulator Programs, C27-6929.

If only the form numbered manuals are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

Machine Readable -- Tape Overlap Emulator, Object Deck, Loader Deck, Emulator Disk Loader and Sample Problem. Decks are available on one 9-track or one 7-track DTR (Data Conversion feature required). When ordering, specify 9-track or 7-track DTR. If not indicated, a 9-track DTR will be forwarded.

Current users will not receive the new version automatically. Instead, they will receive a prepunched order card and a letter announcing the new version and instructing them to order it through the branch office.

DTRs will be supplied by PID -- no tape submittal is required.

**Additional Information:** This announcement cancels all prior P-letter references to the Tape Overlap Emulator Program (P65-9, P66-4, P66-43, P66-105, P66-110, P66-115, P66-120, and P67-4).

See the attached Sales Manual pages for a complete description of the Tape Overlap Emulator Program.

[B] 1130 Numerical Surface Techniques  
and Contour Map Plotting Program

The availability date for the Numerical Surface Techniques and Contour Map Plotting Program will be October 1967.

The details of the program are given in the Sales Manual Abstract and remain unchanged.

For further information contact your Petroleum Industry Representative.

[C] System/360 Programming Page Numbering

To assist you in locating information regarding S/360 programming in the Sales Manual, a new method of numbering pages will be used beginning with the pages attached to this letter.

For easier reference, the S/360 four-digit identification code on page P 1 (which includes an alphabetic character to designate the operating system, System/360 models, etc.) will be used as the page number. (For example, pages referring to DOS/360 will be numbered 360N.1, 360N.2, etc; S/360 Model 44 will be 360F.1, 360F.2, etc.)

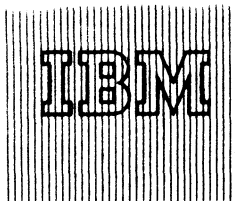
As pages are revised, they will include the new numbers until all affected System/360 Programming pages are changed.

  
John Fahey  
Director of DP Marketing

Note to World Trade Readers

This letter is a reprint of an IBM Programming Announcement and was mailed concurrently to USA and WT offices. The following changes, when appropriate, should be applied to the text for WT use.

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
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- [7] Communications facilities or services may be required which are not offered in all WT countries. In case of any doubt as to the availability of suitable communications facilities, the country Teleprocessing Coordinator should be consulted.
- [8] All references made to Engineering Changes required for programs should be verified with the local CE Branch Office. Although E/C requirements are identical for WT and IBM, E/C availability dates and shipping schedules may differ.



System/360 Tape Operating System

System Release 7 is now available. Continuing TOS/360 development progress now provides you with significant improvements in functions and features. They are:

System Control and IOCS - 360M-CL-405 and 360M-IO-404

- . Multiprogramming Support
- . Greater flexibility is provided in System I/O assignments
- . Self relocating facilities
- . Automatic volume switching of System output file on Magnetic Tape
- . Combined System output on a single Magnetic Tape
- . 7-Track checkpoint with translate mode data on Magnetic Tape (Data Conversion feature required)
- . Dual Density Recording (800/1600 BPI)
- . Enable/Disable mode for Universal Character Set
- . Error Recovery involving Command Chaining Operations
- . Consecutive Paper tape I/O Macros

Assembler - 360M-AS-465 (previously 360M-AS-406)

- . Permit Error Recovery Procedures
- . Support for Multivolume System output

COBOL 360M-CB-402

- . Improved object code efficiency
- . Improved object program execution time
- . Improved PERFORM performance
- . USE AFTER ERROR clause handled for UTILITY files
- . APPLY WRITE-ONLY clause handled
- . Inverted point Edit

Multiprogramming Support Utility Macros 360M-UT-411

Produces self-relocating object code which provides input/output control functions such as:

- . Opening and closing file including label processing
- . Blocking/Deblocking of fixed length records
- . Printer form and stacker selection control
- . User exits before, during, and upon completion of record processing

Supervisor, 6K 360M-SV-413  
8K 360M-SV-414

The two supervisor components are identical in content and function except for the ending address. The user who does not expect to generate a supervisor in excess of 6144 bytes should order the system with the 6K Supervisor component. The user who expects to generate a supervisor in excess of 6144 bytes should order the system with the 8K Supervisor component. This will allow him to assemble and catalog the tailored supervisor without link-editing all of the desired system components residing in the Core Image Library. However, if the tailored supervisor exceeds the size of the supervisor component on the system, a complete linkage edit run must be performed.

One supervisor component should be specified when ordering the system. If not specified, the 6K Supervisor will be shipped.

Compiler Input/Output Modules, 360M-IO-412, Change Level 2-0

These input/output modules used by COBOL and RPG object programs are pre-assembled and incorporated into the Relocatable Library. They provide all necessary input/output operations so that the user can execute programs written in COBOL and/or RPG without having to generate input/output routines.

Other TOS/360 Components are:

- Tape Sort/Merge 360M-SM-400
- Report Program Generator (RPG), 360M-RG-408
- FORTTRAN IV, 360M-FO-409
- Autotest, 360M-PT-407
- Utility Programs, 360M-UT-403

Minimum System Requirements - See sales manual pages for TOS/360 for requirements.

CONTENTS

System/360 Tape Operating System ... System Release 7 is now available.

Published by DP Sales Publishing Services, WTHQ

Engineering Changes

The following Engineering Changes are prerequisite for proper functioning of TOS/360:

- . 2030 hardware ... EC 126737
- . 2030 micro ... EC 128053
- . 1445 ... EC 305247, EC 305252
- . 2040 hardware ... EC 255262
- . 2040 micro ... EC 255261
- . 2050 ... EC 255458
- . 2821 ... EC 125598
- . 1443 ... EC 305560, EC 305564
- . 2540 ... EC 124270

Note 1: If the multiprogramming support facilities of TOS/360 are used, the 2030 hardware EC 126751 and 2030 micro EC 128058 must be installed.

Note 2: In a storage protected batch job environment, the 2030 micro EC is 128058.

Note 3: The following Engineering Changes are not required; however, in order to achieve the best performance, they are recommended.

- . 2401 ... EC 254969
- . 2402 ... EC 254969
- . 2403 ... EC 254969
- and EC 255981
- . 2404 ... EC 254969
- and EC 255982

TOS/360 was tested on devices with the following Engineering Changes: 1051 - EC 125519 ... 1052 - EC 122384 ... 1403 - EC 125730 ... 1442 - EC 807697 ... 1443 - EC 305511 ... 2401 - EC 255010 ... 2402 - EC 730172 ... 2403 - EC 730172 and EC 255981 ... 2404 - EC 730145 and EC 255982 ... 2415 - EC 255824 ... 2501 - EC 811803 ... 2520 - EC 810943C ... 2540 - EC 812588 ... 2671 - EC 351485 ... 2803 - EC 730909 ... 2821 - EC 125601 ...

Program Material

The following SRL publications appropriate to the component ordered will be shipped by PID with each initial order. Some of these SRL's are new publications which obsolete previous editions. Additional copies are available from the IBM Distribution Center, Mechanicsburg.

SRL's pertinent to all TOS/360 components --- System/360 Disk and Tape Operating Systems, Concepts and Facilities, C24-5030-2 with TNL N24-5182 and N24-5191 ... System/360 Tape Operating System, System Generation and Maintenance, C24-5015-3 with TNL N24-5265 ... System/360 Tape Operating System, Performance Estimates, C24-5020-2 ... System/360 Tape Operating System, Operating Guide, C24-5021-2.

SRL's pertinent to 360M-SV-413, 360M-SV-414, 360M-CL-405, 360M-IO-412 and 360M-IO-404 --- System/360 Tape Operating System, System Control and System Service Programs, C24-5034-1 ... System/360 Tape Operating System, Supervisor and Input/Output Macros C24-5035-1 ... System/360 Tape Operating System, Data Management Concepts, C24-3430-2, with TNL N24-5194.

SRL's pertinent to 360M-AS-465 --- System/360 Disk and Tape Operating Systems, Assembler Specifications, C24-3414-3, with TNL N26-0516, and N26-0520.

SRL's pertinent to 360M-SM-400 --- System/360 Disk and Tape Operating Systems, Tape Sort/Merge Program Specifications, C24-3438-2, with TNL N21-5036, N21-5050, and N21-5042.

SRL's pertinent to 360M-PT-407 --- System/360 Tape Operating System, Autotest Specifications, C24-3441-3.

SRL's pertinent to 360M-UT-403 --- System/360 Disk and Tape Operating Systems, Utility Programs Specifications, C24-3465-2, with TNL N21-5024, N21-5047 and N21-5044.

SRL's pertinent to 360M-CB-402 --- System/360 Disk and Tape Operating Systems, COBOL Programmer's Guide, C24-5025-3 ... System/360 Disk and Tape Operating Systems, COBOL Language Specifications, C24-3433-3, with TNL N24-5188.

SRL's pertinent to 360M-FO-409 --- System/360 Disk and Tape Operating Systems, Basic FORTRAN IV Programmer's Guide, C24-5038-0, with TNL N21-5034 and N21-5053 ... System/360 Basic FORTRAN IV Language, C28-6629-0.

SRL's pertinent to 360M-RG-408 --- System/360 Disk and Tape Operating Systems, Report Program Generator Specifications, C26-3570-4, with TNL N24-5195.

SRL's pertinent to 360M-UT-411 --- System/360 Disk and Tape Operating Systems, Utility Macros Specifications, C24-5042-1, with TNL N24-5184.

If only the form numbered manuals are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

A Program Material List and temporary restrictions will also be shipped by PID when TOS/360 is ordered.

Machine Readable: TOS/360 is distributed on -- one 2400 reel of magnetic tape, 9-track at 800 BPI ... or one 2400 reel of magnetic tape, 7-track at 800 BPI (Data Conversion feature required). Refer to ordering procedure below.

#### Ordering Procedure

TOS/360 is distributed as -- one pre-generated system with a 6K Supervisor (360M-SV-413) ... or one pre-generated system with an 8K Supervisor (360M-SV-414).

When ordering TOS/360, the requester will receive the entire collection of machine readable program components in both Core Image and Relocatable Libraries, listed below.

The System Control component and one of the two Supervisor components are required. To order these components, specify on the IBM program Order for IBM System/360 Operating Systems, 120-1411 -- System Control and Basic IOCS, 360M-CL-405 and Supervisor (6K), 360M-SV-413 or Supervisor (8K), 360M-SV-414.

One supervisor component should be specified when ordering the system. If not specified, the 6K Supervisor will be shipped.

The requester may select any additional program components from the following list. Each component for which program documentation and maintenance material is required must appear on the order form.

Supervisor (6K)	360M-SV-413 or
(8K)	360M-SV-414
System Control	360M-CL-405
IOCS	360M-IO-404
MPS Utility Macros	360M-UT-411
Utilities	360M-UT-403
Tape Sort/Merge	360M-SM-400
Assembler	360M-AS-465
COBOL	360M-CB-402
FORTAN IV	360M-FO-409
RPG	360M-RG-408
*Compiler I/O Modules	360M-IO-412
Autotest	360M-PT-407

All components are now available from PID.

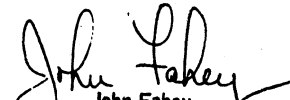
\* Should be ordered if either COBOL (360M-CB-402) or RPG (360M-RG-408) is ordered.

When ordering TOS/360, either 9-track or 7-track tape must be specified on the IBM Program Order. If not specified, 9-track tape will be forwarded.

The requester may forward or order magnetic tapes in accordance with current procedures as described in the DP Sales Activity Section of the Branch Office Manual.

Current users will receive a prepunched request card and a letter announcing the availability of System Release 7 instructing them to order it through the branch office. This prepunched Program Request Card must be used to order System Release 7.

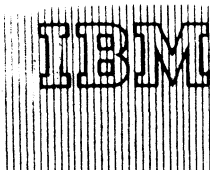
Users who do not order Release 7 will be removed from PID maintenance file for the entire TOS/360.

  
John Fahey  
Director of DP Marketing

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- [8] All references made to Engineering Changes required for programs should be verified with the local CE Branch Office. Although E/C requirements are identical for WT and IBM, E/C availability dates and shipping schedules may differ.



Demand Deposit Accounting

Programming Announcement Letter P66-103 released the DDA program 360A-FB-15X and stated a problem existed in operating the programs with the IBM 1412 MICR reader-sorter.

Programming Announcement Letter P66-123 advised of a temporary correction of this problem.

This problem has been permanently corrected with Technical Newsletter N20-1009. All current users of this program will automatically receive this Technical Newsletter along with Version 1 Modification Level 2 now being distributed by the Program Information Department.

All other information in P66-103 and P66-123 is still in effect.

<u>CONTENTS</u>
<u>Demand Deposit Accounting</u> (360A-FB-15X) ... problem corrected.

Published by DP Sales Publishing Services, WTHQ

*John Fahey*  
**John Fahey**  
 Director of DP Marketing

Note to World Trade Readers

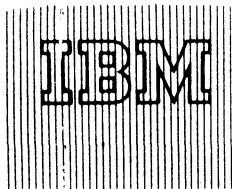
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Attachments [5]: P 1, P 3, P 11, P 360M.1, P 360M.3

Release Date: March 7, 1967

Distribution: All Areas



[A] System/360 Product Structure Retrieval

The System/360 Product Structure Retrieval program will be available August 1967.

This program extracts selected information from files organized by the System/360 Bill of Material Processor program, 360A-ME-06X. Six types of retrieval reports are included with this module. They are:

- . Single Level Explosion
- . Indented Explosion
- . Summarized Explosion
- . Single Level Implosion
- . Indented Implosion
- . Summarized Implosion

Programming Systems: Assembler language with input/output macros under supervision of the Basic Operating System/360 or Disk Operating System/360.

Minimum System Requirements: A 2030 D or E CPU (16K under BOS control or 32K under DOS control) with Decimal Arithmetic (#3237), 1050 Attachment (#7915), 1051 Control Unit Model N1 for Console Printer-Keyboard, First Printer Attachment (#4409), CPU Attachment for 1051 (#3130), First Punch Attachment (#4410), First Reader Attachment (#4411), 1052 Console Printer-Keyboard Model 8, any S/360 model card read punch, any S/360 model printer, 2841 Storage Control Model 1, 2311 Disk Storage Drives Model 1 as required to contain Basic or Disk Operating System/360 and user's data files (minimum of 2).

Reference Material: Application Description Manual (H20-0329) - availability will be announced in a Publications Release Letter. A preliminary manual can be obtained on request from the Manufacturing Industry Development Department, DPD HQ.

See the attached sales manual page for detailed information.

For further information contact your Manufacturing Industry Marketing Representative.

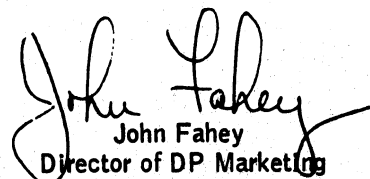
[B] System/360 Emulator Programs

In the contents of P67-16, System/360 Emulator Programs for 7040/7044, 360C-EU-733, and 709/7090/7094/7094 II, 360C-EU-729, indicate Version 2 Modification Level 0. Both items should have read Version 2 Modification Level 1.

[C] Filing Instructions

File P 360A.1 through P 360A.24 immediately after P 12 (programming section, sales manual). Remove from the sales manual P 360.41 through P 360.50. P 360C.1 through P 360C.5 should follow P 360A.24.

Note: Attached to P67-20 were P 360M.1 and P 360M.3 which replaced November 1966 Revisions. They should have read "replace P 360.25 and P 360.27 November 1966 Revision" respectively. File P 360M.1 and P 360M.3 between P 360C.6 and P 360.1.

  
John Fahey  
Director of DP Marketing

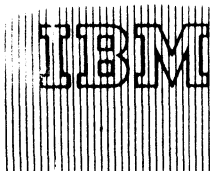
Attachments [4]: P 7, P 360A.23, P 360C.3, P 360/44.3  
Supplement [1]: 11 attachments -- P 360A.1 through P 360A.22  
Release Date: March 15, 1967  
Distribution: All Areas

<u>CONTENTS</u>	
System/360 Product Structure Retrieval ... application program to be available August 1967. (A)	
System/360 Emulator Programs ... correction to P67-16. (B)	
Filing Instructions ... programming section, sales manual. (C)	
Published by DP Sales Publishing Services, WTHQ	

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- [8] All references made to Engineering Changes required for programs should be verified with the local CE Branch Office. Although E/C requirements are identical for WT and IBM, E/C availability dates and shipping schedules may differ.



(A) Advanced Life Information System for System/360 (ALIS)

The release date of June 1967 for the ALIS program as announced in letter P66-61 is changed. The scope of the system design and the contents of the final ALIS system are in no way changed by this announcement.

The system test is currently underway on the ALIS system with the exception of the items listed below. After the completion of system test, a beta test cycle and publishing must be completed before release from the Program Library. Availability of the program except the deferred items will be 2Q 68. The deferred items will be available 4Q 68.

To facilitate the earliest possible delivery of the ALIS system, seven items are deferred from the initial ALIS release, but will be added subsequently. The deferred items are:

1. Valuation and Policy Exhibit - These include all the valuation programs and the policy exhibit summary file update programs.
2. Home Office Inquiry - This refers to obtaining quotations through remote terminals, the 2260 and 1050.
3. Simple Change Transactions - The specific transactions that are deferred are:
  - . Force policy to an issue status
  - . Revive a lapsed policy
  - . Change to or from premium waiver
  - . Delete coverage and associated trailers
  - . Add coverage trailer
  - . Delete/add extra life trailer
  - . Delete/add supplementary benefit trailer
  - . Replace participation options, restrictions and assignments
  - . Update/replace cash values
  - . Update/replace reserves
  - . Update renewable term rates
  - . Replace dividend participation amount
  - . Replace guaranteed participation amount
  - . Change status to approved
4. Status Transactions - The specific transactions that are deferred are:
  - . Process and Quote Terminations -
    - Death claim - child  
secondary parent  
rider
    - Cash surrender - rider only
  - . Process Participation Values -
    - Withdraw participation values on deposit for cash
    - Withdraw paid up additions with \$XX cash value for cash
    - Withdraw \$XX of paid up additions face amount for cash
  - . Process Loan Values -
    - Pay XX premiums by APL
    - Maximum cash loan
    - Net cash loan
    - Gross loan increase
    - Gross loan total
  - . Quote Termination -
    - Death claim - entire policy
  - . Quote Loan Values -
    - Pay XX premiums by APL

CONTENTS

Advanced Life Information System for System/360 (ALIS), ... an application program to be available 2Q 1968 (several of the items in this programming system will be available 4Q 1968). [A]

Property and Liability Information System for System/360 (PALIS) ... an application program to be available 2Q 1968 (several of the items in this programming system will be available 4Q 1968). [B]

Published by DP Sales Publishing Services, WTHQ

5. Follow Up Messages
6. Miscellaneous Notifications
7. Error Register Print

Expanded Education Schedule: ALIS Detail Systems Classes for the first six months of 1967 are:

April 10 - 14	Dallas
May 15 - 19	Philadelphia
June 12 - 16	Chicago

Reference Material: Application Description, "Advanced Life Information System" (H20-0126-1).

Customers affected by these changes should be notified promptly.

See the attached sales manual page for detailed information.

For further information contact your Insurance Marketing Representative.

(B) Property and Liability Information System for System/360 (PALIS)

The release date of June 1967 for the PALIS program as announced in letter P66-61 is changed. This announcement cancels P66-61 and should be read in its entirety.

A system test will begin in March 1967 on the full PALIS system with the exception of the six items listed below. After the completion of system test, a beta test cycle and publishing must be completed before release from the Program Library. Availability dates for the program except the deferred items will be 2Q 68. The deferred items will be available 4Q 68.

To facilitate the earliest possible delivery of the PALIS system, six items have been deferred from the initial PALIS program, but will be added subsequently. The deferred items are:

1. Massachusetts Auto - PALIS Program will not support Massachusetts automobile processing in the initial release.
2. Process Agency Records - The PALIS run linkage will make available blank header and trailer records for processing by user supplied insurance logic. PALIS insurance logic will not edit a transaction against the agency header record and will not update the agency trailer record in the initial release. PALIS will support policy number within company within agency number sequence and also straight policy number sequence.
3. Process Other Lines Multi-Location Records - Only single-location other lines policy records will be supported initially.
4. Create Dummy Policy Records on 2321 - Invalid transactions will not be maintained as dummy master records on the policy file in the initial release. Copies of the incorrect transaction, master record, and an advice on the type of error will be written out when a transaction fails the edit against the master record.



Control of error transactions is accommodated through an indicator in the master record. If a transaction requiring rating is incorrect, the processing of future rating transactions is suppressed until the error is corrected.

5. Inquiry and Claims Arising Transactions via 1050 Remote Terminal - The entry of a claim through a remote 1050 and the indication of a pending claim transaction in the master record will not be supported. Claim transactions may be entered via batch processing. Status printouts on the 1050 remote terminal also will not be supported initially.
6. Confirm Coverage on Claim (Auto and Homeowners') - The automatic claims coverage confirmation will not be supported as a transaction in the initial release.

Expanded Education Schedule: PALIS Detail Systems Classes for customers and IBM personnel for the first six months of 1967 are --

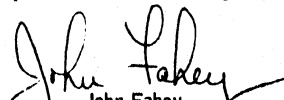
April 24 - 28	Dallas
May 22 - 26	Chicago
June 26 - 30	New York City

The new PALIS Application Description Manual (H20-0283-0), now available from Mechanicsburg, is presently used as an introduction in PALIS classes.

Customers affected by these changes should be notified promptly.

See the attached sales manual page for detailed information.

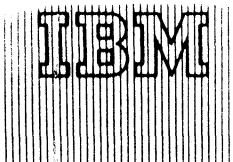
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John Fahey  
Director of DP Marketing

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[A] IBM 1130 Disk Monitor System

Version 1, modification level 3 is now available†. The new Utility Routines provided are:

- . Console Printer Disk Dump
- . 1132 Printer Disk Dump
- . Paper Tape Reproducing Routine
- . Paper Tape Utility Routine (PTUTL)

All are included with the Paper Tape System (1130-OS-002); however, the Disk Dump routines only are included with the Card System (1130-OS-001).

† *PID is now distributing Version 1 modification level 3 to current users automatically.*

These routines are designed to [1] assist the programmer in program debugging on a disk Monitor system ... [2] assist the programmer in paper tape handling operations.

Operating procedures for the 1130 Disk Monitor Utility routines are contained in TNL N26-0521\* which updates the 1130 Disk Monitor Reference Manual, C26-3750.

\* *Being distributed to current users with Version 1 modification level 3.*

Each routine, with the exception of the Paper Tape Utility Routine, is provided as a self loading program. To execute these routines, the operator must perform the operating procedure for each of the respective routines. The Paper Tape Utility routine resides on disk storage. PTUTL is executed under monitor control as specified by three control records. When execution of PTUTL begins, the operator controls record duplication, deletion, addition, and alteration from the console.

Minimum System Configuration: A 4K word 1131 model 2 ... 1442 Card Read Punch model 6 or 7 or 1134 Paper Tape Reader and 1055 Paper Tape Punch.

[B] Availability of Programs Recorded at 1600 BPI

Only magnetic tape resident programs are available recorded at 1600 BPI. PID's current processing schedule for 1600 BPI tapes is 20 work days. The normal PID processing schedule of 10 days is planned for May 1967. Until that time, expedited service is not available.

*John Fahey*  
 John Fahey  
 Director of DP Marketing

SEE REVERSE SIDE FOR  
 "NOTE TO WORLD  
 TRADE READERS".

Release Date: March 20, 1967  
 Distribution: All Areas

<u>CONTENTS</u>	
<u>IBM 1130 Disk Monitor System ... Version 1, modification level 3 now available.</u>	(A)
<u>Availability of Programs Recorded at 1600 BPI.</u>	
(B)	
Published by DP Sales Publishing Services, WTHQ	

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Operating System/360

A significant version of OS/360 can now be ordered -- Release 10. The first shipment will be this week. It includes improvements in:

- . Operational Characteristics
- . Performance
- . Functions
- . New Device Support

Review these new developments to establish a definite plan to upgrade each user's installation to a current version of OS/360. With each release OS/360 has improved the usability, function, and performance of the system. To assist you in making a sales call as a result of this release, the information below is organized according to the areas of responsibility of user personnel.

Installation Manager

- . Improved performance and function in COBOL E
- . New and faster Sort/Merge
- . Data Set handling operational improvements
- . New device support for 2302, 2303, 2314
- . 2301 support of Sort/Merge and ISAM
- . BSAM and QSAM Chained Scheduling
- . QSAM Exchange Buffering
- . QTAM support for telecommunications

Branch Managers must be consulted prior to the customer ordering QTAM. DP and FE Branch Managers memorandum of March 27, 1967 provides information on this subject.

Operations Manager

- . Checkpoint/Restart with the new oscillating Sort/Merge.
- . Operational improvements --
  - . Volume Label Editing
  - . Bypass Tape Label Processing
  - . Improved Tape Repositioning
  - . File Protect Ring Diagnostic
  - . Premounting of alternate DASD Volumes
  - . Tape label creation utility under OS/360 control
  - . ISAM utility support
  - . PRINT/PUNCH utility improvements
  - . Model 75 SERO, SER1, and EREP
  - . Dual density support for 2400 Models 4, 5, and 6 tape units

Application Programmer

- . COBOL E
  - . DASD Support for BDAM and ISAM
  - . Inverted Print Edit
  - . USE Verb after I/O error
  - . Reduction in object code size
- . Data Management Additional Functions
  - . Password Protection
  - . BDAM Read Exclusive
  - . BSAM/QSAM and BDAM Track Overflow
  - . BSAM/QSAM Update Mode
  - . ISAM Support with 2301
- . Testing Improvements
  - . Mnemonic and EBCDIC optional display in the ABEND dump.
  - . A SNAP macro to dynamically display storage.
  - . SYSUDUMP control card to restrict the area of the dump.
  - . Trace table entry elimination during ABEND dump processing.
- . Maintenance Improvements

Since Release 8, each release has had an average of 100 APAR corrections. Included are many improvements to performance and function that collectively result in a simpler system operationally. The specific APARs that have been solved are detailed in the prose supplied with the system.

CONTENTS

OS/360 Release 10 ... can now be ordered.

Published by DP Sales Publishing Services, WTHQ

Improved Documentation

Two new publications are available that significantly improve the presentation of the supervisor and data management macro services. These will assist programmers in the understanding and effective use of capabilities of the system that may have been overlooked. The new publications are:

- . Supervisor and Data Management Services, C28-6646 and TNL N28-2202.
- . Supervisor and Data Management Macro Instructions, C28-6647 and TNL N28-2217.

Other publications that have been revised to assist the user are:

- . Job Control Language, C28-6539-4. Rewritten to improve its organization.
- . System Programmer's Guide, C28-6550-2. Contains information on residence options of BLDL, RAM, and PRESRES.
- . Operator's Guide, C28-6540-4 and TNL N28-2209. Reorganized by chapters on PCP, MFT, and MVT and contains new glossary and diagrams.
- . TESTRAN, C28-6648. A new publication that has been separated from the original Control Program Services.

Improved Usage Technique

When adding records to an ISAM file (using BISAM) there is a marked improvement in performance if the input transactions are sorted into descending sequence rather than ascending sequence. The reason is because the overflow entry of a track index always points to the lowest key shifted from the primary track. This causes the transaction pointer to go directly to the end of an overflow index chain. If the transactions are in ascending sequence, the search starts at the beginning of an overflow index chain. The descending sequence technique reduces the number of instructions and DASD rotations necessary to locate the position on the overflow track for processing the transaction. Users have reported more than 100% improvement when using this technique.

Keep Current with Release 10

With each release of OS/360, a user must measure the recognized cost of upgrading to a new level against the improvements offered in the release. Intensified efforts continue to be made to ensure that OS/360 meets our customer requirements. To capitalize on these efforts each account should use the latest release.

