

IBM SYSTEM/360 MODEL 20 - 2152 PRINTER-KEYBOARD

The Model 20 Disk Programming System will be expanded to support the new 2152 Printer-Keyboard ... (1) as an inquiry device and ... (2) as an input/output unit. Availability - October 31, 1968.

A new and more flexible Model 20 DPS Monitor will also be available at that time.

2152 PRINTER-KEYBOARD

- . For inquiry, user may interrupt main line programs to request and display information from disk files.
- . When inquiry is requested, main line programs are suspended only for length of time necessary to retrieve and format information desired.
- . User writes inquiry processing programs in RPG or Assembler/IOCS to suit his particular requirements.
- . Any number of different inquiry programs, up to the limits of the core image library may be stored on disk to be called when requested from the 2152.
- . Use of the Printer-Keyboard as an input/output device is fully supported in both RPG and Assembler/IOCS.
- . Carriage Control tape can be simulated for output on the 2152 Printer.

NEW DPS MONITOR

- . User may generate DPS Monitor tailored to needs of his installation.
- . Optional Monitor transient area saves core storage by providing area in which infrequently used monitor routines may be executed after being fetched from disk.

MINIMUM SYSTEM REQUIREMENTS

The minimum features required for generation and object program execution are the same as those required for Disk (12K) RPG and IOCS with the addition of the 2152: a 2020 Processing Unit Model BC2 ... one card reading device (2501, 2520, 2560) ... one 2311 Disk Storage Drive Model 11 or 12 ... one Printer (1403 or 2203) ... a card punching device (1442, 2520, 2560) ... and a 2152 Printer-Keyboard.

MACHINE FEATURES SUPPORTED

Up to 16,384 bytes of core storage ... card reading devices (2501, 2520, 2560) ... card punching devices (1442, 2520, 2560) ... 2415 Magnetic Tape Units, Models 1-6 (7 or 9-track) ... two 2311 Disk Storage Drives Models 11 or 12 ... one Printer (1403 or 2203) ... one 2152 Printer-Keyboard ... one MICR device (1419 or 1259) ... a Binary Synchronous Communication Adapter.

OPERATING CONSIDERATIONS

- . Disk resident monitor with transient area is required for inquiry operations.
- . Inquiry is not permitted when any one of the following is in progress:
 - Another inquiry
 - A program which was assembled or compiled under either the current version of the Model 20 DPS or the new Model 20 DPS with the explicit exclusion of inquiry CMAINT or AORGZ operations
 - Functions which create or change the Volume Table of Contents or create an indexed sequential disk file which is to be used by the inquiry program
 - The Monitor FETCH Routine or other routines which use the Monitor Transient area

CONTENTS

SYSTEM/360 MODEL 20 - 2152 PRINTER-KEYBOARD ...
will be available October 31, 1968

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The Model 20 DPS Sort/Merge program

- The current 12K Disk Utility programs, except Clear Disk
- . During inquiry the System Resident disk pack and the pack or packs containing the file into which inquiry will be made must be on line.
- . Card input/output devices used by the mainline program must not be used in the inquiry program.
- . Standard tape file labels cannot be processed in any inquiry program.
- . Label and Extent information for disk files which will be processed in an inquiry program must be permanently stored by prior job control run.
- . Inquiry program must be indicated as such during compilation or assembly.

PERFORMANCE

Core Storage Requirements

DPS Monitor

Storage requirements depend on the facilities provided for in the Monitor which is generated. The following table shows the approximate number of bytes, not including the 170 bytes reserved for hardware locations, estimated to be required for the four types of DPS Monitor supporting either a Disk or a Tape system configuration.

Type	Disk Systems		Tape System	
	No Tape	Tape	Disk and I/O Only	Disk and I/O Tape Error Statistics Included
Card Resident	2740	3160	2840	3330
Disk Resident	2760	3180	2860	3350
Transient	3010	3210	3210	3310
Inquiry	3650	3830	3830	3930

IOCS

The estimated core storage requirement for Keyboard Input is approximately 130 bytes, and for 2152 Printer Output is approximately 220 bytes. Simulation of a printer carriage control tape requires approximately 300 bytes plus storage for the table which specifies the correspondence between channel and line. An additional 70 bytes is required for page overflow testing.

RPG

The following estimated storage requirements should be added to those described in the SRL - "System/360 Model 20 DPS Performance Estimates" (C33-6003).

Basic Routines - If a 2152 input file is used in the object program add approximately 150 bytes. Add approximately 50 bytes if length check for 2152 input is specified.

Input/Output Routines - For a 2152 output file, add approximately 50 bytes if a carriage control tape is not simulated. If a control tape specification is used, add approximately 250 bytes, plus 1 byte for each line referred to on the form.

Processing Routines - For a 2152 output file, add approximately 8 bytes for each indicator specified, approximately 16 bytes for each main line, and approximately 14 bytes for an OR - record if the space or skip entries differ from those of the previous line.

Start, End, and DTFEN Routines - For table input or output on the Printer-Keyboard add approximately 40 bytes for each table input or output file. The Start routine of the first object program phase will be increased by approximately 40 bytes. Add approximately 40 bytes to the Start routine of the first object program phase if the program is to be used for inquiry. For the Start routine of the second object program phase add approximately 30 bytes if Printer-Keyboard files are specified. The DTFEN routines (OPEN and CLOSE) will require additions of the same amounts as those of the corresponding IOCS routines.

In the main line programs input/output areas are assigned in the object program as they are specified in the File Description. For an inquiry program, the input/output areas used for inquiry are already contained in the monitor.

INQUIRY REQUEST PROCESSING TIME

The total time required to service an inquiry is highly dependent on both the users' processing requirements and the operations of the main line program being executed at the time of the Inquiry Request. To determine the processing time for a particular inquiry, add the estimated time required to type in the inquiry information, complete any main line program input/output operations, execute the user's inquiry program, and print the output message to the constant system overhead time of approximately 2 seconds.

REFERENCE MATERIAL

Availability of SRL Publication will be announced in a Publication Release Letter.


John Fahey
Director of DP Marketing

Note to World Trade Readers

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OS/360 - MVT MODEL 65 MULTIPROCESSING [A]

Operating System/360 capability is now improved to include an extension of MVT for dual Model 65 processors sharing main storage under control of a single supervisor program. Availability -- February 15, 1969.

Advantages include:

- Increased CPU and Channel Capacity for a single supervisor MVT system, as compared to a single processor Model 65 system.
- Better resource management which results from single system sharing of common resource pools, as compared with two separate systems. More I/O units and bigger core storage regions can be assigned to very large jobs; resource pools permit greater flexibility in the combinations of jobs which can execute concurrently; channel activity is spread over more channels, thus reducing contention and delays.
- Single System Economies with dual CPU power ... single supervisor program saves core space, single system residence and program library saves DASD space, single system operator and single job queue simplify operational aspects.

Common Data Bank applications are simplified because the entire multiple processor configuration operates under a single control program. Intersystem communication is not required, since the single Enqueue/Dequeue mechanism of the supervisor permits data sharing among concurrent jobs at any level desired by the user -- job, data set, logical record groups, or single records.

Increased availability of a critical subsystem. In case of an unrecoverable component malfunction, the system can be reinitialized using the newly added reconfiguration features, thus bypassing the failing components. Failure of a CPU, channel, or core box reduces the available resource pool, but does not prevent operation of the system. The capability of the VARY command is extended to accomplish this function. In this way, long-duration system outages are minimized. Availability is also enhanced by the use of Model 65 Recovery Management Support which permits automatic recovery in the event of a number of intermittent CPU, main storage or channel failures which otherwise would abnormally terminate system operation.

Functional Description

The Model 65 Shared Main Storage Multiprocessing system logically extends MVT, Multiprogramming with a Variable Number of Tasks. The controlling element is the supervisor program which resides in main storage rather than a specific CPU. The CPU's are treated as system resources which may be assigned by the supervisor to process any task.

The Model 65 Multiprocessing MVT control program follows essentially the same logic as the current MVT. Modifications will:

- a) ensure that critical parts of the supervisor program are executed by only one CPU at a time;
- b) handle I/O requests by whichever CPU has an available channel path to a desired device;
- c) provide for extensions of reconfiguration capability, and
- d) support the additional System/360 features added for multiprocessor configurations.

Recovery Aids

Already announced recovery aids, including On-Line Tests, System Restart and TP Checkpoint (including preservation of message queues) will function as in single processor systems, independent of where a malfunction occurs.

CONTENTS

- OS/360 - MVT Model 65 Multiprocessing ... to be available February 15, 1969. [A]
- OS/360 Model 65 Recovery Management ... to be available July 31, 1968. [B]
- OS/360 - Shared 2311 and 2314 ... to be available October 31, 1968. [C]

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Recovery Management Support

The Recovery Management support for the Model 65 multiprocessor system reduces the delays and other effects of system failures. When possible, recovery from a machine malfunction occurs by retrying the failing operation. If the operation cannot be retried, program damage is assessed and either correction occurs or the failure effects are restricted to a single task.

The Recovery Management programs functions are:

- machine check recovery
- channel error recovery
- program damage assessment and repair
- environment recording

See part [B] of this letter for more details.

Console

All operator messages are directed to a single console. Should that fail, the manual transfer of operations to the console on the other processor is facilitated, without interrupting system operation.

Reconfiguration

The processors, channels, main storage units, and I/O devices (except those essential to the IBM Operating System, such as SYSRES) can be added to or deleted from the system during processing without causing any significant interruption of normal processing. Thus, reconfiguration on the occasion of a unit failure is facilitated, while useful work continues. The system thus allows one to configure a minimum maintenance subsystem while the majority of the system resources continue to contribute to useful work. At IPL time, the Operating System will identify the available configuration and accomplish a logical reconfiguration.

Tele-processing Load Balancing

At IPL time each transmission control unit is assigned to one or the other processor. Tele-processing input or remotely submitted jobs that enter either side of the multiprocessing system have the resources of both sides available for processing, even though all communication with a given terminal is controlled by its associated processor.

MVT Compatibility

The Model 65 Multiprocessing support is implemented as an integral part of the OS/360 MVT option. Any job which operates with MVT can be processed on the Model 65 Multiprocessor without changing code, job control language, or data.

In some instances the availability of MVT features with Model 65 Multiprocessing may be delayed relative to availability of the feature with a single processor, due to integration and testing schedule requirements. The following MVT capabilities will not be included in the initial release:

- Rollout/Rollin
- Graphic Programming Services
- Support for 2816 Switching Unit

Availability dates for these features will be announced in future P-letters.

Shared Direct Access Devices (Item C of this letter) are not supported between Model 65 Multiprocessing system and another system.

Performance

As with any multijob system, performance of the Model 65 Multiprocessing system is very dependent on job mix, I/O configuration, and other application oriented factors. The effect of pooling, with large amounts of sharable I/O units, channels, and main storage will normally improve performance as compared to two separate Model 65's. Other factors, such as contention for system residence devices, contention for main storage units, and serialization of some supervisory program functions will tend to degrade performance.

In general, it is expected that a Model 65 Multiprocessing system will have slightly lower performance than two stand-alone Model 65 systems when processing moderate sized batch jobs.

Demonstrations

A prototype system will be available for demonstrations and performance benchmarks. Details will be announced at a later date.

System Requirements and Configuration Support

OS/360 MVT requirements apply. In addition, the following minimum configuration limits are assumed:

- . 512K bytes of 2365 Main Storage
- . One Selector Channel on each CPU
- . Multiprocessing features, as described in DP Letter 268-5
- . Two Channel Switches on all Shared Control Units.

Additional features supported as options include:

- . Up to a maximum of 1024K bytes of 2365 Main Storage
- . Up to seven Channels (including a Multiplexer channel) on each CPU.
- . All combinations of Control Units and I/O Devices supported by MVT (except 2816 Switching Unit and 2250 Display Unit with 2840 Control Unit, which are not initially supported).

The Model 65 Multiprocessing option of MVT, which includes Recovery Management Support, requires approximately 32K bytes of main storage space for resident control program use in addition to that required for MVT. Approximately 65K bytes of additional DASD space is needed for system residence and environment recording.

Publications

Further details concerning the programming support will be available in the SRL publication: IBM System/360 Operating System for Model 65 Shared Main Storage Multiprocessing - Preliminary Description, which is scheduled for January 1968 availability to be announced by a normal Publication Release Letter.

OS/360 MODEL 65 RECOVERY MANAGEMENT [B]

Recovery Management support will be available July 31, 1968, for OS/360 MVT and MFT-II options when used with System/360 Model 65. Recovery Management is designed to reduce the effects of intermittent failures on system operation. The support consists of two new options:

MCH - Machine Check Handler, which recovers from many CPU or main storage failures by retrying the failing operation, correcting invalid data, or terminating only the failing job, rather than the entire control program.

CCH - Channel Check Handler, which recovers from many intermittent channel malfunctions.

When possible, recovery from an unscheduled system interruption resulting from a machine-check or channel-check is attempted by retrying the malfunctioning operation; if retry is not possible, or the malfunction continues, damage is assessed and an attempt is made to repair it or isolate it to a single task. If damage to the problem program cannot be corrected, the affected task is terminated and system operation continues. Pertinent error information is recorded as an error record on the SYS1.LOGREC data set of the primary system residence volume. Any MCH recovery action requiring operator awareness is communicated to the operator.

Recovery Management decreases user exposure to the delays and other effects of system failures, and renders most CPU and channel malfunctions transparent to the user. As a result, because the system requires fewer reruns, Recovery Management provides a higher degree of system availability.

Functional Details

Following a machine check, the malfunctioning environment is analyzed by the MCH program to determine the feasibility of re-executing the instruction associated with the machine check. The feasibility of retry depends on:

- . Locating the malfunctioning instruction.
- . Determining if the retry threshold has been exceeded (the information necessary for retry may have been destroyed).
- . Determining if incorrect parity exists in the instruction itself or in its operands. In some cases, a location containing incorrect parity can be corrected, making instruction retry possible.

Retry of an instruction is performed under the control of the MCH program before control is returned to the next logical instruction in the interrupted program.

If functional recovery from a machine check is not feasible, MCH attempts to associate the malfunction with a specific task to either repair the malfunction or terminate that task. Repair is accomplished by "refreshing" the affected code if:

- . The code can be identified as refreshable.
- . The affected code exists as a load module and can be located.

User programs that are to take advantage of this repair facility must be written as "refreshable" and be so labeled at linkage edit time.

By definition, a refreshable module cannot be modified by itself or by any other module during execution. A refreshable module can be replaced by a new copy during execution without changing the sequence or the results of processing.

Channel-check interruptions (from the 2680 Selector Channel or 2870 Multiplexer Channel) are intercepted and control is given to the CCH program which performs an analysis of the environment and determines the feasibility of retry. Feasibility of retry largely depends on the initial cause of the error and on the sequences occurring across the I/O interface in the period immediately following the error. The results of the analysis are made available to the appropriate Error Recovery Procedure (ERP) for determining retryability of the operation.

Further details will be provided in the SRL and PLM documentation at the time of program availability.

Performance

Recovery Management support is a stand-by section of the control program. As such, it has no effect on throughput during normal system operation. In case of a machine-check interruption or a channel-check interruption, it gains control of the system and attempts recovery from the error condition. Recovery Management maintains control of the system for up to five seconds.

System Requirements

Recovery Management supports the System/360 Model 65* of any currently available storage capacity. The system must have EC #705255 and EC #705256 installed if the MCH program is to be used. EC #705341 must be installed on systems having greater than 512K. Error Recovery Procedures for unit-record will not use the CCH analysis.

Recovery Management supports System/360 Model 65 configurations using the OS/360 MFT (Version II) or MVT options. Either one or both of the Recovery Management options may be selected at SYSGEN time. The resident main storage requirement for both features is 10K bytes -- 6K for the MCH program (which includes the facilities now provided by SER1), and 4K for the CCH program.

Transient modules operate out of an overlay area within this fixed area. The transient modules require 42K of auxiliary storage on direct-access storage devices. In addition, space is needed for any refreshable nucleus modules.

* This support does not include Model 67 in 65 mode

OS/360 - SHARED 2311 AND 2314 [C]

Support under OS/360 for Shared Direct Access devices will be available October 31, 1968.

This new capability permits inter-system connection of up to 4 CPUs via a common disk storage pool. Advantages to multiple System/360 users include ...

Reduced file maintenance which results from using single copies of common data - e.g., user programs, data set catalog, procedure library, and application data.

Operational flexibility due to reduced disk pack mounting and dismounting and the ability to submit jobs to any CPU without concern for library or data location. Note that jobs are executed in the CPU to which they are submitted.

Reduction in disk space requirements, since multiple copies of job libraries, catalog, and application data sets are no longer needed.

New approaches to "common data base" applications are possible using the new RESERVE macro instruction.

System configurations include all System/360 models supported by OS/360, and any of the major control program options - PCP, MFT-II, or MVT - of the Operation System.

Shared devices include: (1) the 2311 Disk Storage Drive attached to any two CPUs using the 2841 Control Unit with Two Channel Switch (#8100) ... (2) the 2314 Direct Access Facility attached to any 2, 3, or 4 CPUs using the Two Channel Switch (#8170), and/or the 2844 Auxiliary Control Unit with or without the Two Channel Switch (#8171).

Limitations:

- 1) Multiple channel paths from a single CPU to a Shared DASD are not supported.

- 2) Sharing of DASDs between a Model 65 Shared Main Storage Multiprocessing System and one or more other CPUs is not supported.
- 3) Only 2311s are supported for attachment to any shared 2841 control unit.

Functional Details

The OS/360 Shared DASD support uses the RESERVE and RELEASE I/O commands, which are provided as part of the Two Channel Switch feature. These commands are issued automatically by the control program to assure the integrity of system data sets (VTOC and Catalog), which may be updated by either Control Program. New assembler language macro instructions are provided for application program use in those applications where user data sets are to be accessed and updated by both CPUs concurrently.

Additional details are given in the SRL Publication IBM System/360 Operating System Planning for the Shared Direct Access Device Option (C28-6673).


John Fahey
Director of DP Marketing

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1800 PROGRAMMING SYSTEM [A]

All disk I/O subroutines for the 1800 Programming Systems Card/Paper Tape and the 1800 Time-Sharing Executive System are modified to allow the disk routines to operate with Model C as well as the Model A 2310 Disk Storages. The disk routines modified for 2310 Model C require, on the average, an additional 30 words of core storage. The disk calling sequences have not changed.

While the 2310 Model A disk drives accept a different address, indicating the direction and number of tracks of movement required, the 2310 Model C requires only an absolute (physical) cylinder address. Thus all disk I/O routines must determine (by sensing the device status word) which type of disk is present on the system before a seek command can be issued. All 2310 Model C disk drives will have a bit in position 13 of the DSW.

The disk routines which have been changed to accommodate the 2310 Model C are:

1800 Programming System Card/Paper Tape

DPIR
DISKO
DISK1
DISKN

1800 Time-Sharing Executive System (TSX)

DISKN
COLD START
TASK DISK WRITE ADDRESS

To use the fast access capability the user must be at the modification levels below:

1800 Programming System Card/Paper Tape

1800-UT-001 (Utility Routines) Card,
Modification Level 2
1800-UT-002 (Utility Routines) Paper Tape,
Modification Level 1

CONTENTS

- 1800 PROGRAMMING SYSTEM ... Disk I/O subroutines modified. (A)
- PROGRAM MAINTENANCE ... Clarification (B)
- 1130 DISK MONITOR SYSTEM ... Amendment to P67-143. (C)
- CENTRAL MAINTENANCE DISCONTINUANCES ... (D)

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1800-LM-003 (Subroutine Library) Card, Modification Level 2

1800-LM-004 (Subroutine Library) Paper Tape, Modification Level 2

Modifications to the above programs are now being distributed to current users along with SRL ... 1800 Card/Paper Tape Programming System Operator's Guide C26-3751-1.

On a seek incomplete, the disk routines (DISKO, DISK1, and DISKN) retry the seek up to 16 times before indicating that a seek error exists. Read errors are retried up to 50 times before an error is indicated.

1800 Time-Sharing Executive System (TSX)

1800-OS-001, Version 3 Modification Level 2 (announced in P67-137 and distributed to current users at that time).

TNL N26-0578 to 1800 TSX Operating Procedures Manual, C26-3754, is now being distributed automatically to all current users.

EFFICIENCY

1800 Programming System Card/Paper Tape

Program sizes are --

DPIR 1710
DISKO 390
DISK1 724
DISKN 1096

1800 Time-Sharing Executive System (TSX)

The approximate program sizes are --

DISKN 910
COLD START 74
TASK DISK WRITE ADDRESS 3200
(including I/O areas)

REFERENCE PUBLICATION: 1800 Subroutine
Library Manual C26-5880-4

PROGRAM MATERIAL: These publications will
be added to Basic Program Material text in the
appropriate sales manual page.

1800 Card/Paper Tape Programming System
Operator's Guide, C26-3751-1 ... TNL
N26-0578 to 1800 TSX Operating Proce-
dures Manual, C26-3754.

PROGRAM MAINTENANCE [B]

IBM makes every effort to provide Type I programs
which accurately match their SRL specifications.
When discrepancies are noted, field engineering has
the responsibility to provide trouble analysis and to
report it via an APAR (Authorized Programming
Analysis Reports 120-0482), regardless of the
program level actually in use.

The APAR will be classified as invalid if the error
does not exist in the current release (version, modi-
fication) level. A release is considered current from
its initial distribution by PID until 30 calendar days
after the availability of the next maintenance release.

To take full advantage of IBM program maintenance
service, customers should order and install new pro-
gram releases as they become available.

Corrections for valid program errors, permanent or
temporary (PTFs), are tested on the release current
at the time the correction is made available. A
customer engineer, when requested, will attempt to
apply specific PTFs to a back level release. If it
is not successful, it is the customer's responsibility
to retrofit the correction to his release level and
validate its accuracy.

This statement should clarify the current operating
procedure.

Side 2 of 2

1130 DISK MONITOR SYSTEM [C]

The statement "A 2315 Disk Cartridge must be
forwarded to PID with the Program Order Card" was
omitted from the basic programming material para-
graph under 1130-OS-005 (card) in P67-143.

CENTRAL MAINTENANCE DISCONTINUANCES [D]

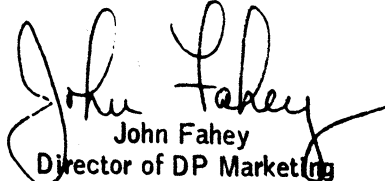
The following programs are being places on local
maintenance service effective January 15, 1968:

1401-CB-701
1401-FO-051
1401-FO-702
1401-LM-010
1401-LM-012
1401-RG-700

7040-PR-150
7040-PR-954
7040-CB-816
7040-FO-815

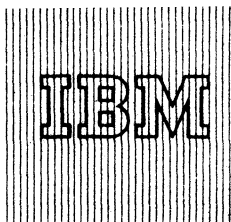
7070-CB-940

7090-FO-805
7090-LM-803
7090-SV-802


John Fahey
Director of DP Marketing

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P68-3



NEW VERSION OF 1130 STRESS IS AVAILABLE

Version 2 Modification Level 0 of the 1130 Structural Engineering System Solver (STRESS) is available. (1130-EC-03X)

STRESS runs under Version 1 of the Disk Monitor System (1130-OS-001).

Highlights

Version 2

Lifts restriction on "joint releases."

Groups member loads by member.

Provides choice of output - console printer, 1132 printer, or 1442 card punch.

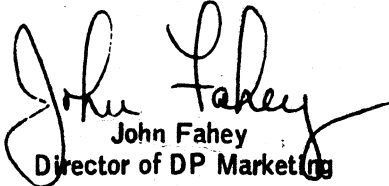
Current Users

Current users will receive a pre-punched program order card and a letter announcing availability of Version 2.

The letter instructs them to order the new version through the branch office. They must use the pre-punched program order card.

Sales Manual

For the new sales manual write-up, see the back of this letter.


John Fahey
Director of DP Marketing

SALES MANUAL TEXT

Structural Engineering System Solver (STRESS): A powerful tool for solving structural engineering problems. It is a problem-oriented language which enables the engineer to communicate with the computer even though he has had no previous programming experience. 1130-EC-03X.

Description: This program covers many application areas in the field of structural analysis. Most buildings and bridges are designed by consulting engineers or government agencies, but many other types of structures in other industries can be designed using 1130 STRESS. Some of the other industries and typical applications for each are:

Industry	Typical Application
Aerospace	Wing Members
Manufacturing	Conveyer Framing, Plant Design
Process	Supporting Towers
Utilities	Transmission Towers, Culvert Sections
Federal	Dam Design, Ship Design

Features: STRESS incorporates many features that will make it extremely valuable to the engineer. Included are a user oriented language for describing the geometry of the structure which is essentially the same as the language used generally in engineering ... facility to solve space frames, trusses, rigid frames, box culverts, tunnel sections, plane grids and plane frames ... problem sizes up to 125 joints and 250 members ... access to the stiffness matrix.

Use: To use 1130 STRESS the engineer simply describes the shape of the structure, the properties of the members, the loadings placed on the structure and the output he requires, using the 1130 STRESS language. Each statement is punched into a card in free form. This deck of statement cards is then read into the computer, and the 1130 STRESS system provides the specific output that the engineer has requested.

Customer Responsibilities: The customer is required to be familiar with the 1130 STRESS language. The STRESS program is ready to run as distributed. The customer need only load the cards onto a disk.

Special Sales Information: 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 marketing representative should make certain that the user's computer is up to EC level 415700.

Programming Systems: FORTRAN is used as the primary source language, with a few subroutines written in 1130 Assembler language. Knowledge of these programming languages is needed only if the user expects to augment or modify the system. The program operates entirely under the control of the current modification level of Version 1 of the 1130 Disk Monitor System (1130-OS-001).

Minimum System Requirements: An 1130 with disk (Model 2B) and a 1442 Card Read Punch. The addition of an 1132 Printer, while not required, will appreciably improve the speed of performance. If a printer is not included, the output will consist of punched cards or will appear on the console typewriter at the user's option.

Basic Program Material:

Publications* -- Application Directory ... User's Manual (H20-0340-2)

Machine Readable -- Object card decks and Sample Program Deck available in card form.

Optional Program Material:

Machine Readable** -- Source Cards are available on one 9-track Distribution Tape Reel (DTR) (800 bpi or 1600 bpi.)

Ordering Procedures: See the Branch Office Manual, DP Sales Activity section.

*If only the form numbered manual is required, order from the IBM Distribution center, Mechanicsburg -- not from PID.

**No tape submittal is required; the DTR will be supplied by PID. If the density is not specified on the program order card, 800 bpi will be supplied.

Additional Program Support Material: Application Description Manual (H20-0237-3) ... Systems Manual (V20-0081-1).

For further information contact your Regional Scientific Marketing Representative.

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 later, 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 (or Regions) as sources of information or for manuals etc. should be understood to mean the comparable WT Department (or corresponding organizational level).
- [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] References made to Engineering Change requirements should be verified with the local CE office. Although E/C requirements are identical for WT and IBM, availability and shipping dates will differ. **NO PRODUCTION COMMITMENTS FOR PROGRAMS WITH E/C LEVEL REQUIREMENTS SHOULD BE MADE TO CUSTOMERS PRIOR TO VERIFICATION WITH LOCAL CE MANAGER OF EC AVAILABILITY.**



IBM World Trade Data Processing

P68-5

NEW VERSIONS OF AD-APT/AUTOSPOT AND AUTOSPOT
MAY BE ORDERED

Versions 2 of System/360 Numerical Control Processors AD-APT/AUTOSPOT (360A-CN-09X) and AUTOSPOT (360A-CN-08X) may now be ordered. Shipments will begin the week of January 15.

Current Users

Current users will receive a prepunched program order card and a letter announcing availability of Version 2.

The letter instructs them to order the new version through the branch office. They must use the prepunched program order card.

Sales Manual

For the new sales manual write-up, see the back of this letter.



John Fahey
Director of DP Marketing

AD-APT/AUTOSPOT (360A-CN-09X)

Description: AD-APT/AUTOSPOT operates as a task under control of DOS/360, accepts either BCDIC or EBCDIC input on any sequential system input device, and allows any number of input decks (part programs) to be processed in a single job step.

The AD-APT/AUTOSPOT processor accepts an English-like language defining geometric entities, patterns of points, desired motion sequences and machining information. This input, called a part program, is converted to a meta-language containing mathematical representations of the geometric surfaces and sequential instructions directing a cutting device with respect to defined surfaces and points.

The processor will then analytically or iteratively calculate points on the cutting device axis at the tip (bottom center) of the device. The resultant motion will always be linear motions whose magnitudes are dictated by specified tolerance criteria.