Detailed Description of New Items

- . Password Protection - Provides data set security by requiring the operator to respond to a message by issuing the correct password to read the protected data set.
- . BSAM and QSAM Chained Scheduling - Allows the access methods to reduce processing time for I/O limited programs by combining instructions to process a group of I/O operations where possible rather than individually. Because of bypassing the normal I/O scheduling routines the CPU, channel start/stop time, and rotational delay are reduced. This feature can substantially improve I/O performance for DASD's using short records.
- . QSAM Exchange Buffering - When used, reduces the number of move instructions necessary to process records. It supports blocked fixed length or unblocked records. It is efficient in applications that involve either merging two or more data sets or upgrading one data set by including or deleting logical records.
- . BDAM Read Exclusive - When requested by the program, prevents the inadvertent updating of the same record by two competing tasks within the same job step using the same data.
- . BSAM/QSAM and BDAM Track Overflow - Supports the record

- overflow feature which permits records longer than a physical DASD track to be written on more than one track automatically.
- BSAM/QSAM Update Mode - Permits updating a record in place without having to copy the entire data set to update an individual record or records on DASD Volumes.
- ISAM on 2301 - This is normal indexed sequential support for the 2301 Drum.
- Volume Label Editing - Provides the user a message and the opportunity to replace the currently mounted volume if he has inadvertently mounted the wrong volume while processing a multivolume job. Also, exits are provided to permit the user to write related routines for special handling as required, such as the acceptance of the currently mounted tape.
- Bypass Tape Label Processing - Permits the user to specify that all label processing for a given tape data set is to be bypassed with a new JCL parameter (BLP). This avoids the 100 retries when mounting inappropriately labeled scratch tapes, or when using tapes which have had no prior recording. It can be included optionally at SYSGEN time with OPTION=BYLABEL. If it is not included, data sets having BLP specified will be treated as NL (Not Labeled).
- Improved Tape Repositioning at CLOSE - When a multivolume is positioned for reading within the first file sequence and is CLOSED, the tape is rewound instead of backspaced to load point.
- OPEN/EOV File Protect Ring Diagnostic - The OPEN/EOV routines now checks for the presence or absence of a file protect ring and issue appropriate messages to the operator for tape volumes.
- Premounting of DASD Volumes - Permits the multivolume data set user to mount DASD volumes in advance of their need when using alternating units.
- An additional Operand, STATUS, has been added to the DISPLAY and STOP command. The DISPLAY STATUS Command specifies to the system that the DSNAMES, Volume Serial Numbers and the status of the data sets are to be printed on the console at step and job termination for KEEP, CATLG and UNCATLG dispositions. The STOP STATUS command cancels DISPLAY STATUS.
- Sort/Merge - A new Sort/Merge program is provided which does not require Link Editing. This saves approximately two minutes per sort and is especially important to low volume sort users. The sort also includes an advanced technique known as "the oscillating sort." This improves performance for large tape files by avoiding some intermediate passes. In addition, the sort program now supports the 2301 Drum.
- Sort Checkpoint/Restart - A Checkpoint/Restart facility is provided for the OS/360 Sort/Merge program. The checkpoint facility is activated automatically by a checkpoint parameter included on the Sort control statement. A checkpoint is taken at the beginning of Phase I and III for all sorting techniques and at the beginning of Phase II for balance merge techniques. Restart is accomplished by executing a Restart program residing in the Link Library. Sort Checkpoint/Restart requests cannot be issued in COBOL Program using the Sort Verb.
- COBOL E Improvement - COBOL E now supports DASD statements for BDAM and ISAM. The Inverted Print Edit command, which permits substitution of decimal points for commas during editing of the amount field, is supported. The USE Verb after I/O errors is provided to permit a user to supply his own error recovery procedures in assembly language coding.
 

Performance improvements to the object code have been made to provide in-line PERFORM routines instead of subroutines. An improvement to the binary arithmetic routines avoids extensive checking for field size and overflows. A change was made in the General Register load instructions generated which reduces the size of the object code produced.
- Utility Program Improvements
  - IEHMOVE Support for Track Overflow.
  - Tape Label Creation Utility (IEHINIT) - Places OS/360 label sets on any number of magnetic tapes mounted on one or more magnetic tape drives. Each label set contains a standard volume label (VOL1), a dummy header label (HDR1), and a tape mark. This utility may be scheduled in the same way as any other job.

- ISAM Load and Unload Utility - Permits the unloading of ISAM data sets to any I/O device and reloading with reorganization to the same type of device which was unloaded.
- PRINT/PUNCH Improvements for error recovery procedures and performance.
- DASDI and DUMP/Restore - These independent utilities now support the 2302, 2303, and 2314 units.
- Model 75 SERO, SER1, and EREP -
  - SERO is an optional function designed to collect, format and write on the SYS1.LOG REC data set the data issued as a result of a malfunction within the CPU or a channel. It consists of a resident and non-resident module with the non-resident module being loaded into the problem program area with regard to what was previously there. SERO does not use any OS/360 facilities to collect data and to write the environment record. It has its own I/O programming. It terminates the system in WAIT State at the end of its operation.
  - SER1, as SERO, is an optional function designed to collect, format and write on the SYS1.LOG REC data set the data issued as a result of a machine malfunction within the CPU or a channel. However, it is completely resident and uses OS/360 facilities such as EXCP, ABEND, WTOR, and PURGE. Also, it attempts to determine the effect and extent of the damage caused by the malfunction and to identify the failure within a specific task. If it determines the failure has not damaged the supervisor and can be related to a task it terminates that task using OS/360 ABEND facilities. If the supervisor is found damaged, it terminates the system in WAIT state, as in SERO. It is recommended that either SERO or SER1 be included in all OS/360 systems used on Model 75s.
  - EREP is a utility program operating as a problem program under OS/360. It is used to retrieve completely or selectively, edit and output the environment records that have been stored on the SYS1.LOCREC data set by the environment recording programs OBR, SDR, SERO, or SER1.
- New I/O Feature Support
  - 2400 Magnetic Tape Units Model 4, 5, and 6; and 2803 Tape Control Model 2 - Dual Density (800-1600 bpi) features #3471 and #3472. This support permits the specification of 800 or 1600 bpi on DD statements or in the DCB Macro for a tape data set. For standard (SL) or non-labeled (NL) output tapes, the system will verify the label on the density of the first record of the data set for volumes which are to be retained. If the density conflicts, a MOUNT message is issued specifying the correct density.
  - 2302 Disk Storage Support for Program Libraries, SAM, ISAM, BDAM, BPAM but not SYSRES. As announced previously, this device will not be supported with MVT (Option 4).
  - 2303 Drum Storage Support for System Residence, SYSJOBQE, Program Libraries, SAM, ISAM, BPAM, and BDAM.
  - 2314 Direct Access Support Facility Support for System Residence, SYSJOBQE, Program Libraries, SAM, ISAM, BPAM, and BDAM. Availability was May 15, 1967.
  - 2301 Drum Storage ISAM and Sort Support in addition to that previously available.
- QTAM Queued Telecommunications - QTAM supports a variety of applications such as message switching, high-volume inquiry, and transaction processing. The facilities include a comprehensive set of message control and editing routines that relieve the programmer assigned the specialized programming otherwise required for such an application. These routines can be assembled into an integral message control program which is designed to meet the exact requirements of an installation.
 

QTAM supports 1031, 1032, 1033, 1035, 1052 Terminal 1052 Console, 1054, 1055, 1056, 1057, 1058, 1062, AT&T 83B3 Selective Calling Station, Western Union Plan 115A Outstation, AT&T Model 33 or 35 Teletypewriter Dial Service.
- Testing Improvements
  - The ABEND Dump will produce optional EBCDIC and Mnemonic Conversion notations in addition to the normal hexi-decimal display.

- A SNAP Macro instruction is provided to dynamically display storage areas on a user provided data set for later reference while permitting the program to continue. The user can specify the PSW, REGS, Save Areas, main storage for the job step, or ALL. Areas to be dumped can be specified with "from and to" pairs of addresses.
- A SYSUDUMP control card has been added to permit an ABEND Dump to print the users program without the nucleus and trace tables, thus minimizing printouts.
- Trace table entry elimination during ABEND for PCP. The trace table becomes inactive during both normal and abnormal job step and job termination. Thus, the user obtains a more meaningful trace of his program prior to ABEND since the ABEND process is not traced.

Reference Publications: OS/360 User Libraries, C20-1663 ... OS/360 TESTRAN User Guide, C20-1652 ... OS/360 Utilities User Guide, C20-1661.

Reference Cards: Job Control Language, X20-1746-1 ... Linkage Editor, X20-1739 ... Supervisor Macros, X20-1738.

#### Ordering Procedures

For new users the branch office must have the Program Order Form for System/360 Operating Systems (120-1411). Current users of OS/360 will receive a prepunched Program Order Card and a letter announcing the availability of Release 10, instructing them to order the new release through the branch office, using this prepunched card.

In either case, the order form used (120-1411), or the prepunched Program Order Card, must contain the program number for each OS/360 component (if being ordered for the first time) for which program documentation and maintenance material is required.

All orders must indicate the number of 2311 disk storage drives available to perform system generation. Only those orders stating "Two drives to be used for SYSGEN" will be customized, as described in letter P67-1. All other users will be sent the entire system, for which two disk packs or two reels of tape are required.

When ordering OS/360 on magnetic tape, specify either 9-track or 7-track tape. If not specified, 9-track tape will be forwarded.

The requester may forward or order magnetic tapes or forward disk packs in accordance with current procedures as described in the DP Sales Activity section of the Branch Office Manual.

#### Special Notes for Two-Drive Users

1. See Table 1 of this P Letter for sizes of distributed components (reference P67-1 for descriptive information).
2. Branch offices are responsible to assure that valid combinations of components are ordered.
3. Individual components (such as FORTRAN IV H) require the corresponding level of SYS1. GENLIB, which is distributed as a part of the Primary Control Program (360S-CI-505). PCP should therefore be ordered in all cases.

#### Special Note for 2314 Direct Access Storage Facility Users

OS/360 Release 10 will support the 2314 Direct Access Storage Facility as a system residence device. Program distribution medium for 2314-resident systems will be on either 7- or 9-track magnetic tape. Tapes for both the basic program material and the optional material (source code) will be in the dump/restore format.

Since all 2314s provide sufficient capacity for system generation from the full OS/360 libraries, no customization (see P67-1) is planned for 2314-resident systems.

A 2314 user having two or more 2311 Disk Drives but no tape may order the 2311-resident system using the 1316 Disk Pack as the distribution medium. System configurations which do not include either 2311s or tape must make local arrangements for a system with both 2314 and Tape to perform the tape-to-2316 Disk Pack restore operation.

A branch office unable to arrange for tape-to-2316 Disk Pack conversion should contact the regional manager of Programming Systems Marketing for assistance.

Customers affected by this announcement must be notified promptly.

Table #1

OS/360 Release 10 Component Sizes:

Component Name	360S	Notes	Distribution Volume Library Space (2311 tracks)	
			DLIB01	DLIB02
Starter System	CI-514	7 651		
Primary Control Program	CI-505	1, 8 2	95 715	101
Primary Data Management	DM-508	1	54	116
Direct Access Method (BDAM)	DM-509	5	8	3
Indexed Sequential (ISAM)	IO-526	6	46	4
Basic Telecommunications (BTAM)	CQ-513		5	18
Queued Telecommunications (QTAM)	CQ-519	9	16	43
Express Graphics	IO-526		13	64 16
Assembler E	AS-036	1 4	43	10
Assembler F	AS-037	4, 6 4	52	10
TESTRAN & Editor	PT-516		5	52
Sort/Merge	SM-023	3 2	10 76	23
Linkage Editor E	ED-510	1, 3 3	16	
Linkage Editor F	ED-521	4 3	23	
OS/360 Utilities	UT-506	1 2	73	12
Independent Utilities	UT-507	1		49
COBOL E	CO-503	5 3	99	29
COBOL E Library	LM-504	3	10	
COBOL F	CB-524	5 3	80	5
COBOL F Library	LM-525	3	9	
FORTRAN IV E	FO-092	5 4	30	8
FORTRAN IV G	FO-520	5 4	24	7
FORTRAN IV H	FO-500	4	199	7
FORTRAN IV Library	LM-501	3	1	25
PL/I E F	NL-511	5, 6 4	240	6
PL/I Library	LM-512	3	52	26
RPG	RG-038	3	52	5
SERO, SER1, EREP Model 40	DN-527	2	12	
SERO, SER1, EREP Model 50	DN-528	2	13	
SERO, SER1, EREP Model 65	DN-529	2	14	
SERO, SER1, EREP Model 75	DN-530	2	12	

\*DLIB01 if space is available and if the Starter or the Primary Control Program or both are not ordered.

#### Notes:

1. Minimum component for a system able to perform system generation. See also Note 4 where appropriate.
2. Recommended use.
3. Used by and required with the preceding component(s) in the chart.
4. Alternative component to the preceding component in the chart. Either or both may be selected.
5. BDAM is required by the direct access statements of COBOL, FORTRAN, and PL/I.
6. ISAM is required by PL/I object programs using the Indexed Organization.
7. Required with initial order; subsequent orders may be processed by the user's own system. The Starter System actually contains several libraries, as described in the Starter Guide SRL (C28-6630).
8. Required with orders for processors, since the SYS1.GENLIB contains the related system generation macro instructions.
9. QTAM requires Branch Manager approval (see DP and FE Branch Managers memorandum of March 27, 1967).

#### Engineering Change Requirements:

2841 with 2303 requires EC #413203  
 2841 with 2311 and 2303 requires EC #413204  
 Model 40 with 2303 and 2314 requires EC #256857

**Program Material:** The following SRL publications appropriate to the component ordered will be shipped by PID with each initial order. Some of these SRLs are new publications which obsolete previous editions. Additional copies of the SRLs are available from the IBM Distribution Center, Mechanicsburg.

SRL Publications

System/360 Operating System:

Job Control Language TNL N28-2214*	C28-6539-4*
Operator's Guide TNL N28-2209*	C28-6540-4*
Supervisor and Data Management Services TNL N28-2202*	C28-6646-0*
Supervisor and Data Management Macro Instructions TNL N28-2217*	C28-6647-0*
System Programmer's Guide	C28-6550-2*
Storage Estimates	C28-6551-3*
System Generation	C28-6554-2*
† Messages and Completion Codes and Storage Dumps	C28-6631-1*
Starter System Operating Guide TNLs N28-2192, N28-2197, N28-2199, N28-2215*	C28-6630
Maintenance TNL N28-2160	C27-6918
Utility Programs	C28-6586-4*
TESTRAN	C28-6648-0*
Sort/Merge TNL N28-2216*	C28-6543-3*
Assembler F Programmer's Guide	C26-3756-1
Assembler E Programmer's Guide TNL N28-2140	C28-6595
FORTRAN E Programmer's Guide	C28-6603-1
FORTRAN IV, Level G Programmer's Guide TNL N28-2212	C28-6639
FORTRAN IV Library Subroutines	C28-6596-1
FORTRAN IV, Level H Programmer's Guide TNL N28-2211	C28-6602
COBOL E Programmer's Guide	C24-5029-2*
COBOL F Programmer's Guide	C28-6380
Linkage Editor TNL N28-2201	C28-6538-3
PL/I F Programmer's Guide	C28-6594-1
PL/I F Library Computational Subroutines	C28-6590
Graphic Programming Services for 2250 Display Unit, Model 1 TNL N27-1251, N27-1262, N27-1263	C27-6921
Graphic Programming Services for 2260 Display Station (Local) TNL N27-1246, N27-1252	C27-6925
QTAM Message Control Program	C30-2002-1*
QTAM Message Processing Program	C30-2003-1*
Basic Telecommunications Access Method	C30-2001

\*Denotes change from previous release

The following items will also be shipped by PID when the related component is ordered -- Program Material List ... OS/360 Prose.

If only the form numbered manuals are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

† Additional copies will be available from the IBM Distribution Center, Mechanicsburg after 4/6/67.

Components available with Release 10 are:

Starter System	360S-CI-514
Primary Control Program	360S-CI-505**
Primary Data Management	360S-DM-508**
OS/360 Utilities	360S-UT-506**
Independent Utilities	360S-UT-507**
Assembler E	360S-AS-036
Assembler F	360S-AS-037**
Linkage Editor E	360S-ED-510
Linkage Editor F	360S-ED-521**
TESTRAN	360S-PT-516
Basic Direct Access Method (BDAM)	360S-DM-509**
Basic Telecommunications Access Method (BTAM)	360S-CQ-513
QTAM Queued Teleprocessing Access Method	360S-CQ-519**
2250/2260 Express Graphics	360S-IO-523
Indexed Sequential Access Methods (BISAM, QISAM)	360S-IO-526**
Sort/Merge	360S-SM-023**
FORTRAN IV E	360S-FO-092** Note 1
FORTRAN IV G	360S-FO-520** Note 1
FORTRAN IV H	360S-FO-500** Note 1
FORTRAN IV Library	360S-LM-501**
COBOL E	360S-CO-503 Note 1
COBOL E Library	360S-LM-504**
COBOL F	360S-CB-524 Note 1
COBOL F Library	360S-LM-525
PL/I F	360S-NL-511 Note 1
PL/I Subroutine Library	360S-LM-512**
SERO, SER1, & EREP for Model 40	360S-DN-527**
SERO, SER1, & EREP for Model 50	360S-DN-528**
SERO, SER1, & EREP for Model 65	360S-DN-529**
SERO, SER1, & EREP for Model 75	360S-DN-530**
Report Program Generator	360S-RG-038

\*\* Component change from previous release.

\*\*\* Component new with this release.

Note 1: To use language compilers, the corresponding library is required.

With Release 11, three magnetic tapes or three disk packs will be required to order the complete OS.

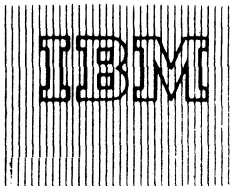
Orders currently in transit to PID will not be filled with Release 9.5. Those orders that indicate two drive system generation capability will be filled automatically with Release 10.

*John Fahey*  
John Fahey  
Director of DP Marketing

Note to World Trade Readers

This letter is a reprint of an IBM Programming Announcement and was mailed concurrently to USA and WT offices. The following changes, when appropriate, should be applied to the text for WT use.

- (1) All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- (2) Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- (3) When a new version of a program is announced current users must order it; they will not receive it automatically nor will they necessarily receive a pre-punched request card in their Area.
- (4) If DTR distribution is indicated in the above, program distribution media may be different in your area based on local conditions.
- (5) All references made to the Program Information Department (PID) should be understood to mean the appropriate WT Program Library.
- (6) Any reference made to DPD Departments as sources of information or for manuals etc., should be understood to mean the comparable WT Department.
- (7) Communications facilities or services may be required which are not offered in all WT countries. In case of any doubt as to the availability of suitable communications facilities, the country Teleprocessing Coordinator should be consulted.
- (8) All references made to Engineering Changes required for programs should be verified with the local CE Branch Office. Although E/C requirements are identical for WT and IBM, E/C availability dates and shipping schedules may differ.



OS/360 BTAM

New capabilities are being added to OS/360 Basic Telecommunications Access Method (BTAM), 360S-CQ-513. They are:

- Communication Serviceability Facilities
- Code Translation

This announcement also contains additional information on the IBM 2740 Communications Terminal Support.

These will be available in OS/360 BTAM, May 15, 1967.

• Communication Serviceability Facilities (CSF)

The new CSF increases telecommunications system availability by providing:

1. Error Recovery Procedures

Provides for retry and recovery from recoverable errors. For non-recoverable errors, pertinent information is printed at the system operator console, and a user exit is taken to enable appropriate user action, such as taking the line out of service.

For certain non-recoverable errors, the BTAM job is terminated and an appropriate message is printed on the console typewriter.

The 2701 Diagnostic Write/Read Commands are also supported to determine if a non-recoverable error is either in that control unit or external to it.

2. Error Counts

Error Counts will be maintained on a line basis. These will be printed on the console typewriter when a user specified error rate is exceeded. This provides the statistics necessary for both system repair and preventative maintenance.

3. On-Line Terminal Tests

Terminal test procedures will operate on-line with the user problem program. These can be initiated at any time to enable the diagnoses and repair of terminals while the unaffected portion of the telecommunications system continues to run. After repair, components can be smoothly integrated back into the system.

While these facilities were designed as optional modules, they are extremely beneficial to small Tele-processing configurations, but are essential for intermediate and large networks.

It is DP Branch Management responsibility to assure that any decision to exclude these facilities, particularly error recovery, has had the joint consideration of FE and the customers, and that IBM has clearly stated in an appropriate letter to the customer, the implications of this decision.

• Code Translation Support

Consists of:

- An Assemble Translate Table macro-instruction which provides both input (transmission code to EBCDIC) and output (EBCDIC to transmission code) translation tables for all supported devices.
- A Translate Table macro-instruction to perform code translation for the user.

C O N T E N T S

OS/360 BTAM ... new capabilities added

Published by DP Sales Publishing Services, WTHQ

• 2740 Communications Terminal - Feature Support

The 2740 and seven combinations of optional features are supported:

- Basic 2740
- Basic 2740 with Record Checking
- Basic 2740 with Station Control
- Basic 2740 with Station Control and Record Checking
- Basic 2740 with Dial-up
- Basic 2740 with Dial-up and Record Checking
- Basic 2740 with Dial-up and Transmit Control
- Basic 2740 with Dial-up and Transmit Control and Record Checking

Publication: Basic Telecommunications Access Method, C30-2004.

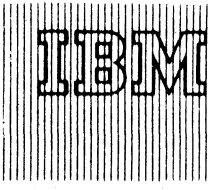
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- [8] All references made to Engineering Changes required for programs should be verified with the local CE Branch Office. Although E/C requirements are identical for WT and IBM, E/C availability dates and shipping schedules may differ.





[A] IBM Administrative Terminal System/360 (OS)

This system consists of control and functional programs that permit many different text-processing and data-handling activities to be carried on simultaneously through different terminals attached to an IBM System/360. Written to operate under IBM Operating System/360 (OS/360), the Administrative Terminal System/360 will allow background programs to run concurrently with, and independently of, normal terminal operations. This application program will be available 4Q 68 for System/360 Models 40, 50, 65, and 75 operating under OS/360.

Reference Material: Application Description (H20-0297).

See the attached sales manual page for detailed information.

For further information and educational material contact your Regional AT/360 Representative.

[B] IBM System/360 General Purpose Simulation System (OS and DOS)

The General Purpose Simulation System/360 (GPSS) is now available for operation under both Operating System/360 (360A-CS-17X) and Disk Operating System/360 (360A-CS-19X). GPSS is a powerful tool for systems analysis and design; it assists in the construction of models of extremely complex systems, thereby helping to avoid the cost and risk of experimentation in the real world.

Description: GPSS/360 is a broad range general purpose tool for modeling and examining the behavior of systems in the engineering and management science areas. Many applications of a complex logical and procedure oriented nature which ordinarily defy mathematical description can be easily described and studied using GPSS. Varying environments may be simply introduced to enable the user to explore alternatives and identify capacity limitations. Both environment and activities may have random variations. Proposed changes to existing policies, methods, and operations can be subjected to critical performance criteria and evaluated. The user may also investigate and judge the value of new proposals without costly capital investments and without disturbing existing operations.

Basic Program Material for OS/360\*: Documentation -- Application Directory ... Introductory User's Manual (H20-0304) ... User's Manual (H20-0326) ... Operator's Manual (H20-0311).

Machine Readable -- Program object decks and sample problem deck on one distribution tape reel (DTR\*\*) 7-track (Data Conversion feature required) or 9-track, or card form. When ordering specify 9- or 7-track DTR. If not indicated, a 9-track DTR will be forwarded.

Optional Program Material for OS/360: Program Listings and Source Decks are available on one 9-track 2400' magnetic tape only ... Program Flowcharts are available on one 9-track 2400' magnetic tape only.

Basic Program Material for DOS/360\*: Documentation -- Application Directory ... Introductory User's Manual (H20-0304) ... User's Manual (H20-0326) ... Operator's Manual (H20-0327).

Machine Readable -- Program object decks and sample problem deck on one distribution tape reel (DTR\*\*) 7-track (Data Conversion feature required) or 9-track, or card form. When ordering specify 9- or 7-track DTR. If not indicated, a 9-track DTR will be forwarded.

Optional Program Material for DOS/360: Program Listings and Source Decks are available on one 9-track 2400' magnetic tape only ... Program Flowcharts are available on one 9-track 2400' magnetic tape only.

Reference Material (for both OS & DOS): Application Description (H20-0186-1) ... System Manual (Y20-0075)†.

Additional details are in the attached sales manual page. For further information contact your Regional Scientific Marketing Manager.

\* If only the form numbered manuals supporting the programs are required, order them from the IBM Distribution Center, Mechanicsburg; not from PID.

\*\* DTR will be supplied by PID; no tape submittal is required.

† Availability will be announced in a PRI.

CONTENTS

Administrative Terminal System/360 (OS) ... an application program to be available 4Q 68. [A]

System/360 General Purpose Simulation System (OS & DOS) 360A-CS-17X and 360A-CS-19X ... an application program now available. [B]

System/360 Project Management System (360A-CP-04X) ... an application program now available. [C]

System/360 APT Numerical Control Processor (360A-CN-10X) ... an application program now available. [D]

System/360 Scientific Subroutine Package (360A-CM-03X) ... an application program now available. [E]

1800 Vehicular Traffic Control System (1800-UG-06X) ... an application program now available. [F]

Published by DP Sales Publishing Services, WTHQ

[C] IBM System/360 Project Management System

This application programming system (360A-CP-04X) is now available.

PMS/360 is a highly modular set of computer program routines developed to meet the managerial requirements of projects in government as well as in industry. It is useful in vital areas of project management such as planning, estimating, and schedule and cost control. It contains three modules: The Network Processor, the Cost Processor and the Report Processor. In suitable combinations, these processors will perform critical path, PERT, PERT-COST and general cost analyses.

Basic Program Material: Documentation -- Application Directory, PMS/360 Users Manual (H20-0344). If only the form numbered manuals supporting this program are required, order from the IBM Distribution Center, Mechanicsburg -- not from PID.

Machine Readable -- One reel of 9-track or 7-track tape (Data Conversion feature required) which contains program load modules, a sample problem, the Report Processor Macro and the source programs.

Optional Program Material: Machine-Readable -- One reel of 9-track or 7-track tape (Data Conversion Feature required) containing program flowcharts.

Reference Material: Application Description Manual, PMS/360 Project Management System for the IBM System/360 (H20-0210) ... PMS/360 Network Processor System Manual (Y20-0083) ... PMS/360 Cost Processor System Manual (Y20-0084) ... the PMS/360 Report Processor System Manual (Y20-0085). Availability of the System Manuals will be announced in a Publication Release Letter. Application Description Manuals for the three processors, mentioned in letter P65-58, will not be provided.

See the attached sales manual page for detailed information. For further information contact your regional Scientific Marketing or Industry Marketing Representative.

[D] IBM System/360 APT Numerical Control Processor

APT Numerical Control (360A-CN-10X) is now available.

The use of computers has greatly accelerated the preparation of the input data for numerically controlled machine tools, enabling manufacturing industries to produce precision parts faster and to reduce lead time and tooling costs.

The power and flexibility of the System/360 family of computers have been applied to this area in the form of the APT Numerical Control Processor. The APT processor has the capability of performing a variety of FORTRAN-like mathematical calculations, defining the equations of complex geometrical surfaces from several forms of input, computing the cutter paths required to remove the material according to the user's specification, and linking to user-written post processors to prepare the input for a particular machine tool and control system combination.

Basic Program Material: Documentation -- Application Directory ... Part Programmer's Manual (H20-0309) ... Operator's Manual (H20-0331). If only the form numbered manuals are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

Machine Readable -- One Magnetic Tape, either 9- or 7-track (Data Conversion feature required) in restore disk mode containing load modules, source modules, overlay structure and sample problems.

Optional Program Material: One Magnetic Tape, either 9- or 7-track (Data Conversion feature required) containing Flowcharts.

Reference Material: Application Description (H20-0180) ... Systems Manual (Y20-0080)\* ... Numerical Control Bulletin (H20-6250).

For detailed information see the attached sales manual page. For information not covered in the sales manual, contact your Manufacturing Industry Marketing Representative.

\*Availability will be announced in a PRL.

#### (E) IBM System/360 Scientific Subroutine Package

Version 2 of the Scientific Subroutine Package (360A-CM-03X) is now available. It is a replacement for, and an extension of, the current SSP/360 and provides a new and powerful computational ability for the scientist and engineer. It consists of a collection of FORTRAN subroutines, input-output free, which can be combined with a users input, output or computational routines to meet his individual requirements. Most of the new subroutines are available in both single and double precision.

Version 2 provides major extensions to SSP/360 Version 1 in the areas of simultaneous linear equations, matrix factorization, integration, differential equations, fourier analysis, special integrals, polynomial roots, special polynomials, approximations and interpolation.

Basic Program Material: Documentation -- Application Directory ... Programmer's Manual (H20-0205-1).

If only the form numbered manuals supporting this program are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

Machine Readable -- One reel of magnetic tape (7-track or 9-track as per request) containing subroutine source decks and sample program source decks with data. One reel of tape is required.

When ordering this program, the requester must indicate whether 9-track or 7-track tape is required. If not specified, 9-track will be forwarded.

Note: Current users will not receive the new version automatically. Instead, they will receive a pre-punched Program Order Card and a letter announcing the availability of the new version and instructing them to order it through the local IBM branch office.

Reference Material: Application Description Manual (H20-0166) ... System Manual (Y20-0092)\*.

Additional details may be obtained from the attached sales manual page. For further information contact your District or Regional Scientific Marketing Representative.

\*Availability will be announced in a Publication Release Letter.

#### (F) IBM 1800 Vehicular Traffic Control System

The IBM 1800 Vehicular Traffic Control Programming System (1800-UG-06X) is now available. The Micro Loop Control algorithm cannot be tested until a properly instrumented customer location is available; the release of this part of the program has therefore been rescheduled for 10 68 availability.

The 1800 Traffic Control programming system is a modular, flexible, and efficient programming system used to control vehicular traffic through proper signal settings in a real-time atmosphere. Any city interested in increasing the efficiency of its city streets through proper setting of traffic signals would be interested in this 1800 Traffic Control System.

#### Basic Program Materials:

Documentation -- Application Directory, Users Manual (H20-0335), Operator's Manual (H20-0336), Systems Manual (Y20-0082).

If only the form numbered manuals supporting this program are required, order them from the IBM Distribution Center, Mechanicsburg, not from PID.

Machine Readable -- Source Card Decks.

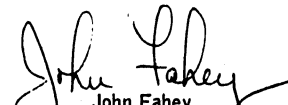
Programs needed for generation and execution are:

1800 Assembler Language - 1800-AS-005  
1800 Subroutine Library - 1800-LM-003  
1800 TSX (optional) - 1800-OS-001

Reference Material: Application Description Manual "1800 Traffic Control System," (H20-0212).

See the attached sales manual page for detailed information.

For further information or proposal and design assistance, contact your Regional GEM Representative.

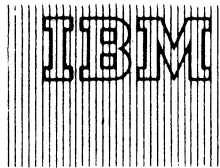
  
John Fahey  
Director of DP Marketing

Note: Tapes required by PID must be forwarded with the request for the program or ordered in accordance with procedures described in the DP Sales Activity section, page 4-401, of the Branch Office Manual.

#### Note to World Trade Readers

This letter is a reprint of an IBM Programming Announcement and was mailed concurrently to USA and WT offices. The following changes, when appropriate, should be applied to the text for WT use.

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] If DTR distribution is indicated in the above, program distribution media may be different in your area based on local conditions.
- [5] All references made to the Program Information Department [PID] should be understood to mean the appropriate WT Program Library.
- [6] Any reference made to DPD Departments as sources of information or for manuals etc. should be understood to mean the comparable WT Department.
- [7] Communications facilities or services may be required which are not offered in all WT countries. In case of any doubt as to the availability of suitable communications facilities, the country Teleprocessing Coordinator should be consulted.
- [8] All references made to Engineering Changes required for programs should be verified with the local CE Branch Office. Although E/C requirements are identical for WT and IBM, E/C availability dates and shipping schedules may differ.



[A] IBM 1130 Project Control System

The 1130 Project Control System (1130 PCS), 1130-CP-05X, is now available. This system provides your customers with a program containing features normally found only in programs for machines costing many times as much as the 1130.

For critical path networks, 1130 PCS will process up to 2,000 activities either in the form of precedence lists or in ij/PERT/CPM notation. Extensive report preparation capabilities are provided, including summarization of resource and cost information. 1130 PCS meets the critical path requirements of a broad range of users, irrespective of industry. Users consistently planning to run networks greater than 1200 activities with extensive report printing are urged to consider PMS/360 (360A-CP-04X).

Basic Program Material: Documentation -- User's Manual (H20-0342), Operator's Manual (H20-0343), Application Directory.

If only the form numbered manuals supporting this program are required, order them from Mechanicsburg; not PID.

Machine Readable - Object Card Decks and Sample Problem Card Deck will be distributed in card form.

Optional Program Material: Machine Readable -- Flowcharts and Source Statements are available on either one reel of 9-track or 7-track (Data Conversion Feature required) 800 BPI tape. One reel of magnetic tape is required.

Reference Material: IBM 1130 Project Control System Application Description Manual (H20-0211-1); IBM 1130 Project Control System Systems Manual (Y20-0091) - Availability of these manuals will be announced in a PRL; IBM 1130 Disk Monitor System Reference Manual (C26-3750); IBM 1130 FORTRAN Language (C26-5933); IBM 1130 Assembler Language (C26-5927).

See the attached sales manual page for detailed information. For further information contact your Regional Scientific Marketing Manager or Industry Marketing Representative.

[B] IBM 1130 Statistical System

The IBM 1130 Statistical System (1130-CA-06X) is now available. This system is a collection of four major tools: Stepwise Regression Analysis, Factor Analysis, Analysis of Variance, and Orthogonal Polynomial Curve Fitting.

This flexible statistical system accepts user supplied control cards (and data) which instruct the system to perform one or more of the above analyses. Many options are available to the user.

Special Sales Information: The current program specifications are described in the new Application Description Manual (H20-0341). These specifications do not agree precisely with those described in the original ADM (H20-0141) and care must be taken to ensure that the customer is using the new manual.

In all cases, current specifications are reasonable and were chosen to provide a balanced system without unduly restricting its capability. In most cases, (e.g., number of observations) user modifications can increase allotted space.

Basic Program Material: Documentation - Application Directory ... User's Manual (H20-0333). Machine Readable - system source decks and a sample problem deck. If only the form numbered manuals supporting this program are required, order them from the IBM Distribution Center, Mechanicsburg; not from PID.

Reference Material: Application Description Manual (H20-0341)\* ... Systems Manual (Y20-0093)\*

Additional details may be obtained from the attached sales manual page.

For further information contact your District or Regional Scientific Marketing Representative.

\*Availability will be announced in a PRL.

CONTENTS

1130 Project Control System (1130-CP-05X) ... an application program now available. [A]

1130 Statistical System (1130-CA-06X) ... an application program now available. [B]

1130 Data Presentation System (1130-CX-14X) ... an application program now available. [C]

1130 Program for Optical System Design (1130-EO-11X for 8K, disk, read punch console typewriter version & 1130-EO-12X for printer/typewriter version) ... an application program now available. [D]

1130 Route Accounting System for Dairies and Bakeries (1130-DX-01X) ... an application program now available. [E]

1130 Structural Engineering System Solver (1130-EC-03X) ... an application program now available. [F]

Published by DP Sales Publishing Services, WTHO

[C] IBM 1130 Data Presentation System

The 1130 Data Presentation System, 1130-CX-14X is now available.

It provides graphic support at three distinct levels of versatility and usefulness. The first level provides the programming necessary for controlling IBM 1130 graphic output hardware; the intermediate level provides graphic and coordinate geometry special function routines; the highest level, the Graphic Report Generator, provides the programming required to produce many different graphic presentations of data files from a graphic language input. Additional user-supplied programming is not required to use the Graphic Report Generator.

Basic Program Material: Documentation -- IBM 1130 Data Presentation System, User's Manual (H20-0338); IBM 1130 Data Presentation System, Operator's Manual (H20-0337); Application Directory.

Machine Readable -- the 1130 Data Presentation System Object decks and sample problem decks.

If only the form numbered manuals are required, order from the IBM Distribution Center, Mechanicsburg -- not from PID.

Optional Program Material: Machine Readable -- the 1130 Data Presentation System Source decks are available on one reel of 9-track, 800 bpi magnetic tape. One reel of tape is required. Decks and listings are generated by the self-loading program on a System/360 Model 2030D.

Reference Material: Application Description Manual (H20-0235-1)\* ... Systems Manual (Y20-0089)\* ... IBM 1627 Plotter (A26-5710) ... IBM 1130 Bibliography (A26-5916).

Programs Required for Execution: IBM 1130 Monitor (1130-OS-001) Version 1, Modification Level 3. Note: The system will not operate under Modification Level 2.

Additional details about this program are in the attached sales manual page. For further information contact your Regional Manufacturing Industry Marketing Representative.

\*Availability will be announced in a PRL.

[D] IBM 1130 Program for Optical System Design (POSD)

The 1130 Program for Optical System Design is now available in an 8K, disk, read punch console typewriter version (1130-EO-11X) or printer/typewriter version (1130-EO-12X). The 1627 Plotter is optional in each case. These are basically lens design packages in the computer-aided-design (CAD) category. The program is self sufficient, carrying necessary Monitor programs and, as such, is in a "load-and-start-designing" status.

Single-man design shops as well as lens users who need to evaluate purchased designs can justify the use of this program.

Description: The programs provide the basic functions of design analysis and evaluation, as well as the more sophisticated function of automatic correction. In addition, the program contains many utility routines for easing the design load and giving extreme flexibility/command over and options to the design procedure.

Basic Program Material: Documentation -- Application Directory; Users Manual (H20-0320); and Operators Manual (H20-0324). If only the form numbered manuals supporting this program are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

Machine Readable -- 1130 Monitor; Fixed Area Definition; Relocatable Subroutine Binary Decks; Link Control Logic Binary Decks and Sample Problem Decks available in card form.

Reference Material: Application Description Manual (H20-0234) ... Systems Manual (Y20-0072)\* ... Briefing aids are also available; they are:

Twenty-minute Video Tape for salesmen available for showing at Education Centers in Boston; Newark; Washington, D.C.; Chicago; San Francisco; and Los Angeles.

One-half hour Audio Education Package sent out to major branch offices in 1966. For additional copies, contact Audio Education Manager, WRC, Los Angeles.

One-half hour 1130 POSD Demonstration Package including a fully loaded disk, problem deck and real time magnetic tape narrative. Contact the 1130 Product Marketing Regional Representative.

Promotional Brochure (520-1530).

Manufacturing Newsletter #42, #61-66.

Magazine Ad "Applied Optics," November 1966. (Reprint attached to Manufacturing Newsletter #61-66.)

Contact your Regional Manufacturing Industry Marketing Representative concerning several planned three-day 1130 POSD classes to be held in the regions through 1967. These classes will be for customer lens designers and key IBM Systems Engineers to be taught by experienced personnel.

See the attached sales manual pages for detailed information.

Contact your Regional Manufacturing Industry Marketing Representative for further information.

\*Availability will be announced in a PRL.

#### [E] IBM 1130 Route Accounting System for Dairies and Bakeries

The 1130 Route Accounting System (1130-DX-01X) is now available. It offers in one set of programs the functions of route settlement and associated reports as required in the dairy and baking industry. This application programming system offers the small-to-medium sized dairy or bakery results not available with any similar system. Output includes order listings, production requirements, load listings, product load strips, route settlement, and statistical reports. Reports are detailed, yet produced on the small, low-cost 1130 computer. Options are offered enabling the user to tailor the system to present procedures. Additional modifications of the program should not be attempted. All necessary files can be stored on one 2315 Disk Cartridge.

Basic Program Material: Documentation -- Application Directory; Users Manual, H20-0328; Operators Manual, H20-0330. If only the form numbered manuals are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

Machine Readable -- object program decks and sample problem decks will be distributed in card form.

Optional Program Material: Machine Readable -- two optional card decks are available with the IBM 1130 Route Accounting System. The user may order one or the other of these card decks, but not both, on a Program Request Card.

1. Source deck of card input sub-program of the data entry program. Available on cards if user wishes to modify the data entry program to accept cards in a format other than that specified by the system.

2. Source decks of all programs (60,000 cards) available on one 9-track, 800 BPI magnetic tape. One reel of magnetic tape is required.

Reference Material: Application Description Manual (E20-0197) ... Systems Manual (Y20-0078)\*.

See the attached sales manual page for more details.

For further information contact your Regional Distribution Industry Marketing Representative.

\*Availability will be announced in a PRL.

#### [F] IBM 1130 Structural Engineering System Solver (STRESS)

The 1130 Structural Engineering System Solver (1130-EC-03X) is now available. This program is modeled after the widely accepted 1620 STRESS system. It is a simple and convenient tool for the analysis of structures.

The 1130 STRESS is designed for the solution of structural engineering problems. It uses a problem-oriented input language which enables the structural engineer to communicate with the computer even though he has had no previous programming experience.

The 1130 STRESS can analyze structures with prismatic members in two or three dimensions with either pinned or rigid joints, subjected to concentrated or distributed loads, support motions or temperature effects.

Special Sales Information: As mentioned in the original 1130 STRESS announcement (P66-19), some structures with ill-conditioned matrices can produce results which are not within design tolerances. These ill-conditioned matrices are usually found in structures where there is a large difference between the moments of inertia of different members.

The "Joint Release" statement in 1130 STRESS has a major restriction in its use. The user should be cautioned to carefully read the note concerning this restriction in the User's Manual.

The marketing representative should make certain that the user's 1130 system is up to EC level 415700.

Basic Program Material: Documentation -- User's Manual (H20-0340), Application Directory. If only the form numbered manuals supporting this program are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

Machine Readable -- Object Card Decks and Sample Program Deck will be distributed in card form.

Optional Program Material: Machine Readable -- Source Cards will be distributed on a 9-track DTR. No tape submittal is required; the DTR will be supplied by PID.

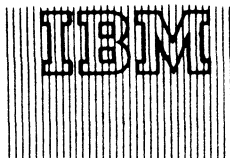
Reference Material: Application Description Manual (H20-0237-1)\* ... System Manual (Y20-0081)\*.

See the attached sales manual page for detailed information. For further information contact your Regional Manager of Scientific Marketing.

\*Availability will be announced in a PRL.

  
John Fahey  
Director of DP Marketing

Note: Tapes required by PID must be forwarded with the request for the program or ordered in accordance with procedures described in the DP Sales Activity section, page 4-401, of the Branch Office Manual.



[A] 1130 Synchronous Communications Adapter Subroutines (STR)

The 1130 Synchronous Communications Adapter Subroutines (STR) are now available in the following programming systems:

1130 Card/Paper Tape Programming Systems, Subroutine Library, Version 1, Modification Level 3† (1130-LM-001, Card; and 1130-LM-002, Paper Tape) and

1130 Disk Monitor System, Version 1, Modification Level 4† (1130-OS-001, Card; and 1130-OS-002, Paper Tape)

†PID is now distributing these modifications to current users automatically.

The Interrupt Service Subroutine, SCAT1, provides all functions required to operate the Synchronous Communications Adapter in STR mode. In addition, subroutines for code conversion and an alternate subroutine for the 1132 printer are provided.

These subroutines will fully meet the customer's basic programming requirements:

SCAT1 provides all functions to operate the Communications Adapter in STR mode.

Code conversion subroutines to convert 4 of 8 code to/from IBM card code (HOL 48) and EBCDIC (EBC 48).

PRNT 2 a fast scan subroutine for the 1132 Printer, permits the printer and the Communications Adapter to work concurrently.

The subroutines are used by Assembler object programs to operate the Synchronous Communications Adapter in STR mode and to perform 4 of 8 code conversion.

SCAT1, provides for communications with the STR terminals and programs: the 1009, 1013, 7702, and 7711 Data Transmission Units ... System/360 models 30, 40, 44, 50, 65, 67, and 75 with a 2701 Data Adapter Unit equipped with a Synchronous Data Adapter - Type 1 (#7696) ... the System/360 model 20 equipped with Communications Adapter (#2073) ... another 1130.

Performance: The subroutine sizes are --

SCAT1	1078 words
PRNT 2	670 words
HOL48 (including tables)	312 words*
EBC48 (including tables)	260 words*

\* Core requirement with both routines resident 454 words.

The approximate average times required in microseconds to perform the functions are:

ILS01 to SCAT1	97
ILS01 to PRNT2	105

SCAT1 (call processing)

Test	160
Auto answer	290
Audible alarm	260
Close	750
Open	705
Transmit	560
Acknowledge and receive	630

SCAT1 (interrupt processing)

Auto answer	138
Write response (control character)	270
Write response (data character)	660
Read response (control character)	305
Read Response (data character)	355
Timeout	310

PRNT2

Test	188
Single space	708
Double space	998
Triple space	1288
Skip to channel 12	678 **
Skip to channel 1	936 **

\*\* Add 208 for each channel crossed before correct one reached.

CONTENTS

1130 Synchronous Communications Adapter Subroutines (STR) ... modifications. [A]

Programming Systems Maintenance ... additional programs on local maintenance. [B]

Published by DP Sales Publishing Services, WTHO

Print

Pre-scan time	9800 + 640 per character to be printed
Character interrupt	1000
Idle interrupt	515

EBC48

Initialization	275
EBC to 4 of 8	410 per character
4 of 8 EBC	500 per character

HOL48

Initialization	365
HOL to 4 of 8	260
4 of 8 to HOL	390

Note: Use of SCAT1 communicating with the System/360 Type I STR support for BOS or BPS will result in degraded throughput.

Reference Publication: 1130 Synchronous Communications Adapter Subroutines, C26-3706-1.

Minimum System Configuration: For operation under the 1130 Card/Paper Tape Programming Systems - a 4K word 1131 Model 1 ... 1442 Card Read Punch Model 6 or 7, or 1134 Paper Tape Reader and 1055 Paper Tape Punch.

For operation under the 1130 Disk Monitor System - a 4K word 1131 Model 2 ... 1442 Card Read Punch Model 6 or 7, 1134 Paper Tape Reader and 1055 Paper Tape Punch.

The 1130 Computing System must be at least at level #EC 419648.

[B] Programming Systems Maintenance

The following programs are being placed on local maintenance effective April 30, 1967:

1401	LM-011	1401/1460 Timing for BOS/360 Sort/Merge (16K Disk)
	FO-052	FORTRAN IV Tape Resident
	CB-070	COBOL 1401
	IO-077	1401/1440/1460 IOCP (1285)
	LM-079	1401/1460 Timing for BOS/360 Sort/Merge (8K Disk)
	LM-080	1401/1460 Timing Programs for BPS Sort/Merge (2415)
1410		1410/7010 Operating Systems
	PR-155	System Monitor
	IO-966	Basic Input/Output Control System
	CB-969	COBOL Processor
	UT-973	Utility Programs
7040	SV-812	Loader
	SV-951	System Monitor
7070	FO-159	Series FORTRAN Operating System
7090	SM-922	Generalized Sort (729/7340)
	PR-161	Direct Couple Operating System

The Support Package for System/360, 7090-SI-162, was placed on local maintenance effective August 15, 1966, (P66-57). The following programs are components of the Support Package and are also on local maintenance: Input Program 1401-UT-938, Simulator 7090-SI-937, Assembler 7090-SP-936.

SEE REVERSE SIDE FOR "NOTE TO WORLD TRADE READERS"

John Fahey Director of DP Marketing

Note to World Trade Readers

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- [4] If DTR distribution is indicated in the above, program distribution media may be different in your area based on local conditions.
- [5] All references made to the Program Information Department [PID] should be understood to mean the appropriate WT Program Library.
- [6] Any reference made to DPD Departments as sources of information or for manuals etc. should be understood to mean the comparable WT Department.
- [7] Communications facilities or services may be required which are not offered in all WT countries. In case of any doubt as to the availability of suitable communications facilities, the country Teleprocessing Coordinator should be consulted.
- [8] All references made to Engineering Changes required for programs should be verified with the local CE Branch Office. Although E/C requirements are identical for WT and IBM, E/C availability dates and shipping schedules may differ.

IBM System/360 Attached Support Processor System

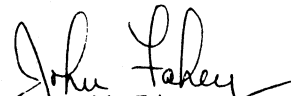
The Attached Support Processor (ASP) System program (360A-CX-15X) is now available. The ASP system provides a multi-processor operating system as an extension of the IBM System/360 Operating System (OS/360).

Through a reduction in required operator intervention, ASP provides an improved operational environment, enhancing system workload capacity and reducing turnaround time. The configuration consists of two IBM System/360 computers connected via the channel-to-channel adapter. The Support Processor (Model 40 or larger) provides the support functions (including card reading, punching, and printing) under computer control, while a high-speed Main Processor (Model 50, 65, or 75) performs the application workload. ASP also permits the intermixing of OS/360 and 7090/94 Emulator jobs in the input stream, supports remote job processing from STR terminals, and permits other background jobs to share Support Processor CPU time with the primary support functions. Availability of the remote job processing from STR terminals will be announced later.

One new capability has been added. The ASP system now supports up to four IBM 2740 Communication Terminals (attached through the 2701 Data Adapter Unit), the 1053 Printer Model 4 (attached through the 2848 Display Control), the 1403 Printer (for output only), and the 1443 Printer Model N1 (for output only) as auxiliary operator consoles.

Reference Material: System Description (H20-0223) and System Manual (Y20-0069). Technical Newsletter N20-1012 should be ordered to update the System Description. Availability of the System Manual will be announced in a PRL. Preliminary copies may be ordered from the ASP Regional Marketing Representatives.

For further information contact your ASP Regional Marketing Representative.

  
John Fahey  
Director of DP Marketing

Attached Support Processor: Provides a multiprocessor operating system as an extension of IBM System/360 Operating System (OS/360). Through a reduction in required operator intervention, ASP provides an improved operational environment, enhancing system workload capacity and reducing turnaround time. The configuration consists of two IBM System/360 computers connected via the channel-to-channel adapter. The Support Processor (Model 40 or larger) provides the support functions (including card reading, punching, and printing) under computer control, while a high-speed Main Processor (Model 50, 65, or 75) performs the application workload. ASP also permits intermixing of OS/360 and 7090/94 Emulator jobs in the input stream, supports remote job processing from STR terminals (deferred feature), and permits other background jobs to share Support Processor CPU time with the primary support functions. (360A-CX-15X)

Description: The ASP Supervisor operates as a task in the Support Processor under control of the OS/360 Primary Control Program (PCP) with the sequential scheduler. The ASP Supervisor schedules and initiates the various support and background functions, including input of jobs to the Main Processor, on a priority basis. Since it is preplanned to provide multiprogramming in the Support Processor in a well-defined, limited framework, the ASP Supervisor operates as a multiprogram monitor to allocate CPU and channel time, core storage, and devices among the various functions, with minimal overhead.

The Main Processor operates under OS/360. The system input and output devices for the Main Processor are replaced by the channel-to-channel connection with the Support Processor. Direct access storage devices for systems residence and program library are attached to the Main Processor, as are any input/output devices accessed during execution by the program programs. The operating system in the Main Processor provides an environment for the program program identical to a stand-alone system, with the exception of the use of the OS/360 catalog. The use of the OS/360 catalog for generation data groups will cause operational problems and should be avoided. The performance of the system is directly related to the throughput capability of OS/360 on the Main Processor.

CONTENTSSystem/360 Attached Support Processor System (360A-CX-15X)  
... an application program now available.

Published by DP Sales Publishing Services, WTHQ

Modifications incorporated into OS/360 permit 7090/94 Emulator and OS/360 jobs to be intermixed in the input stream. Operating System/360 used in the Main Processor is modified to overlay itself with the Emulator program upon a signal from the Support Processor. The 7090/94 Emulator program is similarly modified to overlay itself with OS/360 at the end of an emulation job or a group of consecutive emulation jobs. The Emulator program is also modified to recognize the channel-to-channel adapter as its system input and output devices. Thus, the system input and output streams for Emulator jobs are handled by the Support Processor in the same manner as are those for OS/360 jobs.

The Support processor will accept job streams from remote computer terminals over STR transmission lines (deferred feature). The ASP system will support two input/output data formats for this remote job processing. One is compatible with the IBM 1974 or the IBM 1978 terminals (RPQ devices). The other is oriented toward IBM System/360 computers (Model 20, and other System/360 processors equipped with proper STR features on a 2701 Data Adapter Unit). The data format is suitable for any computer which has an eight-bit byte data format and which can accept STR transmission. Note that the ASP system does not include the customer programming that is necessary in the remote terminals.

Features: Increased system workload capacity ... reduction of turnaround time ... improved operating efficiency ... intermixed OS/360 and 7090/94 Emulator jobs in the input stream (for a Model 65 Main Processor equipped with the 709X Emulator feature).

These features are made possible by:

1. Computer-controlled execution of support functions in a multiprogrammed mode on a lower cost Support Processor, which permits --
  - a. Priority job scheduling
  - b. Automatic processing of system input and output data sets
  - c. Automatic switching between OS/360 and 7090/94 Emulator jobs
  - d. Concurrent processing of peripheral and other user programs, such as Card-to-Tape ... Tape-to-Tape ... Tape-to-Printer ... Tape-to-Card ... Card-to-Printer ... Card-to-Punch ... 7090/94 Direct Couple Operating System (DCS) Tape Format Deblocking ... User-written background programs
2. Reduction of resource interference on Main Processor in terms of --
  - a. Core Storage. Core buffering of Main Processor input and output data sets in the Support Processor.
  - b. CPU Time. Multiplexer channel interference and interrupt service for peripheral input/output devices eliminated in Main Processor.
  - c. Data Channels. Selector channel data flow time for system input and output on Main Processor reduced.
  - d. Input/Output Devices. Algorithm provided for efficient management of direct access storage devices for system input and output data sets.
3. Pre-execution setup of removable input/output devices on Main Processor
4. Support of multiple operator consoles for diversification of system operation
5. Concurrent SPOOLing of input/output background processing on Support Processor during emulation on Main Processor
6. Remote job processing via STR (deferred feature)

Use: Operational control of the ASP system is exercised by the operator from the console typewriter or an alternate operator console on the Support Processor. A command language is provided to start ASP, to delete and restart jobs, to initiate background processing, to change priority of jobs, and to determine the backlog of jobs in the queue.

ASP provides a standard sequence of functions for each job in the Support Processor: Input Service, Main Processor Service, Print Service, Punch Service, and job purge. This standard sequence may be replaced to adapt to the particular needs of an installation. Special control cards are not required for jobs using the standard sequence. The ASP control cards provide a simple means of altering this sequence for a particular job.

The ASP program in the Support Processor requires an OS/360 JOB card with several additional fields for each job run under the system. These fields are used to convey accounting and priority information to the ASP Supervisor. They are ignored by OS/360 when it reads the JOB card in the Main Processor.

For jobs to be executed under the control of the 7090/94 Emulator, the programmer must use an ASP JOB card and 7090/94 Emulator control cards in addition to the control cards required by the 7090/94 programming system being used. The ASP system separates the ASP control cards and 7090/94 Emulator control cards from the job stream, presenting the 7090/94 programming system with its system input job stream only. The Support Processor may assume the

functions of the online unit record devices for the 7090/94 Emulator provided the operator is not required (through program logic) to attend to or examine these devices during program execution.

**Customer Responsibilities:** To ensure that the use of the system will be satisfactory, before installing ASP the customer must do the steps listed below.

1. The customer must be responsible for ordering and installing satisfactorily all required communications equipment.
2. He must give appropriate training to the applications programmers and system operators in OS/360 and the 709X Emulator in addition to training in the use and/or operation of ASP.
3. It is highly recommended that the customer system programmer become familiar with the internal operations of the system. This knowledge will enable him to customize the ASP system to the unique operational environment of his installation.
4. The customer is responsible for any programming necessary to operate the remote terminals.

**Programming Systems:** The ASP systems programs are written in OS/360 Macro Assembler Language. Programs to provide additional functions, known as Dynamic Support Programs (DSP's), can be incorporated into the Support Processor by the customer at his installation. These programs also must be written in OS/360 Macro Assembler Language.

ASP users must order separately OS/360 and the 709X Emulator program (360C-EU-729), if used.

**Minimum System Requirements:** The configuration requirements for the Main Processor are identical with those of a stand-alone processor operating under OS/360, except that the channel-to-channel adapter replaces the normal system input and output devices.

The minimum Support Processor is a Model 40G with two selector channels (one dedicated to the channel-to-channel adapter), 1052 Printer-Keyboard Model 7 (Console Typewriter), one 2540 Card Read Punch, one 1403 Printer Model N1, and three 2311 Disk Storage Drives. This configuration permits queuing of up to 30 jobs. (A job is considered equal to a combined input and output stream of 5000 100-byte records.) Larger core, a faster processor, and additional 2311 Disk Storage Drives will permit additional 1403 Printers Model N1 and 2540 Card Read Punches, and will queue approximately 15 additional jobs per added 2311. The number of direct access storage devices and the size of core must be determined on the basis of the individual installation's workload.

The devices listed below are supported as auxiliary operator consoles in the ASP system:

- IBM 2740 Communication Terminal attached through an IBM 2701 Data Adapter Unit
- IBM 1443 Model N1 Printer (output only)
- IBM 1053 Model 4 Printer attached through an IBM 2848 Display Control (output only)
- IBM 1403 Printer (output only)

For ease of system maintenance, the Support Processor should have access to at least one 2400-series (nine-track or seven-track with the data conversion feature) tape unit. The ASP system supports the IBM 2401 Model 1, 2, or 3 for use on the Support Processor by background programs supplied with the ASP programs.

**Note:** These are complex configurations and must be system assured.

**Engineering Change Levels:** In addition to the required engineering changes to run the supported levels of OS/360 and the 7090 Emulator, the EC levels required for proper functioning of the ASP system are EC 705754 and EC 254902 on the Channel-to-Channel Adapter (#1850).

**Sales Information:** ASP is designed for the user (with a large scientific system) whose workload consists of many jobs of short duration. The degree to which an installation will realize the functional and performance advantages of the ASP system is determined primarily by the nature of the job mix.

**Basic Program Material:** Documentation -- Application Directory, Application Programmer's Manual (H20-0322), the Console Operators Manual (H20-0321), and the System Programmer's Manual (H20-0323). If only the form numbered manuals are required, order them from Mechanicsburg -- not from PID.

Orders for basic documentation will not be accepted at PID. Form-numbered manuals should be ordered through normal distribution channels.

Machine readable material, including object programs, source programs, OS/360 modifications, 709X Emulator modifications, and macro definitions, may be obtained on one full reel of magnetic tape in either nine-track or seven-track (Data Conversion feature required) mode. Indicate whether nine-track or seven-track is required. If not-specified, nine-track mode will be supplied. (When ordering basic program material, submit one 2400' reel of magnetic tape to PID.)