These points are then available to a user-supplied postprocessor which must insure that they conform to the characteristics and dynamics of a particular N/C device.

The user is supplied with a printed listing of the part program and optionally a printed listing of the cutter center points and machining information. He must also specify which postprocessors are to be called to process the output of the AD-APT/AUTOSPOT processor.

Features: The AD-APT/AUTOSPOT Processor is the first sophisticated Numerical Control Processor which effectively addresses itself to the requirements of both point-to-point and contouring machine tool users, yet operates on a small computing system. It is designed to process the AUTOSPOT language and the AD-APT language, or any mixture of the two languages in any one part program, without sacrifice in processing speed. The processor is substantially faster than the 1620/1311 AD-APT Processor.

The AD-APT Numerical Control language provides contouring capabilities involving constant cutter contact with vertical surfaces of many shapes and nonvertical planes. In addition, very sophisticated macro and loop capabilities are provided for repeating with variations a set of predefined operations. The processor also encompasses a very extensive set of geometric definitions, FORTRAN-like computational facilities and comprehensive editing functions.

Use: The AD-APT/AUTOSPOT Processor may be executed in a normal job step environment. The processor is designed to reside on a direct access device in executable form and need only be scheduled as a job operating under DOS/360.

Special Sales Information: The majority of the N/C devices installed at this time operate in a punched tape input mode. This punched tape information is created by the user-supplied postprocessor in conjunction with postprocessor modules. A requirement for a tape punching device, such as an IBM 1012, will normally exist.

Customer Responsibilities: A customer using AD-APT/AUTOSPOT must take the following steps to effect usable results and optimum performance:

1. He must supply and merge into the AD-APT/AUTOSPOT processor any post-processors required by his N/C controller/machine tool configurations.
2. He must appropriately train system programmers to enable them to use the Disk Operating System facilities, to operate, maintain and update the AD-APT/AUTOSPOT Processor.
3. He must implement modification and version releases.
4. He should insure that proper training is given to those programmers responsible for developing part programs.

Programming Systems: The AD-APT/AUTOSPOT Processor is written in its entirety in DOS Assembler Language. The input/output routines are written in physical IOCS. The minimum DOS configuration required to operate AD-APT/AUTOSPOT includes the DOS Assembly Language program and the DOS Utilities. AD-APT/AUTOSPOT users must order the System/360 Disk Operating System separately.

Machine Requirements: A 2030 Processing Unit Model F with Floating Point Arithmetic (#4427), 1051 Attachment (#7915) ... 1051 Control Unit Model N1 with First Printer Attachment (#4409), First Punch Attachment (#4410), First Reader Attachment (#4411), CPU Attachment (#3130) ... 1052 Keyboard Model 6 ... 2501 Reader Model B1 ... 1442 Punch Model N2 ... 1443 Printer Model N1 ... 2841 Storage Control ... 2311 Disk File Drive.

Basic Program Material:

Publications** -- Part Programming Manuals (H20-0375-1) and (H20-0373-1) ... Operator's Manual (H20-0374-1) ... Application Directory.

Machine Readable** -- Relocatable object modules and sample problem contained on one 9-track DTR in either 9-track (800 or 1600 bpi) or 7-track 800 cpi (Data Conversion feature required or a card deck).

Optional Program Material:

Machine Readable** -- Source programs and flow charts on one 9-track 2400' reel of magnetic tape (800 or 1600 bpi) or one 7-track 800 cpi (Data Conversion feature required) 2400' reel of magnetic tape.

Ordering Procedures: See DP Sales Activity section of the Branch Office Manual.

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

** If the track and density requirements are not specified on the back of the program order card, 9-track at 800 bpi will be forwarded. Card decks for the Basic Machine Readable material will be supplied only to users who do not have magnetic tapes available.

DTRs for the basic program will be furnished by PID; no tape submittal is required.

Magnetic tape (2400') for the Optional Program Material may be forwarded or ordered (the program order card should accompany the tape order form).

Additional Program Support Material: Application Description Manuals (H20-0463) and (H20-0462) ... System Manuals (Y20-0118) and (Y20-0119).

AUTOSPOT (360A-CN-08X)

Description: AUTOSPOT operates as a task under control of DOS/360, accepts either BCDIC or EBCDIC input on any sequential system input device, and allows any number of input decks (part programs) to be processed in a single job step.

The AUTOSPOT processor accepts an English-like language defining geometric entities, patterns of points, desired motion sequences and machining information. This input, called a part program, is converted to a meta-language containing mathematical representations of the geometric surfaces and sequential instructions directing a cutting device with respect to defined surfaces and points.

The processor will then analytically calculate points on the cutting device axis at the tip (bottom center) of the device. The resultant motion will always be linear motions.

The AUTOSPOT processor also allows the optional interpretation of point-to-point machining verbs and eliminates the burdensome task previously required of a user-written post processor program.

These data are then available to a user-supplied post processor which must insure that they conform to the characteristics and dynamics of a particular N/C device.

The user is supplied with a printed listing of the part program and optionally a printed listing of the cutter center points and machining information. He must also specify which post processors are to be called to process the output of the AUTOSPOT processor.

Features: The processor includes extensive pattern definition and manipulative capabilities, scalar variables, nested definitions, FORTRAN-like arithmetic computational facilities, geometric definitions, sophisticated editing functions and the generation of cutter motions required to perform simple milling operations. The AUTOSPOT Processor establishes a precedent in that a wide range of machining verbs may optionally be interpreted. This capability substantially reduces the complexity of the user-supplied post processor required to produce the final input to a machine tool/controller.

Use: AUTOSPOT may be executed in a normal job step environment. It is designed to reside on a direct access device in executable form and need only be scheduled as a job operating under DOS/360.

Special Sales Information: The majority of the N/C devices installed at this time operate in a punched tape input mode. This punched tape information is created by the user-supplied post processor in conjunction with post processor modules. A requirement for a tape punching device, such as an IBM 1012, will normally exist.

Customer Responsibilities: A customer using AUTOSPOT must take the following steps to effect usable results and optimum performance:

1. Supply and merge into the AUTOSPOT processor any post processors required by his N/C controller/machine tool configurations.
2. Appropriately train system programmers to enable them to use the Disk Operating System facilities, to operate, maintain and update the AUTOSPOT processor.
3. Implement modification and version releases.
4. Insure that proper training is given to programmers responsible for developing part programs.

Programming Systems: The AUTOSPOT processor is written in its entirety in DOS Assembler Language. The input/output routines are written in physical IOCS. The minimum DOS configuration required to operate AUTOSPOT includes the DOS Assembly Language program and the DOS Utilities. AUTOSPOT users must order the System/360 Disk Operating System separately.

Machine Requirements: A 2030 Processing Unit Model E with Floating Point Arithmetic (#4427), 1051 Attachment (#7915) ... 1051 Control Unit Model N1 with First Printer Attachment (#4409), First Punch Attachment (#4410), First Reader Attachment (#4411), and CPU Attachment (#3130) ... 1052 Keyboard Model 6 ... 2501 Reader Model B1 ... 1442 Punch Model N2 ... 1443 Printer Model N1 ... 2841 Storage Control ... 2311 Disk File Drive.

Basic Program Material:

Publications** -- Part Programming Manual (H20-0373-1) ... Operator's Manual (H20-0374-1) ... Application Directory.

Machine Readable** -- Relocatable object modules and sample problem contained on one 9-track DTR in either 9-track (800 or 1600 bpi) or 7-track 800 cpi (Data Conversion feature required), or a card deck.

Optional Program Material:

Machine Readable** -- Source programs and flow charts on one 9-track 2400' reel of magnetic tape (800 or 1600 bpi) or one 7-track 800 cpi (Data Conversion feature required) 2400' reel of magnetic tape.

Ordering Procedures: See DP Sales Activity section of the Branch Office Manual.

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

** If the track and density requirements are not specified on the back of the program order card, 9-track 800 bpi will be forwarded. Card decks for the Basic Machine Readable Material will be supplied only to users who do not have magnetic tapes available.

DTRs for the basic program will be furnished by PID; no tape submittal is required.

Magnetic tape (2400') for the Optional Program Material may be forwarded or ordered (the program order card should accompany the tape order form).

Additional Program Support: Application Description Manual (H20-0462) ... System Manual (Y20-0119).

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] Any reference made to DPD Depts. (or Regions) as sources of information means the comparable WT Dept. (or corresponding organizational level). [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 will differ. **NO PRODUCTION COMMITMENTS FOR PROGRAMS WITH E/C LEVEL REQUIREMENTS SHOULD BE MADE TO CUSTOMERS PRIOR TO VERIFICATION WITH LOCAL CE MANAGER OF EC AVAILABILITY.**



SYSTEM/360 MODEL 65
7080 EMULATOR PROGRAM [A]

Version 3, which obsoletes Version 2, is now available.

In addition to all the features of the prior version, Version 3 provides support for the use of the card reader, card-reader-punch and the console on the 2870 Multiplexer Channel. Multiplexer Channel Devices are handled in Burst Mode only, and all operations on that channel are completed before the next one is started on the Multiplexer Channel.

The average internal speed of the Emulator on System/360 Model 65 is equal to that of the 7080. Timing information is presented in the SRL publication -- System/360 Conversion Aids: The 7080 Emulator Program for System/360 Model 65, C27-6911.

The 7080 configuration being emulated may include 10 tape units on each of four communication channels, a 7153 Console, and a 7502 Console Card Reader.

SYSTEM REQUIREMENTS

In addition to the Compatibility Feature, System/360 requirements are:

At least 262K bytes of main storage (Model H) for the emulation of a 7080 with 80K characters of memory ... 524K bytes of main storage (Model I) is the minimum requirement to emulate a 7080 with a 160K character memory ... one 1052 Printer-Keyboards ... one selector channel for each communication channel of the 7080 being emulated ... one 2401, 2402 or 2403 Magnetic Tape Unit, Model 1-6, or one 2404 Magnetic Tape Unit, Model 1-3 for each 729 Tape Unit to be emulated.

If the Emulator Program is to be loaded from a magnetic tape unit equipped with the Seven-Track Read Write Head (#9557) and the Seven-Track Compatibility Feature (#7125, 7126, or 7127), the Data Conversion feature (#3228 or 3236) must be installed on the associated tape control unit. After the program has been loaded, the load device is available as a 7080 corresponding device (see below).

CONTENTS

S/360 MODEL 65 7080 EMULATOR, Version 3 ... is now available. (A)

BPS/360, BOS/360 - 24K INCREMENTAL MEMORY ... is available. (B)

Published by DP Sales Publishing Services, WTHQ

INPUT/OUTPUT DEVICE
CORRESPONDENCE TABLE

<u>7080 Device</u>	<u>System/360 Device</u>
7153 Console	1052 Printer-Keyboards
7502 Console Card Reader	1442-N1 Card Read Punch 2501-B1 Card Reader 2501-B2 Card Reader 2520-B1 Card Read Punch 2540 Card Read Punch
729 Series Magnetic Tape Units	2401, 2402, or 2403 Magnetic Tape Units, Model 1-6, or 2404 Magnetic Tape Units, Model 1-3

For further details see the sales manual text on page P 360C.4.

BASIC PROGRAM MATERIAL (360C-EU-727)

Publications --

IBM System/360 Conversion Aids:
The 7080 Emulator Program For The
IBM System/360, Model 65,
C27-6911-2, and TNL N27-1286.

IBM System/360 Conversion Aids:
Sample Problems For IBM System/360
Emulator Programs, C27-6929-0.

Documentation -- Basic Program Material List

Machine Readable -- Self-loading Emulator Program, followed by Sample Problem available on one 9-track DTR (800 or 1600 bpi) or on one 7-track DTR (800 cpi) Data Conversion feature required.

ORDERING PROCEDURE

See the DP Sales Activity Section of the Branch Office Manual. If only the publications or if additional copies are required, order them from the IBM Distribution Center, Mechanicsburg--not from PID. If the track and density requirements are not indicated on the back of the program order card, 9-track at 800 bpi will be forwarded. DTRs are provided by PID; no tape submittal is required.

Current users of the program will receive a pre-punched program order card and a letter announcing the availability of the new version, and instructing the users to order the new version through the branch office. Current users must use this pre-punched program order card to order the new version.

REFERENCE MATERIAL

IBM System/360 System Summary, A22-6810

IBM System/360 Principles of Operation,
A22-6821

IBM 7080 Principles of Operation, A22-6560

24K MEMORY SUPPORT FOR SYSTEM/360 MODEL 30 [B]

Programming Support required for 24K Incremental Memory is available in:

BPS/360, Basic Tape System, Version 1
Modification Levels D (13) and E (14)
(360P-AS-091).

BOS/360 Releases 13 and 14

This program support is provided so that BOS/360 components and the Basic Tape System can operate in the additional memory size of 24K. 24K storage users can now compile and more efficiently execute larger programs through a reduction in the number of overlays otherwise required in many cases when using a smaller core size. All programs currently designed to utilize extra core have been modified.

ENGINEERING

The following engineering change levels are pre-requisite for proper functioning of BOS/360 and BPS/360 with 24K of core storage:

2030 Hardware E. C. Level - 126752

(ECA 303)

2030 Micro E. C. Level - 128063

(ECA 302)

MINIMUM SYSTEM REQUIREMENTS

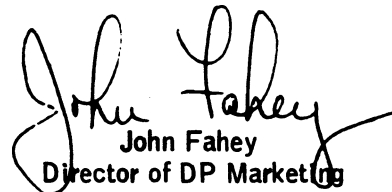
No changes. Refer to page 6 of System/360 Basic Operating System Programmers Guide, C24-3372 and System/360 Basic Programming Support, Basic Tape System Programming Guide, C24-3354, for minimum system requirements.

REFERENCE MATERIAL

IBM Publications that have been modified to include support for the 24K Incremental Memory are System/360 Basic Operating System, System Generation and Maintenance, C24-5060 ... System/360 Basic Operating System Control Programs and Assembler Operating Guide, C24-3450 ... System/360 Basic Operating System Assembler with Input/Output Macros Specifications, C24-3361 ... System/360 Basic Operating System Programmers Guide, C24-3372 ... System/360 Basic Programming Support, Basic Tape System Programmers Guide, C24-3354 ... System/360 Basic Programming Support, Basic Tape System Assembler with I/O Macros, C24-3355 ... System/360 Basic Programming Support, Basic Tape System Operating Guide, C24-3391 ... System/360 Basic Programming Support, Basic Tape System Generation and Maintenance, C24-5061.

SPECIAL NOTE

This information is not being distributed to users of these programming systems. Affected customers should be notified.


John Fahey
Director of DP Marketing

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] Any reference made to DPD Depts. (or Regions) as sources of information means the comparable WT Dept. (or corresponding organizational level). [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 will differ. NO PRODUCTION COMMITMENTS FOR PROGRAMS WITH E/C LEVEL REQUIREMENTS SHOULD BE MADE TO CUSTOMERS PRIOR TO VERIFICATION WITH LOCAL CE MANAGER OF EC AVAILABILITY.

IBM

IBM World Trade Data Processing

P68-7

System/360 Operating System

Release 14, which can now be ordered, provides new features, functions, incremental improvements and maintenance. Many of the items are available substantially ahead of schedule. Others had not been previously announced. All OS/360 users should be encouraged to upgrade to this release. Particular emphasis should be placed on upgrading any accounts which depend on the internal logic of MFT (Version I) since it is planned that the next OS/360 release will include MFT (Version II).

HIGHLIGHTS

FORTRAN H - Version II of FORTRAN H providing new functions and improvements including

(This support was scheduled for February 15, 1968.)

- Direct Access Statements
- Reduced Storage Requirements
- Improved Compile Performance
- Increased Compiler Capacity
- Additional Debugging Facilities

BTAM - Binary Synchronous Communications support for

(This support was scheduled for April 30, 1968.)

- The Binary Synchronous Adapter of the 2701
- The Binary Synchronous Adapter of the 2703
- A Remote 1130 with a Synchronous Communications Adapter
- 2701/2703 Error Recovery Procedures

Additional Support under Graphic Programming Services

(This support was scheduled for April 30, 1968.)

- Eight additional input/output commands for aiding data entry on the 2260 Model 2.

Scheduler Improvements including

(This support was scheduled for February 15, 1968.)

- Conditional Disposition of Data Sets
- JCL Symbolic Parameters
- Multiple Output Classes in PCP and MFT

FORTRAN support for the Improved Floating Point

Engineering Change (IFPEC)

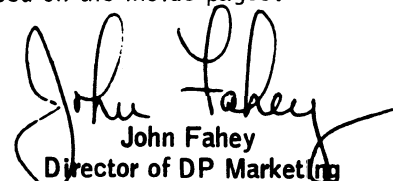
IOS Improvements

IEBEDIT - A new SYSGEN Restart Ability

MVT Disk SYSIN Capability (The availability for the support was not previously announced. See also part [B] of this letter)

DETAILS

Details are described on the inside pages.


John Fahey
Director of DP Marketing

FOR IBM INTERNAL USE ONLY

Release Date: January 17, 1968

Distribution: All Areas

P68-7



FORTRAN H - VERSION II 360S-F0-500

Provides for additional functions, reduced storage requirements, increased capacity and improved performance.

- Direct Access Statements are now supported in FORTRAN H, which enable the user to read and write fixed length records onto direct access devices in a random order.
- The minimum FORTRAN storage requirement is reduced to 150K bytes of main storage. A FORTRAN program of approximately 200-300 source cards can be compiled in a 150K byte partition. With 200K bytes of main storage, a source program of approximately 400 source cards can be compiled. For larger source programs, Version II requires approximately 18K bytes of internal table space for every 100 source cards, instead of the 35K bytes required with Version I. This significantly increases the maximum size source programs that can be compiled.
- A test group of 15 programs has been run against FORTRAN H Version I and Version II. Timings based upon this sample indicate approximately 30% compile time reduction for Version II when comparing Release 14 to Release 13. There is no significant difference in object execution time between Version I and Version II.
- An additional debugging facility, XREF, is provided as a user option. This facility provides separate listings for each source symbol and source label, and includes the internal sequence numbers of the source statement referencing the symbols and labels. This feature should facilitate the debugging and modifying of FORTRAN programs.
- The storage map is improved to provide information such as whether a symbol appeared on the left, right or both sides of an equal sign, and whether a symbol was used as an argument or was never used. A map is also produced for each common block.
- The restriction of 25 call by name arguments is removed.
- A Pound Sign is not appended to the program name when creating the control section name for an object module. See the "FORTRAN Control Section Naming" paragraph for additional information.
- Additional information on FORTRAN H Version II can be found in Programming Announcement P67-86

Special Note: Automatic function typing, a feature which existed in the FORTRAN H Version I compiler but was neither in the specifications nor officially supported is not included in FORTRAN H Version II. Additional technical information can be found in Installation Newsletter 67-25.



BTAM BINARY SYNCHRONOUS COMMUNICATION SUPPORT 360S-CQ-513

Binary Synchronous Communication support is provided under BTAM for the Binary Synchronous Adapter of the 2701, the Binary Synchronous Adapter of the 2703, and for communications with a Remote IBM 1130 Processing Unit with a Synchronous Communication Adapter. Error recovery procedures and error counts are included in the support for the 2701 and 2703.

The addition of BSC support to the existing start/stop terminal support significantly expands the application potential for BTAM. For the first time, you can now offer your customers the flexibility of support for low, medium and high speed devices with one telecommunications access method. BTAM supports CPU to CPU [1130, 30, 40, 50, 65, 67 (65 model), 75] Binary Synchronous Communication for point to point, multi-drop and dial-up systems.

See P67-77 for additional information on OS/360 BTAM with Binary Synchronous Communications.



ADDITIONAL SUPPORT UNDER GRAPHIC PROGRAMMING SERVICES 360S-I0-523

Eight additional input/output commands for aiding data entry applications are added to the existing support provided under OS/360 Graphic Programming Services. These Assembly Language commands are applicable to the 2260 Model 2 when attached to an IBM 2848 Display Control Model 21 or 22.



SCHEDULER IMPROVEMENTS

A number of improvements have been made to the Scheduler for PCP, MFT and MVT.

- A Conditional Disposition may be specified for each data set. This disposition is used in the event of abnormal termination of a job step. Use of the new conditional disposition facilitates recovery from programming errors. Conditionally, new data sets can be deleted and old data sets kept if the job terminates abnormally.
- JCL symbolic parameters can be used for those parameters in a cataloged procedure that are normally modified at execution time. A new "PROC" JCL statement is provided which permits definition of default values for symbolic parameters. This new feature should minimize the syntax and ordering errors that may occur in overriding cataloged procedure JCL statements. With the use of this feature, override need not be on a one for one basis, normal usage of JCL is therefore greatly simplified and the number of reruns required because of JCL errors is reduced.
- Multiple output classes in PCP and MFT enhance the operational flexibility of the system by allowing the user to control the destination of SYSOUT data, based on data type, device type, or any other characteristic deemed meaningful in installation. Up to seven additional output classes can be used at any one time, allowing SYSOUT data sets to be automatically routed by class to a particular type of device. This improvement also provides in PCP and MFT the job separator feature previously available only in MVT.

See P67-139 for additional information on the above three items.

- System restart for MVT is extended to permit direct access volumes containing system input and output data sets to be remounted on units different than those on which they were mounted when the system stopped.
- The MVT reader/interpreter modules replace many of the PCP and MFT reader/interpreter modules, giving improved JCL diagnostic ability, but retaining the sequential scheduler logic of PCP and MFT.
- The AVR module is simplified, unit affinity is now supported, and improved console messages are provided.
- The MVT Initiator relinquishes its region to other tasks while waiting for a job if it finds no work in the input queue.
- Dual density support is improved to permit requests for 800 or 1600 bpi 9-track units to be allocated to dual density drives if necessary.
- Device allocation recovery is improved in MVT. The operator is not required to reply to a recovery message when there is only one alternative other than cancelling the job.

Disk SYSIN capability is provided by the system input reader for MVT systems. Data in the input stream, including multiple data sets for the same step, is permitted. Disk SYSIN provides the facility for reading input from sequentially organized data sets, deblocking of blocked input records and automatic volume switching.

The I/O Supervisor is improved to establish a single queue for all seek and other I/O operations, rather than separate queues. This change provides for a more equitable distribution of I/O operations on disk, as compared with tape. In addition, the MVT improvements to channel end/

device end and PCI interrupt processing are incorporated into PCP and MFT.

IEBEDIT, the new SYSGEN restart utility, prepares a new system input stream from an existing system input stream, and is designed to facilitate restarting the SYSGEN process when necessary.

SYNADAF. The FORTRAN E and G Compilers use the SYNADAF macro to inform the user of the details of an I/O error condition that occurred during compilation. During program execution, the FORTRAN library uses the SYNADAF macro to provide the user with supplemental information concerning the nature of I/O errors that occur.

FORTRAN G provides an ID/no ID option for traceback. This feature provides for internal statement numbers to appear in the diagnostic traceback provided for execution time errors.

OPEN/CLOSE/EOV is improved to provide readback checking to ensure that the Volume Table of Contents records are properly written.

Setting Main Storage Size at IPL Time, now possible, permits the user to specify an arbitrary upper bound on the main storage addresses which the operating system will reference. It simplifies use of Large Capacity Storage (LCS) in an OS/360 environment. When using this feature, the control program will not reference Main storage (or LCS) locations beyond the specified upper bound, leaving such areas for use at the user's discretion.

FORTRAN Control Section Naming. As of Release 14, all three FORTRAN Compilers generate code without the Pound Sign (#) appended to the control section name. This is a change to the FORTRAN G and H Compilers. This simplifies the use of linkage editor control statements such as INSERT, since the CSECT name will be the same as that assigned by the programmer. Those installations which maintain libraries of programs compiled by previous versions of FORTRAN Compilers can use their existing linkage editor control statements which refer to CSECT names as long as none of the library programs have been recompiled by Release 14 level FORTRAN Compilers. If a library program is recompiled the Pound Sign must be removed in all references to its CSECT name in the existing linkage editor control cards.

Installations which must temporarily continue to use the CSECT name with a Pound Sign appended can use Optional Program Modifications that are distributed as part of SYS1.SAMPLIB in Release 14. These OPM's may be installed by the user at his option. One is provided for each of the three FORTRAN Compilers and enables the generation of the Pound Sign to be continued. These OPM's will be available for a limited period of time as a conversion aid. For additional information on FORTRAN Control Section Naming see Installation Newsletter 67-25.

Optional Program Modifications. The Optional Program Modifications are stored as library members on SYS1.SAMPLIB. Instructions on how to retrieve library members from SYS1.SAMPLIB are contained in Appendix E of the OS/360 System Generation manual (C28-6554). The OPM's should be punched and listed. Sample JCL appears at the beginning of each OPM. Further details on OPM installation is being distributed with the system and provided through FE and SE technical channels. Application is similar to PTFs.

The OPM names in SYS1.SAMPLIB for Release 14 are:

Pound Sign FORTRAN E	OPM0001
Pound Sign FORTRAN G	OPM0002
Pound Sign FORTRAN H	OPM0003
Linkage Editor E	
Upward Compatibility	UCOPTION

IEBUPDAT Utility Program. This program, although it has been largely replaced by the newer IEBUPDTE utility, can still perform some functions not yet incorporated into IEBUPDTE. For this reason, it is being retained as part of the system. Users may wish to include both IEBUPDTE and IEBUPDAT in their generated systems, as described in Installation Newsletter 67-20.

RELEASE 14 SYSGEN

Note: Some minor changes in this release limit the ability to perform system generation of Release 14 using earlier level systems. If the Release 14 starter system will not be used for system generation, the changes must be applied to the earliest systems, as described in Installation Newsletter 67-26.

MODEL 91

OS/360 Release 14 contains special modules and system generation options intended for the support of System/360 Model 91. These changes do not affect OS/360 users with other CPU's.

FLOATING POINT ENGINEERING CHANGE SUPPORT

The Improved Floating Point Engineering Change affects the operation of FORTRAN programs. To provide for this change, the Release 14 FORTRAN Library is modified to provide "tolerance code" that operates properly with or without the modified System/360 hardware. COBOL E, COBOL F, ALGOL F, PL/I F and TESTRAN do not require changes to support the floating point modifications.

The effect on FORTRAN users is that basically all FORTRAN modules must be re-link edited with the Release 14 level library. Re-link editing is required to obtain the tolerance code for the interrupt handler, sine/cosine and real modular arithmetic routines from the library. Re-editing of load modules may be done with the control section replace function of the editor. Object modules may be re-edited directly since the editor's automatic library call feature includes the correct sub-routines from the Release 14 FORTRAN library. FORTRAN H programs using the DMOD and AMOD functions will have to be recompiled with Version II to obtain in-line tolerance code for these functions. Additional information on the effect of the Floating Point Engineering Change on OS FORTRAN can be found in Installation Newsletter 67-26 and in the Sales and Systems Guide Y22-6668.

MAINTENANCE IMPROVEMENTS

Corrections for approximately 386 APARs are included in Release 14. Customer programming systems and IBM personnel should consult "Maintenance Prose" for descriptions of these corrections. Maintenance Prose is distributed to current-users with the prepunched order card when the availability of the release is announced. Information copies of the memorandum to users and maintenance prose are also being sent to branch offices.

Both the FE and SE technical organizations should be informed of any Type I program situation that prevents an OS installation from advancing to the release.

FE-SE SYSTEM GENERATION PLANNING

Close cooperation between Field Engineering and Systems Engineering is vitally important, particularly when planning to install a new release. The following procedure is strongly recommended before any Operating System generation and installation is attempted.

Field Engineering and Systems Engineering representatives should meet before system generation will be performed. All programming components

to be used by the customer should be reviewed for known restrictions or PTF's. Engineering change level prerequisites must be installed. Applicable PTF's should be installed before attempting customer operations. The review should consider all available published information plus information carried in RETAIN or SECOM.

⇩
PTF DISTRIBUTION

Distribution of PTF's on a DTR will not be made with Release 14. All possible PTF's have been incorporated in the Release 14 system.

⇩
MVT INSTALLATION CONSIDERATIONS

Experience at early installations of MVT indicates that it can be very effective when used properly. It has been shown that additional training provides a sound base for the successful installation and use of MVT. Pre-installation training and hands-on experience for at least one SE on each MVT account is highly recommended. An education program for the customer's operators and system programmers should be given prior to installation. An Education Guide for a 4 1/2 day MVT planning course is available to MVT trained SE's from DP Education Development, Poughkeepsie.

There are major areas of differences between MVT and PCP or MFT options of OS/360. A good summary of these differences along with planning considerations for MVT is found in "OS/360 Installation Considerations - Release 12" IBM Installation Newsletter No. 67-15, Page 21, green section.