**Optional Program Material:** An assembly listing tape and a flowchart listing tape are available, each on a full reel of magnetic tape in either nine-track or seven-track (Data Conversion feature required) mode. These tapes may be printed with the OS/360 utility program or the ASP Tape-to-Printer program. (When ordering optional material, submit one 2400' reel of magnetic tape to the Program Information Department for each listing tape required.)

**Reference Material:** System Description Manual (H20-0223) ... Systems Manual (Y20-0069).

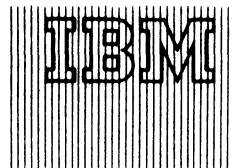
For further information contact your ASP Regional Marketing Representative.

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[A] IBM System/360 Attached Support Processor System

The program number in the contents section of P67-29 should read 360A-CX-15X.

[B] IBM 1130 Commercial Subroutine Package, Version 2

Additional commercial capabilities will be provided to the 1130 user by Version 2 of the Commercial Subroutine Package (to be available June 1967).

These capabilities are variable length decimal arithmetic ... overlapped Input/Output ... support for more data on disk.

Specifically, the features provided will be variable length decimal add ... variable length decimal subtract ... variable length decimal multiply ... variable length decimal divide ... variable length decimal compare ... decimal sign manipulation ... overlapped printing and carriage control ... overlapped reading of cards ... overlapped printing on the Console Printer ... conversion from one character per word to two characters per word.

Reference Material: Application Description† ... IBM 1130 FORTRAN (C26-5933).

For further information contact your District Field Systems Center.

†Availability will be announced in a Publication Release Letter.

Commercial Subroutine Package, Version 1: Provides the scientific user with capabilities for handling functions and techniques common to commercial programming. This set of eight sub-routines are callable by the FORTRAN programmer in a similar manner to such standard functions as sine, cosine, square root, etc. (1130-SE-25X)

Description: These FORTRAN written subroutines (one is in Assembler Language) are independent of input and output. They will provide the scientific 1130 user with flexibility to add limited commercial applications such as payroll, cost accounting, and many others.

Features: Variable length alphanumeric move ... variable length alphanumeric compare ... variable length alphanumeric edit ... variable length conversion from EBCDIC to floating-point ... variable length conversion from floating-point to EBCDIC ... zone manipulation ... fill an area with a specified character ... stacker select.

Programming Systems: Stacker select is programmed in 1130 Assembler language, all other routines are programmed in 1130 FORTRAN. The internal format of data is one character per word.

Minimum System Requirements: For execution -- an 1131 Model 1B or 2B ... 1442 Card Read Punch Model 6 or 7. Output of data may be to the Console Printer, 1055 Paper Tape Punch, or 1132 Printer. Input of data may be from the keyboard or the 1134 Paper Tape Reader. For compilation and assembly only, the minimum 1130 FORTRAN card system requirements are sufficient. The system is card or disk resident.

Basic Program Material: Documentation -- Application Description (H20-0221) ... Program Reference Manual (including operating instructions, listings, flowcharts, narrative), H20-0241 ... Application Directory.

Machine Readable -- Source Decks and Sample Problem Decks.

Reference Material: C26-5933.

For further information contact your District Field System Center.

Commercial Subroutine Package, Version 2: Similar to Version 1 above except that it contains 21 subroutines instead of 8. Version 2 contains all of the features of Version 1 plus these additional features: variable length decimal add ... variable length decimal subtract ... variable length decimal multiply ... variable length decimal divide ... variable length decimal compare ... sign manipulation ... overlapped printing and carriage control ... overlapped reading ...

CONTENTS

System/360 Attached Support Processor System ... correction to P67-29. [A]

1130 Commercial Subroutine Package, Version 2 ... an application program to be available June 1967. [B]

Published by DP Sales Publishing Services, WTHO

overlapped printing on the Console Printer ... conversion from one character per word to two characters per word.

Minimum System Requirements: For execution -- an 1131 Model 1B or 2B ... 1442 Card Read Punch Model 6 or 7. Output of data may be to the Console Printer, 1055 Paper Tape Punch, 1442 Card Read Punch, or 1132 Printer. Input of data may be from the keyboard, 1442 Card Read Punch, or 1134 Paper Tape Reader. For compilation and assembly only, the minimum 1130 FORTRAN card system requirements are sufficient. The system is card or disk resident.

Reference Material: C26-5933 and H20-0221-2.

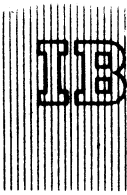
Description and Programming Systems same as Version 1.

*John Fahey*  
John Fahey  
Director of DP Marketing

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ig 67-31

Programming Announcement

IBM 1130 Disk Monitor System

<u>CONTENTS</u>
IBM 1130 Disk Monitor System ... Version 2 to be available 4Q 67.
<small>Published by DP Sales Publishing Services, WTHQ</small>

A new version ... new features ...

Version 2 of the 1130 Disk Monitor System, with its new features, will be available 4Q 67. These features utilize:

- 2501 Card Reader
- 2310 Disk Storage Models B1 and B2
- 1442 Card Punch Model 5
- 1403 Printer
- 1231 Optical Mark Page Reader
- and
- Core Memory improvements of 2.2  $\mu$  sec speed and expansion (16K and 32K)

All 1130 Card/Paper Tape and Printer devices will function as principal I/O devices for the monitor system program. In addition, the keyboard will function as an input device for the monitor system programs. I/O devices will be available, thru subroutine support, to both FORTRAN and Assembler language users except the 1231 and Synchronous Communications Adapter which will be available only to Assembler language users.

Multiple disk drives allow the user to locate his system area, user storage area, and working storage area together or separately on any drive. Disk drive assignment and disk subroutines will provide maximum flexibility in the use of multiple disk drives.

No modifications to the 1130 Monitor Version 1 will be distributed after the availability of Version 2. Corrections for Version 1 resulting from APARs received up to 30 days after availability of Version 2 will be distributed as modifications to Version 2 if they are applicable.

*The Card/Paper Tape Programming System is not affected by this announcement.*

Minimum System Requirements

A 4K word 1131 model 2 ... and one of the following -- 1134 Paper Tape Reader and 1055 Paper Tape Punch ... 1442 Card Read Punch model 6 or 7, or ... 2501 Card Reader and 1442 Card Punch model 5 or 1442 Card Read Punch model 6 or 7.

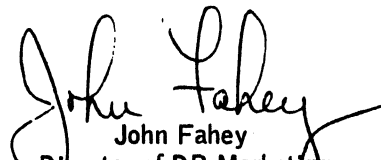
Machine Features and Units Utilized

An 1131 model 2A, 2B, 2C, 2D, 3B, 3C, or 3D ... 1442-Card Read Punch model 6 or 7 ... 1442 Card Punch model 5 ... 1134 Paper Tape Reader and 1055 Paper Tape Punch ... Console Printer-Keyboard ... 2315 Disk Cartridges ... 1132 Printer ... 1627 Plotter model A1 or A2 ... 1403 Printer model 6 or 7 ... 2310 Disk Storage models B1 and B2 and internal disk drive ... 1231 Optical-Mark Page Reader.

Reference Manuals

1130 Disk Monitor System, Version 2 System Introduction, C26-3709. IBM Synchronous Communications Adapter Subroutines, C26-3706-1 updated by TNL N26-0535.

For complete details, including speeds of the Assembler Program and the FORTRAN Source Program, see the attached sales manual pages.

  
 John Fahey  
 Director of DP Marketing

SEE REVERSE SIDE FOR  
 "NOTE TO WORLD  
 TRADE READERS".

Attachments [7]: [1 thru 7] P 5, P 11, P 360A.1, P 360A.25, P 1130.1, P 1130.3 and P 1130.15.

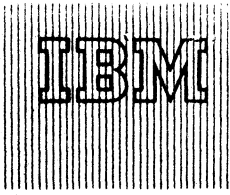
Release Date: April 17, 1967

Distribution: All Areas

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System/360 Disk Operating System

Here's an important announcement for your MICR customers. The 1412 and 1419 Magnetic Character Readers are now supported by DOS/360 in a Multiprogramming and Tele-processing environment.

Now a user can process MICR applications such as: proof of deposit, transit or inclearing conversion, and at the same time inquire into the central file.

All System/360 attachable models of the 1412 and 1419 and their features will be fully program supported including the 1419 new S/360 Dual Address Adapter (#7730) which substantially improves stacker selection time.

Availability -- November 15, 1967.

Features --

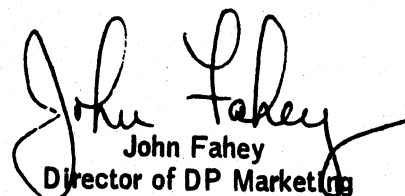
Functions that the 1412/1419 IOCS perform are:

- . Automatically controlled engaging and disengaging of the MICR Readers. User control also provided.
- . Reading of MICR documents.
- . Automatic entry to user stacker select routine at the completion of each document read.
- . Stacker selection of documents.
- . Maintenance of a revolving buffer pool.
- . Posting of error conditions to the document buffer for user processing.
- . Servicing of I/O and External Interrupts.
- . I/O error recovery.
- . Operator messages for appropriate I/O error conditions.
- . Presenting data and unusual conditions for user processing.
- . For 1419 only
  - Control of programmable pocket lights (optional).
  - Control of the batch numbering feature (optional).
- . Macro-instruction for efficient operation of multiple Magnetic Character Readers simultaneously within a single program partition.
- . Support for all partitions - Foreground/Background.

Also supported by DOS/360 are the 1403 Selective Tape Listing features.

The user must generate and catalog a DOS Supervisor which includes MICR support. This Supervisor will require from 8K to 12K storage, depending upon other System Generation options, such as Multiprogramming and Tele-processing. The Supervisor and logical IOCS support up to six (6) Magnetic Character Readers which may operate in any combination in any or all partitions. The user defines his MICR requirements via IOCS macro instructions in his source program. The source program will be processed by the DOS Assembler and Linkage Editor to produce an executable object program.

Details including performance, timings with examples, capability, publication and minimum system requirements appear on the reverse side.

  
 John Fahey  
 Director of DP Marketing

Supplement: Attachments [8]: P 360P.1 thru P 360P.16  
 Release Date: April 17, 1967  
 Distribution: All Areas

<u>CONTENT</u>
DOS/360 ... 1412 and 1419 Magnetic Character Readers, and Selective Tape Listing features support.
<small>Published by DP Sales Publishing Services, WTHQ</small>

**Basic Performance Information:** Magnetic Character Readers require that a stacker selection be issued within a specific time following the MICR interrupt. The stacker selection times are:

- 1412 - 7.5 milliseconds (minimum)
- 1419 - 9.5 milliseconds (minimum) - with S/360 Single Address Adapter #7720
- 1419 - S/360 Dual Address Adapter #7730
  - 15 ms - when reading serial number
  - 21 ms - when reading serial number is not required
  - 27 ms - when reading both serial number and routing and transit is not required.

Document rejects will occur when these times are exceeded. To determine the available user stacker selection time, the following factors must be considered:

- Magnetic Character Reader used.
- System/360 model used.
- Concurrent I/O operations in the MICR partitions or non-MICR partitions.
- Number of Magnetic Character Readers operating.
- Disk Operating System timings.

The maximum DOS timings that occur during stacker selection are shown below in milliseconds for a 1419 with feature #7730:

Number of Magnetic Character Readers*	DOS Environment					
	Model	Batch		Multiprogramming		
		30	40	30	30	40
	1.5 us	2.0 us		1.5 us	2.0 us	
1	2.5	3.3	1.5	2.5	3.3	1.5
2	5.3	7.0	3.2	6.2	8.3	3.8
3	7.2	9.6	4.4	8.1	10.8	4.9
4	9.1	12.1	5.5	10.0	13.4	6.0
5	11.0	14.6	6.6	11.9	15.9	7.2
6	12.9	17.2	7.8	13.8	18.4	8.3

Add approximately .1, .13, or .06 ms respectively for Model 30 (1.5us), Model 30 (2.0us), or Model 40 for each reader if feature #7720 is used.

\*Refer to 1412/1419 sales manual machine pages for S/360 models and the maximum number of Magnetic Character Readers attachable.

These timings assume that external interrupts for all magnetic character readers must be serviced within a single selection time (e.g., 21 ms - Dual Address 1419, and serial number field not being read).

The examples below illustrate situations when simultaneous interrupts occur on two 1419s while considering possible 1403 Printer interference. Although multiple printers may be attached to the multiplexer channel, interference from one printer alone can affect stacker selection timing considerations because of the priority given to 1419 interrupts. A 1.5 us 2030 has been assumed in each case.

**Example A**

- Assume:
1. (2) 1419's with Dual Address Adapters on the multiplexer channel
  2. 21 ms available for stacker select (reading serial numbers not required)
  3. six inch document (document cycle time - 37.4 ms)
  4. (2) 1403 printers on the multiplexer channel
  5. DOS batch job environment.

From the above, the Supervisor requires 5.3 ms to service two concurrent 1419 interrupts. In addition, interrupt servicing may be delayed by a printer on the multiplexer channel for 2.4 ms. Available stacker selection time is 13.3 ms for both 1419s: 21 ms minus 5.3 ms minus 2.4 ms.

**Example B**

- Assume:
1. (2) 1419's with Dual Address Adapters on the multiplexer channel
  2. 21 ms available for stacker select (reading serial numbers not required)
  3. six inch document (document cycle time - 37.4 ms)
  4. (2) 1403 printers one each on two selector channels
  5. DOS/360 multiprogramming

From the above, the supervisor requires 6.2 ms to service two concurrent 1419 interrupts. In addition servicing may be delayed by printers on selector channels (.24 ms each). Available stacker selection time is 14.3 ms for both 1419s: 21 ms minus 6.2 ms minus 2 times .24ms.

**CPU Utilization Considerations**

1. Document cycle time
2. DOS timings
3. Printer interference
4. Stacker select routines
5. User processing programs including all other I/O interference.

The above examples show the significant increase in available stacker selection time using the Dual Address Adapter (#7730) in

the DOS/360 environment. They also point out the importance of choosing a configuration which will effectively use DOS/360 multi-programming consistent with the customer's requirements.

Detailed timing information is provided in SRL - System/360 Disk Operating System, Supervisor and Input/Output Macros, C24-5037-2 TNL N24-5252.

**Compatibility:** Programs written for use with the BPS/360 Input/Output 1412/1419 Program will require modification. The EXCP level coding required under BPS for all non-MICR I/O devices should be replaced with the higher level Data Management macro facilities of DOS. The 1412/1419 command control block, SVC's and other control program linkages used in BPS must be replaced by the imperative and declarative macro-instructions provided by DOS.

Relatively minor changes will be necessary in the user's stacker selection and main line processing routines. The degree of changes required is dependent upon the use of symbolic referencing in accessing the document input buffer.

User programming requirements (exclusive of stacker selection timing) for the two 1419 Adapter features are almost identical. When converting from the S/360 Single Address Adapter (#7720) to the S/360 Dual Address Adapter (#7730), the user must: [1] interrogate one new I/O error indication, [2] indicate the Adapter feature in DTFMR and MRMOD macro-instruction operands and reassemble them, and [3] modify the MICR device dependent operands of his Supervisor assembly macro-instructions and generate and catalog a new Supervisor.

**Restrictions:** Up to six (6) Magnetic Character Readers are supported by DOS/360. The maximum number that may be effectively operated is application and configuration dependent.

The system generated Supervisors for [1] 1412 - 1419 with the Single Address Adapter #7720 and [2] 1419 with the Dual Address Adapter (#7730) are unique; therefore, concurrent operation of the two features is precluded.

The 1419 with the Dual Address Adapter #7730 must be attached to the Multiplexer Channel. The 1412/1419 with the Single Address Adapter (#7720) is operated normally on the multiplexer channel. Magnetic tape or DASD's may not operate on the multiplexer channel with MICR.

When 1412/1419 with the Single Address Adapter (#7720) is attached to a selector channel, operation of other devices on the same channel will degrade MICR throughput.

**Reference Material:** The pertinent publications are:

- System/360 Disk Operating System, Supervisor and Input/Output Macros, C24-5037-2,\* TNL N24-5252.\*
- System/360 Disk Operating System, Data Management Concepts, C24-3427-1 with TNLS N24-5122, N24-5169, and N24-5197.\*
- System/360 Disk Operating System, System Control and Service Programs, C24-5036-1 with TNLS N24-5214, N24-5234, and N24-5208.\*
- IBM 1219 Reader Sorter and 1419 Magnetic Character Reader, A24-1499.
- IBM 1412 Magnetic Character Reader, A24-1421.

\* Availability will be announced in a Publication Release Letter.

**Minimum System Requirements:** 32K bytes of main storage ... Standard Instruction Set ... Direct Control Feature # 3274; or External Interrupt # 3895 - System/360 Model 30 only ... one card reader\*\* ... one card punch\*\* ... one printer\*\* ... one 1052 Printer Keyboard ... one 2311 system residence attached to a selector channel (see restrictions above).

\*\*See "Control Program Input/Output - DOS/360" chart on "Programming" page P360.24.2 (February 1987 New) for acceptable units and possible substitutions.

**Units Supported:** 1412 with System/360 Single Address Adapter #7720† ... 1419 with System/360 Single Address Adapter #7720† or System/360 Dual Address Adapter #7730 ... 1403 Selective Tape Listing Feature (#6410 on Model 3 or N1, #6411 on Model 2, #6420 on Model N1); requires #6412 or #6425 Selective Tape Listing Control on the 2821 Control Unit (#6420 is available on System/360 Models 30, 40, and 50 only).

† Engineering Change No. 131182 is required when Single Address Adapter (#7720) is to be used.

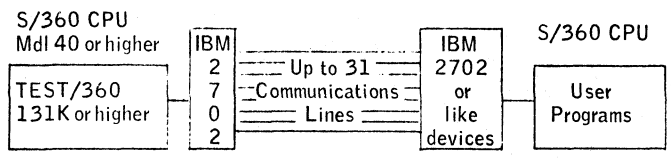
All currently available special features on the 1412 and 1419 are fully supported.

Note to World Trade Readers. This is a reprint of an IBM P-Letter and was mailed concurrently to USA and WT-offices. The following changes should be applied to the text for WT use. [1] Programs announced as available have been shipped to WT Program Libraries. Programs may be ordered as indicated on pages 9013-9017, PGM. Sec., WT DP Sales Manual. [2] Advance copies of form numbered publications mentioned above have been shipped or will be, when available. Availability will be announced in the Weekly Publications Letter. [3] When a new version of a program is announced current users must order it they will not receive it automatically. [4] If DTR Distribution is indicated above, program distribution media may differ based on local conditions. [5] References made to PID means the appropriate WT Program Library. [6] Reference made to DPD Depts. as sources of information means the comparable WT Dept. [7] Communications facilities may be required which are not offered in all WT countries. In case of doubt as to availability of suitable facilities, consult the country TP Coordinator. [8] References made to Engineering Changes required should be verified with the local CE Office. Although E/C requirements are identical for WT and IBM, availability and shipping dates may differ.



[A] IBM TEST/360

TEST/360, a new service for testing Tele-processing systems, is now available at the New York Time/Life Datacenter. The Chicago and Los Angeles Datacenters will announce the service when available. Testing is performed within the following configuration:



The user program to be tested is loaded into a CPU and communicates via transmission control devices with the TEST/360 System residing in a second CPU. TEST/360 simulates a real-time terminal network environment. It supports up to 31 half-duplex communication lines and up to 150 terminals of the following types: (one type per line) IBM 1030, 1050, 1060; AT&T 83B2-3 (TTY); and WU 115A (TTY). Message composition and generation capabilities are provided to allow a user to specify a wide variety of message traffic content and load. The user's programs do not require modification or alteration for use with TEST/360.

TEST/360 is intended for use in testing medium to large-scale Tele-processing systems where simulated testing offers economic advantages over complete testing with actual equipment. Before using TEST/360, user programs should be tested at least to the point where single messages have been processed successfully through the system. With TEST/360 the user programs can be tested in a simulated environment that corresponds very closely to the actual environment in which these programs will operate after installation. The need for testing in the actual environment is not eliminated. Use of TEST/360 permits pre-installation testing to a greater degree than has previously been possible. This should significantly reduce the effort and expense of post-installation testing.

Documentation regarding functions, capabilities and use of TEST/360 may be made available to customers on a "Restricted Distribution" basis. (See documentation ordering details below.) The TEST/360 Program will not be distributed to customers. It is available for use only at the above Datacenters.

Although the TEST/360 Program can simulate a wide range of equipment, specific hardware devices must be available at the datacenter to implement the test. Therefore, to insure that a customer's configuration can be supported, the following procedure must be adhered to before TEST/360 facilities will be made available to your Tele-processing customer.

1. Submit written specifications of your customer's Tele-processing configuration and testing requirements to your local Field System Center Manager.
2. The Field System Center Manager will verify the feasibility of TEST/360 to meet the customer's testing requirements. He will also communicate with the appropriate Datacenter Manager and verify the availability of the proper machine configuration and test time.
3. After having obtained written approval from the Field System Center Manager, the TEST/360 Application Description and Programmers Manuals may be released to the customer for guidance in preparation for testing.

**Special Sales Information:** Customers are charged one hour of test time for each test hour used on the TEST/360 configuration. For excess test time, customers will be charged at the test rate for all systems and units used or at 1/176 of the monthly availability charge if no test rate is established.

**Reference Material:** The TEST/360 Application Description Manual (Y20-0009-1) and the TEST/360 Programmers Manual (Y20-0070) can be ordered from Mechanicsburg with the approval of the branch manager. These documents may be distributed to TEST/360 users once the approval of the Field System Center Manager has been obtained.

For general reference in the data communications area refer to the Data Communications Handbook (Z20-1939) in your library.

CONTENTS

- TEST/360 ... an application program available only to the New York Time/Life, Chicago, and Los Angeles Datacenters. [A]
- Operating System/360 ... correction to P67-24. [B]

Published by DP Sales Publishing Services, WTHO

For detailed information see the attached sales manual page. For additional information contact your Field System Center.

[B] Operating System/360

The program number for Express Graphics in Table #1 of P67-24 is 360S-10-523 not 526.

*John Fahey*  
John Fahey  
Director of DP Marketing

Note to World Trade Readers

This letter is a reprint of an IBM Programming Announcement and was mailed concurrently to USA and WT offices. The following changes, when appropriate, should be applied to the text for WT use.

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] If DTR distribution is indicated in the above, program distribution media may be different in your area based on local conditions.
- [5] All references made to the Program Information Department [PID] should be understood to mean the appropriate WT Program Library.
- [6] Any reference made to DPD Departments as sources of information or for manuals etc. should be understood to mean the comparable WT Department.
- [7] Communications facilities or services may be required which are not offered in all WT countries. In case of any doubt as to the availability of suitable communications facilities, the country Teleprocessing Coordinator should be consulted.
- [8] All references made to Engineering Changes required for programs should be verified with the local CE Branch Office. Although E/C requirements are identical for WT and IBM, E/C availability dates and shipping schedules may differ.



Tape Operating System/360

System Release 8, which includes support of the 1285 Optical Character Reader, is now available.

The 1285 is now supported in a multiprogramming environment under TOS/360. Our customers will no longer have to dedicate their System/360 to the reading of journal rolls or adding machine tapes.

With this expanded capability, the following factors affecting 1285 performance under TOS/360 must be considered.

- [1] System/360 Model ...
- [2] Number of readers ...
- [3] Characteristics of tapes ...
- [4] Batch or multiprogramming environment ...
- [5] Users programming

In addition, thruput is significantly dependent upon operator loading and unloading time.

Changes required to support this release were made only in the System Control and Basic IOCS component.

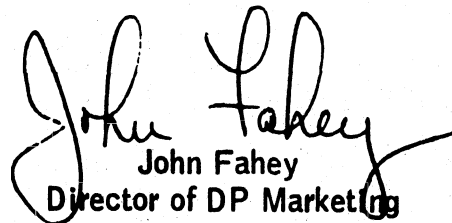
Minimum System Requirements: The machine configuration required is the same as that to assemble any program with the assembler.

Restriction: Symbolic register notation may not be used with the RDLNE Macro. This restriction will be removed in Release 10.

Engineering Change Levels: The following units were at the EC level as indicated during the test of Optical Character Reader IOCS.

2030	CPU 126749	2402	730172
	Micro 128054	2404	730172 TCU
1050	305065		254969
1403	124123	2671 & 2822	351485
1442	807697	2821	125601
1443	122128C	1285	812459

The 1285 Optical Character Reader, 360M-10-417, is at Change Level 2-0. See the reverse side for ordering procedures and program material.

  
 John Fahey  
 Director of DP Marketing

IBM Tape Operating System/360

Basic Program Material:

The following SRL publications and documentations appropriate to the components ordered are shipped by PID with each initial TOS/360 order. Machine readable material is distributed as indicated below.

SRL Publications --

System/360 Disk and Tape Operating Systems - Concepts and Facilities TNLs N24-5182, N24-5191, <u>N24-5233</u>	C24-5030-2
System/360 Tape Operating System - System Generation and Maintenance TNL N24-5211, N24-5265, <u>N24-5294</u>	C24-5015-3
System/360 Tape Operating System - Performance Estimates TNL <u>N24-5257</u>	C24-5020-2
System/360 Tape Operating System - Operating Guide TNL <u>N24-5209</u>	C24-5021-2
System/360 Tape Operating System - System Control and System Service Programs TNL <u>N24-5219</u>	C24-5034-1
System/360 Tape Operating System - Supervisor and Input/Output Macros	<u>C24-5035-2</u>
System/360 Tape Operating System - Data Management Concepts TNL N24-5194	C24-3430-2
System/360 Disk and Tape Operating Systems - Assembler Specifications	<u>C24-3414-4</u> Note 1
System/360 Disk and Tape Operating Systems - Tape Sort/Merge Program Specifications TNLs N21-5036, N21-5042, N21-5050	C24-3438-2 Note 2
System/360 Tape Operating Systems - Autotest Specifications TNL <u>N21-5054</u>	C24-3441-3
System/360 Disk and Tape Operating Systems - Utility Program Specifications	<u>C24-3465-3</u> Note 3
System/360 Disk and Tape Operating Systems - COBOL Language Specifications TNL N24-5188	C24-3433-3
System/360 Disk and Tape Operating Systems - COBOL Programmers Guide TNL <u>N24-5264</u>	C24-5025-3
System/360 Basic FORTRAN IV Language	C28-6629 Note 4
System/360 Disk and Tape Operating Systems - FORTRAN IV Programmers Guide TNL N21-5034, N21-5053	C24-5038
System/360 Disk and Tape Operating Systems - Report Program Generator Specifications TNL N24-5195	C26-3570-4
System/360 Disk and Tape Operating Systems - Utility Macro Specifications TNLs N24-5184, <u>N24-5268</u>	C24-5042-1

Underlined items denotes change from previous release.

Notes:

- SRL C24-3414-2 plus TNLs N24-5057, N24-5076, N24-5107, N26-0516, N26-0520 and N26-0533, or SRL C24-3414-3 plus TNLs N26-0516, N26-0520 and N26-0533 can be used in lieu of C24-3414-4.
- SRL C24-3438-1 plus TNLs N21-5021, N24-5064, N24-5131, N21-5036, N21-5050 and N21-5042 can be used in lieu of SRL C24-3438-2 plus TNLs N21-5036, N21-5050 and N21-5042.
- SRL C24-3465-2 plus TNLs N21-5024, N24-5044 and N21-5047 can be used in lieu of the SRL C24-3465-3.
- SRL C24-5014-0 plus TNLs N21-5018, N24-5041, N24-5069, or C24-5014-1 can be used in lieu of the SRL C28-6629-0.

If only the form numbered manuals or additional manuals are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

Documentation -- Program Material List; Attachment I--Temporary Restrictions; Attachment II -- Retention of Supporting Documentation.

Machine Readable -- TOS/360 is distributed on one 2400 foot reel of magnetic tape, either 9-track (800 BPI), or 7-track (800 BPI, Data Conversion feature required).

Ordering Procedures

New Users -- TOS/360 is distributed as -- one pre-generated system with a 6K Supervisor (360M-SV-413) ... or one pre-generated system with an 8K Supervisor (360M-SV-414).

Each TOS/360 order includes the entire collection of machine readable program components in both Core Image and Relocatable Libraries, listed below.

The System Control component and one of the two Supervisor components are required. To order these components, specify on the IBM Program Order for IBM System/360 Operating Systems [120-1411] -- System Control and Basic IOCS, 360M-CL-405 and Supervisor (6K), 360M-SV-413 or Supervisor (8K), 360M-SV-414.

One supervisor component should be specified when ordering the system. If not specified, the 6K Supervisor will be shipped.

Program components may be selected from the following list. Each component for which program documentation and maintenance material is required must appear on the order form.

Supervisor (6K)	360M-SV-413 or	
(8K)	360M-SV-414	
System Control	360M-CL-405	] change from previous release.
IOCS	360M-IO-404	
MPS Utility Macros	360M-UT-411	
Utilities	360M-UT-403	
Tape Sort/Merge	360M-SM-400	
Assembler	360M-AS-465	
COBOL	360M-CB-402	
FORTRAN IV	360M-FO-409	
RPG	360M-RG-408	
+Compiler I/O Modules	360M-IO-412	
Autotest	360M-PT-407	
Optical Character Reader	360M-IO-417	Component new with this release.

All components are now available from PID.

+Should be ordered if either COBOL (360M-CB-402) or RPG (360M-RG-408) is ordered.

If either 9-track or 7-track magnetic tape is not specified on the IBM Program Order, 9-track tape will be forwarded.

Magnetic tapes may be ordered or forwarded in accordance with current procedures as described in the DP Sales Activity Section of the Branch Office Manual.

Current Users -- Present users will receive a prepunched Program Order Card and a letter announcing the availability of System Release 8 and its Maintenance Package. This card, following IBM Branch Office approval, must be used to order either the Maintenance Package or a replacement TOS/360 from PID.

The Maintenance Package for TOS/360 System Release 8 is available on a 9-track or 7-track DTR (Data Conversion feature required).

No tape submittal is required--the DTR will be supplied by PID.

Complete ordering instructions are provided in the letter to users.

Maintenance Packages will be available from PID 60 days after the availability announcement of System Release 8.

Note to World Trade Readers

This letter is a reprint of an IBM Programming Announcement and was mailed concurrently to USA and WT offices. The following changes, when appropriate, should be applied to the text for WT use.

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- Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- When a new version of a program is announced current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- If DTR distribution is indicated in the above, program distribution media may be different in your area based on local conditions.
- All references made to the Program Information Department (PID) should be understood to mean the appropriate WT Program Library.
- Any reference made to DP Departments as sources of information or for manuals etc. should be understood to mean the comparable WT Department.
- Communications facilities or services may be required which are not offered in all WT countries. In case of any doubt as to the availability of suitable communications facilities, the country Teleprocessing Coordinator should be consulted.
- All references made to Engineering Changes required for programs should be verified with the local CE Branch Office. Although E/C requirements are identical for WT and IBM, E/C availability dates and shipping schedules may differ.



Disk Operating System/360

System Release 10 is now available. It includes two new components:

- . Queued Telecommunications Access Method
- . 1285 Optical Character Reader IOCS

**CONTENTS**

Disk Operating System/360 ... Release 10  
is now available.

Published by DP Sales Publishing Services, WTHO

Changes required to support these two new components have been made in the System Control and Basic IOCS. No other components have been changed.

Queued Telecommunications Access Method (QTAM) 360N-CQ-470, Change level 2-0

The Telecommunication Support under DOS/360 has been expanded to include QTAM. With this high level Tele-processing language, the user can significantly reduce the time to implement the complexity associated with the multiple T/P line handling.

QTAM is a generalized IOCS that extends the techniques of logical IOCS to the telecommunications environment. Unlike other commonly used access methods, QTAM furnishes far more than the mechanics for input/output operations. In addition to the standard GET/PUT Macro instruction support for message processing programs, QTAM provides a high-level and flexible message control language.

A telecommunications system built upon QTAM facilities consists of two major components:

1. A message control program (Foreground 1 only) to control the flow of message traffic from one remote terminal to another (message switching application) and between remote terminals and any message processing program (message processing applications).
2. Message processing programs (Foreground 2 and/or Background) to perform the message processing required by the user's application.

Note: DOS/360 with multiprogramming requires a 10K minimum background allocation at all times. The background may or may not be QTAM related (message processing programming).

QTAM allows asynchronous operation of all partitions of the system. This method of execution is based on the completion of queued events and on the established priorities of Foreground 1, Foreground 2 and Background.

A telecommunications system operating under DOS/QTAM can be designed for a wide variety of applications, including message switching, data collection, processing collected data, and inquiry processing.

Some of the capabilities provided by QTAM through the use of Macro instructions are:

- . Automatic control of switched networks
- . Polling terminals
- . Receiving and editing messages from terminals
- . Addressing terminals
- . Sending and editing messages to terminals
- . Dynamic buffer management
- . Queueing messages on a direct-access storage device

The size of the telecommunication problem program is dependent upon the QTAM module and the extent of the following user determined areas and functions: I/O buffer areas ... terminal lists ... message processing routines ... number of macro instructions issued ... number of terminals per line.

Optical Character Reader IOCS 360N-IO-478, Change level 2-0

Optical Character Reader IOCS provides support of the IBM 1285 Optical Reader which reads tapes, such as those produced on cash registers and adding machines, directly into the system.

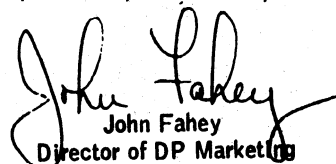
The 1285 is now supported in a multiprogramming environment under DOS/360. Our customers will no longer have to dedicate their System/360 to the reading of journal rolls or adding machine tapes.

With this expanded capability, the following factors affecting 1285 performance under DOS/360 must be considered:

- [1] System/360 Model ... [2] Number of readers ... [3] Characteristics of tapes ... [4] Batch or multiprogramming environment ... [5] Users programming

In addition, thrupt is significantly dependent upon operator loading and unloading time.

See inside for minimum system requirements, engineering change level requirements, restrictions, ordering instructions, and program material.

  
John Fahey  
Director of DP Marketing

Minimum System Requirements

To assemble programs using the 1285, the machine configuration required is the same as that to assemble any program with the assembler.

To use QTAM, 32K bytes of main storage\* ... Standard instruction set ... storage protection ... one card reader\* ... one card punch\*\* ... one printer\*\* ... one 1052 Printer Keyboard ... one 2311 for system residence on a selector channel ... communications equipment necessary to interface to the communication lines ... a 2701/2702 attached to a multiplexer channel.

\*While a minimum number of communication lines will operate in 32K, most QTAM applications will require at least 64K. For those installed or on-order systems which will convert to DOS/360 QTAM, it is strongly recommended that you consult with your Field Systems Center or Regional Systems Assurance for guidance as to the proper configuration to meet performance and core storage requirements.

\*\*See "Control Program Input/Output - DOS/360" chart on "Programming," page P 360.24.2 (February 1967 New), for acceptable units and possible substitutions.

QTAM supports the following Control Units, Features and Terminals:

- 2701 Data Adapter Unit.
  - Feature (#1302, #1303) Auto Call
  - Terminals -- 1030, 1050, 1060, AT&T 83 B3, AT&T models 33/35 and Western Union 115A
  - 2260 Display (Remote) with 2848 Control Unit
- 2702 Transmission Control Unit
  - Feature #1290 Auto Call Adapter, #7918 - 1032 Attachment
  - Terminals -- 1030, 1050, 1060, AT&T 83 B3, AT&T models 33/35 and Western Union 115A

The following configuration and system design considerations are applicable to the DOS/360 telecommunication environment:

- . All telecommunication devices must be on the multiplexer channel and no burst mode devices may coexist on the channel.
- . All terminals on a line must be of the same type. Terminals may be mixed within the same problem program.

Engineering Change Level

The following EC levels were used during the test of QTAM.

Unit Type	Model	EC Level Requirement
2030	F	126751 (Base) 128062 (Micro Prog.)
1055	1	121493A
2702	1	707861
1033	1	808940A
1031	A04	810611 (808993)
2701	1	707969
1051	N1	123111
2311	1	411138A
2540	1	812376
2821	1	125634
1054	1	122966
1051	1	305001
1031B		808993
2402	2	254070
2848	3	706980 (708496)
2311		411143
1061	1	810526
1062	1	809952A
2311	1	411105
2841	A	413016Q
1403	3	125388

Restrictions

Optical Character Reader IOCS - 360N-IO-478

Symbolic register notation may not be used with the RDLNE Macro.

The above restriction will be removed in System Release 12.

QTAM - 360N-CQ-470

1. QTAM support for DASD Message Queues file is limited to one 1316 Disk Pack with a single XTENT definition for the Message Queues file.
  - The above restriction will be removed in System Release 15.
2. If any QTAM partition terminates abnormally, all QTAM partitions must terminate, and they can be re-loaded only after an IPL procedure.
  - The above restriction will be removed in System Release 13.
3. The STOPLN Macro cannot be issued from a Message Processing partition to a Telecommunications line in a "switched" network.
  - The above restriction will be removed in System Release 13.
  - Interim Procedure: The line in question should be defined as the only line in a DTFQT Macro. When a stop line is required, a CLOSE Macro can be issued by specifying the DTF address in register notation.
4. DOS/360 QTAM-I does not recognize zero length "PUTS."
  - The above restriction will be removed in System Release 13.
5. The Work Area for a "GET" must be located on a half-word boundary.
  - The above restriction will be removed in System Release 13.
6. No ending status is returned to QTAM and an individual line becomes inoperative if a WRITE command and incoming data occur simultaneously or a non-data set call is placed to a 2702 line.
  - The above restriction will be removed by an EC Level #305396 for the 2702 which will be available in July 1967. In the interim, REA #23-00556 must be on the 2702 for proper operation of QTAM.

IBM Disk Operating System/360

Basic Program Material:

The following SRL publications and documentations appropriate to the components ordered are shipped by the Program Information Department (PID) with each initial DOS/360 order. Machine readable material is distributed as indicated below.

SRL Publications --

Operating Guide TNL <u>N24-5193</u>	C24-5022-2
Concepts and Facilities TNLS N24-5182, N24-5191, <u>N24-5233</u>	C24-5030-2
Performance Estimates	<u>C24-5032-2</u>
Systems Generation and Maintenance TNLS <u>N24-5212</u> , N24-5258	C24-5033-2
Data Management Concepts TNLS N24-5122, N24-5169	C24-3427-1
System Control and System Service Programs TNL <u>N24-5218</u>	C24-5036-1
Supervisor and Input/Output Macros	<u>C24-5037-2</u>
Basic Telecommunications Access Method	<u>C30-5001-3</u>
Utility Macros Specifications TNLS N24-5184, <u>N24-5268</u>	C24-5042-1
Vocabulary File Utility Program for the IBM 7772 Audio Response Unit	C27-6924-1
Utility Programs Specifications TNLS N21-5024, N21-5044, N21-5047	C24-3465-2
Tape Sort/Merge Program Specifications TNLS N21-5036, N21-5042, N21-5050 (C24-3438-1 and TNLS N21-5021, N24-5064, N24-5131, N21-5036, N21-5042 and N21-5050 can be used in lieu of C24-3438-2 and its associated TNLS).	C24-3438-2
Sort/Merge Program Specifications TNLS N21-5035, N21-5049	C24-3441-1
COBOL DASD Macros (C24-5039-0 and TNLS N24-5142, N24-5181 can be used in lieu of C24-5039-1).	C24-5039-1
Assembler Specifications (C24-3414-2 plus TNLS N24-5057 N24-5076, N24-5107, N26-0516, N26-0520 and N26-0533, or C24- 3414-3 plus TNLS N26-0516, N26- 0520 and N26-0533 can be used in lieu of the SRL C24-3414-4).	<u>C24-3414-4</u>
COBOL Programmers Guide TNL <u>N24-5264</u>	C24-5025-3
COBOL Language Specifications TNL N24-5188	C24-3433-3
FORTRAN IV Programmer's Guide TNLS N21-5034, N21-5053	C24-5038
FORTRAN IV Language (C24-5014-0 plus TNLS N21-5018 N24-5041 and N24-5069, or SRL C24-5014-1 can be used in lieu of SRL C28-6629-0).	C28-6629
Report Program Generator TNL N24-5195	C26-3570-4
Autotest Specifications	C24-5062
QTAM Message Control Program TNL <u>N30-5003</u>	<u>C30-5002-1</u>
QUEUED Telecommunications Access Method Message Processing Program Services	<u>C30-5003-1</u>

Underlined items denotes changes from previous release.

If only the form numbered manuals or additional manuals are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

Documentation -- Program Material List; Attachment I-Temporary Restrictions; Attachment II-Special Instructions.

Machine Readable -- DOS/360 is distributed on one 2400 foot reel of magnetic tape, either 9-track (800 BPI), or 7-track (800 BPI, Data Conversion feature required), or one 1316 Disk Pack. These reels of magnetic tapes are in 1316 Disk Pack restore form. The DOS/360 data are preceded by an initialized 2311 Utility program and a Tape-to-Disk program.

Ordering Procedures

New Users -- DOS/360 is distributed as one pre-generated system with a 6K Supervisor (360N-SV-474) ... or one pre-generated system with an 8K Supervisor (360N-SV-475).

Each DOS/360 order includes the entire collection of machine readable program components in both Core Image and Relocatable Libraries, listed below.

The System Control and Basic IOCS component and one of the two Supervisor components are required. To order these components, specify on the IBM Program Order for System/360 Operating Systems [120-141] -- System Control and Basic IOCS, 360N-CL-453 and Supervisor (6K), 360N-SV-474, or Supervisor (8K), 360N-SV-475. Supervisor (8K), 360N-SV-475 assumes the users machine size to be at least 32K. If no supervisor is indicated, PID will supply the (6K), 360N-SV-474.

Program components may be selected from the following list. Each component for which program documentation and maintenance material is required must appear on the order form.

Supervisor (6K)	360N-SV-474
Supervisor (8K)	360N-SV-475
System Control and Basic IOCS	360N-CL-453
Direct Access Method	360N-IO-454
Consecutive Disk IOCS	360N-IO-455
Consecutive Tape IOCS	360N-IO-456
ISFMS	360N-IO-457
Consecutive Paper Tape IOCS	360N-IO-458
BTAM	360N-CQ-469
QTAM	360N-CQ-470
Compiler I/O Modules	360N-IO-476
Optical Character Reader	360N-IO-478
Autotest	360N-PT-459
Assembler	360N-AS-465
COBOL	360N-CB-452
COBOL DASD Macros	360N-CB-468
FORTRAN IV	360N-FO-451
Report Program Generator	360N-RG-460
Group 1 Utilities - Unit Recd/Disk	360N-UT-461
Group 2 Utilities - Tape	360N-UT-462
Group 3 Utilities - Data Cell	360N-UT-463
MPS Utility Macros	360N-UT-471
Vocabulary File Utility Program	360N-UT-472
Disk Sort/Merge	360N-SM-450
Tape Sort/Merge	360N-SM-400

If either 9-track or 7-track magnetic tape is not specified on the IBM Program Order form, 9-track tape will be forwarded.

Magnetic tapes may be ordered or forwarded or disk packs may be forwarded in accordance with current procedures as described in the DP Sales Activity Section of the Branch Office Manual.

Current Users -- Present users will receive a prepunched Program Order Card and a letter announcing the availability of System Release 10 and its Maintenance Package. This card, following IBM Branch Office approval, must be used to order either the Maintenance Package or a replacement DOS/360 from PID.

The Maintenance Package for System Release 10 is available on one 2400 foot reel of magnetic tape, 9-track (800 BPI), 7-track (800 BPI) (Data Conversion feature required), or one 1316 Disk Pack.

Complete ordering instructions are provided in the letter to users

Maintenance Packages will be available from PID for 60 days after availability of System Release 10.

\*\* Component changed from previous release.  
\*\*\* Component new with this release.

Note to World Trade Readers

This letter is a reprint of an IBM Programming Announcement and was mailed concurrently to USA and WT offices. The following changes, when appropriate, should be applied to the text for WT use.

- (1) All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- (2) Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- (3) When a new version of a program is announced current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- (4) If DTR distribution is indicated in the above, program distribution media may be different in your area based on local conditions.
- (5) All references made to the Program Information Department (PID) should be understood to mean the appropriate WT Program Library.
- (6) Any reference made to DPD Departments as sources of information or for manuals etc. should be understood to mean the comparable WT Department.
- (7) Communications facilities or services may be required which are not offered in all WT countries. In case of any doubt as to the availability of suitable communications facilities, the country Teleprocessing Coordinator should be consulted.
- (8) All references made to Engineering Changes required for programs should be verified with the local EE Branch Office. Although E/C requirements are identical for WT and IBM, E/C availability dates and shipping schedules may differ.

IBM System/360 Bill of Material Processor

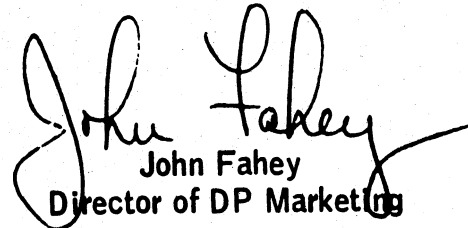
The System/360 Bill of Material Processor (360A-ME-06X) Version 2 may now be ordered; shipments will begin the week ending May 5. This release obsoletes and replaces Version 1.

The program provides support necessary to organize, maintain and reorganize the basic manufacturing data files of part number, product structure, routing, and work center information. It is operational under either BOS/360 or DOS/360. Also included are macros to aid the user in writing programs for the exploitation of information captured in the files. Under DOS/360 these exploitation programs may be written in COBOL.

Current users of Version 1 will receive a prepunched order card and a letter announcing the availability of Version 2 and instructing them to order it through the branch office. Current users should use this prepunched program order card to order Version 2.

Special Sales Information: Availability of the System Manual (Y20-0099) will be announced in a PRL.

For further information contact your Regional Manufacturing Industry Marketing Representative. See the reverse side for the text that will appear in the Sales Manual.

  
John Fahey  
Director of DP Marketing

CONTENTS

System/360 Bill of Material Processor (360A-ME-06X) ... Version 2 may now be ordered.

Published by DP Sales Publishing Services, WTHQ

**Bill of Material Processor:** Provides the support to organize, maintain, and reorganize the four basic manufacturing data files -- Part Number Master File, Product Structure File, Standard Routing File, and Work Center Master File -- described below. (360A-ME-06X)

**Description:** This application program represents a continued support by IBM in the area of manufacturing application definition and implementation. The package provides manufacturing organizations with easy-to-modify programs that establish and maintain basic information files describing the structure of products and their manufacturing procedures, and logic diagrams explaining the retrieval of this information in fundamental applications.

The System/360 Bill of Material is a direct access file-oriented concept that requires the part number master (inventory-type) file to be on-line simultaneously with the product structure file and/or the standard routing file. All three could be used on line to produce alternate manufacturing work orders and components lists. The work center master file can be integrated by the user with the routing file for a machine loading application. All files are created, added, deleted and reorganized by the Bill of Material Processor employing Assembler Language with Input/Output Macros.

The package includes logic diagrams for eight fundamental classifications of retrieval programs that the user may desire to prepare. They are: (1) one-level bill of material or parts list, (2) next assembly where-used listing, (3) indented parts list, (4) indented where-used list, (5) summarized explosion, (6) summarized implosion, (7) manufacturing routings, and (8) work center where-used. The package is designed so that the logic diagrams can be used by any customer as a guide in the preparation of his own set of programs.

The logic diagrams for classifications 5 and 6 are particularly significant since they are the framework for two major application areas that are vital to the planning and execution of the manufacturing operation. The summarized explosion logic provides the framework for performing a gross to net requirements generation application. The summarized implosion logic can be expanded to show the effect of incremental cost increases or decreases of parts and sub-assemblies on top level products.

**Features:** Product structure records are linked with part number master inventory type records on disk files ... disk file chaining is used to organize product structure data in two inherent sequences: (1) assembly or bill of material sequence (i.e., linking the components of an assembly); the user determines the maintained sequence of components within the assembly; typical sequences might be component part number or engineering drawing item number; and (2) where-used sequence (i.e., linking the usages of a part number on higher level assemblies); this cross-referenced sequence eliminates the need to (a) maintain a duplicate file in where-used sequence, or (b) periodically sort an assembly deck file to where-used sequence for listing purposes ... raw material can be included in the product structure file, providing complete where-used cross reference of each raw material number ... user designs his own record layouts by incorporating his own information plus certain required data into part number master inventory and product structure records ... low-level coding is automatically maintained ... assembly to sub-assembly continuity is verified; this feature guarantees that the product structure records can be "exploded" ... user builds his own engineering change procedure into the file organization and maintenance programs.

Modular in design, the system permits the customer to use only features that suit his needs ... the ability of the user to combine program modules so that combinations of maintenance functions can be performed against multiple files during the same program run ... bi-directional file chains to speed the maintenance of part number where-used data; (where record A points to record B, record B also points to record A) ... Work Center Master File organization and maintenance containing one record per unique work center and including bi-directional work center where-used chains ... standard Routing File organization and maintenance including: (A) bi-directional file chains to specify the logical sequence between fabrication or assembly operations; specify the reverse sequence to aid in the calculation of scheduled start and finish times; speed the maintenance of the file; (B) links to the Work Center Master File to facilitate the accumulation of work loads; (C) links to and from the corresponding part number master records ... a run activity control technique to aid in restart and reconstruction and to facilitate additional retrieval features ... record count for audit and control of direct access chains; the count is maintained in the part number master and Work Center Master files where the chains are anchored ... tailoring of the generalized source programs to the specific needs of each user's installation through a special customizing program supplied with the package; the customer has only to prepare a set of parameter cards to specify his needs; the choice of BOS/360 or DOS/360 is made in one of these parameter cards ... Macros for sequential processing of both master files; this capability is available for retrieval programs written either in Assembler Language or COBOL under DOS/360 ... a macro furnishing the capability to retrieve a set of disk file records which comprise a single-level bill of material or a single-level parts where-used list; a macro also provides the capability to retrieve a manufacturing routing or a work center where-used list; this capability is also furnished for either COBOL under DOS/360 or Assembler Language.

**Customer Requirements:** A thorough knowledge of Bills of Material by the system designer is necessary. To implement this system determine the format and content requirements of the disk file ... write retrieval programs to acquire information from the files; the System/360 Product Structure Retrieval program (see P360A-23) will provide the basic retrieval functions ... design input card format ... design audit list print formats and write print routines to implement them.

**Programming Systems:** The Bill of Material Processor operates under either BOS/360 or DOS/360. The BOS modules required in support are Control Program, 360B-CL-302; Direct Access Method, 360B-IO-305, Assembler, 360B-AS-309; and Utilities, Group 1, 360B-UT-300. The DOS modules required in support are Assembler Basic Modules, 360N-AS-465; System Control and Basic Input/Output Control Systems, 360N-CL-453; Direct Access Method Macros, 360N-IO-454; Unit Record and Disk Utilities, Group 1, 360N-UT-461. The user may,

at his own option, employ the following additional DOS/360 modules: COBOL, 360N-CB-452; Consecutive Tape Input/Output Control System Macros, 360N-IO-456. User data files created under BOS/360 may later be maintained and processed under DOS/360.

**Minimum System Requirements for Operating Under BOS/360:** 16K Processing Unit (Model D) with Decimal Arithmetic (#3237), 1052 Printer-Keyboard with appropriate attachment ... Card Read Punch (any System/360 model) ... Printer (any System/360 model) ... 2841 Storage Control Model 1 ... 2311 Disk Storage Drives as required to contain Basic Operating System/360 and user's data files (minimum of two; automatic reorganization of the product structure file will require one drive in addition to those required to contain the part number master file and the product structure file).

**Minimum System Requirements for Operating Under DOS/360:** 32K Processing Unit (Model E) with Decimal Arithmetic (#3237), 1052 Printer-Keyboard with appropriate attachment ... Card-Read-Punch (any System/360 Model) ... Printer (any System/360 model) ... 2841 Storage Control Model 1 ... 2311 Disk Storage Drives as required to contain Disk Operating System/360 and user's data files (minimum of two; automatic reorganization of the product structure file will require one drive in addition to those required to contain the part number master file and the product structure file).

**Basic Program Material:** Documentation -- Application Directory, Programmer's Manual (H20-0246-1), Operator's Manual (H20-0254-1). If only the form numbered manuals are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

**Machine Readable --** The macros, generalized source programs, specialized utility programs, and sample problem input may be obtained on one 9-track tape, or one 7-track tape or one 1316 Disk Pack. The requester may forward or order magnetic tape or forward the 1316 Disk Pack in accordance with procedures described in the DP Sales Activity section, page 4-401, of the Branch Office Manual.

When ordering this program on magnetic tape, the requester must indicate whether 9-track tape or 7-track tape is required. If not specified, 9-track tape will be forwarded. The Data Conversion feature is required if the program is received on 7-track tape.

**Reference Material:** Bill of Material Processor - Maintenance and Retrieval System (E20-0114) ... Application Description Manual (H20-0197-2) ... System Manual (Y20-0099) ... The Production Information and Control System (E20-0280).

For further information contact your Regional Industry Representative for Manufacturing.

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**IBM**

IBM World Trade Data Processing

67-37

## Programming Announcement

Linear Programming - Mathematical Optimization  
Subroutine System/1130 (LP-MOSS/1130)CONTENTSLP-MOSS/1130 (1130-CO-16X) ... an  
application program that is now available.

Published by DP Sales Publishing Services, WTHQ

The IBM Linear Programming - Mathematical Optimization Subroutine System/1130 (1130-CO-16X) enables the 1130 disk user to solve simply and efficiently problems in linear programming and to implement a variety of mathematical optimization techniques. The Linear Programming capability is now available. The feature of LP-MOSS (System Manual and Source Code) which allows the user to access components of the system through FORTRAN will not be available until November 1967. This feature was previously scheduled for April 1967.

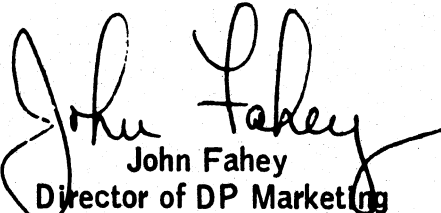
Mathematical optimization is any mathematical technique for determining the optimum use of various resources such as capital, raw materials, manpower, and plant or other facilities. The technique seeks to attain a particular objective as for example, minimum cost or maximum profit, when there are alternate uses for the resources. Linear programming is the most widely used of these techniques and has been used to allocate, assign, schedule, select or evaluate the uses of limited resources for various jobs such as blending, mixing, bidding, cutting, trimming, pricing, purchasing, planning and the transportation and distribution of raw materials and finished products.

For the 1130 configuration specified, LP-MOSS/1130 has a logical processing capacity of 700 rows, including all objective rows, and a number of columns limited only by disk space available. The system uses sophisticated scaling and inversion techniques designed to produce accurate, reliable solutions within the limits of a 31-bit mantissa.

Special Sales Information For Paper Tape Systems Only: The LP-MOSS object decks and sample problem are not available on paper tape. Customers with paper-tape-only configurations must have access to an 1130 system which includes an IBM 1442 Card Read Punch, for the initial phase of system generation.

For further information contact your Regional Scientific Marketing manager.

See the back of this letter for the text that will appear in the sales manual.

  
John Fahey  
Director of DP Marketing

Release Date: April 28, 1967

Distribution: All Areas

P67-37

## SALES MANUAL TEXT

**Linear Programming-Mathematical Optimization Subroutine System:** Provides the 1130 disk user with a simple, efficient means of solving linear programming problems and a means for implementing a variety of mathematical optimization applications. The feature of LP-MOSS (System Manual and Source Code) which allows the user to access components of the system through FORTRAN will not be available until November 1967. (1130-CO-16X)

Mathematical optimization is any mathematical technique for determining the optimum use of various resources such as capital, raw materials, manpower, and plant or other facilities. The technique seeks to attain a particular objective as for example, minimum costs or maximum profit, when there are alternate uses for the resources. Linear programming is the most widely used of these techniques, and has been used to allocate, assign, schedule, select or evaluate the uses of limited resources for various jobs such as blending, mixing, bidding, cutting, trimming, pricing, purchasing, planning and the transportation and distribution of raw materials and finished products.

For the 1130 configuration specified, LP-MOSS/1130 has a logical processing capacity of 700 rows, including all objective rows, and a number of columns limited only by disk space available. The system uses sophisticated scaling and inversion techniques designed to produce accurate, reliable solutions within the limits of a 31-bit mantissa.

**The Linear Programming System (LPS) of LP-MOSS:** LPS provides the user with an easy means of solving linear programming problems. LPS is controlled by procedure control cards (or paper tape records) which specify the solution sequence. Input data originate on cards or paper tape and are stored on the disk for subsequent processing. Several problems may be stored on disk and updated, re-run, or combined. For example, a corporate model can be formed from divisional models, or a total production plan from the plans for individual products.

Reports may be on cards, paper tape, typewriter, or printer. Output options include a full solution report, comprehensive solution analysis and parametric analysis reports.

**LPS Features:** Provide user control of the LP procedure execution sequence. The LPS procedures provide a programmed access to all of the LP-MOSS subroutines and programs.

Large problem capacity (program logic provides for up to 700 rows) ... simple, flexible, processing control (optional conditional control of processing sequence and special solution of simultaneous equations procedure) ... simple problem definition (easy to use format and extensive data maintenance functions, specification of a starting solution basis, combination of problems to form master problems) ... advanced mathematical methods (automatic, iterative, input scaling for accuracy, revised simplex method [product form of inverse], bounded variable feature for range [ $\leq$  and  $\geq$ ] constraints and bounded variables to simplify problem description, and to increase problem capacity and solution speed) ... multiple pricing ... efficient triangularization inversion method for accuracy ... extensive post-optimal analysis options (discrete parametric analysis for all problem data and activity-cost-bound relationship for  $n$  variables) ... extensive checking (input check for duplicate entries, solution processing check to test for need of early inversion and automatic solution check).