⇩
ENGINEERING REQUIREMENTS

There are no new EC requirements over those now required for Release 13. A user who is now using Release 13 or is at an EC level equal to that required for Release 13 can apply Release 14 to his system with no additional requirements.

⇩
BASIC PROGRAM MATERIAL AND ORDERING INSTRUCTIONS

See the opposite column and page 5.

OS/360 - DISK SYSOUT [B]

The Disk SYSOUT Capability for MVT is withdrawn. Problem programs may place output on disk or other direct access devices as either (1) unique data sets, or (2) SYSOUT. SYSOUT data is transcribed by an output writer to punch, printer, or magnetic tape, but not to another DASD.

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	C28-6539-5*
Operator's Guide TNL N28-2273*, N28-2306*	C28-6540-5
Supervisor and Data Management Services TNLS N28-2202, N28-2246, N28-2263, N28-2279, N28-2297*	C28-6646-0
Supervisor and Data Management Macro Instructions TNLS N28-2217, N28-2223, N28-2248 N28-2251, N28-2296*	C28-6647-0
Checkpoint and Restart	C28-6656-1*
System Programmer's Guide TNL N28-2283*	C28-6550-3
Storage Estimates TNLS N28-2265, N28-2280, N28-2281*	C28-6551-4
System Generation TNLS N28-2269, N28-2282*	C28-6554-3
Messages and Completion Codes and Storage Dumps	C28-6631-3*
Maintenance TNL N28-2160	C27-6918-0
Utility Programs TNL N28-2298*	C28-6586-6*
TESTRAN TNLS N28-2249, N28-2270	C28-6648-0
Sort/Merge	C28-6543-4
Assembler F Programmer's Guide TNL N26-0567*	C26-3756-2
Assembler E Programmer's Guide FORTRAN E Programmer's Guide TNL N28-0578*	C28-6595-1 C28-6603-2*
FORTRAN G Programmer's Guide TNL N28-0579*	C28-6639-1*
FORTRAN H Programmer's Guide TNL N28-2307*	C28-6602-2*
FORTRAN Library Subroutines	C28-6596-2
COBOL E Programmer's Guide TNL N28-0229*	C24-5029-2
COBOL F Programmer's Guide	C28-6380-1
ALGOL F Programmer's Guide	C33-4000-0
Linkage Editor TNL N28-2288*	C28-6538-4*
PL/I F Programmer's Guide TNL N33-6001	C28-6594-2
PL/I F Library Computational Subroutines TNL N33-6003	C28-6590-0
Graphic Programming Services for 2250 Display Unit	C27-6909-4*
Graphic Programming Services for 2260 Display Station (Local)	C27-6912-5*
QTAM Message Processing Program TNLS N30-5005, N30-5004, N30-5008	C30-2003-1
Basic Telecommunications Access Method TNL N30-2504*	C30-2004-1
QTAM Message Control Programs ON-LINE TEST EXECUTIVE Program (OS) TNL N28-2287*	C30-2005-1 C28-6650-0
Graphic Programming Services for FORTRAN IV Programming Guide to Debugging	C27-6932-1 C28-6670-0*

* 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 Prose ... OS/360

FORTRAN - Optional Program Modifications (OPM).

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 or 1600 bpi), or 7-track (800 cpi, 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 or 1600 bpi), or 7-track (800 cpi, 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 or 1600 bpi), or 7-track (800 cpi, Data Conversion feature required), or two 1316 Disk Packs.

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 prepunched Program Order Card and a letter announcing the availability of release 14 instructing them to order the new release through the branch office, using this prepunched card. Complete ordering instructions are provided in the letter to users.

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 2311 users will be sent the entire system, for which three disk packs or three reels of tape are required.

Special Note for 2314 Direct Access Storage Facility Users

OS/360 Release 14 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 or 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.

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-510**
TESTRAN	360S-PT-516**
Basic Direct Access Method (BDAM)	360S-DM-509**
Basic Telecommunications Access Method (BTAM)	360S-CQ-513 **
QTAM Queued Telecommunications Access Method (QTAM)	360S-CQ-519 **
Graphic Programming Services (BISAM, QISAM)	360S-IO-523**
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**
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 **
MVT	360S-CI-535**
On-Line Test Executive Program	360S-DN-533**
Graphic Subroutine Program	360S-LM-537

** Component change with this release.
* Component not supported for operation in an MVT (360S-CI-535) environment.
Note 1: To use language compilers, the corresponding library is required.

If either 9-track (800 bpi or 1600 bpi) or 7-track (800 cpi) magnetic tape is not specified on the IBM Program Order form, 9-track at 800 bpi 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.

Orders currently in transit to PID will be filled with the Release 14.

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 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 14 Component Sizes:

Component Name	360S*	Notes	Distribution Volume Library Space (2311 tracks)	
			DLIB01	DLIB02*
Starter System (2311)	CI-514	7	700	
Primary Control Program	CI-505	L, F	5	138 96+ 25 13
MVT	CI-535	3	3	
Primary Data Management	DM-508	1		114
Direct Access Method (BDAM)	DM-509	1		3
Indexed Sequential (ISAM)	IO-526	6		4
Basic Telecommunications (BTAM)	CQ-513	3		33
Queued Telecommunications (QTAM)	CQ-519	3		30
Graphic Programming Service	IO-523	3		122 22
Assembler E	AS-036	1	4	9
Assembler F	AS-037	4	1	37
TESTRAN	PT-516	1	25	33
Sort/Merge	SM-023	2	11	13
Linkage Editor E	ED-510	1	3	5
OS/360 Utilities	UT-506	1	2	9
Independent Utilities	UT-507	1		33
COBOL E	CO-503	5	4	28
COBOL E Library	LM-504	3	10	
COBOL F	CB-524	5	3	84 5
COBOL F Library	LM-525	3		9
FORTRAN E	FO-092	5	4	32 11
FORTRAN G	FO-520	5	4	23 10
FORTRAN H	FO-500	5	3	152 11
FORTRAN Library	LM-501	3	1	27
PL/I F	NL-511	5, 6	4	255 4
PL/I Library	LM-512	3	54	29
RPG	RG-038	1	4	49 4
SERO, SER1, EREP Model 40	DN-527	2		16
SERO, SER1, EREP Model 50	DN-528	2		18
SERO, SER1, EREP Model 65	DN-529	2		20
SERO, SER1, EREP Model 75	DN-530	2		20
ALGOL	AL-531	1	4	29 3
ALGOL Library	LM-532	3		16
On-Line Test	DN-533	2		7
Graphic Subroutine Program	LM-537	1		29

* 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. BDM 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. MVT users must order both 360S-CI-505 and 360S-CI-535.

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 mean the appropriate WT Program Library. [6] Any reference made to DPD Depts. (or Regions) as sources of information means the comparable WT Dept. (or corresponding organizational level). [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 will differ. NO PRODUCTION COMMITMENTS FOR PROGRAMS WITH E/C LEVEL REQUIREMENTS SHOULD BE MADE TO CUSTOMERS PRIOR TO VERIFICATION WITH LOCAL CE MANAGER OF EC AVAILABILITY.



OPERATING SYSTEM/360 - RELEASE 14

Program Logic Manuals

Available from the Distribution Center, Mechanicsburg.

COBOL E	Y24-5009-1, TNL Y28-6385
ALGOL F Compiler	Y33-8000 *
Assembler E	Y26-3598
Assembler F	Y26-3700
Check Point Restart	Y28-6672 *
RPG	Y26-3704
Graphic Problem Oriented Routines	Y27-7110, TNLS Y27-7141, Y27-7150
Graphic Access Method	Y27-7113-2, TNL Y27-7153
MFT Control Program	Y27-7128, TNLS Y27-7156, Y27-7157
Graphic Programming Services for FORTRAN	Y27-7152-0
COBOL F	Y28-6382-1
Sort/Merge	Y28-6597-2
FORTRAN E	Y28-6601-2, TNLS Y28-6383, Y28-6819 **
Sequential Access Method	Y28-6604-1
Introduction to Control Program Logic	Y28-6605-2, TNLS Y28-2203, Y28-2180, Y28-2222, Y28-2261
Catalog Management	Y28-6606
Direct Access Device Space Management	Y28-6607-3 *
Input/Output Support (OPEN/CLOSE/EOV)	Y28-6609-1, TNL Y28-2219
Linkage Editor	Y28-6610-2
TESTRAN	Y28-6611
Fixed Task Supervisor	Y28-6612-2, TNL Y28-2174
P C P Job Management	Y28-6613-2 *
Utilities	Y28-6614-2, TNL Y28-2289 *
Input/Output Supervisor	Y28-6616-2 *, TNL Y28-2278
Basic Direct Access Method	Y28-6617-3
Indexed Sequential Access Method	Y28-6618, TNLS Y28-2210, Y28-2260
FORTRAN G	Y28-6638, TNLS Y28-6384, Y28-6386, Y28-6388, Y28-6820 *
FORTRAN H	Y28-6642-1 *
On-Line Test Executive	Y28-6651
MVT Logic Summary	Y28-6658
MVT Supervisor	Y28-6659, Y28-2256*
MVT Job Management	Y28-6660-1*
Initial Program Loader and Nucleus Initialization Program	Y28-6661, Y28-2245
PL/I (F)	Y28-6800-2,
PL/I (F) Subroutine Library	Y28-6801-2, TNL Y33-6000 *
Update Analysis	Y28-7106
Basic Telecommunications Access Method	Y30-2001-2 *
QTAM	Y30-2002-1

Program Listings

Operating System/360 program listings are available on microfiche from IBM Corporation, Department 906, Highway 52 and Northwest 37th Street, Rochester, Minnesota 55901, in the following groups:

<u>Program Listing Type</u>	<u>Group Code</u>
S/360 OS (Primary Control Program, Primary Data Management, Basic Direct Access Method, Indexed Sequential Access Method, OS/360 Utilities, Independent Utilities, SERO and SER1, BTAM,QTAM)	1010*
S/360 OS ALGOL Compiler, ALGOL Library	1025*
S/360 OS Assembler E	1030*
S/360 OS Assembler F	1035*
S/360 OS COBOL E	1040*
S/360 OS COBOL E Library	1048*
S/360 OS COBOL F, COBOL F Library	1045*
S/360 OS FORTRAN E	1050*
S/360 OS FORTRAN G	1052*
S/360 OS FORTRAN H	1055*
S/360 OS FORTRAN Library	1058*
S/360 OS PL/I F	1060*
S/360 OS PL/I F Library	1068*
S/360 OS Linkage Editor E	1070*
S/360 OS Sort/Merge	1080*
S/360 OS TESTRAN	1085*
S/360 OS Graphic Programming Services	1090
S/360 OS RPG	1095*

* Denotes change with this release.

Cancels: APSM 67-29
Release Date: January 17, 1968
Distribution: All Areas

The Optional program material list will be distributed with a condensed Symbolic Library. It is available from PID on 9-track magnetic tape (800 bpi or 1600 bpi) or 7-track magnetic tape (800 cpi) with the Data Conversion feature. Magnetic tape is the only distribution media.

The symbolic modules for the IBM Operating System/360 are arranged in sequential data sets by component (except when one component exceeds 70,000 statements). The data sets are distributed on unlabeled magnetic tapes that may contain one or more files each. Each file is formatted as the SYSIN data set for IEBUPDAT. The records are 80 character card images blocked by 14,400 bytes. The creation of symbolic libraries on disk requires the use of IEBUPDAT to process one of the tape files as SYSIN. The following is an example of the JCL used to create a symbolic library.

```
// A   JOB   MSGLEVEL=1
//     EXEC  PGM=IEBUPDAT, PARM=NEW
// SYSPRINT DD SYSOUT=A
// SYSUT2 DD (parameters describing output PDS)
// SYSIN DD  DSNAME=TAPE, VOLUME=SER=TAPEIN, UNIT=2400, DISP=OLD,
//           LABEL=(note 1, NL), DCB=(LRECL=80, RECFM=FB, BLKSIZE=14400)
```

Note 1: The sequence number of the desired file must be placed in the LABEL parameter.
 Note 2: The procedure for including IEBUPDAT in a system is described in Installation Newsletter 67-20.

The SYSUT2 data set must be a Partitioned Data Set. The space allocated to the PDS must be calculated considering the blocking factor desired. When creating a 2311 Partitioned Data Set, many large files will not fit on one disk unless 3360 is used as the blocking factor.

The requester may forward or order magnetic tapes following the current ordering procedures in the Branch Office Manual, DP Sales Activity. The external tape label must show the distribution volume number as well as the information required under the current procedures.

Distribution Volume Number	Program Component Name	Program Number
1	Assembler E	360S-AS-036
	Assembler F	360S-AS-037
	Linkage Editor E	360S-ED-510
	ALGOL	360S-AL-531
	ALGOL Library	360S-LM-532
2	Report Program Generator	360S-RG-038
	COBOL E	360S-CO-503
	COBOL F	360S-CB-524
	COBOL F Library	360S-LM-524
3	COBOL E Library	360S-LM-504
	FORTRAN E	360S-FO-092
	FORTRAN H	360S-FO-500
	FORTRAN G	360S-FO-520
	FORTRAN Library	360S-LM-501A
4		360S-LM-501B
	PL/I F	360S-NL-511A
		360S-NL-511B
		360S-NL-511C
		360S-NL-511D
5	PL/I F	360S-NL-511E
	PL/I F Subroutine Library	360S-LM-512A
		360S-LM-512B
		360S-SM-023A
		360S-SM-023B
6	Sort/Merge	360S-SM-023C
		360S-PT-516
	TESTRAN	360S-IO-526
	Index Sequential Access Method	
	Graphic Subroutine Program for FORTRAN	360S-LM-537
7	Basic Direct Access Method	360S-DM-509
	Basic Telecommunications Access Method	360S-CQ-513
	Queued Telecommunications Access Method	360S-CQ-519
	Graphic Program Services	360S-IO-523
	Primary Control Program	360S-CI-505A
8		360S-CI-505B
	OS/360 Utilities	360S-UT-506
	Primary Data Management	360S-DM-508A
	Independent Utilities	360S-UT-507
	SERO, SER1, EREP	360S-DN-527, 528, 529, 530
9	On-Line Test Executive Program	360S-DN-533
	Primary Data Management	360S-DM-508B
		360S-CI-535A
		360S-CI-535B
		MACRO
10	MVT	

Alphabetic suffix denotes separation of a single component into separate files.

Sales manual GI page 22 applies to all orders for additional program support material.


 John Fahey
 Director of DP Marketing

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] Any reference made to DPD Depts. (or Regions) as sources of information means the comparable WT Dept. (or corresponding organizational level). [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 will differ. **NO PRODUCTION COMMITMENTS FOR PROGRAMS WITH E/C LEVEL REQUIREMENTS SHOULD BE MADE TO CUSTOMERS PRIOR TO VERIFICATION WITH LOCAL CE MANAGER OF EC AVAILABILITY.**

SYSTEM/360 DISK OPERATING SYSTEM

Release 15 can now be ordered. Shipments will begin this week. In addition to normal maintenance for APARs, the highlights are:

DOS/360 BTAM Extensions

- . Binary Synchronous Communications for 2780 Data Transmission Terminal (6-bit Transcode).
- . 2848 Display Control for Data Entry

DOS/360 Optical Character Reader IOCS for the IBM 1285 and 1287.

BTAM EXTENSIONS**2780 Data Transmission Terminal (6-bit Transcode)**

DOS/360 BTAM Binary Synchronous Communications for the 2780 (6-bit Transcode) together with the presently available BSC CPU to CPU and various start-stop terminal support gives BTAM flexibility in a wide range of applications.

Binary Synchronous Communications is supported for the following configurations.

- Point-to-Point non-switched lines:
S/360* to 2780 Data Transmission Terminal
- Multipoint, non-switched lines:
S/360* to multi-dropped 2780s
- Point-to-Point, switched lines:
S/360* to 2780s

* Model 30, 40, 50, 65, 67 (65 mode), and 75

BTAM provides the following line-control functions and features:

- Computer-to-Terminal*
- Contention (point-to-point)
- Normal Text
- Inquiry and Alternating Replies
- Dial/Auto Answer
- Disconnect
- Multipoint (Centralized)
- Multiple Record Transmission
- Intermediate Block Checking

* 2780 Terminal Configurations:
Printer, Printer-Card Reader
Printer-Card Reader/Punch, Card Reader-Punch

Devices Supported**2780 Data Transmission Terminal**

Multipoint Line Control 5020, Automatic Answering 1340, Multiple Record Transmission 5010, Automatic Turnaround 1350.

Minimum System Configuration

32 K Bytes of Main Storage ... Standard Instruction Set ... One Card Reader* ... One Card Punch* ... One Printer* ... One 1052 Printer Keyboard ... One 2311 for System 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, 67 (65 mode), and 75.

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

2848 Display Control Models for Data Entry

I/O commands have been added to existing support provided under Disk Operating System/360 BTAM to cause the addressed keyboard on the 2260 Model 2s attached to a 2848 Model 21 or 22 to retain the same locked or unlocked status that existed at the start of the operation.

The keyboard can be restored either by program control or by operator depression of the ERASE DISPLAY key or the RESTORE key.

OPTICAL CHARACTER READER IOCS -- 1285 AND 1287 [360N-IO-478]

The Optical Character Reader IOCS for the 1285 and 1287 replaces previous support for the 1285.

This new support offers a significant throughput enhancement for journal rolls such as those produced by cash registers and adding machines. This is possible through the new facility of handling blocked input data (1285 and 1287).

In addition, 1287 support provides for reading both machine and hand printed numeric data and optical mark-read data from cut form documents.

Optical Character Reader support can be utilized in a multiprogramming environment under DOS/360 for processing documents or printed paper tapes. Factors affecting Optical Character Reader Performance under

DOS/360 which must be considered are:

- System/360 Model.
- Number of readers (maximum of 8 are supported).
- Characteristics of tapes and/or documents.
- Batch or multiprogramming environment.
- User's programming.

In addition, throughput is dependent on operator loading and unloading time. This handling time is significant when processing short journal roll tapes.

Devices Supported

- 1285 - Tape Mode
- 1287 - Document and Tape Mode

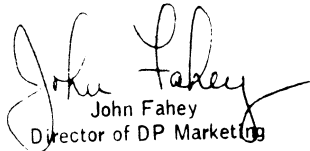
Minimum System Configuration

The normal DOS/360 requirements plus a 1285 or a 1287 attached to the multiplexer channel or a selector channel.

Engineering Requirements

DOS/360 BTAM BSC for System/360 Models 65, 67 (in 65 mode), and 75 require 2870 EC 705801 or 705803. (Depending on serial number of 2870).

The appropriate mandatory EC will be available for shipment beginning February 1, 1968.


John Fahey
Director of DP Marketing

Basic Program Material

The following SRL publications appropriate to the components ordered are shipped by the Program Information Department (PID) with each initial DOS/360 order.

SRL Publications: System/360 Disk Operating System --

Operating Guide TNL N24-5299	C24-5022-3
Concepts and Facilities (Note - SRL C24-5030-2 plus TNLs N24-5182, N24-5191, N24-5233, N24-5275 and N24-5340 may be used in lieu of the SRL C24-5030-3.)	C24-5030-3
Performance Estimates TNL N24-5346	C24-5032-3
Systems Generation and Maintenance TNL N24-5324, N24-5309, N24-5320, N24-5266, N24-5347	C24-5033-3
Data Management Concepts (Note - SRL C24-3427-2 plus TNLs N24-5122, N24-5169, N24-5197, N24-5276 and N24-5291 may be used in lieu of the SRL C24-3427-2.)	C24-3427-2
System Control and System Service Programs (Note - SRL C24-5036-1 plus TNLs N24-5218, N24-5279, N24-5289, N24-5330 and N24-5351 may be used in lieu of the SRL C24-5036-2 plus TNL N24-5351.)	C24-5036-2
Supervisor and Input/Output Macros (Note - SRL C24-5037-2 plus TNLs N24-5285, N24-5306, N24-5312, N24-5329 and N24-5344 may be used in lieu of the SRL C24-5037-3 plus TNL N24-5344.)	C24-5037-3
Basic Telecommunications Access Method TNLs N30-5016, N30-5024.	C30-5001-4
Utility Macros Specifications TNLs N24-5184, N24-5268, N24-5318	C24-5042-1
Vocabulary File Program for the 7772 Audio Response Unit	C27-6924-1
Utility Programs Specifications TNL N21-5063 (Note - SRL C24-3465-2 plus TNLs N21-5024, N21-5044, N21-5047, and N21-5063 may be used in lieu of SRL C24-3465-3)	C24-3465-3
Tape Sort/Merge Program Specifications (Note - C24-3438-1 and TNLs N21-5021, N24-5064, N24-5131, N21-5036, N21-5042 and N21-5050 or SRL C24-3438-2 plus TNLs N21-5036, N21-5042 and N21-5050 may be used in lieu of the SRL C24-3438-3)	C24-3438-3
Sort/Merge Program Specifications (Note - SRL C24-3444-1 plus TNLs N21-5035, N21-5049 and N28-2257 may be used in lieu of the SRL C24-3444-2 plus TNL N28-2257.)	C24-3444-2
COBOL DASD Macros (Note - C24-5039 and TNLs N24-5142, N24-5181 may be used in lieu of C24-5039-1)	C24-5039-1
Assembler Specifications TNLs N26-0536, and N26-0544 (Note - C24-3414-2 plus TNLs N24-5057, N24-5076, N24-5107, N26-0516, N26-0520, N26-0533, N26-0544, and N26-0536 or C24-3414-3 plus TNLs N26-0516, N26-0520, N26-0533, N26-0544 and N26-0536 may be used in lieu of C24-3414-4, and TNL N26-0536, N26-0544)	C24-3414-4
COBOL Programmers Guide TNLs N24-5264, and N28-0221	C24-5025-3
COBOL Language Specifications (Note - SRL C24-3433-3 plus TNLs N24-5188, N28-0232, N28-0237 and N28-0240 may be used in lieu of the SRL C24-3433-4 plus TNL N28-0240.)	C24-3433-4
FORTRAN IV Programmers Guide TNLs N28-0218, and N28-0569 (Note - SRL C24-5038-0 plus TNL N21-5034 and N21-5053, N28-0218 and N28-0569 may be used in lieu of C24-5038-1 plus TNLs N28-0218 and N28-0569)	C24-5038-1
FORTRAN IV Language (Note - C24-5014 plus TNLs N21-5018, N24-5041 and N24-5069, or SRL C24-5014-1 may be used in lieu of SRL C28-6629)	C28-6629
Report Program Generator TNL N24-5195, N21-5058, N21-5055, and N21-5082.	C26-3570-4
Autotest Specifications	C24-5062
QTAM Message Control Program TNL N30-5019	C30-5004-1
Queued Telecommunications Access Method Message Processing Program Services TNLs N30-5015, and N30-5020	C30-5003-2
Basic PL/I Reference Manual	C28-8202
PL/I Programmers Guide TNL N33-9012	C24-9005-1

PL/I DASD Macros TNL N24-5301	C24-5059
On-Line Test Executive Program Specs and Operating Guide	C24-5066-1

Form numbers which have changed since previous release are underlined.

If only the publications or if additional copies of the publications 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 (without the Tele-processing components) is distributed on one 2400 foot reel of magnetic tape, either 9-track (800 bpi or 1600 bpi), or 7-track (800 cpi, 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 initialize 2311 Utility Program and a Tape-to-Disk program.

The Tele-processing components are distributed on one 2400 foot reel of magnetic tape, either 9-track (800 bpi or 1600 bpi), or 7-track (800 cpi, Data Conversion feature required), or one 1316 Disk Pack.

Ordering Procedures

See DP Sales Activity section of the Branch Office Manual.

Magnetic Tapes (2400') may be forwarded to PID or ordered. The order card should accompany the tape or the tape order form; disk packs must be forwarded to PID with the program order card.

When ordering on magnetic tape, if the distribution medium is not specified on the back of the program order card, 9-track at 800 bpi will be forwarded.

New Users -- 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
Supervisor (10K)	360N-SV-473 *
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
MICR IOCS	360N-IO-477
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
PL/I	360N-PL-464
OLTEP	360N-DN-481

*Component changed from previous release.

DOS/360 is distributed as one pre-generated system with a 6K Supervisor ... or one pre-generated system with an 8K Supervisor ... or one pre-generated system with a 10K Supervisor.

The System Control and Basic IOCS component and one of the three Supervisor components are required. To order these components, specify on the IBM Program Order for System/360 Operating Systems (120-1411) -- System Control and Basic IOCS, 360N-CL-453 and Supervisor (6K), 360N-SV-474, or Supervisor (8K), 360N-SV-475, or Supervisor (10K), 360N-SV-473. Supervisor (8K), 360N-SV-475 assumes the users machine size to be at least 32K. If no supervisor is indicated on the order card, PID supplies the (6K), 360N-SV-474.

DOS/360 is available on two reels of magnetic tape or two disk packs.

The first volume contains all of the DOS/360 components listed above except the Tele-processing components (BTAM, QTAM, and the Vocabulary File Utility Program, including the Sample Program, VFU1, which are contained in the second volume.

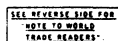
If the Tele-processing components are required, two volumes must be supplied to PID; if they are not required, only one volume need be supplied.

Current Users -- Current users will receive a prepunched Program Order Card and a letter announcing the availability of DOS/360 Release 15. The letter instructs them to order this release through the branch office. Current users must use the prepunched card to order either the Maintenance Package or the Replacement System for Release 15.

Orders for the Release 15 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.

Complete ordering instructions are provided in the letter to users.

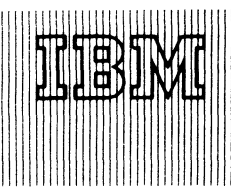
The Maintenance Package will be available from PID for a period of 60 days following the announcement of availability of System Release 15.



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DISK OPERATING SYSTEM/360 - RELEASE 15

Program Logic Manuals Order from the IBM Distribution Center, Mechanicsburg.

DOS/360

System Control	Y24-5017-2
Logical IOCS	Y24-5020-2
BTAM	Y30-5001-2
QTAM	Y30-5002-2
MPS Utility Macros	Y24-5045-1
Utilities	Y24-5023
Tape Sort/Merge	Y24-5021

DOS/360 and TOS/360

Tape Sort/Merge	Y24-5016
Assembler	Y26-3642-1
RPG	Y26-3701-1
COBOL	Y24-5025-2
FORTRAN IV	Y24-5032
OLTEP	Y24-5056

Program Listings Program listings and updates may be ordered for direct mailing to either IBM or customer addresses. On customer orders, management approval is required and charges are to be borne by the ordering IBM office.

The DOS/360 assembly listings and/or Macro (Source Statement Library) SSERV listings are available on Microfiche. To order, submit a Program Listing/Special Documentation Request (120-1399) to: IBM Corporation, Department 906, Highway 52 and Northwest 37th Street, Rochester, Minnesota 55901.

Optional Program Material (Symbolic Modules)

May be ordered from PID using the IBM Program Order for IBM System/360 Operating Systems, 120-1411. The order form must be accompanied by a Branch Manager letter of approval (see DP Letter 266-24).

The optional program components are available on nine distribution volumes, each identified for PID ordering purposes by a Distribution Volume Number. Distribution may be requested on IBM 1316 Disk Packs, 9-track magnetic tape (800 bpi or 1600 bpi), or 7-track magnetic tape (800 cpi) with the Data Conversion feature.

Magnetic tapes may be ordered or forwarded, or disk packs may be forwarded in accordance with current procedures described in the DP Sales Activity section of the Branch Office Manual. A separate magnetic tape or disk pack is required for each distribution volume.

If either 9- or 7-track magnetic tape is not specified, 9-track (800 bpi) will be forwarded.

The change-levels of the symbolic modules supplied by PID will in all instances be identical to the change-levels of the Basic Program Material program components then being distributed. Note, however, that there is no automatic update service (see DP Letter 266-24).

DP Letter 266-24 and the Sales Manual, GI Pages 21 and 22, apply to all orders for Optional Program Material. Be certain to specify Optional on the order form. There is a service charge to the branch office to cover the cost of processing and shipping all orders for Optional Program Material.

Distribution Vol. Number	Program Component Name	Number
* 1	System Control	360N-CL-453
2	Assembler	360N-AS-465
* 3	Group 1 Utilities (Unit Record and Disk)	360N-UT-461
	Group 2 Utilities (Magnetic Tape)	360N-UT-462
	Group 3 Utilities (Data Cell)	360N-UT-463
	MPS Utilities	360N-UT-471
* 4	COBOL	360N-CB-452
5	Disk Sort/Merge	360N-SM-450
	Tape Sort/Merge	360N-SM-400
	FORTRAN IV	360N-FO-451
6	Report Program Generator (RPQ)	360N-RG-460
	Autotest	360N-PT-459
* 7	BTAM	360N-CQ-469
	QTAM	360N-CQ-470
	Vocabulary Utility File	360N-UT-472
	On-Line Test Executive Program	360N-DN-481
8	Basic PL/I	360N-PL-464
* 9	1285 Optical Character Reader	360N-IO-478
	Magnetic Ink Character Reader IOCS	360N-IO-477
	Basic IOCS	360N-CL-453

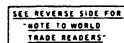
* Changed with this release.