**Additional Feature (deferred):** FORTRAN provides a programming access to the LP procedures, and to the subroutines and programs of LP-MOSS. The FORTRAN programming access to the components of LP-MOSS will be described in the System Manual to be available later. The source program will also be made available at this time.

The user should not attempt using this feature until thoroughly familiar with the LPS features of LP-MOSS and before studying the System Manual.

**Customer Responsibilities:** The customer must be familiar with the IBM 1130 LP-MOSS input and procedures. The Program Reference Manual is directed to the new user. It provides a tutorial which assumes some familiarity with simultaneous equations or linear programming.

The LP-MOSS is ready to run as distributed, complete with sample problem. The customer need only load the cards onto a disk.

**Special Sales Information for Paper Tape Systems Only:** The LP-MOSS object decks and sample problem are not available on paper tape. If a customer has a paper tape system, he must have access to an 1130 system which includes an IBM 1442 Card Read Punch for the initial phase of system generation.

**Precision and Accuracy:** All computations are performed in extended precision (31-bit mantissa). Linear programming accuracy is usually a function of problem size, scaling, complexity and system mantissa length. The system scaling procedures and inversion methods are designed to produce accurate, reliable solutions within the limits of a 31-bit mantissa.

**Machine and System Configuration:** An IBM 1130 Model 2B (with 8,192 words of core storage) and one disk storage drive ... 1442 Card Read Punch or a 1134 Paper Tape Reader or both ... 1055 Paper Tape Punch (optional) ... 1132 Printer (optional). The recommended 1130 system for best performance and simplest operation includes a 1442 Card Read Punch with an 1132 Printer.

**Programming System:** LP-MOSS/1130 operates under control of the IBM 1130 Monitor System. The source language is IBM 1130 FORTRAN.

**Basic Program Material:** Documentation -- Application Directory ... Program Reference Manual (H20-0345). If only the form numbered manuals are required, order them from the IBM Distribution Center, Mechanicsburg -- not PID.

Machine Readable -- Object deck and sample problem deck.

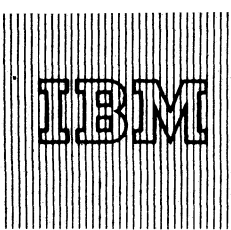
**Reference Material:** Application Description Manual (H20-0238-1) ... Introduction to Linear Programming (E20-8171) ... Aluminum Alloy Blending (E20-0127) ... Electric Arc Furnace Steelmaking manual (E20-0147) ... Feed Manufacturing (E20-0148) ... Ice Cream Blending (E20-0156) ... Blast Furnace Burdening (E20-0160) ... Cotton Blending (E20-0164) ... Gasoline Blending (E20-0168).

For further information contact your Regional Scientific Marketing Manager.

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67-38

IBM System/360 Data Conversion Utility II Version 3

Data Conversion Utility II (360A-SE-20X) Version 3 (Sequential, Direct Access, Indexed Sequential) may now be ordered; shipments will begin the week ending May 5. (Version 3 supersedes Version 2.) This program provides an effective and flexible capability for customers to convert their current IBM system data files to System/360 data sets. The program is designed to run under the control of the IBM Operating System/360.

<u>CONTENTS</u>
<u>System/360 Data Conversion Utility II Version 3 (360A-SE-20X) ... an application program that may now be ordered.</u>
Published by DP Sales Publishing Services, WTHQ

Designed as a general-purpose program, it will accept as input data sets in the format used with the IBM 705/1410/7010 and 7000 series systems. System/360 sequential data sets are also accepted as input. The program produces as output the data format desired for System/360 tape or DASD. The program has data transformation capability that allows the user flexibility in "resystematizing" his data sets for System/360.

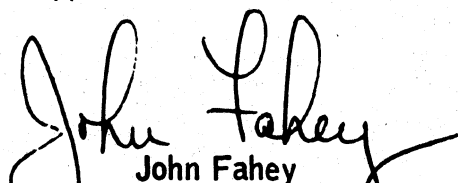
Data Conversion Utility II Version 3 (Sequential, Direct Access, Indexed Sequential) retains the routines from Data Conversion Utility II Version 2 (Sequential, Direct Access) announced in P67-12 with these additions:

- . A new routine which will provide output onto System/360 DASD using the Queued Indexed Sequential Method.
- . Maintenance improvements made to Version 2.

Current users of Version 2 will receive a prepunched order card and a letter announcing the availability of Version 3 and instructing them to order it through the branch office. Current users must use this prepunched program order card to order Version 3.

For further information contact Systems Marketing Technique Development, DPD HQ.

See the back of this letter for the text that will appear in the sales manual.

  
 John Fahey  
 Director of DP Marketing

Release Date: April 28, 1967

Distribution: All Areas



SALES MANUAL TEXT

**Data Conversion Utility II:** Provides an effective and flexible capability for customers to convert their current IBM system data files to System/360 data sets under control of

OS/360. (360A-SE-20X)

Designed as a general-purpose program, it will accept as input data sets in the format used with the IBM 705/1410/7010 and 7000 series systems. System/360 data sets are also accepted as input as indicated below. The program produces as output the data format desired for System/360 tape or DASD. The program has data transformation capability that allows the user flexibility in "resystematizing" his data sets for System/360.

The Data Conversion Utility II Program accommodates the three general considerations in data conversions:

1. The physical characteristics of the I/O device (i.e., 7-track tape format).
2. Current IBM Programming Systems standards (i.e., labels, padding characters, checkpoint records).
3. Optimization of data representation (i.e., floating point, binary, packed decimal).

**Description:** Data Conversion Utility II is a set of special-purpose macros, subroutines, and modules. These may be combined in a large variety of ways to create a specific data conversion program that meets the exact requirements of the user's data set to be converted from current IBM system formats to System/360 formats.

There are two steps involved in using Data Conversion Utility II --

1. Creating a specific Data Conversion Utility II program.
2. Executing this specific Data Conversion Utility II program.

To perform the first step, the user creates a Data Conversion Utility II controller by combining in assembly language --

1. Three controller macros.
2. Data move/transform macros as required to perform field transformations.
3. Test macros as required for record selection, etc.
4. A common table macro that provides specific information about the input and output files that cannot be furnished via the DD card, such as 7070/7074 Form 3 records 35 words or less in size, etc.
5. User code as required.

The controller is combined with an input module and an output module by use of the linkage editor to create the unique Data Conversion Utility II program.

The second step is performed by executing the utility program created in Step One. This is done by providing the IBM Operating System/360 with the necessary job control cards and the data set to be converted.

During program execution, Operating System/360 can make use of a set of modules provided with this program to simplify processing of current IBM system standard labels on input tapes, which are considered non-standard by System/360. In addition, linkage is provided to user-written header and trailer label modules if processing of current IBM system non-standard labels is required. These label checking modules also provide linkage for user-written label checking modules.

**Input Module:** For a particular data conversion run, the input module that is best suited to process the input data file is selected from --

**Card Data File Input** - These modules read data cards on an 80/80 basis. They are intended to assist in converting card data files, such as tab files, to System/360 tape or DASD data sets. There are two card input modules: one is provided to process Hollerith/EBCDIC cards, and the other handles column binary card input.

**705/1410/7010/7080 BCD Variable-Length Tape Record Input** - Three types of modules are provided to GET even-parity BCD variable-length records written on 7- or 9-track tape. The first type locates blocked or unblocked logical records whose length is established by terminal record marks. The second locates blocked or unblocked logical records of the size specified by a BCD length counter within the logical record. The third will locate an unblocked logical record where the record requires neither a terminal record mark nor a BCD length counter. All module types will bypass applicable checkpoint records.

**BCD Fixed-Length Tape Record Input** - This module will GET even-parity BCD fixed-length records written on 7- or 9-track tape. Interspersed checkpoint records or segment mark records will be deleted. The input tape may be zero-suppressed or non-zero-suppressed.

**Mixed Mode Tape Record Input** - This module will GET all binary or intermixed even parity BCD records and odd parity binary records. Records may be either variable-length unblocked or fixed-length blocked or unblocked.

**Sequential System/360 Tape/DASD Record Input** - This module will GET records from any System/360 sequential data set. Records may be either fixed or variable, blocked or unblocked.

**Output Modules:**

**System/360 Sequential Tape/DASD Output** - Fixed or variable-length, blocked or unblocked logical records can be created on System/360 tape or DASD with this module. The data records may then be processed sequentially by the application program.

**System/360 Direct Access DASD Output** - Fixed or variable-length unblocked records can be created on System/360 DASD with this module. The BDAM method is used to write the records; therefore, if blocking of records is to be done, the user has to set up the blocked physical record before calling the Direct Access Output module.

**System/360 Indexed Sequential DASD Output** - Fixed-length, blocked or unblocked logical records can be created on System/360 DASD with this module. The records can then be retrieved sequentially or directly.

**Features:** Provides the IBM System/360 users with a facility to reduce substantially the difficulties, time, and costs of performing the required data conversions ... allows greater flexibility for scheduling user manpower in new application areas where potential savings may be made; more of the manpower can be concentrated on the solution to the application problem, rather than the nature of the data ... encourages the user to write his IBM System/360 application programs using record organization and data formats which are optimum for the IBM System/360 ... encompasses the requirements of current IBM system users, regardless of the machine size and configuration ... provides comparable data conversion facilities to users, regardless of the IBM System/360 language used ... is designed to allow the user to tailor the program to his individual requirements through modular program organization and the data move/transform and test macros.

**Use:** The program can be used for the permanent conversion of current IBM system data sets into System/360 sets and can also be used to obtain "live" text data from current IBM systems for use in testing System/360 application programs. Since input data may be on 7- or 9-track tape, customers whose initial conversion to System/360 is planned around emulation will be able to use the Data Conversion Utility II Program to convert their even parity BCD 9-track emulator data sets when they convert their programs to System/360.

**Customer Responsibilities:** The object decks and the macro definitions which make up part of the Data Conversion Utility II package must be cataloged in a link library and the macro library respectively. Users of Version 2 must delete the old Data Conversion Utility II macros before cataloging the new macros. The NSL modules must be cataloged in the SYS1.SVCLIB library. The user then writes the necessary Data Conversion Utility II macro statements (and user routines if required) to specify the desired data conversion program. The user also has to specify in the linkage editor run which input and output modules to include.

**Programming Systems:** The program is written in the IBM Operating System/360 Assembler Language as described in C28-6514. It is designed to run under control of the IBM Operating System/360, and uses the Operating System/360 Input/Output capability.

**Machine Configuration:** A System/360 Model 30 or above with Decimal Arithmetic. Storage requirements are dependent on the size of the OS/360 supervisor used, the Data Conversion Utility modules selected, the maximum input physical record size, the maximum output physical record size, the maximum work area size (required for 7070 input module), the area used for the requested move/transformations (instructions, conversion subroutines, subroutine linkages, constants and literals), and user routines.

The OS/360 requirements for system operation and program assembly must be utilized to create a specific data conversion utility program.

For executing the created utility, the devices of OS/360 system operation are required; in addition, the following input/output devices may be used:

1. 2400 series tape drive(s) for the input data set
2. 2540/2501 for data card input
3. DASD for input of S/360 Sequential Data Set
4. 2400 series tape drive(s) for the output data set
5. DASD for the output data set

**Note:** The 2400 series tape drives can be 9-track, unless they interface with 729 tape drives, in which case the 7-track Read/Write Head feature and a 7-track Compatibility feature are required.

**Basic Program Material:** Documentation -- Programmer's Manual (H20-0313-1) ... Operator's Manual (H20-0314-1) ... Application Director. If only the form numbered manuals are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

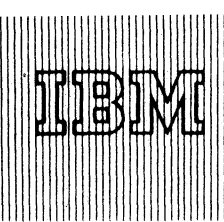
**Machine Readable** -- Object cards, macro definition cards, source cards, and sample problems may be obtained on one 9-track or 7-track DTR (Data Conversion feature required). Indicate whether 9-track or 7-track is required. If not specified, 9-track DTR will be forwarded. DTRs will be supplied by PID; no tape submittal is required.

**Optional Program Material:** One 9-track or 7-track (Data Conversion feature required) tape containing assembly listings. (When ordering optional material, submit one 2400' reel of magnetic tape to PID.)

**Reference Material:** Application Description (H20-0194-1) ... Systems Manual (V20-0067).

For further information contact Systems Marketing Technique Development, DPD HQ.

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**[A] IBM System/360 Model 20 Report Program Generator for Punched Card Equipment**

Version 2, Modification Level 0 of Card RPG (360T-RG-010) is now available with these improvements:

- Corrections of errors reported by APARs ...
- Variable record length for card reading ...
- Improvement of diagnostics as well as the texts of diagnostic messages.

The new SRL publication "IBM System/360 Model 20 Report Program Generator for Punched-Card Equipment" (C26-3600-5) contains performance data, a more detailed description of the RPG language, and of the diagnostic functions of the program. An appendix "Programming Tips" to this book explains how to make full use of the RPG language.

This SRL will be shipped as part of the basic program material. Additional copies are available at the IBM Distribution Center, Mechanicsburg.

Minimum System Requirements

For Program Generation: A 2020 Processing Unit Model B1 or B2 with 4096 bytes of core storage, and one of the following input/output configurations: a 2560 Model A1 or a 2520 Model A1 Card Read-Punch or 2501 Model A1 or A2 Card Reader.

If punching of the object programs is desired, a 2560 Model A1 or a 2520 Model A1, A2 or A3 Card (Read) Punch or a 1442 Model 5 Card Punch. If diagnostic messages and listings are desired, a 1403 Model 2, 7, N1 or 2203 Model A1 Printer.

For Object Program Execution: A 2020 Processing Unit Model B1 or B2 and one of the following input/output configurations: a 2560 Model A1 or a 2520 Model A1 Card Read-Punch or a 2501 Model A1 or A2 Card Reader.

If punching is specified, a 2560 Model A1 or 2520 Model A1, A2, or A3 Card (Read) Punch or 1442 Model 5 Card Punch. If printing is specified, a 1403 Model 2, 7, or N1 Printer or 2203 Model A1 Printer.

The program will run independently of the EC-Levels of model 20 machines presently in the field.

Additional Units Supported:

Program Generation: 2020 Processing Unit Model C1, BC1, D1, C2, BC2, D2 enable generation of larger programs.

Object Program Execution: can be specified for systems with 2020 Processing Units Model B1, C1, BC1, D1, B2, C2, BC2, D2 and with such combinations of following card I/O units which at least satisfy the minimum requirements listed above

either a 2501 Model A1 or A2 Card Reader and/or a 2560 Model A1 MFCM and/or a 1442 Model 5 Punch

or a 2501 Model A1 or A2 Card Reader and/or a 2520 Model A1 or A3 Card - (Read) - Punch and/or a 1442 Model 5 Punch

Object programs making use of the Card Print optional feature of the 2560 Model A1 MFCM and the Dual Feed Carriage of the 2203 Model A1 printer can also be generated.

Reference Material: SRL Publications -- System/360 Model 20, Functional Characteristics, A26-5847-2 and TNL N26-0179 ... System/360 Model 20, Basic Assembler Language, C26-3602-3 ... System/360 Model 20 Basic Assembler Operating Procedures, C26-3802-1 ... System/360 Model 20 Sterling Currency Processing Routines, C26-3605-1, and TNL N24-9001.

Basic Program Material

SRL Publications -- System/360 Model 20 Report Program Generator for Punched-Card Equipment, C26-3600-5 ... System/360 Model 20 Report Program Generator for Punched-Card Equipment, Operating Procedures, C26-3800-0 and TNL's N24-9007, N24-9011, N33-9000.

If only the form numbered manuals are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

**CONTENTS**

IBM System/360 Model 20 Report Program Generator for Punched Card Equipment (360T-RG-010) ... Version 2, Modification Level 0 is now available. [A]

IBM System/360 Model 20 Input/Output Control System for the Communications Adapter (360T-CQ-003) ... Version 1, Modification Level 2 is now available. [B]

Published by: DP Sales Publishing Services, WTHO

**Documentation -- Program Material List**

Machine Readable -- Program Deck and Sample Deck are available in card form.

Current users will not receive the new version automatically. Instead, they will receive a prepunched order card and a letter announcing the new version and instructing them to order it through the branch office.

**[B] IBM System/360 Model 20 Input/Output Control System for the Communications Adapter**

Version 1, Modification Level 2, of the CIOCS, 360T-CQ-003, is now available. It includes the additional support of communication between a Model 20 Processing Unit with Communications Adapter and 1130 Computing System equipped with the Synchronous Communications Adapter.

All current users are now being sent this modification.

For performance data see the SRL "IBM System/360 Model 20, Input/Output Control System for the Communications Adapter," C26-3606-1, which will be shipped as part of the basic program material. Additional copies are available at the IBM Distribution Center, Mechanicsburg.

Minimum System and EC-Level Requirements:

For generation and assembly of CIOCS routines: A 2020 Processing Unit, Model B, one card reading device, one card punching device. In addition, the printer attached to the system must be used if printing of generated routines and/or diagnostic messages is desired.

For execution of object programs: A 2020 Processing Unit, Model B2, with one card reading device, the Communications Adapter, and a remote terminal connected through Data Sets appropriate to desired speed of operation.

The 2020 Processing Unit, Model B2 (4096 bytes) permits the execution of only a limited number of IOCS/CIOCS functions. For execution of the majority of programs containing IOCS/CIOCS routines a model C2 (8192 bytes) is required.

The use of any additional input/output devices is dictated by the requirements of the main program.

Generation and assembly of CIOCS as well as execution of object programs for transmission in binary mode are not dependent on EC levels.

Proper execution of object programs for transmission in BCD-mode requires EC 12100 of the Processing Unit.

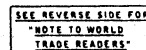
Basic Program Material

SRL Publications -- System/360 Model 20 Input/Output Control-System for the Communications Adapter, C26-3606-1 and TNL N24-9024 --- System/360 Model 20 Input/Output Control-System for the Communications Adapter Operating Procedures, C24-9004-0 and TNL N24-9025.

If only the form numbered manuals are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

**Documentation -- Program Material List**

Machine Readable -- Program Deck (Generator and Library) and two Sample Decks are available in card form.

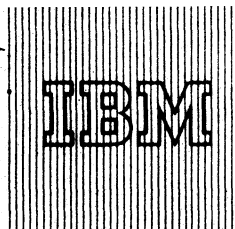


*John Fahey*  
John Fahey  
Director of DP Marketing

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- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 13 through 17, Programming Section, WT DP Sales Manual.
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[A] IBM Computer System Simulator Programs (CSS)

These programs (7040-SE-07R and 7090-SE-06R) have been withdrawn from Type II (IBM Confidential) status. For further information see Branch Manager Letter #424.

CONTENTS	
Computer System Simulator (CSS) ... change in status. (A)	
Data Conversion and Label Processing Sub-routines ... correction to P66-109, Item (A). (B)	
SRL Corrections to P67-34 and P67-35. (C)	
Published by DP Sales Publishing Services, WTHQ	

[B] IBM System/360 Data Conversion and Label Processing Subroutines

Correction to P66-109, Item [A]: Under Minimum System Requirements the sentence "The label processing subroutines require at least one 2400 Magnetic Tape Unit with the 7-track compatibility feature ..." should be changed to read "The label processing subroutines require at least one 2400 Magnetic Tape Unit, either 9-track or 7-track with the compatibility feature ..."

[C] SRL Corrections to P67-34 and P67-35

On P67-34 TNL reference of N24-5044 should be corrected to N21-5044. On P67-35 form number reference of C24-3441-1 should be corrected to C24-3444-1.

  
John Fahey  
Director of DP Marketing

SEE REVERSE SIDE FOR  
"NOTE TO WORLD  
TRADE READERS"

Attachments [7]: P5, P 360A.3, P 360A.21, P 360M.5, P 1130.7, P 7040/44.3, and P 7090/94.3

Release Date: May 12, 1967

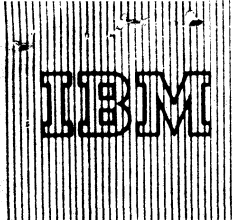
Distribution: All Areas



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- [8] All references made to Engineering Changes required for programs should be verified with the local CE Branch Office. Although E/C requirements are identical for WT and IBM, E/C availability dates and shipping schedules may differ.



(A) Operating System/360

Release 11 can now be ordered. Shipments will begin the week of May 15. It includes many important improvements that should be reviewed immediately.

Release 11 improvements, combined with Release 10, have established the base of an outstanding programming system. They mark a year's achievement of extensive performance and operational improvement activity while adding many new features and functional support. To aid in your planning, this letter has been organized according to the areas of responsibility of user personnel.

\* Installation Manager

Performance Improvements

- Resident job queue
- Resident Type III and IV SVCs
- PCI Fetch for 2301

New Functions

- QTAM and BTAM Support for 2260 Display Unit (Remote), and 2740 Communications Terminal
- A 44K version of Link Editor E.

APAR Improvements to 255 Modules.

\* Operations Manager

Operational Improvements

- Checkpoint/Restart - for user programs and Sort/Merge with PCP and MFT.
- Public/Private Volume Improvements.
- Automatic Volume Recognition for PCP and MFT.
- Improved Label Verification Procedures.
- Accounting Routine Facilities Expansion.
- Increased Card Reader Retries.
- Full Sense Byte Display on I/O Errors.

New Functions

- BTAM Extension
  - Communication Serviceability Facilities (CSF).
  - Code Translation Support
- A utility for updating tape and DASD data sets (IEBUPDTE).
- A starter system for 2314 System Residence.

\* Application Programmer

New Functions

- Graphic Programming Services
  - Basic Support for 2250 Models 1, 2, and 3 and 2260 Display Direct Attachment
  - Buffer Management Facilities
  - Asynchronous Attention Handling Routines
- ALGOL - A new compiler for the Algebraic-Oriented Language for limited use. (This support was scheduled for 7/31/67).
- FORTRAN IV E, G and H
  - Removal of restrictions for COMMON and EQUIVALENCE boundary alignments.
- FORTRAN IV Library
  - Trace Back Table for debugging purposes.
  - A new I/O Record format for unformatted binary records.

CONTENTS

Operating System/360

- Release 11 can now be ordered ... [A]
- 32K Support and Tape Unit Pool withdrawn, Data Management changes ... [B]

Published by DP Sales Publishing Services, WTHO

Detailed Description of New Items

● Performance Improvements

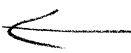
- Resident Job Queue uses core storage as an extension of SYS1.SYSJOBQE to reduce accesses to the system residence DASD.
- Resident TYPE III and IV SVCs allow the user to specify a list of frequently used SVCs to be core resident to minimize loading of transient routines.
- Improved PCI Fetch reduces the number of rotations required to load programs from 2301 System Residence.

● Operational Improvements

- Checkpoint/Restart support for user programs in PCP and MFT systems is provided by an SVC facility. The user provides an assemble language macro instruction at any point in his program where all I/O requests are completed. The checkpoint data set may reside on 2400, 2311, or 2301 units. Restart is accomplished by executing a Restart program provided in the Link Library. Tape resident data sets are repositioned by the system during restart with the exception of SYSIN and SYSOUT. This facility may be utilized in multiple partitions of MFT.
 

Improvements to the Checkpoint/Restart facility provided with the OS/360 Sort/Merge program provide for its operation in multiple partitions in MFT. As currently planned, the availability of Checkpoint/Restart for MVT will be announced at a later date.

A new SRL Checkpoint Restart, C28-6656, is provided.
- Initial experience with Release 11 shows a substantial reduction in set up time is possible by using the improved Public/Private and AVR features.
- Public/Private Volume Improvements result in a reduction in DASD volume mounting and dismounting activity. It allows the user to define a volume as permanently resident storage in addition to PUBLIC or PRIVATE status for storage or reserved volumes.
- Automatic Volume Recognition allows the user to premount labeled volumes on unused I/O units for 2400, 2311, 2314 units before their requirement for a subsequent job. The system recognizes these volumes and establishes unit allocation based upon the actual location of the premounted volume during job step scheduling. The user can supply his own label routines for non-standard tape labels. AVR is intended for PCP and MFT systems only.
- Improved Label Verification Procedures eliminates a preliminary verification of correct volume mounting during job scheduling. All verification is now done when the data set is used.



- Accounting Routine Facilities Expansion provides an exit to the user's accounting routine at job initiation time and a data set which is available across jobs and job steps for recording of accounting information. A sample accounting routine is also provided to demonstrate the use of the new facilities. This will satisfy many installations' needs for a basic routine.
- Increased Card Reader Retries upon detecting a DATA CHECK from 2 to 5 before termination of the job is provided. The user can program a test for a blank card and advise the operator to insert a blank card after 5 attempts to read a damaged card. This will clear the retry count and permit an unlimited number of retries if desired.
- Full Sense Byte Display for I/O Errors provides all available information upon the occurrence of an I/O redundancy for aid in diagnosing malfunctions. Heretofore, only two bytes were displayed for tape and four bytes for DASD.

#### • New Functions

##### QTAM

The second version of OS/360 QTAM is included in this release. Support for 2740 and remotely connected 2260 Display have been added. Improvements remove many of the restrictions in the initial version.

Results from the initial use have proven QTAM to be a significant tool for installing Tele-processing applications.

However, due to the complex environments into which OS/360 QTAM is being installed, the Branch Manager must review the plans of each QTAM user prior to submission of the customer's order for this component. Refer to Memorandum to DP and FE Branch Managers dated May 12, 1967 for further information and instructions.

##### BTAM

The second version of BTAM adds the following support.

- 2740 and remotely connected 2260 Display
- BTAM Communication Serviceability Facilities (CSF) support includes Error Recovery Procedures, Error Counts and On-Line Terminal Tests.

While these facilities were designed as optional modules, they are extremely beneficial to small Tele-processing configurations, but are essential for intermediate and large networks.

It is the Branch Manager's responsibility to assure that any decision to exclude these facilities, particularly Error Recovery Procedures, has had the joint consideration of FE and the customers, and that IBM clearly stated in an appropriate letter to the customer, the implications of this decision.

- BTAM Code Translation Support which consists of an assembly language Translate Table Macro instruction provides both input and output translation tables for all supported devices transmission code to and from EBCDIC.

Link Editor E has been extended to operate in 44K as well as 15K and 18K. At 44K it provides blocked records on SYSLMOD of 3072 bytes compatible with Link Editor F. Blocked input and output from SYSLIN, LINKLIB, and SYSPRINT and double buffering of principal elements is provided. This is the preferred Link Editor for 44K Level usage.

IEBUPDTE is a new utility for updating physical data sets with many new features beyond those provided in IEBUPDAT which is also within this release. It is intended that IEBUPDAT be eliminated eventually after a sufficient time for all OS/360 users to convert to the use of IEBUPDTE which gives equivalent function with many extensions. The new Functions are:

- Updating from card to tape or DASD.
- Updating from tape to card or DASD.
- Updating from DASD to tape or DASD using blocked or unblocked records.
- Partial update of records for elements such as sequence number or comments portion of some programs.
- Block insertion capability.
- Variable sequence field positions and size.
- Ability to handle a /\* combination as data.
- Keyword control statement syntax.
- Improved diagnostics and messages.

- A Starter System for 2314 Residence is now available. Users ordering the 2314 Starter System will receive the full distribution of OS/360 components, packaged on one reel of magnetic tape ready to be restored directly to 2316 Disk Pack at the users location. Magnetic tape will be the only distribution medium used for 2314 Resident Starter Systems.

The "standard" 2314 and 2303 addresses, which are in both the 2311-resident starter system and the 2314-resident starter system are:

	Unit	Address
2303	#1	197
2303	#2	297
2314	#1	130
2314	#2	131
2314	#3	132
2314	#4	133
2314	#5	230
2314	#6	231
2314	#7	232
2314	#8	233

##### Graphic Programming Services

Basic Graphics include these new functions:

- Buffer management facilities that allocate, control, and protect sections of the 2250 or 2840 buffer.
- Routines that diagnose synchronous errors and accomplish the necessary error handling.
- Asynchronous Attention handling routines support the 2260 Display Direct Attachment and the 2250 Models 1, 2 and 3.
- Express Programs written for 2250 Model I are fully compatible and will require no change if run on a Model I. However, if the customer plans to switch to 2250 Models II or III, he must advance to Basic Graphic Support.

ALGOL - an Algebraic Language compiler. The OS/360 ALGOL F level compiler had been scheduled for 7/31/67. It encompasses the ECMA subset of ALGOL as well as the IFIP subset. The recursive use of procedures ability is provided beyond the ECMA subset. ALGOL usage must be on a restricted basis since there are no plans for additional ALGOL processors, improvements, or increased language function.

It is mandatory that the effect of ALGOL use be clearly understood by all users. The following rules must be adhered to before proposing its use.

1. ALGOL should only be planned for or referred to an account where clear need is evident. (For example, currently using ALGOL.)
2. The user should understand the limitations of IBM's plans in regard to ALGOL.
3. Every effort must be made to move an ALGOL account to PL/I or FORTRAN.

##### FORTRAN IV E, G and H

Restrictions have been removed for COMMON and EQUIVALENCE for object time word boundary alignment adjustment.

##### FORTRAN IV Library

A trace back table for debugging abnormal job termination conditions has been added.