The above distribution volumes do not contain source statements which are available in source format with the basic machine readable material for DOS/360. Therefore, there is no optional program material for the following DOS/360 components: Consecutive Disk IOCS, 360N-IO-455; Consecutive Tape IOCS, 360N-IO-456; Direct Access Method, 360N-IO-454; ISFMS, 360N-IO-457; Consecutive Paper Tape IOCS, 360N-IO-458; COBOL DASD Macros, 360N-CB-468.

Source statements for the Supervisor (6K), 360N-SV-474, the Supervisor (8K), 360N-SV-475, and the Compiler Input/Output Macros 360N-IO-476, are not provided. See System/360 Disk Operating System, System Generation and Maintenance, C24-5033-3, for information on these modules.

Sales Manual GI Page 22 applies to all orders for Additional Program Support Material.

Published by DP Sales Publishing Services, WTHO



FOR IBM INTERNAL USE ONLY

John Fahey, Director of DP Marketing

Cancels: APSM 67-32
Release Date: January 19, 1968
Distribution: All Areas

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OS/360 LINKAGE EDITOR F - VERSION II

A new version of Linkage Editor F, which provides better performance than Linkage Editor E, will be available July 31, 1968. These performance improvements result from:

- . More effective use of main storage
- . Better processing techniques
- . Improved I/O Handling - blocking and buffering

Faster loading of edited programs results from the Linkage Editor F ability to:

- . Block control sections into single text records
- . Prepare larger text blocks - full track on 2303, 2314 and 2301 DASD's
- . Construct programs with up to 255 overlay segments

Version II of the Editor is selectable for execution in 44K, 88K or 128K partition sizes. The major difference between these sizes is the amount of program overlay necessary during editor execution. In 128K, the entire Editor program is resident at one time.

Version II is compatible with all other OS/360 Linkage Editors. It produces correctly operating load modules from modules that have been previously edited by any OS/360 Editor. No program modifications are necessary.

Linkage Editor E (44K) will be withdrawn when Linkage Editor F (44K) becomes available. The E level Linkage Editors which operate in 15K and 18K will be retained.

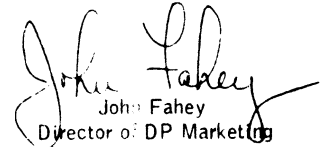
Additional Parameter

A SIZE parameter permits the specifications of the maximum number of bytes of main storage available to the linkage editor with its tables and buffers. A second value in the parameter permits the specification of the maximum number of bytes of main storage specification to be used as the text buffer. If the SIZE parameter is not used, defaults for parameter values will be assumed. Default values may be specified at System Generation time. They are automatically overridden by the SIZE parameter at operational link edit time.

Performance

Version II offers improved performance when compared to the previous Linkage Editors. Preliminary measurements based on a series of FORTRAN H (OPT = 2) compile-link edit-go runs indicate a performance improvement of 8% to 20% when compared with Linkage Editor F (Version I) using 88K bytes of main storage. A slightly better performance is expected when using 128K bytes.

Further details concerning Linkage Editor F (Version II) will be published in appropriate SRL publications at the time of program availability.



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Director of DP Marketing

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FOR IBM INTERNAL USE ONLY

Published by DP Sales Publishing Services, WTHQ

Release Date: January 22, 1968
Distribution: All Areas



7090/7094 Simulator Program for System/360

Version 2 (7090/7094) [360C-SI-750].
First shipments will begin this week. Version 2
obsoletes Version 1 and provides the following
improvements:

- Support of IBM 2401-2402 Magnetic Tape Unit, Models 4, 5, and 6;
- IBM 2403 Magnetic Tape Unit and Control, Models 4, 5, and 6;
- IBM 2404 Magnetic Tape Unit and Control, Models 1, 2, and 3;
- IBM 2415 Magnetic Tape Unit and Control, Models 1 - 6.

The Models 4, 5, and 6 will be written at 1600-bpi density.

- The capability for loading the Simulator Program from a 7-track 2400-Series Magnetic Tape Unit with the Data Conversion Feature.
- The Simulation of 704 Programs designed for 8K or 16K running under the 704-709/7090 Input/Output Compatibility Program.

Performance: Estimates of performance under simulation are shown as ranges of throughput ratios for a number of typical programs. A ratio greater than 1.0 indicates that simulation of System/360 is faster than execution on the original system.

Current System	S/360 Model 50	S/360 Model 65	S/360 Model 75
7090	0.07-0.30	0.22-0.70	0.30-0.80
7094/1	0.05-0.20	0.20-0.55	0.25-0.60

The following assumptions have been made in estimating performance:

- The tape units used for simulation have at least the same data transfer rate in bytes as those of the simulated system in characters.
- The termination conditions of tape read/write operations are normal.

Factors that increase simulation throughput:

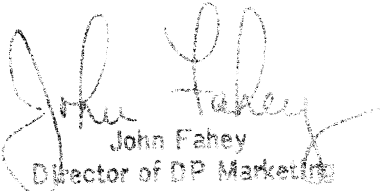
- Programs that are I/O-limited
- I/O data in 9-track Simulator internal format

Factors that decrease simulation throughput:

- Functions that are process-limited.

See the back of this letter for the revised sales manual text which includes reference material, basic program material, and ordering procedure.

Current users will receive a prepunched program order card and a letter announcing the availability of the new version, and instructing the users to order the new version through the branch office. This prepunched order card must be used to order the new version.


John Fahey
Director of DP Marketing

FOR IBM INTERNAL USE ONLY

Published by DP Sales Publishing Services, WTHQ

Attachments (7): P 1, P 9, P 15, P 17, P 360N.9, P 1130.1 and P 1130.3

Release Date: January 29, 1968

Distribution: All Areas

DP-100

The System/360 Simulator of the System/360 Data Processing System: of the 7090/94 is a stand-alone System/360 program that, without additional hardware, enables programs that have been operating on a 7090/94 to be executed on any System/360 having a suitable configuration.

By providing program "compatibility," the simulator relieves programming schedules, and can eliminate the need to develop frequently used programs.

Standard 7090/7094 instructions and features are simulated. In addition to 7090/7094 programs the simulator executes 704 programs and 704 programs designed for 8K or 16K running under 704/709/7090 Input/Output Compatibility Program. The functions of 7090/7094 input/output devices are performed by simulating System/360 devices.

Simulation of the 7090 I/O Compatibility Program is provided to the user. This program is withdrawn and will not be provided.

The simulator uses the System/360 Standard Instruction Set, Floating Point Arithmetic, and the Interval Timer. It also requires a minimum of 262,144 bytes of main storage (Model 8) and one 1052 Printer-Keyboard ... one device for input of the program, one 2400 Magnetic Tape Unit, 9-track or 9-track Data Conversion Feature ... one device for simulator program information input ... for each device simulated, one of the following devices is in the following table:

System/360 Device	System/360 Device
Printer-Keyboard	1052 Printer-Keyboard, any model compatible with the system
Card Read Punch	1442 Card Read Punch, Mdl N1, equipped with card-image option; or 2540 Card Read Punch; or 2501 Card Reader, Mdl N1 or B2; or 2520 Card Read Punch, Mdl B1; or 2400 Magnetic Tape Unit, Mdl 1, 2, or 3 (7- or 9-track), 4, 5, or 6 (9-track).
Printer	1443 Printer, Mdl N1; or 1403 Printer; or 1052 Printer-Keyboard; or 2400 Magnetic Tape Unit, Mdl 1, 2, or 3 (7- or 9-track), 4, 5, or 6, (9-track).
Card Read Punch	1442 Card Read Punch, Mdl N1 equipped with card-image option; or 2540 Card Read Punch; or 1442 Card Punch, Mdl N2; or 2520 Card Read Punch, Mdl B1; or 2520 Card Punch, Mdl B2 or B3; or 2400 Magnetic Tape Unit, Mdl 1, 2, or 3 (7- or 9-track) 4, 5, or 6 (9-track).
Magnetic Tape Unit	2400 Magnetic Tape Unit, Mdl 1, 2, or 3 (7- or 9-track), 4, 5, or 6 (9-track)

Models 1, 5, and 6 of 2400-Series Magnetic Tape Units (Printer at 1600 bpi density).

Card Punch devices must be equipped with the Card Image feature (#1442), the Column Binary feature (2540), (#1532) or feature 2 (2501, 2520).

Programs, the simulator program input, and the control program input, can be handled by the same devices as those for simulated device functions.

The simulator produces correct results only for programs that were originally on the original system, and may produce incorrect results for time-dependent programs.

Options and limitations: Before a 7090 program is run on the Simulator, the following restrictions and limitations must be considered.

There are limitations on the length of magnetic tape programs which can be directly accepted by the Simulator. These are explained in detail in the SRL.

Instructions Length Multiply (VLM), Variable Length Divide or Multiply (VMD), and Variable Length Divide or Proceed (VDP) instructions in which the count field is greater than 35 are treated as invalid.

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Printer	1443 Printer, Mdl N1; or 1403 Printer; or 1052 Printer-Keyboard; or 2400 Magnetic Tape Unit, Mdl 1, 2, or 3 (7- or 9-track), 4, 5, or 6, (9-track).
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Instructions Length Multiply (VLM), Variable Length Divide or Multiply (VMD), and Variable Length Divide or Proceed (VDP) instructions in which the count field is greater than 35 are treated as invalid.

- 1) The simulator does not simulate the 7090/94's ability to handle programs that are longer than 255 tracks.
- 2) The simulator does not simulate the 7090/94's ability to handle programs that are longer than 255 tracks.
- 3) The simulator does not simulate the 7090/94's ability to handle programs that are longer than 255 tracks.
- 4) The simulator does not simulate the 7090/94's ability to handle programs that are longer than 255 tracks.
- 5) The simulator does not simulate the 7090/94's ability to handle programs that are longer than 255 tracks.
- 6) The simulator does not simulate the 7090/94's ability to handle programs that are longer than 255 tracks.
- 7) The simulator does not simulate the 7090/94's ability to handle programs that are longer than 255 tracks.
- 8) The simulator does not simulate the 7090/94's ability to handle programs that are longer than 255 tracks.
- 9) The simulator does not simulate the 7090/94's ability to handle programs that are longer than 255 tracks.
- 10) The simulator does not simulate the 7090/94's ability to handle programs that are longer than 255 tracks.
- 11) The simulator does not simulate the 7090/94's ability to handle programs that are longer than 255 tracks.
- 12) The simulator does not simulate the 7090/94's ability to handle programs that are longer than 255 tracks.
- 13) The simulator does not simulate the 7090/94's ability to handle programs that are longer than 255 tracks.
- 14) The simulator does not simulate the 7090/94's ability to handle programs that are longer than 255 tracks.
- 15) The simulator does not simulate the 7090/94's ability to handle programs that are longer than 255 tracks.
- 16) The simulator does not simulate the 7090/94's ability to handle programs that are longer than 255 tracks.
- 17) The simulator does not simulate the 7090/94's ability to handle programs that are longer than 255 tracks.
- 18) References to the 7090/94's ability to handle programs that are longer than 255 tracks.

System/360 Basic Operating System

Release 15 is now available. It includes programming support for:

1285 and 1287 Optical Character Readers

Binary Synchronous Communications (BSC)

Details are below, basic program material and ordering instructions are on the reverse side.

OPTICAL CHARACTER READER IOCS -- 1285 AND 1287 [360B-CL-302]

The Optical Character Reader IOCS for 1285 and 1287 replaces previous support for the 1285. This new support provides for both reading machine printed and hand printed numeric data and optical mark read data from cut form documents such as sales checks, utility stubs, and customer orders (1287). Support is also provided for reading printed paper tapes or journal rolls, such as those produced on cash registers and adding machines, by the 1285 and/or 1287.

Minimum System Requirements

The normal BOS/360 requirements plus a 1285 and/or a 1287 Optical Character Reader.

Engineering Change Level

- . 2030 CPU EC Level 126754 ECA 330
- . 2030 Micro Programming EC Level 128062 ECA 290

BINARY SYNCHRONOUS COMMUNICATIONS [360B-CQ-312]

The binary synchronous line control functions provided are:

- . Contention (point-to-point)
- . Headers and normal text
- . Inquiry and alternating replies
- . WABT (optional reply)
- . Full Transparent text
- . Dial with and without identification
- . Disconnect
- . Conversational

Features Supported

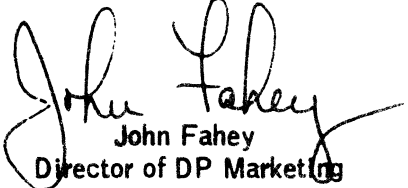
- . 2701 Synchronous Data Adapter - Type II (#7697, #7698, #7699)
- . EBCDIC (#9060)
- . Dual Communications Interface (#3463, #3464, #3465)
- . Transparency (#8029)
- . Autocall (#1314)

Minimum System Requirements

System/360 with 16K bytes or larger ... Card Reader ... Card Punch ... Printer ... 2701 SDA - Type II attached to a multiplexer or selector channel ... Communications equipment necessary to interface to the communication line.

BOS/360 BSC for S/360 Models 65, 67 (65 mode) and 75 requires 2870 EC 705801 (ECA 28) or 705803 (ECA 17) depending on the serial number of the 2870.

The appropriate mandatory EC will be available for shipment starting February 1, 1968.


John Fahey
Director of DP Marketing

Basic Program Material

SRL Publications

The following SRL Publications appropriate to the components ordered are shipped by the Program Information Department (PID) with each initial BOS/360 order.

Basic Control Program (360B-CL-302), Consecutive Processing Macros (360B-IO-303), ISFMS Macros (360B-IO-304), Direct Access Macros (360B-IO-305), and STR Macros (360B-IO-310).

System/360 Basic Operating System Specifications, Assembler with Input/Output Macros with TNLs N24-5314, N24-5335 and N24-5341 C24-3361-5

System/360 Basic Operating System Control Programs and Assembler Operating Guide with TNLs N24-5137 and N24-5260 and N24-5241 C24-3450-2

System/360 Basic Operating System Programmers Guide with TNLs N24-5336 and N24-5328 C24-3372-6

System/360 Basic Operating System Operating Guide, Operator Messages C24-5024-3
Note: SRL C24-5024-1 plus TNLs N24-5116, N24-5155, N24-5168, N24-5187, N24-5264, N24-5326 and N24-5328 may be used in lieu of the SRL C24-5024-2 plus TNLs N24-5269, N24-5825 and N24-5326.

System/360 Basic Operating System, System Generation and Maintenance C24-5060-2

Utilities - Group 1 (360B-UT-300), and Utilities - Group 2 (360B-UT-301)

System/360 Basic Operating System, Utility Programs Specifications and Operating Guide C24-3409-3

1070 PCS (360B-SV-032)

Basic Operating System/360 1070 Process Communication Supervisor C26-5996-1

System/360 Basic Operating System 1070 Process Communications Supervisor, Operating Guide C26-3627-1

Autotest (360B-PT-306)

System/360 Basic Operating System Specifications, Autotest (8K Disk) with TNLs N21-5011, N21-5041 and N21-5070 C24-3378-2
Note: SRL C24-3378-1 plus TNLs N24-5015, N21-5011, N21-5041 and N21-5070 may be used in lieu of the SRL C24-3378-2 plus TNLs N21-5011, N21-5041 and N21-5070.

System/360 Basic Operating System Operating Guide, Autotest (8K Disk) with TNL N21-5071 C24-3452-3

Report Program Generator (360B-RG-307)

System/360 Basic Operating System Specifications, Report Program Generator (8K Disk) with TNLs N21-5060, N24-5196 and N21-5064 C24-3387-4
Note: SRL C24-3387-3 plus TNLs N24-5158, N24-5175, N24-5196 and N21-5060 may be used in lieu of the SRL C24-3387-4 plus TNLs N24-5196, N21-5060 and N21-5064.

System/360 Basic Operating System Operating Guide, Report Program Generator with TNL N21-5067 C24-3453-1
Note: SRL C24-3453-0 plus TNLs N24-5082 and N21-5087 may be used in lieu of the SRL C24-3453-1 plus TNL N21-5087.

Sort/Merge (360B-SM-308)

Basic Operating System/360 Operating Guide Sort/Merge Program (8K Disk) C24-3454-0

Basic Operating System/360 Specifications, Sort/Merge Program (8K Disk) with TNL N21-5045 C24-3321-3

Assembler (360B-AS-309)

Basic Operating System/360 and System/360 Basic Programming Support - Macro Definition Language 8K Disk/Tape C24-3364-3

Form numbers which have changed since previous release are underlined.

If only the publications or if additional copies of the publications are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

Documentation -- Program Material List and Attachment (Instructions to User)

Machine Readable -- BOS/360 is available on one 2400' reel of magnetic tape, 9-track at 800 bpi or 1600 bpi, or 7-track at 800 bpi (Data Conversion Feature Required), or on one 1316 Disk Pack.

The dumped disk pack data on the tape will be preceded by an Initialize 2311 Utility Program and a Tape to Disk Program. The operating instructions for creating the system pack from the tape are provided with the Program Material List.

Ordering Procedures

See DP Sales Activity section of the Branch Office Manual.

Magnetic Tapes (2400 foot) may be forwarded to PID or ordered. (The program order form should accompany the magnetic tape or the tape order form); disk packs must be forwarded to PID with the program order form.

If the track and density requirements are not indicated on the back of the program order card, 9-track at 800 bpi will be forwarded.

New Users -- 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.

The program components of BOS/360 are:

Basic Control Program	360B-CL-302 *
Utilities, Group 1	360B-UT-300
Utilities, Group 2	360B-UT-301
Consecutive Processing Macros	360B-IO-303
ISFMS Macros	360B-IO-304
Direct Access Macros	360B-IO-305
Autotest	360B-PT-306
RPG	360B-RG-307
Sort/Merge	360B-SM-308
Assembler	360B-AS-309
STR Macros	360B-IO-310 *
1070 PCS	360B-SV-032
BSC	360B-CQ-312 *

To order BOS/360, specify on the IBM Program Order for System/360 Operating Systems (120-1411) the Basic Control Program, 360B-CL-302, and each of the other components for which documentation and maintenance material is required. Documentation and maintenance will not be provided for components not listed.

All of the BOS/360 program components will automatically be included on the tape or disk pack containing 360B-CL-302 (those not needed may be deleted from the system pack by the user.)

Current Users -- Current users will receive a prepunched Program Order Card and a letter announcing the availability of BOS/360 Release 15. The letter instructs them to order this release through the branch office. Current users must use the prepunched card to order either the Maintenance Package or the Replacement System for Release 15.

Orders for the Release 15 Maintenance Package should be accompanied by one 9-track magnetic tape or one 7-track magnetic tape (Data Conversion Feature required). It is not available on Disk. Disk only users must order the Replacement System for Release 15.

Complete ordering instructions are provided in the letter to users.

The Maintenance Package will be available from PID for a period of 60 days following the announcement of availability of System Release 15.

* Denotes change from previous 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 later, 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 (or 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 (or Regions) as sources of information or for manuals etc. should be understood to mean the comparable WT Department (or corresponding organizational level).
- (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) References made to Engineering Change requirements should be verified with the local CE office. Although E/C requirements are identical for WT and IBM, availability and shipping dates will differ. NO PRODUCTION COMMITMENTS FOR PROGRAMS WITH E/C LEVEL REQUIREMENTS SHOULD BE MADE TO CUSTOMERS PRIOR TO VERIFICATION WITH LOCAL CE MANAGER OF E/C AVAILABILITY.



P68-14

**NEW VERSION OF APT
(360A-CN-10X)**

Version 2 of System/360 APT Numerical Control Processor, which will be available February 29, 1968, includes three major additions.

HIGHLIGHTS

The major additions to Version 2 are:

- . Additional geometric definitions for lines, planes, vectors, and and matrices
- . An improved and more efficient Tabulated Cylinder (TABCYL) logic
- . A new processor structure incorporating load modules for each major phase

Version 2 will also include all of the functions contained in Version 1 and will replace Version 1.

DESCRIPTION

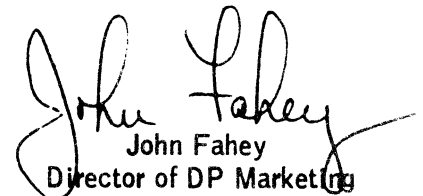
The inclusion of additional geometric definitions in APT will allow user greater flexibility in defining the analytical surfaces basic to APT processing. The new TABCYL logic will offer a more reliable and efficient technique for the definition and use of TABCYL's. The size and complexity of the APT Processor has made it desirable to segment it into smaller load modules. In Version 2, each of the main phases will be contained in a separate load module, and provision will be made for the user to place each of his post processors into separate load module. This will reduce computer time required to incorporate changes and allow duplicate naming of post processor programs.

CURRENT USERS

Information describing program changes to the previous modification level will be provided to current users of Version 1 when Version 2 becomes available. This information is being provided to assist current users in updating modified programs.

SALES MANUAL

For the new sales manual write-up, see the back of this letter.


John Fahey
Director of DP Marketing

FOR IBM INTERNAL USE ONLY

Published by DP Sales Publishing Services, WTHQ

Release Date: January 29, 1968

Distribution: All Areas

P68-14

OS/360 (MVS)

The APT processor operates as a task under control of OS/360. The APT processor requires EBCDIC or EBCDIC input on any sequential system input device (such as a number of input decks) part programs) to be processed in a single job.

The processor accepts an English-like language defining geometric shapes, dimensions, and machining information. This input, called a part program, is written in a special language. It contains mathematical representations of the geometry and sequential instructions directing the movement of a cutting device through the defined surfaces.

The processor can analytically or iteratively calculate points on the cutting device (such as the center of the cutter) (bottom center of the cutting device). The resultant points are converted to straight line motions whose length is determined by specified feed rates. These points are then available to the user-supplied post processor which is used to determine the forces and dynamics of a particular cutting operation.

The processor has the capability of modifying the cutter axis to conform to part program requirements. When the processor is in a multi-axis (4 or 5 axis) environment, the user can specify the unit vector representing the cutter axis for each axis.

The user can specify the part program and optionally a listing of the machining information. He must also specify which post processor to use to process the output from the APT processor.

The processor has the capability of using throughout the processor to improve resolution of the range of usable numbers.

The processor has the capability of using an analytical technique that analytically calculates start-up positions for motion sequences involving vertical planes or horizontal planes and non-vertical planes for part surfaces. This technique significantly reduces the processing time for these cases.

A special processing technique for the POCKET feature has been designed to produce a large number of work files.

A unique job number is assigned by the processor and referenced by the user in the part program and error messages.

The processor has the capability to assist computer operators in identifying problem areas.

The number of nesting allowed for MACROs is five. The number of MACROs is limited to 99.

The number of nesting levels for resident tables are pre-determined, and the space is limited to reduce the requirement for programmer manipulation.

The processor, particularly ARELEM, is the primary design criterion.

The processor has the capability to assist with interfacing of special user

The processor has the capability to provide predictable multi-axis results.

The processor has the capability to allow selective printing of the output data.

The processor can be executed in a normal job step environment. The processor can reside on a direct access device in executable form and need not be loaded into memory when operating under OS/360.

The processor has the capability to use most of the installed N/C devices operate with a punched tape reader. The punched tape information is created by the user-supplied post processor. The processor can be used with APT post processor modules. A requirement for a paper tape reader, such as the IBM 1012, will normally exist.

The processor has the capability to take the following steps to achieve maximum and optimum performance --

The processor has the capability to load and merge into the APT processor any post processors required for the user's machine/machine tool combinations.

The processor has the capability to ensure that appropriate training is given to system programmers to use the Operating System facilities to operate, maintain, and modify the APT processor.

The processor has the capability to ensure modification and version releases.

The processor has the capability to ensure that proper training is given the part programmers responsible for the input.

The processor has the capability to use the following facilities: The APT processor is generally considered critical to the success of manufacturing operations. To best service the user, the processor has the capability to use the SECOM network to distribute all program modifications and program fixes. Please use SECOM fixes until program modifications are available. Please use SECOM fixes until program modifications are available. The Program Information Department to registered users. The representative should contact the customer to determine how the processor should best be used to meet his specific requirements.

The processor has the capability to use the following facilities: The APT processor routines are primarily written in FORTRAN. The processor has the capability to use the FORTRAN H language have been used, prohibiting the use of FORTRAN C for many programs. The APT input/output routines are written in Assembly Language and interface to the BSAM access method. The processor has the capability to use the OS assembly language program, the OS assembly language editor, the E-level linkage editor, and the OS utility programs. The processor has the capability to use the OS/360 Operating System separately.

Machine Requirements: A System/360 Model 2040H ... Floating-Point Arithmetic ... Selector Channel ... Disk Storage Device (total installation requirements should be considered) ... six logical sequential I/O devices (magnetic tape drives or equivalent) ... Card Reader, Card Punch, and Printer or tape drives for peripheral I/O.

Note: Minimum requirements of Operating System/360 for disk storage devices must be considered in addition to these requirements.

Below is a system configuration which exceeds minimum peripheral requirements and is recommended for installations in which APT is a significant application. At installations where APT is the major application, a 2050 Model H or larger processing unit may be needed to meet throughput requirements.

A 2040 Model H with Floating-Point Arithmetic (#4427), First Selector Channel (#6980), Second Selector Channel (#6981), 1012 Attachment Device (RPQ), 1052 Adapter (#7920) ... 1052 Printer-Keyboard Model 7 ... 2804 Tape Control ... six 2401 Magnetic Tape Units (other than Model 1), Simultaneous Read-While Write (#7160) ... 2841 Storage Control ... three 2311 Disk Storage Drives ... 2501 Card Reader Model B1 ... 1442 Card Punch Model N2 ... 1403 Printer ... 1012 Tape Punch ... 2321 Control Unit.

Note: Tape punching facilities either on-line or off-line are usually required for preparation of Numerical Control machine tool input media. The column binary feature may be required for use with customer-written post processor programs.

Basic Program Material:

Publications* -- Part Programming Manual (H20-0309) ... Operator's Manual (H20-0331) ... Application Directory.

Machine Readable** -- Source programs, executable load module, overlay structures and sample part program are contained on one reel of magnetic tape in either 9-(800 or 1600 bpi) or 7-track (800 cpi, Data Conversion Feature required) mode. The contents of the tape are written in the 2311 Dump/Restore format.

Optional Program Material:

Machine Readable** -- A flowchart listing tape is available on a full reel of magnetic tape in either 9-(800 or 1600 bpi) or 7-track (800 cpi, Data Conversion Feature required) mode.

Ordering Procedures: See DP Sales Activity section of the Branch Office Manual.

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

**If the distribution medium is not indicated on the back of the program order card, a 9-track tape (800 bpi) will be forwarded.

Magnetic tapes (2400') may be forwarded or ordered (the order card should accompany the tape order form).

Additional Program Support Material: Application Description Manual (H20-0181) ... System Manual (Y20-0080).

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DOS/360, BPS/360 INCLUDE 24K MEMORY SUPPORT FOR S/360 MODELS 25,30

Programming support required for 24K Incremental Memory is included in

DOS/360 Releases 14, 15, and BPS/360 (Utilities and Autotest).

This support is provided so that DOS/360 and BPS/360 (see list below) can operate in a memory size of 24K. 24K storage users can now compile and more efficiently execute larger programs through a reduction in the number of overlays otherwise required in many cases when using a smaller core size.

Note: This information has not been distributed to users of DOS/360 and the BPS/360 programs marked with an asterisk in the list below. Affected customers should be notified.

ENGINEERING

The following engineering change levels are prerequisite for proper functioning of DOS/360 and Model 30 24K of core storage.

- 2030 Hardware E. C. Level - 126752 (ECA 303)
2030 Micro E. C. Level - 128063 (ECA 302)

MINIMUM SYSTEM REQUIREMENTS

No changes

BPS/360 PROGRAMS

The indicated levels of those programs marked by an asterisk have already been shipped from PID. Modifications for Group 1 will be distributed this week, Groups 2 and 4 the week ending February 9.

Table with 3 columns: Group, Program Number, Version/Mod. Level. Contains program listings for Groups 1 through 6.