Special control words unique to the FORTRAN processors have been eliminated by extending the functional facilities of V type records. Modifications to the FORTRAN Library and data management have been made to provide this improvement. The special control words were used only with unformatted binary data sets. Unformatted binary data sets produced by previous releases of the FORTRAN Library will be affected by this change. A conversion utility program is available at the Field System Centers. User's should plan any data conversion that may be required as soon as possible.

A total of 166 APAR solutions have been provided which correct approximately 255 modules, eliminating many problems identified by the extensive number of OS/360 users. Release 10 included 82 APAR solutions.

Both the FE and SE technical organizations should be advised of any Type I Program situation that prevents an OS installation from advancing to the current release. If an inquiry cannot be satisfied, the FE should consult the FE area office for the latest information on Release 11. The SE should also utilize information available from Field System Centers. New topical entries have been provided in SEC0M and RETAIN for System Generation information.

Reference Publications: OS/360 User Libraries, C20-1663 ... OS/360 TESTRAN User Guide, C20-1652 ... OS/360 Utilities User Guide, C20-1661 ... OS/360 System Generation Configurator, C20-1660 ... OS/360 JCL Charts, C28-6632-1 ... System Control Blocks, C28-6628 and TNLs N28-2196, N28-2229.

Reference Cards: Linkage Editor, X20-1739 ... Supervisor Macros, X20-1739 ... Data Management Macros, X20-1733 ... Magnetic Tape Record Characteristics, X22-6837-5.

Table #1

OS/360 Release 10 Component Sizes:

Component Name	360S	Notes	Distribution Volume Library Space (2311 tracks)		
			DLIB01	DLIB02*	DLIB03**
Starter System	JL-514	7	651		
Primary Control Program	CI-505	1, 8	3	109	788 102 13
Primary Data Management	DM-508	1		58	118
Direct Access Method (BDAM)	DM-509	5		8	3
Indexed Sequential (ISAM)	IO-526	6		46	4
Basic Telecommunications (BTAM)	CQ-513			6	43
Queued Telecommunications (QTAM)	XQ-519			19	44
Graphic Programming Service	IO-523			17	120 23
Assembler E	AS-036	1	4	43	10
Assembler F	AS-037	4, 6	4	38	10
TESTRAN & Editor	PT-516		5	25	52
Sort/Merge	SM-023		2	10 78	3 23
Linkage Editor E	ED-510	1, 3	3	30	
Linkage Editor F	ED-521	4	3	23	
OS/360 Utilities	UT-506	1	2	79	12
Independent Utilities	UT-507	1			49
COBOL E	CO-503	5, 6	3	99	29
COBOL E Library	LM-504	3		10	
COBOL F	CB-524	5	3	80	5
COBOL F Library	LM-525	3		9	
FORTTRAN IV E	FO-092	5	4	30	8
FORTTRAN IV G	FO-520	5	4	24	7
FORTTRAN IV H	FO-500	4		206	7
FORTTRAN IV Library	LM-501	3	1	28	
PL/I F	NL-511	5, 6	4	240	6
PL/I Library	LM-512	3	52	26	
RG	RG-038		3	52	5
SERO, SER1, EREP Model 40	DN-527	2		12	
SERO, SER1, EREP Model 50	DN-528	2		13	
SERO, SER1, EREP Model 65	DN-529	2		14	
SERO, SER1, EREP Model 75	DN-530	2		12	
ALGOL	AL-531		4	30	4
ALGOL Library	LM-532	3		17	

\* DLIB01 if space is available and if the Starter System or the Primary Control Program or both are not ordered.

\*\* On DLIB03 if the full OS/360 is received.

Notes:

1. Minimum component for a system able to perform system generation. See also Note 4 where appropriate.
2. Recommended use.
3. Used by and required with the preceding component(s) in the chart.
4. Alternative component to the preceding component in the chart. Either or both may be selected.
5. BDAM is required by the direct access statements of COBOL, FORTRAN, and PL/I.
6. ISAM is required by COBOL E and PL/I object programs using the Indexed Organization.
7. Required with initial order; subsequent orders may be processed by the user's own system. The Starter System actually contains several libraries, as described in the Starter Guide SRL (C28-6630).
8. Required with orders for processors, since the SYS1.GENLIB contains the related system generation macro instructions.

Ordering Procedure

For new users the branch office must have the Program Order Form for System/360 Operating Systems (120-1411). Current users of OS/360 will receive a pre-punched Program Order Card and a letter announcing the availability of Release 11, instructing them to order the new release through the branch office, using this pre-punched card. Complete ordering instructions are provided in the letter to users.

In either case, the order form used (120-1411), or the pre-punched Program Order Card, must contain the program number for each OS/360 component (if being ordered for the first time) for which program documentation and maintenance material is required.

All orders must indicate the number of 2311 disk storage drives available to perform system generation. Only those orders stating "Two drives to be used for SYSGEN" will be customized, as described in letter P67-1. All other 2311 users will be sent the entire system, for which three disk packs or three reels of tape are required.

Special Notes for Two-Drive Users

1. See Table 1 of this P Letter for sizes of distributed components (reference P67-1 for descriptive information).
2. Branch offices are responsible to assure that valid combinations of components are ordered.
3. Individual components (such as FORTRAN IV H) require the corresponding level of SYS1.GENLIB, which is distributed as a part of the Primary Control Program (360S-CI-505). PCP should therefore be ordered in all cases.

Special Note for 2314 Direct Access Storage Facility Users

OS/360 Release 11 provides a starter system for 2314 residence. Program distribution medium for 2314-resident systems will be on one reel of either 7- or 9-track magnetic tape. Tapes will be in the dump/restore format. Users who order the 2314 Starter System should indicate 2314 on the back of the program order card.

Since all 2314s provide sufficient capacity for system generation from the full OS/360 libraries, no customization (see P67-1) is planned for 2314-resident systems.

A 2314 user having two or more 2311 Disk Drives but no tape may order the 2311-resident system using the 1316 Disk Pack as the distribution medium. System configurations which do not include either 2311s or tape must make local arrangements for a system with both 2314 and Tape to perform the tape-to-2316 Disk Pack restore operation.

A branch office unable to arrange for tape-to-2316 Disk Pack conversion should contact the regional manager of Programming Systems Marketing for assistance.

Customers affected by this requirement must be notified.

Program components may be selected from the following list. Each component for which program documentation and maintenance material is required must appear on the order form.

Starter System for 2311 Residence	360S-CI-514	
Starter System for 2314 Residence	360S-CI-534***	
Primary Control Program	360S-CI-505	
Primary Data Management	360S-DM-508	
OS/360 Utilities	360S-UT-506	
Independent Utilities	360S-UT-507	
Assembler E	360S-AS-036	
Assembler F	360S-AS-037	
Linkage Editor E	360S-ED-51C	
Linkage Editor F	360S-ED-521	
TESTRAN	360S-PT-516	
Basic Direct Access Method (BDAM)	360S-DM-509	
Basic Telecommunications Access Method (BTAM)	360S-CQ-513	
QTAM Queued Tele-processing Access Method (QTAM)	360S-CQ-519	
Graphic Programming Services	360S-IO-523**	
Indexed Sequential Access Methods (BISAM, QISAM)	360S-IO-526	
Sort/Merge	360S-SM-023	
FORTTRAN IV E	360S-FO-092	Note 1
FORTTRAN IV G	360S-FO-520	Note 1
FORTTRAN IV H	360S-FO-500	Note 1
FORTTRAN IV Library	360S-LM-501	
COBOL E	360S-CO-503	Note 1
COBOL E Library	360S-LM-504	
COBOL F	360S-CB-524	Note 1
COBOL F Library	360S-LM-525	
PL/I F	360S-NL-511	Note 1
PL/I Subroutine Library	360S-LM-512	
ALGOL F	360S-AL-531***	
ALGOL F Library	360S-LM-532***	Note 1
SERO, SER1, & EREP for Model 40	360S-DN-527	
SERO, SER1, & EREP for Model 50	360S-DN-528	
SERO, SER1, & EREP for Model 65	360S-DN-529	
SERO, SER1, & EREP for Model 75	360S-DN-530	
Report Program Generator	360S-RG-038	

\*\* Title changed.

\*\*\* Component new with this release.

Note 1: To use language compilers, the corresponding library is required.



If either 9-track or 7-track magnetic tape is not specified on the IBM Program Order form, 9-track tape will be forwarded.

Magnetic tapes may be ordered or forwarded or disk packs may be forwarded in accordance with current procedures as described in the DP Sales Activity section of the Branch Office Manual.

All components have been changed from previous releases except COBOL F and COBOL F Library.

Orders currently in transit to PID will be filled with Release 11.

#### Basic Program Material

The following SRL publications and documentation appropriate to the components ordered will be shipped by PID with each initial order. Machine readable material is distributed as indicated below.

#### SRL Publications

##### System/360 Operating System:

Job Control Language TNL N28-2214, N28-2226*	C28-6539-4
Operator's Guide TNL N28-2209, N28-2218*	C28-6540-4
Supervisor and Data Management Services TNL N28-2202	C28-6646-0
Supervisor and Data Management Macro Instructions TNL N28-2217, N28-2223*	C28-6647-0
Checkpoint and Restart	C28-6656-0*
System Programmer's Guide TNL N28-2221*	C28-6550-2
Storage Estimates TNL N28-2231*	C28-6551-3
System Generation TNL N28-2230*	C28-6554-2
Messages and Completion Codes and Storage Dumps TNL N28-2235*	C28-6631-1
Starter System Operating Guide	C28-6630-1*
Maintenance TNL N28-2160	C27-6918-0
Utility Programs TNL N28-2225*	C28-6586-4
TESTRAN	C28-6648-0
Sort/Merge TNL N28-2216 and N28-2238*	C28-6543-3
Assembler F Programmer's Guide	C26-3756-1
Assembler E Programmer's Guide TNL N28-2140	C28-6595-0
FORTRAN IV E Programmer's Guide TNL N28-0211*	C28-6603-1
FORTRAN IV G Programmer's Guide TNL N28-2212 and TNL N28-0212*	C28-6639-0
FORTRAN IV H Programmer's Guide TNL N28-2211 and N28-2228*	C28-6602-0
FORTRAN IV Library Subroutines	C28-6596-2*
COBOL E Programmer's Guide	C24-5029-2
COBOL F Programmer's Guide	C28-6380
ALGOL F Programmer's Guide	C33-4000-0*
Linkage Editor TNL N28-2201 and N28-2224*	C28-6538-3
PL/I F Programmer's Guide TNL N33-6000	C28-6594-1
PL/I F Library Computational Subroutines	C28-6590
Graphic Programming Services for 2250 Display Unit	C27-6909-3*
Graphic Programming Services for 2260 Display Station (Local)	C27-6912-3*
QTAM Message Control Program TNL N30-5006*	C30-2002-1
QTAM Message Processing Program TNL N30-5005*	C30-2003-1
Basic Telecommunications Access Method TNLs N30-5007*, N30-5013*.	C30-2004-0*

\*Denotes change from previous release

If only the form numbered manuals or additional manuals are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

Documentation -- Program Material List ... OS/360 Phase

Machine Readable -- The complete OS/360 is distributed:

- For the Three Drive 2311 User -- On three 2400 foot reels of magnetic tape, either 9-track (800 BPI), or 7-track (800 BPI Data Conversion feature required), or three 1316 Disk Packs.
- For the 2314 User -- On one 2400 foot reel of magnetic tape, either 9-track (800 BPI), or 7-track (800 BPI Data Conversion feature required).
- For the Two Drive 2311 User -- The customized OS/360 is distributed on two 2400 foot reels of magnetic tape, either 9-track (800 BPI), or 7-track (800 BPI Data Conversion feature required), or two 1316 Disk Packs.

#### (B) OS/360 32K Support Withdrawal and Data Management Schedule Changes

OS/360 support for 32K systems is withdrawn. 64K is now the minimum main storage requirement. Starter systems will continue to operate within the 64K minimum requirement.

Data Management schedule changes are as follows:

Error Statistics by Volume, End of Volume Checkpoint Exit and Label Exits for User Modifications are deferred from a 7/31/67 availability to a date to be announced on October 15, 1967.

Tape Unit Pool support is withdrawn.

Users affected by these changes should be notified immediately.

*John Fahey*  
John Fahey  
Director of DP Marketing

#### Note to World Trade Readers

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- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] If DTR distribution is indicated in the above, program distribution media may be different in your area based on local conditions.
- [5] All references made to the Program Information Department [PID] should be understood to mean the appropriate WT Program Library.
- [6] Any reference made to DPD Departments as sources of information or for manuals etc. should be understood to mean the comparable WT Department.
- [7] Communications facilities or services may be required which are not offered in all WT countries. In case of any doubt as to the availability of suitable communications facilities, the country Teleprocessing Coordinator should be consulted.
- [8] All references made to Engineering Changes required for programs should be verified with the local CE Branch Office. Although E/C requirements are identical for WT and IBM, E/C availability dates and shipping schedules may differ.

OS/360 QTAM

Communications Serviceability Facilities (CSF) are being added to OS/360 QTAM. Availability will be October 31, 1967.

**CONTENT**

OS/360 QTAM ... CSF being added.  
Availability will be October 31, 1967.

Published by DP Sales Publishing Services, WTHQ

Customers installing System/360 in an on-line environment require high system availability. CSF is essential in achieving this, since CSF provides diagnostic aids and statistics for effective repair and preventive maintenance. In addition, many communication line and/or terminal failures can be diagnosed and repaired while the unaffected portion of the Tele-processing application continues to run. After repair, components may be smoothly integrated into a running Tele-processing application program. System Recovery is facilitated by operator control and checkpoint/restart facilities.

**1. Error Recovery Procedures**

Provides for retry and recovery from recoverable errors. For non-recoverable errors, pertinent information is printed at the system operator console, and a user exit is taken to enable appropriate user action, such as taking the line out of service. The 2701 Diagnostic Write/Read Commands are also supported to determine if a non-recoverable error is either in that control unit or external to it.

**2. Error Counts**

Error counts will be maintained on a line basis. These will be printed at the system operator console when a user specified error rate is exceeded. This provides the statistics necessary for both system repair and preventive maintenance.

**3. On-Line Terminal Tests**

Terminal test procedures will operate on-line with the user problem program. These can be initiated at any time to enable the diagnosis and repair of terminals while the unaffected portion of the telecommunications system continues to run. After repair, components can be smoothly integrated back into the system.

**4. Operator Control (Optional)**

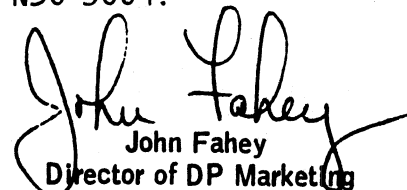
Operator control is provided as an option to enable an operator to examine and modify QTAM control information and to respond to errors and unusual conditions. A local 1050 Data Communications System or 2740 Communications Terminal with station control and checking is required for this function. When operator control facilities are used, the operator messages described above are directed to the operator control terminal instead of the system operator console.

**5. Checkpoint/Restart (Optional)**

Checkpoint/Restart is provided for the QTAM message control program as an optional facility. The terminal table queue control blocks and the polling lists are checkpointed on the disk at user specified intervals. Restart will be accomplished by reloading the QTAM message control program. The latest checkpoint of the table and control blocks will be read in and will overlay the initial table and control blocks.

Publications: System/360 Operating System Queued Telecommunications Access Method Message Control Program, C30-2002 ... System/360 Operating System Queued Telecommunications Access Method Message Processing Program Services, C30-2003-1 and TNL N30-5004.

SEE REVERSE SIDE FOR  
"NOTE TO WORLD  
TRADE READERS"

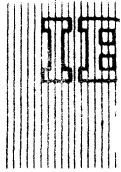
  
John Fahey  
Director of DP Marketing

Release Date: May 15, 1967  
Distribution: All Areas

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- [8] All references made to Engineering Changes required for programs should be verified with the local CE Branch Office. Although E/C requirements are identical for WT and IBM, E/C availability dates and shipping schedules may differ.



Collapsin

ing 67-43

Program Announcements

[A] DOS/360 QTAM

New capabilities are being added to DOS/360 QTAM for your Tele-processing users: [1] Communication Serviceability Facilities (CSF) which significantly improve telecommunications systems availability and serviceability ... [2] IBM 2740 Data Communications Terminal with its optional features which extends DOS/360 QTAM support to new application environments.

Availability will be September 29, 1967.

The new serviceability features are significant for the high availability environment of telecommunications because they increase system availability by providing statistics and diagnostic aids for both effective system repair and preventive maintenance. In addition, communication line and/or terminal failures can be diagnosed and repaired while the unaffected portion of the Tele-processing application continues to run. After repair, components may be smoothly integrated into a running Tele-processing application program. System Recovery is facilitated by operator control and checkpoint/restart facilities.

These new facilities are:

1. Error Recovery Procedures

These provide for the recovery from recoverable errors, or the console print-out of pertinent information on non-recoverable errors.

Diagnostic Write/Read Commands (2701 only), are performed to locate non-recoverable errors either to the control unit or external to it.

2. Error Counts

Counts will be maintained for errors on a line basis. Error Statistics will be printed at the system operator console when user specified threshold counts are exceeded, which can be effectively used for both systems repair and preventative maintenance.

3. On-Line Terminal Tests

Terminal test procedures will operate on-line with the user problem program. These can be initiated at any time to enable the diagnoses and repair of terminals while the unaffected portion of the telecommunications system continues to run. After repair, components can be smoothly integrated back into the system.

Tests are provided only for IBM Terminals.

4. Operator Control (Optional)

Operator control is provided as an option to enable an operator to examine and modify QTAM control information and to respond to errors and unusual conditions. A 1050 Data Communications System or 2740 Communications Terminal with station control and checking is required for this function. When operator control facilities are used, operator awareness messages may be directed to the operator control terminal instead of the systems operator console.

5. Checkpoint/Restart (Optional)

Checkpoint/Restart is provided for the QTAM message control program as an optional facility. The terminal table queue control blocks and the polling lists are checkpointed on the disk at user specified intervals. Two checkpoint records are kept with a pointer to the most current record. Restart will be accomplished by reloading the QTAM message control program, using the latest checkpoint records to overlay the initial queue control blocks and polling lists.

DOS/360 QTAM supports a comprehensive array of terminals which now include the 2740 with its flexible array of optional features. The following 2740 configurations are now supported:

- Basic 2740
- Basic 2740 with Record Checking
- Basic 2740 with Station Control
- Basic 2740 with Station Control and Record Checking
- Basic 2740 with Dial Up
- Basic 2740 with Dial Up and Record Checking
- Basic 2740 with Dial Up and Transmit Control
- Basic 2740 with Dial Up, Transmit Control, and Record Checking

CONTENTS

DOS/360 QTAM ... new capabilities added. [A]

Program Withdrawals ... 305, 650, 705, 7750. [B]

Published by DP Sales Publishing Services, WTHO

Publications: System/360 Disk Operating System QTAM Message Control Program, C30-5002-1; System/360 Disk Operating System Queued Telecommunications Access Method Message Processing Program Services, C30-5003-1.

Minimum System Configuration: 32K bytes of main storage\*\* ... Standard instruction set ... Storage protection ... One selector channel for system residence ... One multiplexer channel for communications control units ... One card reader\* ... One card punch\* ... One printer\* ... One 1052 printer keyboard ... One direct access storage device for System Residence\* ... Communication equipment necessary to interface to the communication line.

Devices Supported

Error Recovery Procedures

2701, 2702, 2703

Supporting - 1030, 1050, 1060, 2740, WU 115A, AT&T 83B3, and AT&T Models 33/35 (8-level code) on a TWX network.

2701

Also supporting - 2260 Remote

Error Counts

2701, 2702, 2703

Supporting - 1030, 1050, 1060, 2740, WU 115A, AT&T 83B3, and AT&T Models 33/35 (8-level code) on a TWX network.

2701

Also supporting 2260 Remote

On Line Terminal Test

2701, 2702, 2703

Supporting - 1030, 1050, 1060, 2740

2701

Also supporting - 2260 Remote

Operation Control

2701, 2702, 2703

Supporting - 1050, 2740 (with Station Control)

Checkpoint/Restart

2701, 2702, 2703

Supporting - 1030, 1050, 1060, 2740, WU 115A, AT&T 83B3, and AT&T Models 33/35 (8-level code) on a TWX network.

2701

Also supporting - 2260 Remote

\*See Control Program Input/Output chart on "Programming" Page 360.24.2 (February, 1967 Revision) for acceptable units and possible substitutions.

\*\*The addition of Communication Serviceability Facilities (CSF) to DOS/360 QTAM increase (approximately 3.5K depending upon the customer's application) the core storage requirements of the resident program. While a minimum number of communication lines will operate in 32K, most QTAM applications will require at least 64K. It is strongly recommended that you consult with your Field System Center or Regional Systems Assurance for guidance as to the proper configuration to meet performance and core storage requirements.

[B] Program Withdrawals

See the reverse side for the list of programs that are no longer available. These programs have had no usage during the past year and will no longer be distributed by the Program Information Department.

*John Fahey*  
John Fahey  
Director of DP Marketing

## PROGRAM WITHDRAWALS

### RAMAC 305

- AT-007 - Three Trace Programs - stored program, process panel, post trace
- LM-005 - Programmed Division
- LM-006 - Floating Point Subroutines for the 305 Ramac
- MI-002 - Linear Programming Routine
- MI-004 - General Purpose Board Test
- PR-001 - Computer Package for the IBM 305 Ramac
- SP-003 - Symbolic Programming and Assembly for the IBM Ramac 305
- UT-008 - Utility Programs

### 650 DATA PROCESSING SYSTEM

- AT-001 - General Tracing Routine
- FO-301 - FORTRANSIT I
- FO-302 - FORTRANSIT I S
- FO-303 - FORTRANSIT II
- FO-304 - FORTRANSIT II S
- FO-305 - FORTRANSIT III
- FO-306 - FORTRAN
- LM-004 - Floating Point Sine A and Cosine A
- LM-005 - Floating Point Arctangent
- LM-006 - Square Root
- LM-007 - NTH Root Fixed Point
- LM-008 - Floating Point Exponential
- LM-009 - NTH Root Floating Point
- LM-010 - Floating Point Square Root
- LM-011 - FORTRAN Subroutines
- LM-012 - FORTRANSIT Subroutines
- SM-401 - Tape Merge 2
- SM-402 - Sort 2
- SM-403 - Sort III
- SP-201 - Basic Soap 2A
- SP-202 - Tape Soap 2A
- SP-203 - Soap 2L
- SP-204 - Tape Soap 2L
- SP-205 - Soap II A - 400
- SP-206 - Soap 42
- SV-101 - Ramac Supervisor
- UT-002 - Card to Tape Routine
- UT-003 - Tape-to-Printer/Punch
- UT-102 - Zero Disk Storage
- UT-103 - Load and Unload Disk Storage I
- UT-104 - Load and Unload Disk Storage II
- UT-105 - General Input/Output Scheduling Program
- UT-106 - Sort Delete
- UT-108 - Chain Loading, Additions and Deletions

### 705 DATA PROCESSING SYSTEM

- AT-057 - APTS 80
- MI-059 - List 77
- PR-044 - 7058 Processor
- PR-131 - 7058 Cobol Processor
- SM-048 - Sort 54
- SM-049 - Sort 54T
- SM-050 - Sort 57
- SM-051 - Sort 54/

### 7750 PROGRAMMED TRANSMISSION CONTROL SV-139 - Data Control Package

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Colophon

L-44

# Program Announcement

## IBM 1800 Programming System

<u>CONTENT</u>	
1800 Programming Systems ...	
2310C supported.	

In support of the new 2310C Disk Storage, which is being announced today, all disk I/O subroutines for the 1800 Card/Paper Tape Programming Systems and the 1800 Time-Sharing Executive System will be modified to allow for the 2310C. This modification, to be available December 1967, allows the disk routines to operate on an 1800 system with either 2310A drives or 2310C drives. The modified routines require, on the average, an additional 30 words of core storage. The disk calling sequences have not changed.

While the 2310A disk drives accept a difference address indicating the direction and number of tracks of movement required, the 2310C requires only an absolute (physical) cylinder address. Thus, all disk I/O routines must determine which type of disk is present on the system before a seek command can be issued. This determination is made by sensing the device status word. All 2310C disk drives will have a bit in position 13 of the DSW.

The disk routines which have been changed for the 2310C and their program sizes are:

### 1800 Card/Paper Tape Programming System

<u>Disk Routines</u>	<u>Program Sizes</u>
DPiR	1710
DISK0	390
DISK1	724
DISKN	1096

### 1800 Time-Sharing Executive System (TSX)

<u>Disk Routines</u>	<u>Program Sizes</u>
DISKN	910
COLD START	74
TASK DISK WRITE ADDRESS	3200 (Including I/O areas)

The difference in execution time by implementing the 2310C disk drive capability in the DISKN subroutines and COLD START program is negligible.

On a seek incomplete, the disk routines (DISK0, DISK1 and DISKN) will retry the seek up to 10 times before indicating that a seek error exists. Read errors will be retried up to 50 times before an error is indicated.

When the program modifications affecting 2310C are released, the information listed above will be added to the following publications: 1800 Subroutine Library, C26-5880 ... 1800 Time-Sharing Executive System Specifications, C26-5990.

SEE REVERSE SIDE FOR  
"NOTE TO WORLD  
TRADE READERS"

Published by DP Sales Publishing Services, WTHQ

  
John Fahey  
Director of DP Marketing

Release Date: May 22, 1967  
Distribution: All Areas

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OS/360 -- PL/I F

The third version of the PL/I F level compiler, which is part of a continuing program for performance and functional improvements to PL/I, will be available October 31, 1967.

Significant improvements will be made in the speed of object program execution, especially in commercially oriented programs. Additionally, notable improvements in the speed of compilation and allowable size of source programs will be realized. These improvements supplement the language facilities provided in previous versions of the compiler.

The specific improvements are detailed below. The overall improvements in an installation must be determined on a program-by-program basis. A selected sample of commercially oriented programs obtained improvements of up to 4 to 1 in object execution speeds, with an average improvement of 2 to 1. Improvements of up to 1.6 to 1 for compilation time were also obtained. The capacities of certain compiler tables has been increased. This improvement will permit the compilation of larger program segments.

This version will provide an optional third level of optimization of object performance, as well as improvement to the currently available two levels of optimization. The performance improvements require no significant increase in object storage. In some cases a decrease of object storage can be obtained.

In addition, a Batch Compilation facility can provide a significant reduction in job time by eliminating many of the job steps required for individual compilation of PL/I program segments. Also included in Version 3 will be the UPDATE sequential facility which had been scheduled for July 31, 1967.

PLANNING CONSIDERATIONS:

Installations should plan to recompile existing PL/I source programs to utilize the performance improvements of the release. The effects of the improvements will be least noticeable for programs which have been highly hand tuned to the characteristics of the compiler. In such cases, the following improvements should be carefully matched to the programs to evaluate the effect.

Current, as well as planned application program development, should be reviewed to establish the degree of improvements that will be achieved with this release. Program-by-program evaluation should confirm the usefulness of PL/I for development, operation and maintenance of production programs.

SPECIFIC IMPROVEMENTS:

Conversions

- Data conversions are normally used extensively for Input/Output operations and report preparation. The overall object performance improvement is at least 10 to 1.

In Line Conversion

Improvements to conversion include the generation of in-line code for certain cases of conversions between the following data types:

- FIXED DECIMAL to and from Numeric fields where the picture characters are limited to 9 and V with non-drifting S + - or \$.
- FIXED DECIMAL to numeric fields where the picture characters may be + - \$ Z \* 9 S V . / , and B.
- FIXED DECIMAL and Numeric fields to fixed-length character strings.
- FIXED DECIMAL to and from FIXED BINARY.
- FIXED DECIMAL, precision less than 10, and FIXED BINARY to FLOAT.

Further improvements have been achieved by changes to the Library Conversion routines.

Array Expressions

- An array expression containing only unsubscripted arrays whose ele-

CONTENT

OS/360 --- PL/I F ... new version will be available.

Published by DP Sales Publishing Services, WTHQ

ments are equally spaced in storage, will generate a single iterative DO loop for each dimension, thus reducing processing time.

Non-arithmetic data handling

- Used extensively for character and bit manipulation, as well as for logical operations. The following facilities are important for handling data records and fields within records, tables and data editing.

SUBSTR function and pseudo-variable

All cases of SUBSTR now generate in-line code. The gain in object performance for code using SUBSTR is up to 15 : 1 depending on usage. Note that the SUBSTR function and pseudo-variable is redefined in a TNL (N 28-0557) to the IBM System/360 Operating System PL/I Language Specifications (C 28-6571).

INDEX function

The INDEX function generates in-line code for Character String arguments provided that the second argument is fixed-length, non-varying and not greater than 256 characters. The gain in object performance will be between 1.3 to 1 and 2.5 to 1.

UNSPEC function and pseudo-variable

The code generated for UNSPEC is improved to take advantage of those cases where the argument is fixed-length.

String Operations

Improvements to String operations comprise changes to Library string-handling routines and the generation of in-line code for additional cases of operations on strings which are fixed-length, non-varying and not greater than 256 bytes in length.