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Published by DP Sales Publishing Services, WTHQ

Release Date: February 1, 1968

Distribution: All Areas

Side 1

REFERENCE

The following basic publications have been modified to include support for 24K Increment Memory:

DOS/360

- DOS/360, Operating Guide C24-5022-3
- DOS/360, System Generation and Maintenance C24-5033-3
- DOS/360, Supervisor and Input/Out Macros C24-5037-3
- DOS/360, System Control and System Service Programs C24-5036-2
- DOS/360, Performance Estimates C24-5032-3
- DOS/360, Systems, Concepts and Facilities C24-5030-3

BPS/360

Group 1. Card & Tape Utilities (no DASD)

BPS/360, Card and Tape Utility Programs Specifications C24-5026-2. (Note: C24-5026-2 is a minor revision. C24-5026-1 plus TNL N21-5030 is equivalent to and can be used in place of C24-5026-2.)

BPS/360, Card and Tape Utility Programs Operating Guide C24-5027-2. (Note: C24-5027-2 is a minor revision. C24-5027-1 plus TNLS N21-5031, N24-5104 and N21-5037 are equivalent to and can be used in place of C24-5027-2 with TNL N21-5037.)

Group 2. DASD Utilities

BPS/360, DASD Utility Programs Specifications C24-3363-4 and TNLS N21-5075, N21-5072.

BPS/360, DASD Utility Programs Operating Guide C24-3392-6. (Note: C24-3392-6 is a minor revision. C24-3392-5 with TNLS N21-5032, N21-5058, N21-5062, N21-5057 and N21-5073 is equivalent to and can be used in place of C24-3392-6 with TNLS N21-5062, N21-5057 and N21-5073.)

Group 3. Universal Character Set Utility

BPS/360, Universal Character Set Utility Program Operating Guide C24-3396-3.

Group 4. Autotest

BPS/360, Autotest Specifications (8K Tape) C24-3343-2 and TNLS N21-5025 and N21-5068.

BPS/360, Autotest Operating Guide (8K Tape) C24-3417-2 and TNLS N21-5026 and N21-5069.

Group 5. Tape FORTRAN

S/360, Basic FORTRAN IV Language C28-6629-0. [Note: This publication is equivalent to but does not obsolete C24-5014-0 (with TNLS N21-5018, N24-5041 and N24-5069) or C24-5014-1.]

BPS/360, FORTRAN IV (Tape) Programmer's Guide C28-6583-2.

Group 6. Card FORTRAN

BPS/360, FORTRAN IV (Card) Programmer's Guide C21-5000-1. (Note: C21-5000-1 is a minor revision. C21-5000-0, plus TNLS N21-5010 and N21-5043 is equivalent to and can be used in place of C21-5000-1.)

BPS/360, Specifications: FORTRAN IV (16K Card) C21-9040-1. (Note: C21-9040-1 is a minor revision. C21-9040-0 plus TNL N21-5007 is equivalent to and can be used in place of C21-9040-1.)

Only the TNLS that are underlined will be distributed with the modifications.

Note: The Initialize Program Loader (IPL) routine was changed to provide support for the 24K storage size. The IPL routine cannot be updated through available system maintenance functions. For this reason current DOS users converting to the 24K storage size must order a replacement system from the program library in order to obtain the corrected IPL routine.


John Fahey
Director of DP Marketing

Side 2

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] Any reference made to DPD Depts. (or Regions) as sources of information means the comparable WT Dept. (or corresponding organizational level). [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 will differ. NO PRODUCTION COMMITMENTS FOR PROGRAMS WITH E/C LEVEL REQUIREMENTS SHOULD BE MADE TO CUSTOMERS PRIOR TO VERIFICATION WITH LOCAL CE MANAGER OF EC AVAILABILITY.

**IBM 2420 MODEL 7 MAGNETIC TAPE UNIT
HAS BROAD PROGRAM SUPPORT**

The 2420 Model 7, recently announced, will be supported under TOS/360, DOS/360, and OS/360 for System/360 Models 50, 65, 75, and 85. The BPS/360 programs that will support the 2420 Model 7 are:

Sort/Merge	360P-SM-044
Card to Tape	360P-UT-051
Tape to Printer	360P-UT-052
Tape to Card	360P-UT-053
Tape to Tape	360P-UT-054
Disk to Tape	360P-UT-065
Tape to Disk	360P-UT-066
FORTRAN	360P-FO-031
Assembler	360P-AS-091

The 2420 Model 7 is not supported under BOS/360.

AVAILABILITY ... with first customer shipment, November 1968.

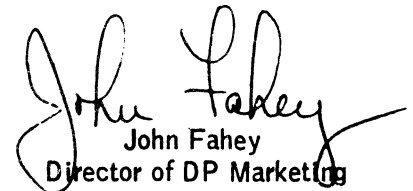
EMULATORS ... emulator support for the 7090, 7040, 7080, 7074 on the Model 65 will be expanded to operate with the higher data rate of the 2420 Model 7. Data transfer operations during emulation of the 7074, 7040, or 7090 will be restricted to the simultaneous operation of 2420 Model 7's on two channels for the same system.

The Model 65 Emulator programs that will be modified and availability dates for this support are:

709/90/94 (512K)	360C-EU-729	11/8/68
7040/7044 (512K)	360C-EU-733	12/27/68
7070/7074 (256K)	360C-EU-725	3/14/69
7080 (256K/512K)	360C-EU-727	5/29/69

Note: Emulators on the S/360 Model 50 will not support the 2420 Model 7.

SORT/MERGE ... actual tests of available OS and DOS Sort/Merge programs on Model 50 H indicated improvements in running time of up to 31% when using the 2420 Model 7 as compared to the 2401 Model 6. (Two channel operation, 2 work units per channel.)


John Fahey
Director of DP Marketing

Note to World Trade Readers

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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 later, 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.
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P68-17

EC DATE FOR 2870 REVISED


The availability date of the Engineering Change for the 2870 Multiplexer Channel has been changed. Affected are: OS/360 BTAM/QTAM and DOS/360 BTAM/QTAM with Autopoll for System/360 Models 65, 67 (65 mode), and 75.

The required 2870 Engineering Change 705801 or 705803 (depending on the serial number of the 2870) was to be available December 1967. Shipment did not begin until today.

Customers who have an immediate need for the engineering change for Autopoll operation can submit a request now for special handling. These customers will receive first shipments of the EC and installation will be completed by March 29, 1968.

For details refer to P67-103 and 121.

Customers affected should be notified.



John Fahey
Director of DP Marketing

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P68-17



IBM World Trade Data Processing

P68-18

BPS/360 BASIC TAPE SYSTEM
INCLUDES SUPPORT FOR 1285
AND 1287 OPTICAL READERS

Version 1 Modification Level F (15) is now available. It includes the additional support for the 1285 and/or the 1287 Optical Character Reader.

The Optical Character Reader IOCS for 1285 and 1287 replaces previous support for 1285. This new support offers a significant throughput enhancement for journal rolls such as those produced by cash registers and adding machines. This is possible through the new facility of handling blocked input data (1285 and 1287).

In addition, 1287 support provides for reading both machine and hand printed numeric data and optical mark-read data from cut form documents.

SYSTEM REQUIREMENTS

The normal requirements for the Basic Tape System plus a 1285 and/or a 1287 Optical Reader.

ENGINEERING CHANGE LEVELS

2030 CPU EC Level 126754
EAC 330
2030 Microprogramming EC Level 128062
EAC 290

BASIC PROGRAM MATERIAL (360P-AS-091)

Publications -- BPS/BTS Assembler with I/O Specifications, C24-3355-5 and, TNL N24-5342 ... BPS/BTS System Generation and Maintenance, C24-5061-2 ... BPS/BTS Operating Guide, C24-3391-3 plus TNLS N24-5322 and, N24-5353 ... BPS/BTS Programmer Guide, C24-3354-6 plus TNLS

N24-5327 and, N24-5339 ... BPS/BOS
Macro Definition Language, C24-3364-3.

Documentation -- Program Material List

Machine Readable Material -- The basic tape is available on one 9-track DTR at 800 bpi or 1600 bpi.

ORDERING PROCEDURE

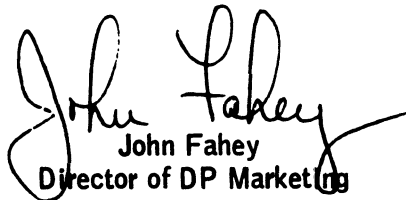
See DP Sales Activity Section of the Branch Office Manual.

If only the publications or if additional copies are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

If the density requirement is not indicated on the back of the program order card, 9-track at 800 bpi will be forwarded.

DTRs are provided by PID; no tape submittal is required.

Current users are now being sent modification level (F) 15 by the Program Information Department.



John Fahey
Director of DP Marketing

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Published by DP Sales Publishing Services, WTHQ

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P68-18



IBM World Trade Data Processing

P 68-19

TOS/360 INCLUDES SUPPORT FOR 1285 AND 1287 OPTICAL READERS

TOS/360 System Release #10, which is available, included the new component, Optical Character Reader IOCS [360M-10-417].

Optical Character Reader IOCS for 1285 and 1287 replaces previous support for 1285. This new support offers a significant throughput enhancement for journal rolls such as those produced by cash registers and adding machines. This is possible through the new facility of handling blocked input data (1285 and 1287).

In addition, 1287 support provides for reading both machine and hand printed numeric data and optical mark-read data from cut form documents.

Optical Reader support can utilize a multiprogramming environment under TOS/360 for processing documents or printed paper tapes. Factors affecting optical reader performance under TOS/360 which must be considered are:

- . System/360 model.
- . Number of readers (Maximum of 8 are supported).
- . Characteristics of tapes and/or documents.
- . Batch or multiprogramming environment.
- . User's programming.

In addition, throughput is dependent on operator loading and unloading time.

MINIMUM SYSTEM REQUIREMENTS ... The normal TOS/360 requirements plus a 1285 and/or a 1287 Optical Character Reader.

ENGINEERING CHANGE LEVELS ... 2030 CPU EC Level - 126754 ECA 330, 2030 Microprogramming EC Level 128062 ECA 290.

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Published by DP Sales Publishing Services, WTHQ

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Attachments [4]: P 360S.9, P 360S.11, P 360M.5 and P 1130.7

Release date: February 5, 1968

Distribution: All Areas



John Fahey
Director of DP Marketing

P68-19



IBM World Trade Data Processing

P68-20

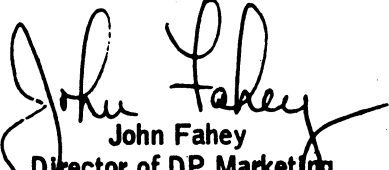
**NEW TYPE II PROGRAM OFFERS MECHANIZED
APPROACH TO DETAILED REQUIREMENTS
PLANNING FOR MANY MANUFACTURING
INDUSTRIES**

System/360 Requirements Planning, which offers a mechanized approach to detailed requirements planning for a large segment of manufacturing industries, will be available March 20, 1969. This application program uses the Item Master and Product Structure files created by the IBM System/360 Bill of Material Processor Program (360A-ME-06X). It performs time series planning to determine planned orders for finished products, assemblies, sub-assemblies, parts, and raw materials based upon the input of forecasts and orders.

System/360 Requirements Planning determines the net requirements for finished products and component parts, establishes planned orders based on the pre-determined order policy, and offsets the planned orders with respect to lead times. Additional capabilities include projecting demand ... consideration of safety stock, allocated quantity, shrinkage factors ... offsetting by a fixed or a calculated lead time ... modifying plan order policies by considering number-days-supply, minimum-maximum-multiple quantities, and cutoff dates.

Processing variations include: complete generation of requirements, Requirements Alteration (revisions to gross requirements), and Conversational Planning (revisions to planned orders). A customizing procedure permits a user to tailor the system to meet his specific requirements. System/360 Requirements Planning utilizes many of the concepts of the requirements planning subsystem as discussed in the IBM Production Information and Control System (E20-0280).

For the new sales manual write-up, see the back of this letter.


John Fahey
Director of DP Marketing

FOR IBM INTERNAL USE ONLY

Published by DP Sales Publishing Services, WTHQ

Release Date: February 9, 1968

Distribution: All Areas

P68-20

System/360 Requirements Planning: Offers a mechanized approach to detailed requirements planning for a large segment of manufacturing industries. This system uses the Item Master and Product Structure files created by the IBM System/360 Bill of Material Processor Program (360A-ME-06X). It performs time series planning to determine planned orders for finished products, assemblies, sub-assemblies, parts, and raw materials based upon the input of forecasts and orders.

This system determines the net requirements for finished products and component parts, establishes planned orders based on the predetermined order policy, and offsets the planned orders with respect to lead times. Additional capabilities include projecting demand ... consideration of safety stock, allocated quantity, shrinkage factors ... offsetting by a fixed or calculated lead time ... modifying plan order policies by considering number-days-supply, minimum-maximum-multiple quantities, and cutoff dates. Processing variations include: complete generation of requirements, Requirements Alteration (revisions to gross requirements), and Conversational Planning (revisions to planned orders). A customizing procedure permits a user to tailor the system to meet his specific requirements. System/360 Requirements Planning utilizes many of the concepts of the requirements planning subsystem discussed in the IBM Production Information and Control System (E20-0280).

Description: System/360 Requirements Planning consists of two programs: The Requirements Generation Program and the Print Exception Program. The inputs to the system are from card, magnetic tape, or disk and contain the gross requirements by shop day, calendar date or time period. Card input is by date and quantity only. These requirements can be generated manually from a forecast, from customer orders, or from System/360 Inventory Control (Application Description Manual H20-0471). This input spans a user specified number of planning time periods into the future. The output of the Requirements Generation Program is in the form of planned orders for purchased and manufactured items. Orders for items manufactured are available for input to a capacity planning function, and orders to be purchased are available to a purchasing function. A considerable amount of flexibility is provided by System/360 Requirements Planning relative to the printing of pertinent information. This flexibility is provided to enable the extraction of as much or as little information as desired. Three types of printouts are provided: detailed requirements, planned orders that have been adjusted through Conversational Planning, and an exception report. The Print Exception Program is used to print the exceptions generated from the Requirements Generation Program.

Features:

- Two programs are provided to assist the user in performing requirements planning: The Requirements Generation Program performs the actual time series requirements generation, and the Print Exception Program prints notices for the exceptions that were discovered during requirements generation.
- Functions performed include gross requirements determination, net requirements determination, plan orders, and offset requirements. Net requirements determination, plan orders, and offset requirements are optional functions.
- Many options are provided within the functions. These include: projection of demand ... safety stock quantity ... allocated quantity ... shrinkage factor ... discrete, fixed quantity, least unit cost, part period balancing, and user order policies ... minimum-maximum-multiple, number-days-of-supply, maximum quantity, and cutoff date modifiers to order policies ... fixed and calculated lead time ... product structure offset adjustment ... product structure scrap factor ... user's exits for engineering change effectiveness of product structure.
- Three types of processing variations are provided. These include: complete generation of requirements, Requirements Alteration (revisions to gross requirements), and Conversational Planning (revisions to planned orders).
- Three types of reports are provided. These include: detail report of requirements, planned orders that have been adjusted through Conversational Planning, and an exception report.
- Two optional methods are provided for printing of detail requirements. These include printing of item indicative information, gross requirements, open orders, net requirements, planned orders, and offset requirements in random sequence, as requirements are generated, or at the completion of generating requirements in the sequence that the Item Master file is organized.
- Provision is made to store gross requirements, open orders, and planned orders in either an Item Master file or a Subordinate Item Master file, both of which are created and maintained by the System/360 Bill of Material Processor. When the Subordinate Item Master file is used, any combination of the gross requirements, open orders, and planned orders will be stored as one separate record for each item. The linkage between the two files will be created by System/360 Requirements-Planning.
- Input to the system is from card, magnetic tape, or disk and contain gross requirements by shop day, calendar date, or time period. Card input is by date and quantity only.
- A customizing procedure permitting the user to select the functions and options necessary to tailor the system to meet his specific requirements.

Special Sales Information: The philosophies and concepts incorporated in System/360 Requirements Planning are applicable to a large segment of the manufacturing industry. Modular design and programming techniques facilitate the user's selective expansion and modification of input-output formats, processing routines, and the contents of the data base. Many of the aspects of this system are discussed in the Production Information and Control System (E20-0280).

Use: System/360 Requirements Planning is direct access file oriented utilizing data contained in the Item Master, Product Structure, and Subordinate Item Master (optional) files. The records within these files are created and maintained by the System/360 Bill of Material Processor Program (360A-ME-06X).

Frequency of use of System/360 Requirements Planning will depend on the user needs of his production planning function. Typically, each scheduled program run would be a complete generation of requirements with the input of gross requirements spanning from the current time period to the last time period in the planning horizon. The Conversational Planning (optional) method of processing enables the system to stop processing after each level of planned orders have been developed. This allows the planned orders to be reviewed and, if necessary, readjusted before the next level of requirements is determined. Thus, either complete requirements generation or Conversational Planning would normally be performed on a scheduled basis. Requirements Alteration processing (optional) provides for re-generation of requirements due to changes to the original gross requirements input. In this instance, only the altered gross requirements are input to the system. Requirements Alteration processing would normally be performed between scheduled complete requirements generation or Conversational Planning program runs.

Customer Responsibilities: A thorough knowledge and understanding of the system before installation ... customize System/360 Requirements Planning to meet user requirements ... a thorough knowledge and understanding of the IBM System/360 Bill of Material Processor ... provide and maintain a shop calendar that resides on a direct access device ... define contents of the Item Master, Product Structure and Subordinate Item Master files ... maintain accurate up-to-date data ... provide open orders to the system ... provide file organization and maintenance of the Item Master, Subordinate Item Master, and Product Structure files through the use of the IBM System/360 Bill of Material Processor Program (360A-ME-06X).

Programming System: System/360 Requirements Planning programs are written in Assembler Language utilizing the macro language facility and will operate under the IBM System/360 Disk Operating System. The DOS/360 Disk Sort/Merge (360N-SM-450) is required. In addition, the System/360 Bill of Material Processor (360A-ME-06X) is also required.

Minimum System Requirements: System/360 Model 2030E ... Decimal Arithmetic (#3237) ... 1051 Control Unit Model N1 for Printer-Keyboard ... 1052 Printer-Keyboard Model B with appropriate attachments ... System/360 Card Reader ... System/360 Printer with at least 132 print positions ... 2041 Storage Control Model 1 ... 2311 Disk Storage Drives as required to contain Disk Operating System/360 and user's data files.

Program Support Material: Application Description Manual (H20-0467)

Reference Material: Production Information and Control System (E20-0280) ... System/360 Bill of Material Processor - Application Description Manual (H20-0197) ... System/360 Bill of Material Processor - Programmer's Manual (H20-0246) ... System/360 Inventory Control - Application Description (H20-0471).

For further information contact your Regional Manufacturing Industry Marketing Representative.

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- (2) Advance copies of the hard copy publications mentioned in the above letter have been shipped (with additional copies available from the IBM Distribution Center, Menlo Park, CA) to USA and WT offices or will be shipped when available. In the case of the later 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 an advance shipment and they necessarily receive a programmed break order in their area.
- (4) If DP distribution is indicated in the above program distribution media may be different in some areas from the indicated titles.
- (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 DP Department (or Release) is source of information on the program and is to be used in order to obtain the comparable WT Department or corresponding organizational level.
- (7) Copies of all hard copy publications, including hard copies, are not ordered in all WT countries. In case of any problems to the availability of suitable copies, contact the country Teleprocessing Coordinator should be consulted.
- (8) References made to Engineering Change requirements should be verified with the local office. Although ECR requirements are identical in WT and IBM, availability and shipping dates will differ. NO PRODUCTION COMMITMENT FOR PROGRAMS WITH ECR. ECR REQUIREMENTS SHOULD BE MADE TO CUSTOMERS PRIOR TO VERIFICATION WITH LOCAL OFFICE MANAGER OF EC AVAILABILITY.



P68-21

BASIC PL/I FOR DOS/360 IMPROVED BY TWO NEW VERSIONS

The Basic PL/I compiler for DOS/360 is being significantly enhanced by two additional versions. The first will be available April 30 ... the second October 30, 1968.

These versions are further evidence of the ability of PL/I to serve as a firm technical base for extensions and improvements. They enable the Basic PL/I users to take advantage of the new advanced capabilities of DOS/360.

Available April 30

- In the case of successive calls of the same Basic PL/I transient library routine, the routine is fetched only once. This increases object time performance by saving fetch time, after the first, of a series of executions of Basic PL/I Interrupts, OPEN, CLOSE, or CALL DYNDUMP.
- Programs compiled by the Basic PL/I compiler have the ability to run as Batched Job Foreground programs (BJF). (See P67-80 for further information on this and other DOS/360 extensions).
- END statements may be optionally followed by the label of the block to be closed. No multiple closure is allowed.
- PICTURE characters 6, 7 and 8 for sterling numeric fields are implemented.
- The Keyword BASED will be introduced for declaring based variables in place of the currently used keyword, CONTROLLED.

Available October 30

- The 2314 Direct Access Storage Facility receives the same device support as currently implemented for the 2311.
- The 2321 Data Cell Drive is supported at

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object time in the same way as the 2311 with the exception that UNBUFFERED files are supported.


- The functions of Index Sequential File Management System (ISFMS) are supported by using Basic PL/I statements instead of Assembler Language Macros. For an INDEXED file, the ENVIRONMENT attribute have additional keywords corresponding to DTFIS parameters.
- An additional ENVIRONMENT option is provided for RECORD OUTPUT files. This option specifies that the first character of the record is to be interpreted as a control character for carriage control or stacker selection.
- The SKIP and COLUMN format items are provided for non-PRINT files.
- Unlabeled tape files without leading tape mark can be created.

Minimum System Requirements

Same as for DOS/360.

Publication

A TNL to System/360 Basic PL/I Reference Manual (C28-8202-0) will be announced in a future Publication Release Letter. (See P67-80 for list of TNLs describing multiprogramming improvements.)



John Fahey
Director of DP Marketing

SEE REVERSE SIDE FOR
"NOTE TO WORLD
TRADE READERS"

FOR IBM INTERNAL USE ONLY

Release Date: February 5, 1968

Distribution: All Areas

P68-21

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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ADDITIONAL PROGRAM SUPPORT MATERIAL FOR SYSTEM/360 SIMULATORS

PROGRAM LOGIC MANUALS ... The following IBM System/360 Conversion Aids are available from the IBM Distribution Center, Mechanicsburg:

1410/7010 Simulator	Y27-7115
7070/7074 Simulator	Y27-7117
7090/7094 Simulator	Y27-7119
7080 Simulator	Y27-7118
1620 Simulator - for Model 44	Y28-6816

PROGRAM LISTINGS ... Available on microfiche from -- IBM Corporation, Department 906, Highway 52 and Northwest 37th Street, Rochester, Minnesota 55901. When ordering specify:

- Group Code 1310 for the 1410/7010 Simulator
- 1370 for the 7070/7074 Simulator
- 1390 for the 7090/7094 Simulator
- 1380 for the 7080 Simulator
- 1740 for the 1620 Simulator Model 44

This listing is equivalent to the output listing produced by assembling the symbolic modules described below.

OPTIONAL PROGRAM MATERIAL (Symbolic Modules) ... Each program is available on one 9-track magnetic tape (800 or 1600 bpi ODD parity) or 7-track magnetic tape (800 cpi ODD parity), Data Conversion feature required. Tapes are blocked 20 cards per record. The requester may forward or order magnetic tape following the current ordering procedures in the Branch Office Manual, DP Sales Activities. If either 9-track or 7-track magnetic tape is not specified, 9-track tape at 800 bpi will be forwarded. Be sure to specify "optional."

<u>Program</u>	<u>Number</u>
1410/7010 Simulator on S/360	360C-SI-754
7070/7074 Simulator on S/360	SI-753*
7090/7094 Simulator on S/360	SI-750
7080 Simulator on S/360	SI-751
1620 Simulator on S/360 Model 44	SI-755**

*Specify whether the program will simulate additional storage or normal storage as the magnetic tape supplied for additional storage is different than the one supplied for normal storage.

**Directions for processing the symbolic tape are contained in the write-up Optional Tape Assembly and Updating Simulator System Tape Procedure, XW02-00.

The Sales Manual GI page 20 applies to all orders for additional program support material.

John Fahey
John Fahey
Director of DP Marketing

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Cancels: APSM 67-33
Release Date: February 6, 1968
Distribution: All Areas



ADDITIONAL PROGRAM SUPPORT MATERIAL FOR TIME SHARING SYSTEM/360

PROGRAM LOGIC MANUALS ... Available from the IBM Distribution Center, Mechanicsburg.

System Logic Summary (Y28-2009-0) and TNL Y28-3051 ... System Control Blocks (Y28-2011-1) ... Supervisor (Y28-2012-0) and TNL Y28-3052 ... Command Language Subsystem (Y28-2013-0) and TNL Y28-3053... Program Checkout Subsystem (PCS) (Y28-2014-0) and TNL Y28-3054 ... System Generation and Maintenance (SYSGEN) (Y28-2015-1) ... Access Methods (Y28-2016-0) and TNL Y28-3055 ... System Service Routines (Y28-2018-0) and TNL Y28-3056 ... FORTRAN IV (Y28-2019-0) and TNL Y28-3057 ... Assembler (Y28-2021-0) and TNL Y28-3058 ... Linkage Editor (Y28-2030-0) and TNL Y28-3059 ... Dynamic Loader (Y28-2031-0)... Independent Utilities (Y28-2039-0) and TNL Y28-3060... Support for Time Sharing (Y28-2040-0) ... Task Monitor (Y28-2041-0) and TNL Y28-3050 ... On Line Test System (OLTS) (Y28-2042-1)

PROGRAM LISTINGS ... Available on Microfiche from IBM Corporation, Department 906, Highway 52 and Northwest 37th Street, Rochester, Minnesota 55901.

Specify Group Code 9030. There are no separately orderable groups.

Microfiche update service is provided. The service is discontinued if an order is submitted to do so. The listings are the equivalent of output listings produced by assembling the symbolic modules described under the Optional Program Material.

OPTIONAL PROGRAM MATERIAL ... The optional program components are available from PID. Each component or group of components is identified by [1] a Distribution Volume Number or [2] a combination of two Distribution Volume Numbers.

The Optional Program Components are distributed as volume restore tapes for either the 2311 Disk Storage Drive or the 2314 Direct Access Storage Facility. The distribution method has no relation to System Residence for Basic Object System. Optional Components may reside on either storage device and be used with either system residence at the requester's discretion.

Distribution Volume Numbers 1 through 10 are for the 2311, 11 through 16 for the 2314. One tape must be provided for each Distribution Volume Number ordered. In the case of the two volume number combination two tapes must be provided, one for each.

Distribution will be on 2400 foot, 9 track, 800 or 1600 bpi magnetic tapes. The requester may forward or order magnetic tapes following the current ordering procedures in the Branch Office Manual, DP sales activity. The external tape label must show the distribution volume number, as well as the information required under the current procedures. If either 9-track 800 or 1600 bpi is not specified on the order form, 9-track 800 bpi will be supplied. Be sure to specify "optional".

For The 2311 Disk Storage Drive 360G-CL-625

Distribution Volume Number	Program Component Name
1	CEA - Supervisor
2	CGC - Service Routines
3	CEI - Auxiliary Programs
	CEB - Independent Utilities
4	CEK - FORTRAN Compiler (1)
5	CEK - FORTRAN Compiler (2)
	CHC - FORTRAN Library Subroutines
6	CEC - Access Methods (1)
7	CEC - Access Methods (2)
	CEV - Assembler
	CEY - Linkage Editor
	CHB - System Tables
8	CFA - Command System (1)
9	CFA - Command System (2)
	CMA - Diagnostics
10	CSF - Support for Time Sharing

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Side 1

Cancels: APSM 67-30
Release Date: February 6, 1968
Distribution: All Areas

For The 2314 Direct Access Storage Facility
360G-CL-626

Distribution Volume Number	Program Component Name
11 and 12	CEA - Supervisor CGC - Service Routines CEI - Auxiliary Programs CEB - Independent Utilities
13 and 14	CEK - FORTRAN Compiler CHC - FORTRAN Library Sub- routines CEC - Access Methods CEV - Assembler CEY - Linkage Editor CHB - System Tables
15 and 16	CFA - Command System CMA - Diagnostics CSF - Support for Time Sharing

Sales Manual G1 page 20 applies to all orders
for additional program support material.


John Fahey
Director of DP Marketing

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**SYSTEM/360 MODEL 20 PROGRAMMING
SYSTEM IMPROVED**

Here's important information for your Model 20 users.
Available now are:

- . An additional DPS program -- I/O Macro Definitions for the 1419 (360W-IO-193)
- . Version 2 of the DPS Disk Sort/Merge Programs (360W-SM-182)
- . Modifications to various current DPS programs.

Details are described below.