New functions - which also improve performance

- EVENT option

The following language features are implemented to permit overlap between seeking and transmission of data, and the processing of data for the following access methods: BDAM and BISAM. In addition, for sequential files using BSAM, data transmission may be overlapped with processing and avoid the requirement for multiple buffers. In effect, the programmer can schedule multiple I/O operations.

- EVENT option on Record I/O statements
- WAIT statement
- EVENT function and COMPLETION pseudo-variable

Batch Compile

The facility is provided to compile more than one External Procedure (program segment) within the same Job Step.

Linkage Editing of Object Modules

The method of including Library routines into an object program is changed to facilitate both the Linkage Editing of PL/I object modules from a library and the use of overlay with PL/I object modules.

Array Initialization

Arrays of AUTOMATIC or CONTROLLED variables may be initialized using the INITIAL attribute.

Mixed Defining

The severity level of error messages for defined data whose type is different from the type of the base is reduced from TERMINAL error, permitting the execution of programs using mixed defining.

Update Sequential

The UPDATE mode is supported for sequential access, disk resident of data sets with CONSECUTIVE or REGIONAL organization.

\* Availability to be announced in a Publication Release Letter.



General - effecting overall improvements

• PL/I Housekeeping Overheads

General improvements to the Library routines which handle object time errors and procedure housekeeping are included. Also an improvement of 1.5 to 1 is made in the overhead for a procedure invocation at the lowest level. This improvement will be obtained only if OPT=1 is used as a compiler option.

GO TO Label-Variable

In-line code is generated for cases where the declaration of the label variable is qualified by a list of statement labels in the same block as the GO TO statement. The gain in execution time for such a statement is of the order of 10:1.

Register Allocation

A new algorithm employing look-ahead is used to improve areas of code with heavy register usage.

Addressing of DEFINED data

Direct addressing is used for certain cases of data which are overlay defined.

Details of these features will be provided in three publications:

IBM System/360 Operating System PL/I Language Specifications, C28-6571 ... IBM System/360 Operating System PL/I (F) Programmer's Guide, C28-6594 ... IBM System/360 Operating System PL/I Library, Computational Subroutines, C28-6590.

Note:

The specification by the user of a REGIONAL or INDEXED data set organization, requires the presence in his generated system of BDAM and ISAM modules respectively. The presence of BSAM/QSAM is always required.

Use in the PL/I program of the TIME built-in function or the DELAY statement requires option 6A (Time).

Users who wish to reassemble modules of the PL/I Library require an assembly program with pseudo-register support. The OS/360 F Assembler provides this.

  
John Fahey  
Director of DP Marketing

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- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
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System/360 Model 44 Programming System

Release 1 of the System/360 Model 44 Programming System consists of the following programs which are now available:

Stand Alone Utilities

2315 Disk Initialization	360F-UT-607
2311 Disk Initialization	360F-UT-608
Save/Restore (Stand Alone Utility)	360F-UT-609
Print/Punch (Stand Alone Utility)	360F-UT-610
Absolute Loader (Stand Alone Utility)	360F-UT-611
System Construction	360F-UT-612

System Components

44 PS Supervisor	360F-IO-613
44 PS Job Control	360F-CL-614
44 PS Linkage Editor	360F-ED-615
44 PS Assembler	360F-AS-616
44 PS Utilities	360F-UT-617
44 PS FORTRAN Compiler	360F-FO-618
44 PS FORTRAN Library	360F-LM-619

The 64K Programming System for the Model 44 provides your customers with a Full USA Standard FORTRAN Compiler completely compatible with OS/360 FORTRAN G and H. The Assembler provides update abilities similar to those provided by 7090 IBSYS, a facility not provided by any other System/360 programming system. By adding the Trap and Emulate RPQ on the Model 44 your customer can take advantage of any System/360 programming system without modification.

Extension of the Model 44 Programming System to include other than the announced language components is not planned. However, Model 44 customers can expand the capabilities of their system with the Trap and Emulate RPQ which provides the non-Model 44 instructions. Initial tests indicate Model 44 Trap and Emulate performance to be satisfactory. With this capability your customer can use his Model 44 with any available System/360 programs in addition to 44 PS which is tailored for his scientific job mix.

Basic Program Material:

SRL Publications --

System/360 Model 44 Programming System Guide to System Use	C28-6812-1
Guide to System Use for FORTRAN Programmers	C28-6813-0
Systems Programmer's Guide	C28-6814-0
Operator's Guide	C28-6815-0

Directions for using the Sample Program Input deck are contained within the basic publication, System/360 Model 44 Programming System - Systems Programmer's Guide, C28-6814-0.

If only the form numbered manuals are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

Documentation -- Program Material List.

Machine Readable -- The System/360 Model 44 Programming System is distributed in card form or on one 9-track DTR or on one 7-track DTR (requires Data Conversion feature).

Ordering Procedures:

To order the System/360 Model 44 Programming System, use the Program Order Form for System/360 Operating Systems, (120-1411), specifying the program number of each component required.

Each Model 44 PS DTR order includes the entire collection of machine readable components. Each card form order includes only

CONTENT

System/360 Model 44 ... various programs now available.

Published by DP Sales Publishing Services, WTHC

those components specified on the order form. Maintenance will be supplied only for those components specified on the order form.

If either 9-track DTR or 7-track DTR is not specified, 9-track will be forwarded. The DTR is supplied by PID; no tape submit-tal is required.

For further information contact your Regional Product Programs Model 44 Representative.

See the attached sales manual pages for minimum system requirements, engineering change level requirements, and other information.

*John Fahey*  
John Fahey  
Director of DP Marketing

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1410/7010 Emulator Program

S/360 Models 40 and 50 1410/7010 emulators will support 2314 emulation of 1301 and 2302 Disk Storage.

The new versions of the 1410/7010 emulator program will expand emulation support to include the 2302 Disk Storage Units Models 1 and 2. The 2314 Direct Access Storage facility is the corresponding device used on S/360 Models 40 and 50. Support for the 1301 Disk Storage Models 1 and 2, offered prior to this release on S/360 Models 40 and 50 equipped with 2302 Disk Storage Models 3 and 4, is now also offered through use of the 2314 Direct Access Storage facility. This support is in addition to, and not a replacement of, the present emulation support on the 2302. The new versions with added functions will make previous emulator versions obsolete.

The 1410/7010 Compatibility feature (#4478) is required on S/360 Models 40 and 50.

Availability:

For System/360 Model 50 July 1967.  
For System/360 Model 40 January 1968.

Performance:

S/360 Model 40: The extended disk support (1301 Models 1 or 2 on 2314 Model 1) and expanded disk support (2302 Model 1 and 2 on 2314 Model 1) will provide increased operating speed for disk operations, thus decreasing the execution time for disk operations by up to ten percent that of the 1410 time (depending on the operation performed) when the 2314 Direct Access Storage Facility is used. See Appendix A in SRL C28-6563-3 for 2314 disk timing information.

S/360 Model 50: The extended disk support (1301 Models 1 or 2 on 2314 Model 1) and expanded disk support (2302 Models 1 and 2 on 2314 on Model 1) will provide increased operating speed for disk operations, thus decreasing the execution time for disk operations by up to 30 percent that of the 1410 time (depending on the operation performed) when the 2314 Direct Access Storage Facility is used. See Appendix C in SRL C28-6568-2 for 2314 disk timing information.

Device Correspondence:

For S/360 Models 40 and 50

1410/7010 Disk Storage Unit	S/360 Model 40 or 50 Disk Storage Unit
1301 Disk Storage Mdl 1 or 2	2302 Disk Storage Mdl 3 or 4 or 2314 Direct Access Storage Facility Mdl 1.
2302 Disk Storage Mdl 1	2314 Direct Access Storage Facility Mdl 1.
2302 Disk Storage Mdl 2	Two 2314 Direct Access Storage Facilities - Mdl 1's.

Note: Three 2314 Direct Access Storage Facility Model 1 modules (of the eight available) are required to emulate one 1301 or 2302 access arm. Unused 2314 modules remain available for other operations.

Core Storage Requirements:

For S/360 Model 40

No change over previous version.

For S/360 Model 50

The storage requirements of the 1410/7010 emulator program on the Model 50 begin at 64K positions and increase depending on the size of the 1410/7010 system being emulated. A 1410/7010 system having 10K or 20K of storage can be emulated on

CONTENTS

1410/7010 Emulator Program ... expanded to include the 2302 Disk Storage Units.

Published by DP Sales Publishing Services, WTRO

a S/360 Model 50 with 64K of storage. Larger 1410/7010 systems will require a Model 50 with at least 131K of storage. This is a change from version 2 of the 1410/7010 emulator program for S/360 Model 50. Present users emulating 40K 1410/7010 systems on a 64K Model 50 will require 131K of storage to use version 3, whether or not the 2314 Direct Access Storage Facility Model 1 is to be used as a matching DASD.

Support Publications: System/360 Conversion Aids: The 1410/7010 Emulator Program for System/360 Model 50, C28-6568-2 ... The 1410/7010 Emulator Program for IBM System/360 Model 40, C28-6563-3 ... System/360 Component Description 2314 Direct Access Storage Facility, A26-3599-2 ... IBM System/360 Component Descriptions: 2841 Storage Control Unit, 2302 Disk Storage Unit Models 3 and 4, 2311 Disk Storage Drive, 2321 Data Cell Drive Model 1, 2302 Drum Storage, A26-5988-3.

*John Fahey*  
John Fahey  
Director of DP Marketing

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**IBM**

IBM World Trade Data Processing

67-48

## Program Announcement

**IBM System/360 Generalized Information System (GIS)**

This announcement supersedes P66-36 and item C in P66-103; therefore, it should be read in its entirety.

**CONTENTS**

IBM System/360 Generalized Information System (GIS) ... an application program.

Published by DP Sales Publishing Services, WTHQ

A review of the development schedule for the Generalized Information System shows that completion of some program components will require significantly more time than originally estimated. Consequently, the following changes have been made to the production and release plan:

- Programs required to provide the GIS Document Processing functions will be released as an independent application program. This program is called S/360 Document Processing System and is described on the back of this letter. With this capability, a user can establish and maintain an indexed master file of document reference information and text, and search this file using keyword, text position, and reference parameters to qualify selection. It will be available December 1967. The special features: Keyword-in-Context listing, Keyword-out-of-Context listing, and selective dissemination of new information previously planned to be a part of Document Processing are withdrawn (the facility to compile a dictionary of keywords is retained). Availability of the Document Processing Application Description Manual will be announced in a PRL (preliminary copies will be available in June 1967 and may be obtained from your Field Systems Center).
- Additional internal technical alternatives are being analyzed for the remaining GIS functions, including multi-tasking and Tele-processing, to determine plans and availability schedules. Because of the importance of GIS to our customers and the complexity of this program, we are going to complete detailed design, program coding and internal system testing prior to announcing a new delivery schedule. Technical specifications and the availability date for Basic GIS will be announced in April 1968. Technical specifications and the availability date for Multi-tasking and Tele-processing GIS will be announced in September 1968.

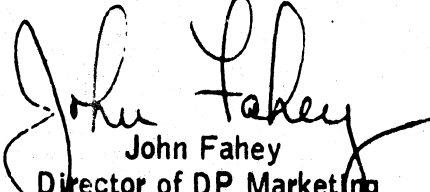
The previously specified minimum system requirement for GIS, namely, System/360 Model 2030F, is withdrawn ... minimum system requirement for System/360 Document Processing System is in the sales manual page ... minimum system requirements for various GIS functions will be announced with the technical specifications for these functions.

The Application Description Manual (E20-0179) is withdrawn since it is no longer accurate.

Customers affected by these changes should be notified promptly.

See the back of this letter for the text that will appear in the sales manual.

For further information contact Field Systems Center.

  
John Fahey  
Director of DP Marketing

Release Date: May 26, 1967  
Distribution: All Areas

P67-48

**Generalized Information System (GIS):** A review of the development schedule for the Generalized Information System shows that completion of some program components will require significantly more time than originally estimated. Consequently, the following changes have been made to the production and release plan:

- Programs required to provide the GIS Document Processing functions will be released as an independent application program. This program is called System/360 Document Processing System and is described below.
- Additional technical alternatives are being analyzed for the remaining GIS functions, including Multitasking and Tele-processing to determine plans and availability schedules.

Technical specifications and the availability date for Basic GIS will be announced in April 1968. Technical specifications and the availability date for Multitasking and Tele-processing GIS will be announced in September 1968.

**Document Processing System:** Provides the capability to search reference or text data by document. (This system was formerly included as part of GIS.) Typical application areas

visualized include automobile service reports (safety analysis), drug adverse reaction studies, commercial analysis information, legal or legislative research, company suggestion plans (to reduce manual analysis) or any other data application where extensive indexing is required and manual methods are inadequate.

**Description:** Document Processing provides a system of programs that allows a user to: (1) establish and maintain an indexed master file of document reference information and text, and (2) search this file using keyword, text position, and reference parameters to qualify selection. After the composition of a data base has been described to the system, it will accept records containing formatted document reference information (such as author, title, and date of publication) and natural text. The input processing programs will use the significant words as determined by a user to update index and master files, including text data. Synonym and grammatical equivalence relationships between significant words may be established at user discretion. One or more data bases may be developed within the system. A user may query a data base by expressing selection parameters and output preferences in the system's search language. Master or text records may be selected and listed on the basis of text keywords including synonyms and grammatical equivalents, keywords in specified positional relationships, formatted reference fields, and logical combinations of these.

**Features:** Input record options for formatted Reference Information Fields (up to 250 variable length fields) and natural text ... Keyword-Coordinate Index, consisting of Dictionary (containing all user approved "search" words) and Coordinate Index (containing all document numbers in which search words appear) ... Synonym/Equivalents (an optional file containing one or two user-established substitution lists for dictionary words) ... Master file, containing for each document the formatted Reference Information Fields, Searchable Text, and compact (binary coded) representation of the original text ... Text File (an optional file containing directly printable text) ... File Maintenance Language for adding information to data base files, control of dictionary and synonym/equivalence entries, and document and index deletion ... Printed Index -- search word and document frequencies, document cross references, and reference field and text listing by selected keyword ... Search and Output Language allowing keyword (dictionary) parameters; sentence, paragraph or positional separation restrictors; synonym, equivalence, or truncation expandors; reference field parameters; or logical combinations of parameters.

**Use:** The program accepts formatted and narrative data and converts the latter into a searchable dictionary and associated inverted vocabulary file containing all references to each dictionary word. The relative location of each significant word is maintained in the master file, as well as the contents of the formatted fields. An optional Text File is also available from the narrative data, as well as a Synonym/Equivalent capability to substitute user-selected words for the search terms. Provision also exists to produce a printed topical index from the contents of the master and inverted vocabulary files.

**Customer Responsibilities:** If the user's present data record structure is not compatible, the user must provide an input program to reformat his data record structure into that acceptable by document processing. This auxiliary program should also include provision for testing that the data adhere to the word, sentence, and paragraph termination conventions selected by the user. Since this system will normally be used to process enormous data bases, it is strongly recommended that only a small data base be prepared initially as a test vehicle to gain a thorough user understanding of the system before full scale data base implementation is attempted.

**Programming System:** The Document Processing System is written in the OS/360 Assembler Language. The following OS/360 options and components are required for its operation:

- Control Program Option 20 (Input/Output Support for BDAM)
- Utilities (360S-UT-506)
- Sort/Merge (360S-SM-023)
- Linkage Editor F (360S-ED-521)

**Minimum System Requirements:** Document Processing requires OS/360 facilities for planned configurations. As a guideline, Document Processing requires a System/360 Model 2040 G. The requirement for Dynamic Main Storage is 44K bytes. In addition to OS/360 secondary storage requirements, a minimum of three 2311s (or equivalent) is recommended. Peripheral devices needed include a card reader (for system generation), a tape station or printer (for output), and provision to sort the user's data sets. The allowance of 44K bytes for Document Processing includes the OS/360 SAM and BDAM access method requirements.

For further information contact your Field System Center.

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**IBM****IBM World Trade Data Processing**

67-49

Program Announcements

**IA) IBM System/360 Model 20 MICR Input/Output Control Systems for IBM 1419 Magnetic Character Reader**

The MICR (1419) IOCS is now supported as part of the Model 20 Tape and Disk Input/Output Control Systems.

Availability -- MICR IOCS Tape ... August 15, 1967  
MICR IOCS Disk ... March 15, 1968

**Purpose:**

The MICR IOCS provides the user with efficient and tested routines which, by means of macro instructions and interrupt routines, control and optimize magnetic character reader input and printer output.

**Performance:**

The time is dependent upon options of the IOCS employed. The available user stacker select time will vary from approximately 8 to 14 milliseconds. Approximately 4.5 milliseconds more processing time than was available in the Model 20 1419 Card IOCS is made available by providing a priority parameter. This can be utilized in those applications where one document per line printing is not required.

Core storage required by the 1419 and printer IOCS routines is approximately 1,000 bytes, including most of the optional features.

For more detailed performance information, refer to SRL IBM System/360 Model 20 1419 Tape/Disk IOCS SRL C33-6001.

**Devices Supported:**

IBM 1419 Magnetic Character Reader Model 1, including the following features:

- Batch Numbering
- Programmable Pocket Lights
- 51-Column Sorting

IBM 1403 Printer  
Models 2, 7, and N1

Features include:

- Interchangeable Chain/Train Cartridge
- Selective Tape Listing
- Universal Character Set (N1 only)

IBM 2203 Printer

Features include:

- Additional Print Positions
- Additional Tape Positions

For further information see the text on the back that will appear in the sales manual.

**IB) IBM 1800 Time-Sharing Executive System**

A new version ... new features ...

Version 3 of the 1800 Time-Sharing Executive System, 1800-05-001, a self-contained operating system, is available.

The new version includes:

Improvements to the system concerning disk initialization, error recovery procedures, enabling the use of disk cartridges with up to three defective cylinders, and corrections to over sixty error conditions.

Version 3, Modification Level 0, which supersedes Version 2, is documented in the SRLs IBM 1800 Time-Sharing Executive Systems Operating Procedures, C26-3754-2 and IBM 1800 Time-Sharing Executive System Specifications, C26-5990-2

Minimum System Requirement: Unchanged.

**CONTENTS**

MICR (1419) IOCS ... now supported as part of the Model 20 Tape and Disk Input/Output Control Systems. [A]

1800 Time-Sharing Executive System ... a new version, new features. [B]

Availability of Programs Recorded at 1600 BPI ... now available on 9-track tape. [C]

Published by DP Sales Publishing Services, WEHC

**Basic Program Material:**

Documentation -- Program Material List, and an Attachment to User.

SRL Publications -- 1800 Time-Sharing Executive System Specifications, C26-5990-2 and 1800 Time Sharing Executive System Version 3 Operating Procedures, C26-3754-2.

Machine Readable -- Twenty-eight object decks and three source decks (one of which is a sample problem deck), available in card form.

Current users will not receive the new version automatically. Instead, they will receive a prepunched Program Order Card and a letter announcing the new version and instructing them to order it through the branch office. Version 3 replaces Version 2 and maintenance support on Version 2 will be discontinued with this release.

If only the form numbered manuals supporting this program are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

**[C] Availability of Programs Recorded at 1600 BPI**

All System/360 programs available for distribution on 9-track tape, in 800 BPI mode, are now also available on 9-track tape in 1600 BPI mode.

Orders requesting distribution in 1600 BPI mode will be processed within the normal PID processing schedule of ten working days.

If 1600 BPI requirement is not clearly marked on the program order form of the magnetic tape reel, the order will be filled at 800 BPI.

This announcement supersedes item B in P-Letter P67-23.

*John Fahey*  
John Fahey  
Director of DP Marketing

Attachments [4]: [1 thru 4] P 360S.1 thru P 360S.7  
Release Date: May 29, 1967  
Distribution: All Areas

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P67-49

**System/360 Model 20 MICR Input/Output Control Systems for IBM 1419 Magnetic Character Reader:** The MICR (1419) IOCS is part of the System/360 Model 20 Tape and Disk Input/Output

Control Systems. The MICR IOCS provides the user with the routines to control and optimize Magnetic Character Reader input and printer output.

The MICR is utilized with user programs written in Model 20 assembler language and must be used in conjunction with the Model 20 Control and Service Programs. The MICR routines are part of the Model 20 Tape and Disk assembler macro libraries and may be used together with any other IOCS supported devices, e.g. tape, disk and punched card equipment.

Declarative macro statements specified by the user will generate the necessary coding required to control the magnetic character reader:

- Engaging and disengaging
- Document reading
- Interrupt servicing
- Control of a document input buffer
- Error checking
- Programmable pocket light and batch numbering control (optional features)

In addition, support will be provided for:

- Optimized printer operations.
- Selective tape listing features control (1403 only).

The user must provide a pocket selection routine that is entered under IOCS interrupt control. The user is provided a Get macro to retrieve documents from the input buffer. Documents are available sequentially to Get requests. Field error indications and pocket selection codes are associated with the corresponding document data.

User pocket selection and Get processing routines are executed asynchronously, therefore, a communications area is provided in each document input buffer to facilitate interroutine communication.

This support is not upwards compatible with higher System/360 Models.

Document rejects will occur if user pocket selection routines exceed the limits described in the performance section of the SRLs.

Document sorting must be based on fields read in the first 5.8 inches of the document.

Document rejects may occur if any single user instruction exceeds 2.7 milliseconds. Splitting of lengthy instructions or disengaging the Magnetic Character Reader prior to their execution is suggested.

**Minimum System Requirements:**

For program assembly of MICR IOCS, the Tape and Disk assembly requirements remain unchanged.

For object program execution, the user processing requirements dictate the storage size. Minimum storage sizes - tape system 8K - disk system 12K.

**Reference Material**

System/360 Model 20 1419 Tape/Disk IOCS SRL	C33-6001
System/360 Model 20 Assembly Language (Disk and Tape Programming Systems)	C24-9002
System/360 Model 20 Input-Output Control System-Tape	C24-9003
System/360 Model 20 Input/Output Control System-Disk	C24-9007
System/360 Model 20 Tape Programming Systems Control and Service Program	C24-9000
System/360 Model 20 Disk Programming Systems Control and Service Program	C24-9006
System/360 Model 20 Function Characteristics	A26-5847
IBM 1219 Reader Sorter and 1419 Magnetic Character Reader	A24-1499

Note to World Trade Readers

This letter is a reprint of an IBM Programming Announcement and was mailed concurrently to USA and WT offices. The following changes, when appropriate, should be applied to the text for WT use.

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] If DTR distribution is indicated in the above, program distribution media may be different in your area based on local conditions.
- [5] All references made to the Program Information Department [PID] should be understood to mean the appropriate WT Program Library.
- [6] Any reference made to DPD Departments as sources of information or for manuals etc. should be understood to mean the comparable WT Department.
- [7] Communications facilities or services may be required which are not offered in all WT countries. In case of any doubt as to the availability of suitable communications facilities, the country Teleprocessing Coordinator should be consulted.
- [8] All references made to Engineering Changes required for programs should be verified with the local CE Branch Office. Although E/C requirements are identical for WT and IBM, E/C availability dates and shipping schedules may differ.

IAI IBM 1130 Commercial Subroutine Package Version 2

Version 2 of the Commercial Subroutine Package is now available.

Highlights

Significant new capabilities provided to the 1130 user by Version 2 are:

1. Variable length decimal arithmetic
2. Overlapped Input/Output
3. Support for more data on disk

Specifically, the additional features provided with Version 2 are variable length decimal add ... variable length decimal subtract ... variable length decimal multiply ... variable length decimal divide ... variable length decimal compare ... decimal sign manipulation ... overlapped printing and carriage control ... overlapped reading of cards with conversion of card codes ... overlapped printing on the Console Printer ... conversion from one character per word to two characters per word in disk storage.

All of the features which constituted Version 1 are also available in Version 2. They are: variable length alphameric move ... variable length alphameric compare ... variable length alphameric edit ... variable length conversion from EBCDIC to floating-point ... variable length conversion from floating-point to EBCDIC ... zone manipulation .. fill an area with a specified character ... stacker select.

Ordering Procedures for Current Users

Current users of Version 1 will receive a prepunched order card and a letter announcing the availability of Version 2 and instructing them to order the new version through the branch office. This prepunched program order card must be used to order Version 2. The order number is 1130-SE-25X.

See the back of this letter for the text that will appear in the sales manual. For further information contact your District Field Systems Center.

IBI System/360 Model 20 Sort-Time Estimating Program for Disk-Sort Applications

A Sort-Time Estimating program, 360T-ST-109, is available. This program permits the user to calculate time estimates for Sort operations that will be performed with an IBM System/360 Model 20 Disk Programming System Sort/Merge program.

The Sort-Time Estimating program runs on a Model 20 card system. The input to the program consists of those control statements that are required by the DPS Job Control and DPS Sort/Merge program for the actual sort application.

The user specifies the minimum number of records for which an estimate is desired along with an incremental value. Time estimates will then be printed for ten file sizes starting with the minimum size and adding the increment nine times. The maximum file size will also be printed. See example below.

Minimum file size = 10,000, Increment = 1000

10,000	xx min
11,000	xx min
.	.
.	.
19,000	xx min

Maximum File Size xxx, xxx records

Features

For calculation of the time estimates, the program considers such factors

CONTENTS

1130 Commercial Subroutine Package (1130-SE-25X) ...  
Version 2 now available. [A]

System/360 Model 20 Sort-Time Estimating Program, 360T-ST-109 ... available. [B]

Published by DP Sales Publishing Services, WTHQ

as file size, block length, record length, options of the DPS Sort/Merge program that are to be utilized, and the sorting technique to be employed.

The program causes the printing of diagnostic messages if any specification errors for the time estimate are encountered.

The estimates for the actual time required for the sort application are accurate within plus/minus 15% or one minute, whichever is greater.

Performance Data

The time required to perform one sort-time estimate is determined by the specified file size. The time requirements vary between 0.5 and 5 minutes.

Minimum Systems

A 2020 Processing Unit Model C1 or C2

A card reading device (2501 Model A1 or A2, 2520 Model A1, or 2560 Model A1)

A printer (1403 Model 2, 7, or N1, or 2203 Model A1)

Program execution will function independent of systems EC Levels in the field.

Basic Program Material

SRL Publications -- IBM System/360 Model 20 Time Estimating Program for Dist-Sort Applications, C33-6002-0 and IBM System/360 Model 20 Disk Programming System Sort/Merge Program, C26-3806-0.

If only the form numbered manuals supporting this program are required, order them from the Mechanicsburg Distribution Center---not from PID.

Documentation -- Program Material List.

Machine Readable -- Object Program disk available in card form.

*John Fahey*  
John Fahey  
Director of DP Marketing

Attachments [6]: [1] P 9 ... [2 thru 6] P 360N.1, P 360N.3, P 360N.5, P 360N.7, and P 360N.9

Release Date: June 2, 1967

Distribution: All Areas



Commercial Subroutine Package: Provides the scientific user with added capabilities for handling functions and techniques common to commercial programming. This set of twenty-three subroutines are callable by the FORTRAN programmer in a similar manner to such standard functions as sine, cosine, square root, etc. (1130-SE-25X)

Description: These subroutines are written in FORTRAN and Assembler Language. They will provide the scientific 1130 user with flexibility to add limited commercial applications such as payroll, cost accounting, and many others.

Features: Variable length alphameric move ... variable length alphameric compare ... variable length alphameric edit ... variable length conversion from EBCDIC to floating-point ... variable length conversion from floating-point to EBCDIC ... zone manipulation ... fill an area with a specified character ... stacker select ... variable length decimal add ... variable length decimal subtract ... variable length decimal multiply ... variable length decimal divide ... variable length decimal compare ... sign manipulation ... overlapped printing and carriage control ... overlapped reading of cards with conversion of card codes ... overlapped printing on the Console Printer ... conversion from one character per word to two characters per word.

Programming Systems: Both the 1130 Assembler Language and 1130 FORTRAN are used. The internal format of data is one character per word.

Minimum System Requirements: The minimum machine configuration required to execute the 1130 Commercial Subroutine Package is an 1131 Model 1B and a 1442 Card Read Punch Model 6 or 7. All devices supported by FORTRAN are supported in the same manner under the 1130 Commercial Subroutine Package. In addition, the following overlap capabilities are provided: printing on the 1132 Printer is overlapped with all other operations ... reading from the 1442 Card Read Punch Model 6 or 7 is overlapped with code conversion ... printing on the Console Printer is overlapped with all operations except reading from the Keyboard. All I/O devices must use either FORTRAN I/O exclusively or Commercial Subroutine Package I/O exclusively.

Basic Program Material:

Publications -- Program Reference Manual (including operating instructions, listings, flowcharts and narrative), H20-0241-2.

Documentation -- Application Directory.

Machine Readable -- Source Decks and Sample Problem Decks available in card form.

Reference Material: Application Description (H20-0221) ... IBM 1130 FORTRAN (C26-5933).

Note: If only the form numbered manuals are required, order them from the IBM Distribution Center in Mechanicsburg -- not from PID.

For further information contact your Field Systems Center.