**SYSTEM/360 MODEL 20 DPS INPUT/OUTPUT
MACRO DEFINITIONS FOR THE IBM 1419
[360W-IO-193]**

The Macro Definitions provide 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. It provides linkage to I/O-routines for card, tape and disk devices.

This program consists of two macro definitions, DTFPD and DSENG, to be included in the macro library of the system pack. If the DPS I/O and Basic Monitor Macro Definitions are expanded by these two macro definitions, the DPS Assembler will generate routines for the IBM 1419 as well as for card, tape and disk devices when encountering macro instructions in the user's source program.

FEATURES: The routines for the Magnetic Character Reader perform the following functions:

- . Engaging and disengaging the MICR
- . Document reading
- . Document sorting
- . Control of document input buffer
- . Interrupt servicing
- . Testing of field validity indicators and I/O error checking
- . Optimized printer output

The user has to provide a routine for pocket selection, which is entered by the MICR routines under interrupt control.

PERFORMANCE DATA: See SRL publication "IBM System/360 Model 20, Disk and Tape Programming Systems, Input/Output Control System for the IBM 1419 and 1259 Magnetic Ink Character Reader" (C33-6001-2).

LIMITATIONS: The program is not upwards compatible with System/360 Model 30 and higher models.

Documents in the 1419 will reject if user pocket selection routines exceed the time limits described in the performance section of the above mentioned SRL.

Document rejects may occur if any single user instruction exceeds 2.7 milliseconds. More time-consuming instructions must be split.

Document sorting must be based on fields read in the first 5.8 inches of the document.

PREREQUISITES: The DPS System/360 Model 20 I/O and Basic Monitor Macro Definitions (360W-IO-192) must be contained in the macro library of the system pack and must be on current level.

SYSTEM REQUIREMENTS: The minimum requirement for assembly of programs containing macro instructions for the DPS MICR-I/O-routines is the configuration required by the DPS Assembler program.

The minimum configuration for execution of such programs depends on processing requirements.

A 2020 Central Processing Unit, Model BC2

One card reading device (2501 Model A1 or A2 ... 2520 Model A1 or ... 2560 Model A1) for object program loading or for initial program loading of the disk-resident system.

A 1419 Magnetic Character Reader Model 1.

ADDITIONAL DEVICES SUPPORTED: The DPS-MICR-I/O-routines optimize throughput by providing the best balance between the 1419 and

A printer (1403 Model 2, 7, or N1, or 2203 Model A1).

Special features of the 1419 Model 1 supported are:

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Batch numbering ... Dash symbol transmission ... Endorser ... Program control for pocket lights ... Sort Mode 2 ... 51 column sorting.

The 1403 special features supported are:

Interchangeable Chain/Train Cartridge ...
Universal Character Set ... Selective Tape Listing.

The 2203 printer Model A1 special feature supported is:

- 24 Additional print positions

REFERENCE MATERIAL: SRL, IBM System/360 Model 20, Disk and Tape Programming Systems, Input/Output Control System for the IBM 1419 and 1259 Magnetic Ink Character Readers (C33-6001-2).

SYSTEM/360 MODEL 20 DPS DISK SORT/MERGE VERSION 2 [360W-SM-182]

Disk Sort/Merge allows the sorting of sequentially organized files into ascending and/or descending sequence and the merging of pre-sequenced sequential files.

The DPS Disk Sort/Merge program is executed under the supervision of the control programs for card-resident or disk-resident systems. The required mnemonic control information (file parameters, program options) is furnished to the program in punched cards.

FEATURES:

- sorts blocked or unblocked, fixed-length records;
- sorts records that have control fields in packed or unpacked decimal, fixed-point binary, or character format; (for one sort or merge run, all control fields must be in the same format).
- sorts or merges in ascending or descending order on each individual control field;
- sorts or merges according to control data contained in up to twelve fields of each record; (the maximum total length of all binary, alpha-

meric, or fixed-point control fields is 256 bytes)

- merges two to four pre-sequenced files;
- reblocks and sequence-checks a single pre-sequenced file while copying it;
- provides checkpoint and restart facilities for sort operations;
- provides exit points for linkage with user-prepared routines for additional record processing in the input and the output phases, e.g. deletion, alteration, translation, etc.;
- checks and/or creates disk and tape labels conforming to System/360 standards; (Non-standard tape labels will be bypassed on input files. Non-standard tape labels are not permitted on output files. An exit is provided for processing of additional standard user tape labels.)
- provides an option for automatic deletion of blank records from disk-file input;
- may take advantage of natural sequences within a file;
- provides for input from cards, disk drives, or from magnetic tapes; (For sort operations, one or two input tapes, for merge operations, up to four input tapes can be specified)
- permits input from cards in combination with either disk or tape;
- allows for multi-reel input and output with alternate tape drive option;
- allows for multi-pack input and output;
- provides for output on card punch, disk drives, or magnetic tape units; (one or two output tapes can be specified)
- permits card output in parallel with either disk or tape;
- provides for write-disk-check option in the last pass;
- contains an ADDRROUT option which allows the user to produce a record-address file that can be used in programs written in the Model 20 RPG language; and
- contains a sort-time estimating option which permits the user to calculate time estimates for Sort operation performed with this program.

IMPROVEMENTS: Compared with Version 1, Version 2 additionally provides for

handling tape input and output,
the sort-time estimating option.

PERFORMANCE DATA: See SRL publication "IBM System/360 Model 20, Disk Programming System, Performance Estimates, C33-6003-0, amended by TNL N33-9019

SYSTEM REQUIREMENTS: A 2020 Central Processing Unit Model BC2 ... A card reading device (2501 Model A1 or A2, 2560 Model A1 or 2520 Model A1)... A printer 1403 Model 2, 7 or N1 with 48 character chain, or 2203 Model A1 with 52 character type bar... One 2311 Disk Storage Drive, Model 11 or 12.

ADDITIONAL DEVICE SUPPORTED: 2020 Central Processing Unit, Model D2 ... A second 2311 Disk Storage Drive, Model 11 or 12 ... A 2415 Magnetic Tape Unit Model 1 - 6 ... A card punching device (2520 Model A1, A2 or A3 2560 Model A1 or 1442 Model 5).

REFERENCE MATERIAL: SRL publications: IBM System/360 Model 20, Disk Programming System, Disk Sort/Merge Program, C26-3806-1; amended by TNL N33-9020. IBM System/360 Model 20, Disk Programming System, Performance Estimates, C33-6003-0.

MODIFICATIONS TO DPS PROGRAMS

The programs that have been modified and their current status are listed below:

360W-CL-170	Vers. 1	Mod Level 1
360W-CL-171	Vers. 1	Mod Level 1
360W-SL-172	Vers. 1	Mod Level 1
360W-SL-175	Vers. 1	Mod Level 1
360W-SL-176	Vers. 1	Mod Level 1
360W-SL-177	Vers. 1	Mod Level 1
360W-SL-178	Vers. 1	Mod Level 1
360W-SL-179	Vers. 1	Mod Level 1
360W-RG-180	Vers. 1	Mod Level 1
360W-AS-181	Vers. 1	Mod Level 1
360W-IO-192	Vers. 1	Mod Level 1

EC LEVEL REQUIREMENTS

For proper use of these Model 20 DPS programs, at least the following engineering change levels are required:

2020 Central Processing Unit (microprogram)	12103	ECA 163
Storage Control (microprogram)	12448	ECA 316
I/O Channel (microprogram)	12107	ECA 188
Serial I/O Channel (microprogram)	12116	ECA 273
2415 Magnetic Tape Unit Model 1 - 3	730339	ECA 026
Model 4 - 6	730346	ECA 031
1419 Magnetic Character Reader	127244	CEM 167

BASIC PROGRAM MATERIAL

Publications -- System/360 Model 20 - Guide to the Disk Programming System, C33-6000 ... Disk Programming System, Operating Procedures, C33-6004 and TNL N33-9016 ... Disk Programming System, Control and Service Programs, C24-9006-2 and TNL N33-9021 ... Disk Programming System, Disk Utility Programs, C26-3810-1.

Documentation -- Basic Program Material List.

Machine Readable -- Users ordering at least one of the DPS programs will receive the complete set of Model 20 DPS programs with exception of the Distribution Package Retrieval Program 360W-SL-178, which is contained only in distributions on magnetic tapes. The DPS programs are available on one 1316 Disk Pack, one 9-track-tape, (800 or 1600 bpi), or one 7-track-tape (800 cpi) Data Conversion feature required.

The 1316 Disk Pack returned from the program library will contain a running system as well as the card-resident control programs and sample decks in card-image format to be punched. It will be accompanied by 5 Disk IPL cards to be used for initializing the loading of the running system, which is referred to as the DPS Disk Pack.

Users with 2415 Magnetic Tape Units attached to their Model 20 System should request the programs on tape. The tape will contain the Distribution Package Retrieval Program to be activated by one Bootstrap Card distributed with the tape. The retrieval program will

- . Initialize the first one hundred cylinders of a 1316 Disk Pack.
- . Copy a running system as well as the card-resident programs and sample programs in card-image format on a 1316 Disk Pack.
- . Punch the cards for initializing the loading of the DPS Disk Pack.

ORDERING PROCEDURE

See DP Sales Activity Section of the Branch Office Manual.

If only the publications or if additional copies are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

If the track and density requirements are not indicated on the back of the program order card, 9-track (800 cpi) will be forwarded.

Magnetic tapes (2400 foot) may be forwarded to PID or ordered. The order card should accompany the tape or tape order form; disk packs must be forwarded to PID with the order form.

Current users will receive a prepunched Program Order Card and a letter announcing the availability of a Maintenance Package and a Replacement DPS/360 System, and instructing them to order same through the Branch Office using the prepunched card.

DTRs are supplied to current users who order the Maintenance Package, no tape submittal is required.

SYSTEM/360 MODEL 20 TIME ESTIMATING PROGRAM FOR DISK-SORT APPLICATIONS [360T-ST-109] WITHDRAWN

With the availability announcement of Version 2 of the System/360 Model 20, DPS, Disk Sort/Merge Program (360W-SM-182), the above program is withdrawn.


John Fahey
Director of DP Marketing

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**BPS/360 PAPER DOCUMENT AND
RPG INCLUDE 24K MEMORY
SUPPORT FOR MODEL 30**

Programming support required for 24K Incremental
Memory is available in:

I/O 1412/1419	360P-10-058	V3	M4
I/O 1418/1428	10-059	V2	M3
I/O 1231 N1	10-060	V2	M3
RPG (card)	RG-200	V2	M3
RPG (8K Tape)	RG-201	V2	M5

This support is provided so that BPS/360 can
operate in a memory size of 24K. 24K storage
users can now compile and more efficiently execute
larger programs through a reduction in the number
of overlays otherwise required in many cases when
using a smaller core size.

SYSTEM REQUIREMENTS

No changes.

REFERENCE MATERIAL

System/360 Basic Programming Support Input/Out-
put 1412/1419 Specifications and Operating Guide
C24-3398-4, and TNL, N24-5228 ...

System/360 Basic Programming Support Input/Out-
put 1418/1428 Specifications and Operating
Guide C24-3437-2, and TNL, N24-5350 ...

System/360 Basic Programming Support Input/Out-
put 1231 Specifications and Operating Guide
C24-3408-2.

BPS/360, Specifications, Report Program Genera-
tor (Card) C24-3374-2, or C24-3374-1 with
TNLs N24-5052 and N21-5065 ... BPS/360,
Operating Guide, Report Program Generator (Card)
C24-3464-1 and TNLs N24-5171 and N21-5066
... BPS/360, Specifications, Report Program Gen-
erator C24-3418-2 and TNLs N21-5087 and N21-
5059, or C24-3418-1 with TNLs N24-5056,
N24-5160, N24-5176 and N24-5200.

Modifications will be distributed this week and will
include the TNLs that are underlined.


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Attachments [7] : [1] P 360A.7 ... [2 and 3] P 360F.1 and P 360F.3 ... [4 thru 7] P 360T.1,
P 360T.3, P 360T.5, P 360T.7

Release Date: February 14, 1968

Distribution: All Areas



**SYSTEM/360 MODEL 44:
44PS RELEASE 3 AVAILABLE
44BPS WITHDRAWN**

System/360 Model 44 Programming System Release 3, which can now be ordered, includes

Two new programs [1] Core Dump and [2] 44 PS System Editor,

An array of new features and
Maintenance improvements

Major changes and improvements are:

Alternate system-residence on an IBM 2311 Disk Storage Drive (with an IBM 1316 Disk Pack).

Support for the Improved Floating Point Engineering Change (IFPEC).

A job selection facility for the system reader. System construction from tape input.

A system tape updating facility added to the Print/Punch program, now called System Maintenance.

Additional utility functions to copy and display data sets containing undefined block lengths.

A system editing program that allows modification of both the absolute and relocatable libraries.

A stand-alone core dump program.

A detailed list of these new features follows:

2311 System Residence

System residence gives the user an alternate system residence device that can be used as back-up in case the Single Disk Storage Drive becomes inoperable. The system construction program is modified to allow creation of the system on a 1316 Disk Pack. A single IPL program is used regardless of whether system residence is on a 2311 or 2315.

Performance estimates for a system resident on 2311 are shown on the revised sales manual pages attached to P68-28.

Improved Floating Point Engineering Change (IFPEC)

Coding changes are provided in the 44PS FORTRAN

Library in support of the system architecture changes to floating point arithmetic operations.

The routine that processes program interrupts is altered to do the following for exponent overflow and underflow interrupts:

Set values in result register.

- a. For overflow set result to 1664-1 with the sign of result register unchanged.

The effect of this procedure is that before the hardware is changed the sign may not be correct. After the hardware change the sign will be correct.

- b. For underflow set result to 0.

This release contains the "tolerance code" which permits operation on either modified or unmodified systems and is a prerequisite for the installation of EC 257574.

For additional details See DP Letter 268-16.

Job Selection Facility

The DOJOB statement is a new operator command that provides a job selection facility for SYSRDR. When SYSRDR is assigned to a tape, the DOJOB command can be used to position the tape at a specified job and run either one job or all jobs from that point on.

Tape System Construction

The stand-alone system construction program accepts input in the form of blocked tape records (with a maximum of 20 records/block). In addition, the control information and data can be on separate input sources.

The system construction program itself can be IPL'ed from either cards or tape.

System Maintenance Program

The Print/Punch program is modified to include an updating facility to enhance the tape system construction feature. The program utilizes the format of the distribution tape reel as a general guideline to its operations. Phases or modules may be replaced, inserted, or omitted

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by specifying a three or four digit serial identification on the appropriate control card.

Whole components may be likewise treated via file operations. Control information, regarding input, output and edit data set locations, is entered via the IBM 1052 console printer-keyboard, prior to the edit run.

Modification TXT and/or REP cards may also be inserted into a phase or module.

Utility Facility for Undefined Block

The system utility program is modified to include two new statements, TRNSFR and TRNPRT, which allow the user to copy or display data sets containing undefined block lengths onto a non-direct access device. TRNSFR causes copying of variable length blocks. TRNPRT prints variable length records in display mode only.

System Editing Program [360F-UT-620]

The system editing program is a new program that runs under control of the S/360 Model 44 Programming System. It allows modifications to members of either an absolute or relocatable library. This new function enables a user to make absolute patches to existing phases and relocatable patches to relocatable modules. Re-link editing and/or re-assembly of a module will no longer be necessary for many modifications to absolute and relocatable modules.

Stand-alone Core Dump Program [360F-UT-606]

This stand-alone program allows dumping of core of size 64K or greater, the 16 standard registers, and the floating-point registers, if they exist. The format of the Dump program output is identical with the dump produced under the System/360 Model 44 Programming System and is distinguishable from it by a header "S/A" indicating the Stand-Alone Dump.

EC Level

Release 3 will function correctly on any level 2044 Processing Unit from EC 390147 (ECA 31).

Reference Material

The following publications are Program Reference Material. Copies are available through the local IBM Branch Office: IBM System/360 FORTRAN IV Language C28-6515-4, FORTRAN IV Library Sub-programs C28-6596-2 ... IBM System/360 Model 44 Programming System: Concepts and Facilities C28-6810-1 TNLs N28-0562, N28-0570, Assembler Language C28-6811-1, Formats for Machine Check Interruption Diagnostics - Reference Card X28-6812.

Basic Program Material

SRL Publications -- IBM System/360 Model 44 Programming System, Guide to System Use, C28-6812-2 --- Guide to System Use for FORTRAN Programmers, C28-6813-0 and TNLs N28-0559 and N28-0571 --- Systems Programmer's Guide, C28-6814-1 --- Operator's Guide, C28-6815-2.

Documentation -- A Program Material List.

Machine Readable -- The Absolute Component Program Decks and the Relocatable FORTRAN Library are available on one 2400' magnetic tape either 9-track (800 or 1600 bpi), or 7-track (800 cpi, Data Conversion feature required) or in card form. Directions for using the Sample Program Input Deck are contained within the basic publication, System/360 Model 44 Programming System, Systems Programmers' Guide, C28-6814-1.

Ordering Procedure

Current users of the program will receive a pre-punched program order card and a letter announcing the availability of the new release instructing them to order the new release through the branch office, using this pre-punched program order card. For new users, follow the procedures outlined in the DP Sales Activity section of the Branch Office Manual.

If only the publications or if additional copies of the publications are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

If the track and density requirements are not indicated on the back of the program order card, 9-track at 800 bpi will be forwarded.

Card decks are supplied only to users who do not have magnetic tapes available.

Magnetic Tapes (2400') may be forwarded to PID or ordered. The order card should accompany the tape order form.

SYSTEM/360 MODEL 44 BASIC PROGRAMMING SUPPORT IS WITHDRAWN

The following 44 BPS programs will not be available after February 15, 1968.

Absolute Loader	360F-UT-600
Dump Routine	360F-UT-601
Input/Output Support Package	360F-IO-602
Basic Assembler	360F-AS-603
FORTRAN IV	360F-FO-604
Relocating Loader	360F-UT-605

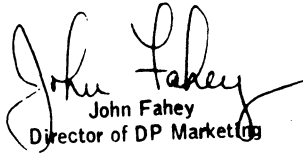
All the programs are presently at Version 1 Modification 0 except 360F-FO-621 which is at Version 1 Modification 1.

FED (CE) support of the 44 BPS terminates on the date of withdrawal. Any request for service on these programs after the date of withdrawal will be handled by DPD.

Those PTFs available by the date of withdrawal will continue to be available for a period of 60 days after the withdrawal.

SDD generation of PTFs terminates on the date of the withdrawal.

All APARs either have PTFs available, or do not require that a formal solution be supplied.


 John Fahey
 Director of DP Marketing

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- [8] References made to Engineering Change requirements should be verified with the local CE office. Although E/C requirements are identical for WT and IBM, availability and shipping dates will differ. **NO PRODUCTION COMMITMENTS FOR PROGRAMS WITH E/C LEVEL REQUIREMENTS SHOULD BE MADE TO CUSTOMERS PRIOR TO VERIFICATION WITH LOCAL CE MANAGER OF EC AVAILABILITY.**



IBM World Trade Data Processing

P68-30

**MATLAN, Type II Program,
Is a Flexible Tool for
Matrix Problem-Solving**

IBM System/360 MATLAN (MATrix LANguage) is a new Type II program which will be available November 1, 1968.

MATLAN, designed for use with System/360 Model 40, 50, 65, or 75, consists of a language processor and execution program.

Because the processor accepts and translates statements written in problem oriented MATLAN, the language is easy to learn, use and remember. The execution program performs the actual computations as specified by the user.

VARIETY OF USES

The large number and wide range of the statements in the MATLAN language provide a flexible tool for expressing and solving the many problems in which matrix techniques are used, such as aircraft structures . . . network analysis . . . bridge design . . . marine engineering . . . structural frame analysis.


Allocation of storage is performed automatically and dynamically. Segmenting algorithms are used if the storage requirements of the matrices exceed available core size.

For other features, use, customer responsibilities, programming systems, minimum system requirements, and program support material, see the reverse side.

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John Fahey
Director of DP Marketing

Published by DP Sales Publishing Services, WTHQ

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Release Date: February 14, 1968
Distribution: All Areas

P68-30

MATLAN (MATrix LANguage): MATLAN is a general-purpose program for matrix manipulation and computation. It consists of a language processor, which accepts and translates statements written in the problem-oriented MATLAN language; and an execution program, which performs the actual computations as specified by the user's statements. The large number and wide range of the statements in the MATLAN language provide a flexible tool for expressing and solving the many problems in which matrix techniques are used.

Features

- . The language is problem-oriented; therefore, it is easy to learn, use, and remember.
- . Matrices are identified and referenced by user-assigned names. These names may be written with scalar subscripts.
- . Allocation of storage is performed automatically and dynamically. Segmenting algorithms are used if the storage requirements of the matrices exceed available core size.
- . Matrix elements are automatically stored in coordinate form or in array form, according to the degree of sparseness.
- . Matrix elements may be real or complex numbers and may be expressed in single or double precision.
- . The precision of computation may be selected at execution time. No recompilation is required to run the same problem with higher precision.
- . All matrix dimensions are defined at execution time and do not appear in the MATLAN language source program.
- . Attributes may be assigned to matrices both for checking purposes and for selecting efficient processing algorithms in special cases.
- . An extensive error-checking system provides error messages and simplifies program debugging.
- . MATLAN is an open-ended program with subprogram capabilities. Subprograms written in either the MATLAN language or in FORTRAN IV may be called by the main program.

Use: The use of MATLAN is similar to the use of FORTRAN. The user states his problem in MATLAN language, appends his data, and submits the deck for processing.

Customer Responsibilities: Normally, the customer formulates his problem in the MATLAN language and solves it using the IBM-provided MATLAN object program resident on a direct access device. If, in addition, he wishes to alter MATLAN to increase its scope, he requires a thorough knowledge of the MATLAN master controller and of the calling conventions of MATLAN subroutines.

Programming Systems: MATLAN operates under the IBM System/360 Operating System. The subroutines are written in FORTRAN IV, H-Level, and Operating System Assembler Language.

Minimum System Requirements: MATLAN may be used on any IBM System/360 Model 40, 50, 65, or 75 equipped at least with the following devices: Central Processor with 128K bytes of core storage and the universal instruction set ... two IBM 2311 Disk Storage Drives or other random access storage of same or higher storage capacity, which is supported by Operating System/360 ... one input device (card reader, magnetic tape, DASD) ... one output device (printer, magnetic tape, DASD).

To use some MATLAN features efficiently, (checkpoint/restart procedure, reorganization of direct access device) the use of magnetic tapes is recommended instead of direct access devices. To install the MATLAN system, a magnetic tape unit is required.

Program Support Material: Application Description Manual (H20-0479).

For additional information see your Regional Scientific Marketing Manager.



ADDITIONAL PROGRAM SUPPORT MATERIAL FOR SYSTEM/360 MODEL 44 PROGRAMMING SYSTEM

PROGRAM LOGIC MANUALS ... Available from the IBM Distribution Center, Mechanicsburg.

- Assembler Y28-6811 and TNL Y28-6826
Supervisor and Job Control Processor Y28-6812 and TNLS Y28-6818, Y28-6822
Linkage Editor Y28-6813 and TNL Y28-6823
Utilities and Stand-alone Programs Y28-6814-1
FORTRAN IV Compiler Y28-6815-1

PROGRAM LISTINGS ... Available on microfiche. To order, submit a Program Listing/Special Documentation Request (120-1399) to: IBM Corporation, Department 906, 3605 Highway 52 North, Rochester, Minnesota 55901. Specify group code 1720. A viewer is required for the use of microfiche. The listings are equivalent to the output listings produced by assembling the symbolic modules.

OPTIONAL PROGRAM MATERIAL (Symbolic Modules) ... Optional program components are available from PID on two distribution volumes, each identified by a Distribution Volume Number for ordering purposes. Distribution may be requested on one 9-track (800 or 1600 bpi ODD parity) or one 7-track magnetic tape (800 cpi ODD parity), Data Conversion feature required. The order form must be accompanied by a Branch Manager letter of approval.

The requester may forward or order magnetic tapes following the current ordering procedures in the Branch Office Manual, DP Sales Activity. A separate magnetic tape is required for each distribution volume. The external tape label must show the distribution volume number indicated below, as well as the information required under current procedures. Tapes are blocked 20 cards per record.

If either 9- or 7-track magnetic tape is not specified, 9-track tape at 800 bpi will be forwarded.

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Cancels: APSM 67-27
Release Date: February 14, 1968
Distribution: All Areas

The change-levels of the symbolic modules supplied by PID will in all instances be identical to the change-levels of the Basic Program Material program components then being distributed. Note, however, that there is no automatic update service (see GI page 20). Instead, a reorder of the symbolic module(s), with a Branch Manager letter of approval, is required to update the customer when the change-level of the Basic Program Material program component changes.

Be certain to specify Optional on the order form.

Table with 3 columns: Volume Number, Program, Number. Lists items like S/A Core Dump, 2315 Disk, Initialization, etc.

* Stand alone utility.

Sales Manual page GI 20 applies to all orders for additional program support material.

Handwritten signature of John Fahey, Director of DP Marketing

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IBM World Trade Data Processing

P68-32

**FASTER COMPILE SPEED FOR DOS/360
ASSEMBLER LANGUAGE USERS**

Assembler F, a high-performance assembler implementing the full S/360 Assembler Language*, will be available July 29, 1968.

Highlights The following new and improved functions are provided for 64K and larger users:

- . High performance--up to 45% faster than Assembler D
- . Up to two continuations per statement, rather than one
- . Multiple-operand DC and DS statements
- . Bit-length modifiers, in addition to byte-length modifiers, in DC and DS statements
- . Full upward compatibility--any assembly that runs on Assembler D will run on Assembler F, without change
- . Enhanced diagnostic capability

Minimum System Requirements Any System/360 Model 30, 40, 50, 65, or 75 with 64K or more storage and the appropriate I/O devices appearing below. The Assembler may be executed in the background partition only and requires 44K (45,056 bytes) of storage.

- . At least one 2311 or 2314 DASD for system residence
- . At least one input device: 1442, 2501, 2520, 2540, 2400 tape, or 2311 or 2314 DASD
- . Three work files on 2400 tapes or 2311 or 2314 DASD in any combination
- . Optional listing output: 1443, 1403, 2400 tape or 2311 or 2314 DASD
- . Optional LINK output: 2311 or 2314 DASD only
- . Any of the 2311 or 2314 DASD files may be on system residence, if space permits
- . 7-track tape support requires the Data Conversion feature

Publication TNL N26-0582 to IBM System/360 Disk and Tape Operating Systems--Assembler Language, C24-3414-4.

Published by DP Sales Publishing Services, WTHQ

SEE REVERSE SIDE FOR
"NOTE TO WORLD
TRADE READERS"


John Fahey
Director of DP Marketing

* Except for CXD, DXD, and type Q DCs which have no significance under DOS/360.

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Release Date: February 26, 1968
Distribution: All Areas

P68-32

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IBM**IBM World Trade Data Processing****Statement of Intent****S
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T****IBM INTENDS TO PROVIDE
DOS/360 FORTRAN IV COMPILER**

It is the intent of the IBM Corporation to provide a DOS/360 FORTRAN IV compiler.

The language level of the compiler will be the same as the OS/360 FORTRAN IV (G) compiler.

The design level of the DOS/360 FORTRAN IV compiler is 40K and requires a minimum of 48K S/360.

Our planning target for availability of the DOS/360 FORTRAN IV compiler is 1Q 69. Information concerning the availability of the compiler will be provided in June 1968.

This information represents the technical intent of IBM with respect to this program. It is possible that the objective will not be met. The program is subject to revision or withdrawal and no commitment or warranty is expressed or implied.

Guidelines for using the Statement of Intent appear on the reverse side.

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John Fahey
John Fahey
Director of DP Marketing

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P68-33

Statement of Intent Guidelines

You must insure that:

1. In any discussions with customers or prospects on intent information, the IBM representative makes clear to the customer that intent information represents only technical objectives and does not constitute any announcement of a programming system.
2. All proposals or installation planning discussions with customers or prospects on intent information must be documented to the customer. The following disclaimer must appear in this or any other documentation on intent information:

"This information represents the technical intent of IBM with respect to this program. It is possible that the objectives will not be met. The program is subject to revision or withdrawal, and no commitment or warranty is expressed or implied."

The proposal section containing the Statement of Intent must be entitled "Statement of Intent".

The description of the Statement of Intent which precedes the disclaimer must contain no omissions or rephrasing of the information contained in the DPD HQ Statement of Intent release that could result in misrepresentation to the customer.

The following sentence should be included after the disclaimer: "It should be clear that this Statement of Intent is not a Program Announcement and that a Program Announcement may or may not be forthcoming."
3. Orders secured from proposals in which intent information appears must contain installation plans not dependent upon the technical objectives or target schedules embodied in a Statement of Intent.
4. Installations having an interest in and probable use for the intent support must have that fact documented in the Installation Information System. The Program Planning form should be used to record the index numbers of the Statement of Intent (obtained from monthly IBM Program Support Master List). The required date for firm specifications should be entered in the Test Date column and the required availability date in the Install Date column.


OS/360 REMOTE JOB ENTRY
ADDED TO MFT-II

Remote Job Entry under MFT-II (in only 256K) will be available April 30, 1969. It provides the identical facilities as announced under MVT-RJE in P67-77*. These facilities are:

- . A job entry control language which complements OS/360 job control language to provide additional flexibility and control.
- . An OS/360 job may be submitted at a remote work station. This job can be identical to a job submitted at the central System/360 input device.
- . The job output may be directed to return to the work station immediately or held until requested by command.
- . Output may be directed to the user submitting the job or to an alternate recipient.
- . The user can request notification of job completion. This notification includes normal/abnormal job completion and any specified user information.
- . RJE acknowledges the receipt of each job with the number of jobs ahead on the job queue. An exit is provided to allow a user-written program to modify this acknowledgement.
- . Job output data sets may be optionally directed to the central installation output writers for transcription.
- . Users are provided with LOGON and LOGOFF feature which uniquely identifies them and therefore provides work station independence. In addition, it prohibits unauthorized access to job results.
- . Status of remotely entered jobs currently in process is given upon request.

- . The RJE user may request to be alerted when any output becomes available for him.
- . Messages reflecting the status of the central RJE system are available upon request.
- . The central and remote operators and RJE users may communicate among themselves.
- . Receipt of job output data sets at the work stations may be discontinued and re-started to satisfy forms requirements.
- . Users at a work station can delete their output data sets residing at the central processor.
- . Job output may be retrieved by a valid recipient at any work station in the system regardless of the work station from which the job was submitted.
- . Commands are provided for the central operator to allow additional external control and flexibility for the RJE system.
- . System Restart and error recovery procedures are provided.
- . Commands are provided to logically attach and remove a work station from the system as desired.

See the reverse side for information on Remote Work Stations, publication, and minimum system configurations.



John Fahey
Director of DP Marketing

*The following key functions have since been announced for MVT-RJE:

1130 Remote Work Station (P67-105)
Model 25 Remote Work Station (DP Ltr 268-4)
Model 85 (DP Ltr 268-13)

Available
July 31, 1968
1Q 69
October 31, 1969

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Release Date: February 26, 1968

Distribution: All Areas

P68-34

REMOTE WORK STATIONS ON SEPARATE LINES MAY BE ANY COMBINATION OF:

1. System/360 Model 25, 30, 40, 50, 65, 67 (65 mode), 75, or 85 using BOS/360 or BPS/360 with:

A minimum of 16K of core storage
2701 with Synchronous Data Adapter,
Type II, for EBCDIC code with transparency (#8029)
Card Read Punch
Printer
1052 Console Printer-Keyboard
Additional 2701 features supported:
Autocall (#1314)
The Dual Communications Interface (#3463,
#3464, #3465)

2. 2780 Data Transmission Terminal, Model 1 or 2, with:

EBCDIC Transmission Code
EBCDIC Transparency (#8030)
120 or 144-character print line
Automatic Turnaround (Model 2 only) (#1350)
Multi-point line control (optional) (#5020)
Multiple record transmission (optional) (#5010)

3. 1130 Computing System

The 1130 Computing System operating under the 1130 Disk Monitor System, Version 2, connected over a 1200, 2000 or 2400 bps line, point-to-point or multipoint, operating in binary synchronous mode. The program requires an 1130 with disk storage and 8K words of main storage. If user-written routines are included, at least 16K words of main storage are required. The following input/output devices are also required:

Card Reader ... Card Punch ... Line Printer
... Synchronous Communications Adapter.

The following devices are supported: 1131 Model 2B, 3B or larger ... Line printers 1132, 1403-6 or 7 ... Card readers 1442-6 or 7, 2501-A1 or A2 ... Card punches 1442-5, 6 or 7 ... Console keyboard and printer ... Multiple 2310 disk drives.

Note: 1130's and 2780's can not be intermixed on the same multidrop line.

PUBLICATION ... IBM System/360 Operating System: Planning for Remote Job Entry (MFT-II), C30-2008.

MINIMUM SYSTEM CONFIGURATIONS ...

System/360 Model 50, 65, 67 (65 mode), 75, or 85 with 256K bytes of main storage.

Operating System/360 (MFT-II) device requirements apply.

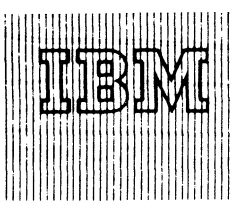
The 2701 with either switched or non-switched lines may be attached to the multiplexer channel, or with non-switched lines to the selector channel. The 2703 may be attached only to the multiplexer channel. The RJE program permits multiple 2701/2703 units, up to normal System/360 maximums. Also required is Binary Synchronous Communication in EBCDIC code, with full transparency mode.

Direct Access Storage Space for RJE tables and queue areas. Normally less than one 2311 Disk Storage Drive capacity. Exact requirements depend on system loading, number of communication lines and work stations supported.

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NEW SCHEDULE FOR TSS RELEASE 2 ANNOUNCED

After reviewing the technical base of the current TSS System and making a preliminary market study, the decision has been made that the correct course for us to pursue is to fulfill the TSS development plans announced to you in January, 1967, (DP Letter 267-3). These plans were to improve the current system in the areas of human factors, performance and reliability, and to add no further function to the system.

TSS DEVELOPMENT PLAN ... The first stage of this plan (Release 1) was made available in October of 1967 with the exception of Duplex Configuration Support and Extended Dynamic Address Translation Support. The availability of these items is:

- Duplex Configuration Support 3Q68
- Extended Dynamic Address Translation
 - Support of 256 segments (28 bit addressing)..... 1Q68
 - Support of 4,096 segments (32 bit addressing)..... 3Q68

The second stage of the plan was Release 2, which was to provide improvements in performance, human factors, reliability and serviceability and was targeted for a mid-1968 availability. We are now announcing the major specific items and their availability dates.

. **Queued Sequential Access Method - 2Q68**

QSAM allows the storage and retrieval of records of a physical sequential data set without requiring the user to supply blocking/deblocking buffering routines.

. **Command System II - 3Q68**

This new command system provides the user with the ability to define his own commands, call his programs by direct command and use a more general editing capability. In addition, a regular command syntax as well as default and profile facilities are provided.

. **Time Sharing Support System (TSSS) - 3Q68**

TSSS consists primarily of two parts: RSS for Resident core and VSS for Virtual Memory. This new system allows flexible control for diagnostic and investigative work on TSS. TSSS differs from current support in that its operation in the virtual memory mode is time shared.

. **New Bulk I/O - 4Q68**

A single Bulk I/O program which controls all TSS Bulk I/O operations will replace the multiple Bulk I/O tasks required for each I/O job currently used in TSS.

. **Table Driven Scheduler - 1Q69**

The Table Driven Scheduler is a CPU scheduling system (for tasks) which is driven from a table made up of a series of entries, each containing scheduling parameters such as time slice length and maximum pages allowed in core during a time slice. The system administrators will provide the table entries, and their associated scheduling parameters, as well as the assignment of users to table entries according to the priority and kind of work being done. In addition, there are provisions allowing assignment of successive table entries during the life time of a task for those tasks whose priority requirements vary during the course of their processing.

. **VAM II - 1Q69**

This new virtual access method which includes VAM volume format changes, allows the creation of duplicate data sets and provides recovery and validity check options. Transparent to the user, except for the choice of options, the data set duplexing applied to the catalog and other sensitive data sets will increase the reliability of critical public storage. It will be necessary to translate and convert existing VAM data sets to the new format. However, conversion routines to accomplish this will also be included.

In order for TSS users to take advantage of systems improvements they will be made available as soon as completed in maintenance releases rather than packaged into a single release.

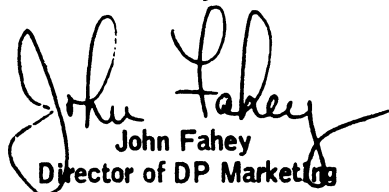
A detailed description of each maintenance release will be provided in the TSS Branch Office Technical and Marketing Guide as required.

TSS FUNCTIONAL EXTENSIONS ... No additional functions are planned for TSS. IBM continues its interest in the entire time-sharing market.

MAINTENANCE ... Current maintenance arrangements will continue. (Refer to Branch Manager Memorandum, "TSS Release 1 Maintenance Responsibility," dated September 28, 1967.)

CONTROLLED MARKETING ... All Model 67 proposals must first have the approval of regional management prior to submission to a customer or prospect. Management approval required is to be determined through the Office of the regional Vice President.

CUSTOMER NOTIFICATION ... All customers affected must be notified immediately.


John Fahey
Director of DP Marketing

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IBM SELECTRIC® PRINTING ELEMENT SUPPORT, BACKGROUND PROGRAM RESTRICTION, AND SPECIAL ORDERING INFORMATION FOR ATS/360

The Administrative Terminal System/360 (ATS/360) will be available operating under DOS/360 Release 15 on March 29, 1968 as announced in P66-117 and under OS/360 on December 31, 1968 as announced in P67-26.

This letter clarifies support of the 2741 Communication Terminal printing element, identifies an operational restriction for DOS/360, and announces special ordering information.

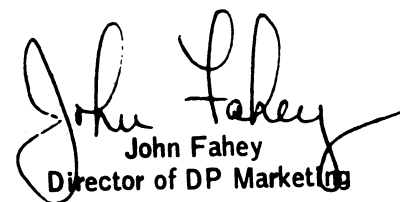
IBM SELECTRIC PRINTING ELEMENT SUPPORT ... Both OS/360 and DOS/360 versions of ATS/360 will support the 2741 Communication Terminals, but only one of the Standard Courier 72 IBM SELECTRIC printing elements will be supported (part 1167043), i.e., feature #9812.

BACKGROUND PROGRAM RESTRICTION FOR DOS/360 ONLY ... The DOS/360 version uses the console interrupt key to call for the cessation of ATS/360 peripheral functions. Therefore, background programs that use this key for console operator initiated messages may not run while ATS/360 is running.

SPECIAL ORDERING INFORMATION ... The initial release of ATS/360 for DOS/360 will operate under DOS Release 15 only. This requirement will continue through May 15, 1968. Any customer who plans to use ATS before May 15 and who has not yet ordered DOS Release 15 must do so immediately. Specify "ATS USER" in bold print on order. Release 15 will not be available from PID following announcement of Release 16. For additional information contact your regional scientific marketing representative.

Notify all customers affected by these changes immediately.

The sales manual pages will be updated shortly.


John Fahey
Director of DP Marketing

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SEE REVERSE SIDE FOR
"NOTE TO WORLD
TRADE READERS"



NEW VERSION OF SYSTEM/360 APT
NUMERICAL CONTROL PROCESSOR
NOW AVAILABLE (360A-CN-10X)

Version 2 of APT may be ordered; shipments will begin the week ending March 8.

Significant changes reflected by this version are:

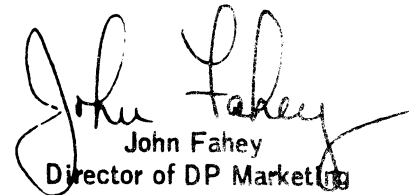
- Additional geometric definition formats are provided for LINES, PLANES, VECTORS, and MATRICES.
- A revised and more efficient method of defining TABCYLS (Tabulated Cylinders) has been incorporated.
- An overflow capability for the PTPP file has been implemented to remove current limitations on the size of loops and/or the number of MACRO calls within a loop.
- A new processor structure is provided to facilitate post processor implementation.

Current users are being sent a letter announcing the availability of this version. This letter is accompanied by a prepunched program order card that the customer must use to order Version 2. A complete list of problems eliminated with Version 2, and the program modifications required to resolve those problems will be distributed with the availability letter to customers.

The new sales manual writeup is on the back. Note the compilation restriction on four routines in the Branch Office Responsibilities section.

ADDITION TO THE MATLAN LETTER (P68-30)

MATLAN will also be available for use with the System/360 Model 85.



John Fahey
Director of DP Marketing

FOR IBM INTERNAL USE ONLY

Published by DP Sales Publishing Services, WTHQ

Release Date: February 29, 1968

Distribution: All Areas

P68-37

APT (360A-CN-10X)

Description: This processor operates as a task under control of OS/360. The APT processor accepts either BCD or EBCDIC input on any sequential system input device and allows any number of input decks (part programs) to be processed in a single job step.

The APT processor accepts an English-like language defining geometric shapes, desired motion sequences, and machining information. This input, called a part program, is converted to a meta-language containing mathematical representations of the geometric surfaces and sequential instructions directing the movement of a cutting device with respect to the defined surfaces.

The processor will then analytically or iteratively calculate points on the cutting device axis at the tip of the device (bottom center of the cutting device). The resultant motions will always be straight line motions whose length is determined by specified tolerance criteria. These points are then available to a user-supplied post processor which must insure that they conform to the characteristics and dynamics of a particular N/C device.

The APT processor is also capable of modifying the cutter axis to conform to part program specifications. When the processor is in a multi-axis (4 or 5 axis) environment, the output data will also contain the unit vector representing the cutter axis for each output point.

The user is supplied with a listing of the part program and optionally a listing of the cutter center points and machining information. He must also specify which post processors are to be called to process the output from the APT processor.

Features:

- Double precision calculations are used throughout the processor to improve reliability and extend the range of usable numbers.
- A new analytical processing technique has been implemented to allow analytical calculations of startup positions and non-iterative solutions for motion sequences involving vertical planes or cylinders for drive and check surfaces and non-vertical planes for part surfaces. This technique results in a significant reduction in processing time for these cases.
- The data handling technique for the POCKET feature has been designed to provide efficient usage of work files.
- An internal statement number is assigned by the processor and referenced by output listings and error messages.
- A debugging facility has been included in the processor to assist computer programmers in locating problem areas.
- The level of nesting allowed for MACRO's is five. The number of MACRO variables allowed is 50.
- The storage requirements for resident tables are predetermined and the space dynamically allocated to reduce the requirement for programmer manipulation.
- Reliability of the processor, particularly ARELEM, has been and will continue to be the primary design criterion.
- Dummy call structures are provided to assist with interfacing to special user programs.
- The redefinition of variable symbols as another surface of the same type without the inclusion of the CAN/ON modifier in the surface definition is permitted via a model CANON/ON - CANON/OFF command.
- The core storage requirements for each MACRO are printed.
- Post processors are created as separate load modules and may be added or modified without re-link editing other post processors or any other component of the APT system.
- A tool axis specification and algorithm have been implemented to provide predictable multi-axis results.
- A feature to allow selective printing of the output data.

Use: The APT processor may be executed in a normal job step environment. The processor is designed to reside on a direct access device in executable form and need only be scheduled as a job operating under OS/360.

Special Sales Information: The majority of the N/C devices installed at this time operate with a punched tape input mode. The punched tape information is created by the user-supplied post processor in conjunction with APT post processor modules. A requirement for a paper tape punching device, such as the IBM 1012, will normally exist.

Customer Responsibilities: To achieve usable results and optimum performance, he must supply and merge into the APT processor any post processors required by his N/C controller/machine tool combinations ... he must make sure that appropriate training is given to system programmers to permit them to use the Operating System facilities to operate, maintain, and update the APT processor ... he is responsible for implementing modification and version releases ... it is recommended that proper training is given to the part programmers responsible for developing the input.

Branch Office Responsibilities: The APT processor is generally considered critical to production schedules of manufacturing operations. To best service the user, the APT Development Group utilizes the SECOM network to distribute all program modifications resulting from APAR resolutions. SECOM fixes should be used until program modifications are sent by the Program Information Department to registered users. The responsible account representative should contact the customer to determine how SECOM information could best be used to meet his specific requirements.

NOTE: The following four routines currently will compile only with optimization level zero (OPT=0) of FORTRAN H, Version II -- A1257000 (APREPR), A1272000 (APREPB), A1273000 (APREPC), A1274000 (APREPD). You will be notified when this restriction is removed.

Programming Systems: The APT processor routines are primarily written in FORTRAN H. The APT input/output routines are written in OS/360 Assembly Language and interface to the BSAM access method. The minimum OS configuration to operate APT includes the OS Assembly Language program, the FORTRAN H compiler, the 44K E-level linkage editor, and the OS utility programs.

APT users must order the S/360 Operating System separately.

Machine Requirements: System/360 Model 2040H ... Floating-Point Arithmetic ... Selector Channel ... Disk Storage Device (total installation requirements should be considered) ... six logical sequential I/O devices (magnetic tape drives or equivalent) ... Card Reader, Card Punch, and Printer or tape drives for peripheral I/O.

Note: Minimum requirements of Operating System/360 for disk storage devices must be considered in addition to these requirements.

Below is a system configuration which exceeds minimum peripheral requirements and is recommended for installations in which APT is a significant application. At installations where APT is the major application, a Model 2050H or larger processing unit may be needed to meet throughput requirements.

A 2040 Model H with Floating-Point Arithmetic (#4427), First Selector Channel (#6980), Second Selector Channel (#6981), 1012 Attachment Device (RPQ), 1052 Adapter (#7920) ... 1052 Printer-Keyboard Model 7 ... 2804 Tape Control ... three 2401 Magnetic Tape Units (other than Model 1) Simultaneous Read-While Write (#7160) ... 2841 Storage Control ... three 2311 Disk Storage Drives ... 2501 Card Reader Model B1 ... 1442 Card Punch Model N2 ... 1403 Printer ... 1012 Tape Punch ... 2821 Control Unit.

Note: Tape punching facilities either on-line or off-line are usually required for preparation of numerical control machine tool input media. The column binary feature may be required for use with customer-written post processor programs.

Basic Program Material:

Publications* -- Part Programming Manual (H20-0309-1) ... Operator's Manual (H20-0331-2), TNL N20-1850 ... Application Directory.

Machine Readable** -- Source programs, executable load modules, overlay structures, and sample part programs are contained on one reel of magnetic tape in either 9- (800 or 1600 bpi) or 7-track (800 cpi, Data Conversion feature required) mode. The contents of the tape are written in the IEHMOVE unload format.

Optional Program Material:

Machine Readable** -- A flowchart listing tape is available on a full reel of magnetic tape in either 9- (800 or 1600 bpi) or 7-track (800 cpi, Data Conversion feature required) mode.

Ordering Procedures: See DP Sales Activity section of the Branch Office Manual.

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

**If track and density requirements are not indicated on the back of the program order card, a 9-track tape (800 bpi) will be forwarded.

Magnetic tapes (2400') may be forwarded or ordered (the order card should accompany the tape order form).

Additional Program Support Material: Application Description Manual (H20-0180) ... System Manual (Y20-0080).

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BINARY SYNCHRONOUS COMMUNICATIONS (BSC) IS NOW SUPPORTED ON SYSTEM/360 MODEL 20

This support allows BSC connection with other System/360 Model 20s or with larger S/360s operating with OS/360 or DOS/360 BTAM.

The new Binary Synchronous support, called Binary Synchronous Communications Adapter (BSCA) IOCS, provides programming support for the customer whose Model 20 Card, Tape or Disk System is equipped with the Binary Synchronous Communications Adapter Feature. BSCA IOCS consists of a set of macro routines which relieve the user of much of the programming necessary to properly control the exchange of messages on a transmission line.

BSCA IOCS is integrated into, and can be used in conjunction with Model 20 Card, Tape and Disk Assembler/IOCS programming support. The communications program may use all features of these IOCS packages, plus 1259 or 1419 IOCS.

A Model 20 System running under control of a program using BSCA IOCS is dedicated to the telecommunications job. In the TPS and DPS the telecommunications program can be one of a series of batch jobs. The program will then operate under supervision of the TPS and DPS monitor.

Extensive diagnostic messages and error recovery procedures are provided in the BSCA IOCS. Maintenance of error statistics is available as a user option.

In the card programming system, user written file definition statements become input to a special generator program which extracts from the BSCA Card Library the functions required by the job. The output from the generator run can be assembled separately or jointly with the user program containing macro instructions - i.e. READ or WRITE - by a special card assembler requiring 8,192 bytes of core. This assembler includes all capabilities of the 4K Basic Assembler.

In TPS and DPS the BSCA IOCS file definition statements and macro instructions are expanded into an appropriate set of symbolic machine instructions and are assembled together with the users program by the TPS/DPS Assembler.

SUPPORTED CONFIGURATIONS ... Leased or switched Line - Communication with another Model 20 whose program also uses BSCA IOCS or with a System/360 Model 25, 30, 40, 50, 65, 67 (65 mode) 75 or 85 equipped with a 2701 or 2703 (with BSC) under control of OS/DOS/360 BTAM (with BSC support for Model 20 BSCA IOCS).

Note: Model 25 is DOS/360 only; Model 85 is OS/360 only.

Leased Multipoint Line - Model 20s using BSCA IOCS operate as slave stations only. The master station must be a System/360 mentioned above.

AVAILABILITY

System/360/20 BSCA CIOCS ...	November 29, 1968
Compatible DOS BTAM BSC support	... November 29, 1968
Compatible OS BTAM BSC support	... April 30, 1969

PROGRAM FEATURES

- . EBCDIC or USASCII Transmission Codes.
- . Header Support.
- . Overlapping of processing and I/O activity with line operation.
- . Intermediate Block Checking.
- . Transmission and receipt of tete-a-tete message blocks (conversational).
- . Automatic Calling and answering functions for Switched Networks.
- . Full transparent text mode for both EBCDIC and USASCII transmission codes.
- . Support of High Speed Feature.
- . Optional identification verification for security protection.
- . Refer to SRL (C33-4001-1) for a complete description of the above.

Minimum system requirements and the SRL references are on the reverse side.


 John Fahey
 Director of DP Marketing

FOR IBM INTERNAL USE ONLY

Published by DP Sales Publishing Services, WTHQ

Release Date: February 29, 1968
Distribution: All Areas

MINIMUM SYSTEM REQUIREMENTS

Card Programming Support (CPS)

- . 2020 Processing Unit Model C2.
 - One card reader (2501, 2520, 2560).
 - One card punch (1442, 2520, 2560).
 - One printer (1403 or 2203) if diagnostic messages are to be printed or the generated program is to be listed.
- . Additional features supported for card systems.
 - 12K and 16K bytes of core (CPU models BC2 and D2).
- . One remotely connected Model 20 with Binary Synchronous Communications Adapter (2074) or one of the System/360 Models mentioned above with 2701 or 2703.

Additional Features Supported for Tape and Disk Systems.

- . 2415 Magnetic Tape Unit (Models 1 - 6).
- . 1419 Magnetic Character Reader.
- . 16K bytes of core (CPU Model D2).
- . 1259 Magnetic Character Reader.
- . Two 2311 Disk Storage Drives (Models 11 or 12).

Core requirements for BSCA IOCS depend on functions desired: between 2,700 and 4,200 bytes. See SRL C33-4001-1 details.

Note - In the TPS or DPS environment, core requirements for the respective monitors must be considered in addition to the above figures.

SRL REFERENCES

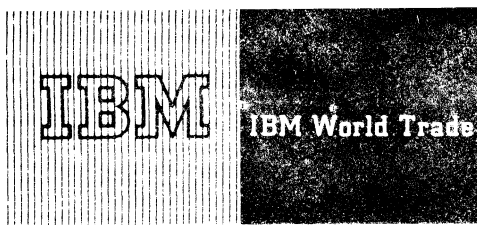
General Information: Binary Synchronous Communications, A27-3004.

System/360 Model 20 ... Input/Output Control System for Binary Synchronous Communications Adapter (Card, Tape, Disk), C33-4001 ... System/360 Model 20 Functional Characteristics, A26-5847 ... System/360 Model 20 Basic Assembler Language, C26-3602 ... System/360 Model 20 Disk and Tape Programming Systems Assembler Language, C24-9002 ... System/360 Model 20 Tape Programming System Control and Service Programs, C24-9000 ... System/360 Model 20 Disk Programming System Control and Service Programs, C24-9006 ... System/360 Disk Operating System Basic Telecommunication Access Method, C30-5001-4 ... System/360 Operating System Basic Telecommunication Access Method, C30-2004-1.

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PROGRAM SUPPORT FOR NEW MODELS SYSTEM/360 MODEL 20

The following customer proven Program Support will be available for the newly announced models of the System/360 Model 20 on November 15, 1968.

- Report Program Generator for punched card equipment.
- Basic Assembler Input/Output
- Control system for punched card equipment (IOCS).
- Punched Card Utility Programs
- Basic Utility Program
- Sterling (Processing Routines)
- Disk Programming Systems - Report Program Generator
- Disk Programming Systems - Disk Utilities (12K Disks)
- Disk Programming Systems - Disk Assembler
- Disk Programming Systems - Input/Output Control System
- Disk Programming Systems - Disk Sort/Merge Program
- Disk Programming Systems - Control and Service Programs.

The previously announced IBM 2152 Console Typewriter Program Support (P68-1) will also be available for new models November 15, 1968.

The sales manual pages with complete details will be issued prior to March 11.

John Fahey
John Fahey
Director of DP Marketing

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**BASIC PROGRAM MATERIAL FOR
MARVEL/360 WILL BE AVAILABLE
MAY 31**

MARVEL/360, announced in P64-201, P66-99, and P66-124, will be available May 31, 1968. The optional program material consisting of the systems manual and source program will be available November 29, 1968.

MARVEL is a language processor for the data preparation, matrix generation, output analysis, and management report writing functions associated with the Mathematical Programming System/360 (360A-CO-14X). MARVEL was designed and implemented to provide powerful functional capabilities in this fast growing area of mathematical programming. In providing such a comprehensive language and processor capability, "trade-offs" were made which reduced execution speed. The speed of MARVEL is quite slow (see sales manual write-up on the back of this letter); IBM is not committed to improve its performance.

Because of its extended functional capabilities, MARVEL may be used most effectively in the development of new LP applications and for solving non-repetitive problems.

The availability and form number of a TNL to the MPS/360 Application Description Manual (H20-0136), reflecting a change in core requirements for MARVEL, will be announced in a Publication Release Letter.

All customers affected by this announcement should be notified immediately.

**MATHEMATICAL PROGRAMMING SYSTEM/360
REPORT GENERATOR (MPSRG) PROVIDES
MPS/360 USERS A NEW WAY TO OBTAIN
MANAGEMENT REPORTS**

The MPSRG provides the Mathematical Programming System/360 [360A-CO-14X (MPS/360)] user with a simple-to-use facility for transforming MPS/

360 output into management reports. MPSRG contains:

1. A control card type report language in which the user defines the report to be produced.
2. A set of three procedures, operating under the control of MPS/360, which compile and execute the report generator statements.

This programming system will be available October 30, 1968.

The availability and form number of a TNL to the MPS/360 Application Description Manual (H20-0136) reflecting this announcement will be announced in a Publication Release Letter.

A MPS user will have three choices for writing management reports from Linear Programming output: MARVEL, FORTRAN (with the MPS/READ-COMM Feature), and the MPSRG Program.

For the sales manual write-up, see the back of this letter.


John Fahey
Director of DP Marketing

MARVEL: MARVEL/360, used in conjunction with the Mathematical Programming System/360 (360A-CO-14X), provides powerful functional capabilities for data preparation, matrix generation, output analysis, and management report writing.

MARVEL execution speeds are quite slow; IBM is not committed to improve its performance.

Description: MARVEL is a language processor which facilitates the data preparation and output analysis functions associated with the Mathematical Programming System/360 (360A-CO-14X). The user may write a MARVEL program to generate a linear programming input matrix for MPS/360, analyze an MPS/360 solution, and produce data on an external file pertaining to this solution, or generate a management report from an MPS/360 solution. MARVEL operates under the control of MPS/360 and is called with the MPS Procedure Call statement.

Features: Elements referenced by row and column name ... automatic array overflow onto a DASD when memory is exceeded ... easy retrieval of MPS/360 data ... transfer of program control based on intermediate results.

Use: The MARVEL language operates on arrays or tables of data, but is unique in that it references the elements of arrays by row and column name rather than numerical subscripts. The arrays to be used are first defined and input data is read into them. The data records may contain the array, row, and column names into which the data element is to be stored; thus, there is no need for any particular ordering. The MARVEL program may contain arithmetic or logic statements required to perform the desired data transformation for output. Results may be filed on work files or output files, and previously filed data may be retrieved. Format specifications are required only for initial input and final output; intermediate results are filed automatically in a common format.

Customer Responsibilities: The user must learn the MARVEL programming language to implement his applications.

Performance Information: MARVEL supports two configurations -- the 128K configuration and the 256K and above configuration. MARVEL performs best on the 256K and above configuration; the 128K configuration is approximately half the speed of the 256K configuration.

The table below contains the execution speeds of a single MARVEL program which performs matrix generation and report writing on a 128K and 256K configuration.

	128K M40	128K M50	256K M40	256K M50
MARVEL - PREPROCESSOR	1.20	.71	1.20	.61
MARVEL - MATRIX GENERATION	9.51	3.95	4.48	2.19
MPS/360 - OPTIMIZATION	4.05	1.76	4.05	1.76
MARVEL - REPORT WRITING	31.12	13.92	15.80	7.07

NOTES: (1) Times are in minutes. (2) Model is 129 rows x 512 columns.

Programming Systems: MARVEL is written in the basic assembler language and operates under OS/360. It uses BSAM and EXCP data access methods.

Minimum Machine Configuration: MARVEL requires a S/360 with 128K bytes of storage, the Universal Instruction set, and, if the systems output device is a printer, it must have 132 print positions.

Program storage requirements, including access methods, for the two configurations are -- 61K bytes for the 128K configuration and 128K for the 256K and above configuration. Additional memory (minimum of 5K) is used for array storage.

The following table lists the files used by MARVEL. These files may be stored on a 2314, 2311 DASD, or a 2400 series magnetic tape unit. Note that the OS/360 Input, Output, and Residence devices are not included in this table.

File Name	Description	Notes
OBJ	Contains object program produced by MARVEL preprocessor.	Required
CALC1 & CALC2	Used by CALCULATE statement when memory is exceeded.	Optional
OVERFLOW	Contains arrays which cannot be maintained in memory.	Optional - Must be DASD.

Program Support Material: Mathematical Programming System/360, Application Description Manual (H20-0136-1).

For further information contact your Regional Scientific Marketing Manager.

Mathematical Programming Report Generator (MPSRG): MPSRG provides the MPS/360 user with a fast, easy-to-use, report writing capability. The

MPSRG contains a control card type report language and a set of three procedures operating under the control of MPS/360, which compile and execute the report statements.

Features: Solution values and problem data referenced by name ... macro definitions which reduce the number of statements needed to describe a report ... generation of external files which may be used for further processing ... transfer of control based upon intermediate computations ... easy to learn ... non-programmers can use.

Use: The report is described by a report language program. This program is then processed by the MPSRG procedures -- ANALYZE which checks for syntactical accuracy and produces an internal form of the program ... SETREP which resolves symbolic references to original problem data ... REPORT which produces the report. All procedures are called by the MPS/360 procedure call statement.

Customer Responsibilities: The customer must be familiar with the use of MPS/360 and the MPSRG report language.

Programming Systems: The program is written in the OS/360 Assembler Language and uses the BSAM and EXCP data access methods. The program operates under the control of MPS/360 which operates under OS/360 PCP, MFT or MVT options.

Minimum Machine Configuration: MPSRG requires a S/360 with at least 65,536 bytes, the universal instruction set, and, if the system output is a printer, it must have 132 print positions (a minimum of 44K bytes must be available for MPS/360 problem and data storage). The files may be stored on the 2311, 2314, 2301, 2302, 2303 DASDs or 2400 series tape units (9-track tapes are required for REPPFILE, REPDATA, and REPWORK).

Files required by MPS/360 Report Generator:

FILE NAME	DESCRIPTION
REPPFILE	Contains the precompiled Report Program produced by ANALYZE
REPDATA	Contains the compiled data decks produced by ANALYZE
REPWORK	Contains the compiled Report Program produced by SETREP
SCRATCH1	Used for temporary data storage
SCRATCH2	Used for temporary data storage

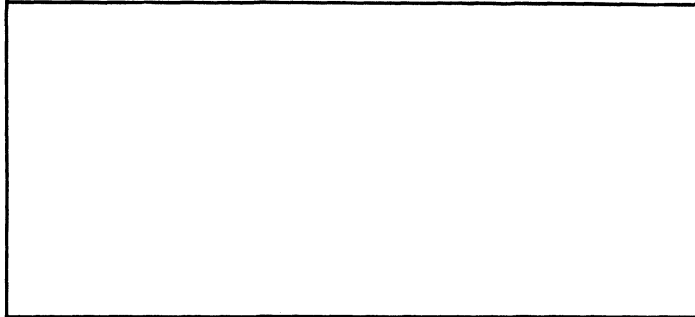
Program Support Material: Mathematical Programming System/360 Application Description Manual (H20-0136).

For further information contact your regional scientific marketing manager.

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DP SALES MANUAL -- PROGRAMMING SECTION CHECK LIST

STATUS AS OF P68-42

To order missing Programming pages, circle the page numbers of the required pages on this sheet, fill in your name, position title, and address, and send the form to

WT DF Sales Publishing Services

Requests for more than twenty pages require management approval.

CIRCLE



Programming -	1	Jan 68 Rep	P68-12
	3	Dec 67 Rev #2	P67-147
	5	Mar 68 Rev	P68-42
	7	Mar 68 Rev	P68-42
	9	Mar 68 Rev	P68-42
	11	Mar 68 Rev	P68-42
	13	Mar 68 New	P68-42
	15	Jan 68 Rev	P68-12
	17	Jan 68 Rev	P68-12
	19	Dec 67 Rev	P67-138
	21	Oct 67 New	P67-110
System/360	360A.1	Dec 67 Rev	P67-137
Application	360A.3	Dec 67 Rep	P67-137
Programs	360A.5	Sep 67 Rep	P67-97
	360A.7	Feb 68 Rev	P68-28
	360A.9	Nov 67 Rev	P67-120
	360A.11	Feb 68 Rep	P68-23
	360A.13	Feb 68 Rev	P68-23
	360A.15	Oct 67 Rep	P67-111
	360A.17	Aug 67 Rep	P67-91
	360A.19	Dec 67 Rep	P67-142
	360A.21	Oct 67 Rev	P67-111
	360A.23	Jul 67 Rev	P67-73
	360A.25	Dec 67 Rep	P67-142
	360A.27	Dec 67 Rev	P67-142
	360A.29	Dec 67 Rep	P67-147
	360A.31	Dec 67 Rep	P67-147
	360A.33	Dec 67 Rep	P67-147
	360A.35	Dec 67 Rev	P67-147
BOS/360	360B.1	Sep 67 Rev	P67-104
	360B.3	Mar 68 Rev	P68-42
System/360	360C.1	Feb 68 Rep	P68-23
Conversion	360C.3	Feb 68 Rep	P68-23
Programs	360C.5	Feb 68 Rev	P68-23
	360C.7	Feb 68 Rep	P68-23
	360C.9	Feb 68 Rev	P68-23
	360C.11	Feb 68 New	P68-23
360/44	360F.1	Feb 68 Rev	P68-28
	360F.3	Feb 68 Rev	P68-28
360/67	360G.1	Mar 68 Rev	P68-42
	360G.3	Mar 68 Rev	P68-42
	360G.5	Mar 68 Rev	P68-42

CIRCLE



TOS/360	360M.1	Sep 67 Rep	P67-104
	360M.3	Apr 67 Rev	P67-33
	360M.5	Feb 68 Rev	P68-19
DOS/360	360N.1	Sep 67 Rev	P67-102
	360N.3	Sep 67 Rev	P67-102
	360N.5	Sep 67 Rev	P67-102
	360N.7	Sep 67 Rev	P67-102
	360N.9	Jan 68 Rev	P68-12
BPS/360	360P.1	Apr 67 New	P67-32s
	360P.3	Apr 67 New	P67-32s
	360P.5	Apr 67 New	P67-32s
	360P.7	Apr 67 New	P67-32s
	360P.9	Apr 67 New	P67-32s
	360P.11	Apr 67 New	P67-32s
	360P.13	Apr 67 New	P67-32s
	360P.15	Apr 67 New	P67-32s
JS/360	360S.1	Sep 67 Rev	P67-109
	360S.3	Sep 67 Rev	P67-109
	360S.5	Sep 67 Rev	P67-109
	360S.7	Sep 67 Rev	P67-109
	360S.9	Feb 68 Rep	P68-19
	360S.11	Feb 68 Rev	P68-19
360/20	360T.1	Mar 68 Rev	P68-42
	360T.3	Mar 68 Rev	P68-42
	360T.5	Mar 68 Rev	P68-42
	360T.7	Mar 68 Rev	P68-42
1100	1130.1	Jan 68 Rep	P68-12
	1130.3	Mar 68 Rep	P68-42
	1130.4.1	Mar 68 Rev	P68-42
	1130.5	Apr 67 Rev	P67-33
	1130.7	Feb 68 Rep	P68-19
	1130.9	Dec 67 Rep	P67-137
	1130.11	Feb 67 New	P67-14
	1130.13	Feb 67 New	P67-14
	1130.15	Aug 67 Rep	P67-84
	1130.17	Dec 67 Rev	P67-137
1800	1800.1	Feb 68 Rev	P68-23
	1800.3	Feb 68 Rev	P68-23
	1800.5	Oct 67 Rep	P67-109
9000	9011	Mar 68 Rev	P68-42
	9013	Jan 68 Rep	P68-6A
	9015	Jan 68 Rep	P68-6A
	9017	Jan 68 Rep	P68-6A
	9019	Jan 68 Rep	P68-6A

Published by DP Sales Publishing Services, WTHQ

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Cancels: P68-23

s = supplement

Attachments [16]: [1 thru 5] P 5, P 7, P 9, P 11, P 13 ... [6] P 360B.3 ... [7 thru 9] P 360G.1, P 360G.3, P 360G.5 ... [10 thru 13] P 360T.1, P 360T.3, P 360T.5, P 360T.7 ... [14 thru 16] P 1130.3, P 1130.4.1 and P 9011.

Release Date: March 11, 1968

Distribution: All Areas

**MODIFICATION TO MODEL 20 TPS RPG
PROVIDES INCREASED PERFORMANCE**

Stacker Selection ... Based on file matching and/or calculation results, stacker selection of input-file cards is now possible without specifying a dummy punch on the Output-Format Specifications form.

The file must, however, be defined as combined. A read operation is generated instead of the dummy punch. Processing time is reduced, and performance increases of up to 30%, and occasionally even more, can be obtained; for example, 33% in a card-sifting application on the MFCM based on file matching.

Editing and Zero Suppression ... The processing time for normal editing and zero suppression (but not for asterisk protection, and/or floating - and/or fixed dollar sign) is reduced, especially when the edit words and the fields with zero suppression within one record are specified in descending order of "End Position in Output Record."

These edit words and fields must be specified before other fields and constants. The resulting performance increase may vary from 0 to approximately 10%.

Additional Improvements ... Note 400, "Starting addresses of RPG routines," is now printed with the addresses in ascending sequence. At the end of the listing, a message is printed indicating the number of bytes used. This count includes the number of bytes used by the Basic Monitor program.

The symbol table used during generation is now built and used so that data fields with the same field name can be defined alternately as packed and unpacked numeric fields.

All combinations of files and tables on tape, with and without labels, are now possible.

The minimum core-storage capacity required for generation of the object program now corresponds more to the core storage used by the object program. In many cases, this prevents the error diagnostic "PROGRAM TOO BIG."

Availability ... IBM System/360 Model 20 TPS Report Program Generator Version 2, Modification Level 1, 360U-RG-148, will be distributed automatically to all current users.


John Fahey
Director of DP Marketing

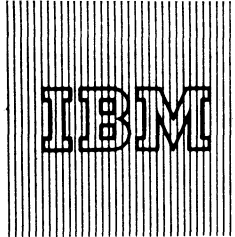
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Published by DP Sales Publishing Services, WTHQ

Release Date: March 12, 1968
Distribution: All Areas



COMPREHENSIVE PROGRAMMING SUPPORT FOR THE MODEL 85

As announced in DP Letter 268-13, a comprehensive programming support package will be available for the System/360 Model 85. Since most Model 85 users will utilize a multiprogramming mode of operation, the programming support is oriented to OS/360, either MVT or MFT, which will be available October 31, 1969.

The Model 85, being upward System/360 compatible, executes programs which run on other System/360 models. The Model 85 has new features which require programming systems support extensions beyond that now in OS/360. These extensions, which are in addition to the MVT and MFT capabilities already announced, include support of:

- . CRT Operator Console
- . Extended Precision Floating Point
- . Recovery Management Support

CRT Operator Console (Feature 5450) ... All console functions can be directed to the new CRT operator console, or the CRT console and the 2150 console can be used as alternates. In addition to the normal console functions, the new functions include information displays designed to simplify console operation.

Up to thirty output messages can be displayed on the screen. Messages are removed either individually or in groups with operator control over the number of messages which remain on the screen. Commands entered via the keyboard have no effect on the output messages being displayed. Input commands are displayed on the screen as the operator types and may be corrected before they are released for entry into the system.

Support of the display console is a system generation option which requires approximately 4K to 12K bytes of main storage in the nucleus, depending upon user option of SVC routines which are resident. The display console support prerequisite is either the MVT or MFT control program option.

Extended Precision Floating Point Support ... Extended precision (112 bit fraction) floating point arithmetic instructions are standard in the Model 85. These instructions permit extended precision floating point operands to be added, subtracted and multiplied to

produce extended precision results. In addition, two long precision operands (56 bit fraction) can be multiplied to produce an extended precision result.

Two new rounding instructions are also provided. One takes an extended precision operand from floating point registers and produces a rounded long precision result, storing the result back into floating point registers. The other operates in a similar way, but takes a long precision operand and rounds it to short precision (24 bit fraction).

OS/360 support for the extended precision and rounding instructions are included in extensions to Assembler F*. Note: FORTRAN, PL/I, COBOL, and ALGOL do not support the extended precision and rounding. Programs using these languages require subroutines in Assembler Language to take advantage of the new features.

Recovery Management Support (RMS) ... The Model 85 provides a number of standard features to enhance system availability. Included are: Error checking and correction, micro-diagnostics, processor checking, manual switches for storage reconfiguration, and automatic retry of most instructions. In addition, OS/360 provides Recovery Management Support (RMS) for the Model 85 similar to the Model 65 (P68-2). The Recovery Management Support increases availability of the Model 85 by minimizing the effect of machine malfunctions on jobs in process. Recovery from machine checks, using the Machine Check Handler (MCH), determines if the hardware instruction retry facility or the error checking and correction facilities were successful in recovering from the failure. If these are not successful, RMS attempts to repair program damage by reloading a fresh copy of the program. Failing that, RMS attempts to isolate the failure to a single task which is selectively terminated with system operation continuing. RMS records appropriate error information and analyses for use by system maintenance personnel.

The Recovery Management support also includes the Channel Check Handler (CCH), which performs extensive analysis of any failing channel operation, uses the appropriate error recovery procedure and retries the operation where possible. Where retry is not possible, CCH determines appropriate action, either terminating the affected task or placing the system in the WAIT state. Appropriate error records are recorded automatically.

*Excludes TESTRAN

The system requirement for RMS is approximately 12K bytes of main storage in the system nucleus, approximately 48K bytes of auxiliary storage for program residence, and 75K bytes in the SYS1. LOGREC data set for recording error information. These requirements are in addition to those for MVT or MFT. Recovery Management Support requires either the MVT or MFT option of the control program as a prerequisite, and includes functions of SER0, SER1, and EREP.

Note: Use of the Primary Control Program with the Model 85, is possible but not recommended since the availability features of RMS are not available in the Primary Control Program.


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Director of DP Marketing

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IBM World Trade Data Processing

P68-45

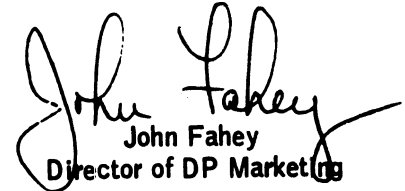
MODEL 20 AUTOMATED CONFIGURATOR
(1401-SE-08R) WITHDRAWN FROM PRO-
GRAM LIBRARY

The System/360 Model 20 Automated Configurator Program is no longer available from the Program Information Department.

Over 350 copies of this Registered IBM Confidential Program have been distributed to field locations since its announcement on November 23, 1964 in P64-194. Lack of requests for the program during the past year indicates sufficient copies are available and that continued availability from PID is no longer warranted.

OS/360 REMOTE JOB ENTRY ADDED TO
MFT-II

P68-34 did not include System/360 Model 40 under Minimum System Configurations. Model 40 should have been shown.



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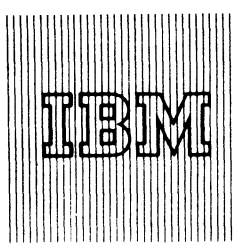
Published by DP Sales Publishing Services, WTHQ

Release Date: March 18, 1968

Distribution: All Areas

P68-40 NOT USED

P68-45



NEW VERSION OF TEST/360 IS AVAILABLE (360A-SE-24R)

Version 2 of TEST/360 (360A-SE-24R), an IBM Confidential program for testing Tele-processing Systems, is available for use at the New York, Chicago, and Los Angeles Datacenters.

The new version contains all features of the earlier announced program plus:

- The maximum network has been expanded from 31 lines and 150 terminals to 62 lines and 300 terminals.
- The IBM 2740 terminal is now supported.
- The user may specify turnaround delays to more closely model the performance of his actual configuration.

For detailed information see the attached sales manual page (P 360A.15). For additional information on the program and the features supported at the various Datacenters, contact your Field Systems Center.

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John Fahey
John Fahey
Director of DP Marketing

FOR IBM INTERNAL USE ONLY

Published by DP Sales Publishing Services, WTHQ

Attachments [7]: P 360A.15 thru P 360A.19, P 360A.25 thru P 360A.29, and P 1450.1

Release Date: March 20, 1968

Distribution: All Areas

**ADMINISTRATIVE TERMINAL SYSTEM/360
UNDER DOS/360 MAY NOW BE ORDERED**

Version 1 Mod Level 0 (360A-CX-18X) may be ordered; shipments will begin the week ending April 5, 1968. It is intended for Mdls 30, 40, 50 and uses the multiprogramming features of DOS.

ATS/360 is a new dimension in text and data processing. It is a user-oriented remote terminal system designed for large text and data files. The terminal user has complete control over the management and processing of his own information files. ATS/360 operates under DOS/360 which means the customer does not have to dedicate an entire system to ATS/360 operations.

ATS/360 is programmed to run in one partition under DOS/360 using the multiprogramming supervisor. Other programs may run concurrently with and independently of normal ATS/360 terminal operation, thereby extending the productivity of System/360 for users of ATS/360.

ATS/360 uses include source data recording, data modification and correction, data manipulation, retrieval of information from large disk and magnetic tape files, outputting of information on the same terminal or another terminal, magnetic tape, punched cards, and high speed upper and lower case in printed form. Information may be entered and stored in either a free or fixed form. Stored information may be recalled for further processing.

SPECIAL SALES INFORMATION ... Principal application areas are source data recording, key-punch replacement, technical manual preparation, data file conversions, proposal writing, computer and numerical control programmers, library abstracts, purchase order preparation, property - sales - engineering - personnel - tooling - manufacturing - financial and quality data file management, etc.

Type of customers and prospects interested in ATS/360 include aerospace, airlines, consultants, distribution, education, federal government, finance, insurance, legal, manufacturing, medical, printing and publishing, process, public utilities, service bureaus, scientific, state and local government, and transportation.

SPECIAL ORDERING INFORMATION ... ATS/360 for DOS/360 will operate under DOS Release 15 only. This requirement will continue through May 15, 1968. Any customer who plans to use ATS before May 15 and who has not yet ordered DOS Release 15 must do so immediately. Specify "ATS USER" in bold print on order. Release 15 will not be available from PID following announcement of Release 16.

For the new sales manual write-up, see the attached sales manual page (P 360A.29).

**NEW VERSION OF SYSTEM/360 ATTACHED
SUPPORT PROCESSOR (ASP) MAY NOW BE
ORDERED**

Version 2 of the ASP system may be ordered; shipments will begin the week ending April 5, 1968 (360A-CX-15X). It provides:

- . Support for Dual Main Processors.
- . A new Job Segment Scheduler to improve the resource management in the ASP system, including shared devices.
- . A new device scheduler, the Main Device Scheduler, which provides more effective pre-execution tape and disk setup.

The Version 2 ASP Job Segment Scheduler provides for more flexible job scheduling, permitting rescheduling for a specific device in addition to scheduling by device class.

Incorporated with the new Job Segment Scheduler is a new Main Device Scheduler, which replaces the current system setup and breakdown programs.

The Main Device Scheduler provides for the setup of devices on specified Main Processors, taking into account the existence of devices shared between Main Processors or between a Main and a Support Processor.

In a Dual Main Processor configuration, the Support Processor distributes jobs to the Main Proc-

Attachments [7]: P 360A.29, P 360A.35, P 360A.37, P 360B.1, P 360G.5, P 360M.3, and P 360M.5

Release Date: March 25, 1968

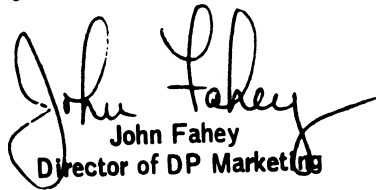
Distribution: All Areas

essors on a priority basis, taking into account special processing requirements as identified by the application programmer. It is the responsibility of the application programmer to indicate any processor dependencies when he submits his job.

The System Manual for ASP Version 2 will not be available with the initial release of the system. Availability and form number will be announced in a Publication Release Letter.

Current users will receive a prepunched program order card and a letter announcing the availability of the new version. This order card must be used to order the new version.

For the new sales manual write-up, see the attached sales manual page (P 360A.35).


John Fahey
Director of DP Marketing

SPECIAL NOTE: The attachments to P68-46 included Sales Manual page P1450.1. This is a special U.S. banking system and is not applicable to WTC. Please remove this page from your manuals.

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IBM World Trade Data Processing

P68-48

MAJOR IMPROVEMENTS MADE IN VERSIONS 3 AND 4 OF APT

Major improvements to the System/360 APT Numerical Control Processor will be made available in two releases ... Versions 3 and 4.

VERSION 3 ... The following improvements and new features will be available July 19, 1968:

- . Major performance improvements
- . A pattern definition feature to facilitate Point-to-Point programming
- . Additional functional programs to supplement the pattern definition feature
- . Additional PUNCH capability for surfaces and scalars

VERSION 4 ... The following additional features will be available January 31, 1969:

- . Disk Read capability to allow pre-defined part program subsets to be read from direct access devices
- . System Macros
- . Transition feature to perform a gradual transformation of the cutter axis in multi-axis calculations
- . Additional functional programs
- . Implied DO LOOP feature

SUPPORT MATERIAL ... Additional information is available in the sales manual, on the back of this letter, and in the S/360 APT Numerical Control Processor Application Description Manual (H20-0181-2).

John Fahey
Director of DP Marketing

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Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Release Date: March 25, 1968

Distribution: All Areas

P68-48

APT (360A-CN-10X)

The following major additions to the APT Processor will be added with Versions 3 and 4:

VERSION 3: This version will include --

- . Pattern definition capability for point-to-point programming
- . An expanded PUNCH capability for surfaces and scalars
- . Major performance improvements
- . Additional function programs

Revisions to the Input/Output technique used for work files will significantly improve overall performance, particularly in situations where non-sequential processing occurs (copy logic, CANON overflow, TABCYLS, etc.). Additional revisions to the Input Translator will improve its performance.

An extensive pattern definition capability will allow the user to define a set of points and then manipulate them in a variety of ways. The use of the MACRO concept with this feature will provide the user with a powerful point-to-point programming feature. New function specifications will also be included at this time to assist the customer in the use of the pattern definition capability.

The expanded PUNCH capability will allow the user to PUNCH all surfaces, scalars or both without explicitly specifying their symbolic names.

VERSION 3 Restrictions: The use of any device other than the 2311 and 2314 disk storage drives, 2303 drum storage unit and 2400 tape units for APT work files will not be supported when Version 3 is available.

VERSION 4: This version will include --

- . A transition capability for multi-axis programming
- . A disk read capability to allow part programs or subsets of part programs to be read from a direct access device
- . A System MACRO feature
- . Additional function programs for computing expressions
- . An implied DO LOOP feature

The disk read capability will allow the user to substitute a read control statement in the part program with the contents of a dataset residing on a direct access device. The dataset may contain any valid APT part programming statements (including SYN), and could contain a complete part program.

The System MACRO capability will cause the processor to search a specified dataset for a MACRO if the name specified in a MACRO CALL Statement has not been defined in the part program. With this feature frequently used MACRO's may be stored on a direct access device and need not be repeated in each part program.

A transition capability will be added to allow the user to specify a gradual transformation of the cutter axis to a new orientation while moving along a given cutter path.

The ability to express a range of variable symbols will be added with Version 4. This feature will eliminate the need to explicitly state each subscripted variable when the regular series of subscripts for a variable symbol is to be used.

The increasing complexity of APT Programming will be assisted with the inclusion of additional mathematical function programs available for use in computing expressions.

Additional Support Material: Application Description Manual (H20-0181-2).

For additional information contact your Regional Manufacturing Industry Marketing Representative.

NEW TYPE II DESIGN PROGRAMS WILL OPERATE ON THE 1130 AND UNDER OS/360 AND DOS/360

Four Type II programs relating to engineering design will be available next year for use on the IBM 1130 and operation under OS/360 and DOS/360. The programs are:

- Program Language ANalyzer (PLAN), which interfaces between operating system and application programs, providing a base on which to build a library of application programs.
- Mechanism Design System-Kinematics, which complements the available 1130 Mechanism Design System for Gears and Springs.
- Rigid Frame Selection Program, used in designing prefabricated and conventionally structured buildings.
- Program for Optical System Design/II, an expansion to 16K of the presently 8K 1130 program for optical design.

PROBLEM LANGUAGE ANALYZER (PLAN)

PLAN is a program interface between a monitor or operating system and a library of modular, functional routines. It will be available January 31, 1969.

PLAN operates as a job in the normal input stream. During execution, it decodes and executes any sequence of user commands one at a time. Any of the load modules in the system library may be executed to satisfy a user command.

PLAN programs will operate on the 1130 under the Disk Monitor System, Version 2, and on the System/360 under both the Operating System and the Disk Operating System. PLAN has been designed for large and small customers allowing for a pattern of growth in both machine and application areas.

In the PLAN approach, the library of routines is modular and each performs a particular function. The function can serve across machine, operating systems and engineering disciplines without a

change in source code.

PLAN allows user-oriented languages to be implemented simply by definition and without further system programming. This is accomplished through a language dictionary which is defined by the user for each application and eliminates the need to write special separate interpreters for every application requiring a problem description language.

PLAN provides the structure upon which application programs can be built, based on existing modular functional routines.

MECHANISM DESIGN SYSTEM-KINEMATICS (MDS-KINEMATICS)

MDS-Kinematics provides linkage mechanism analysis capability. It complements the available IBM 1130 Mechanism Design System for Gears and Springs (1130-EM-01X). MDS-Kinematics operates on the 1130 and under both DOS/360 and OS/360. The program input provided by the engineer describes the linkage configuration in familiar terms.

The problem input can be either batched card input or in the conversational mode via the console typewriter (for 1130 only). All programs are coded in FORTRAN and commands are created and maintained by the Problem Language ANalyzer (PLAN).

The system creates a digital model of the linkage in disk working storage. The position and motion of the linkage are calculated in subsequent processing phases. Plots of calculated results are available with the optional plotting equipment for the 1130. A wide variety of two- and three-dimensional linkages can be analyzed. The program will be available April 30, 1969.

RIGID FRAME SELECTION PROGRAM (RFSP)

RFSP aids in designing prefabricated as well as conventional buildings. It operates under the IBM Problem Language ANalyzer (PLAN) using the 1130 System or System/360 operating under DOS or OS.

The program provides users in the construction in-

dustry with design procedures for two- and three-hinged rigid frames and other structural members in steel, reinforced concrete, or laminated wood.

The design procedures are iterative between analysis and design within the constraints of an inventory. The resulting design is the least-weight selection that can be made from the inventory.

Savings can be realized from:

- . Inventory cost reduction.
- . Cost of individual designs.

RFSP will be available January 31, 1969.

PROGRAM FOR OPTICAL SYSTEM DESIGN/II (POSD/II)

POSD/II provides extended and improved functional ability over that presently available in the 8K 1130 Program for Optical System Design (POSD). The new program uses the 16K 1130 System, DOS/360, or OS/360. POSD (1130-E0-11X, 1130-E0-12X) will be retained for 8K 1130 configuration. The program will be available January 31, 1969.

POSD/II will aid the optical designer in analyzing, evaluating, and optimizing a lens design. It offers new flexibility, problem solving efficiency and increased problem size ability to our customers in the optical design industry. The program operates under the IBM Problem Language ANALYZER (PLAN) allowing simplified user program modifications and additions. For the optional plotting facility on the 1130, the Data Presentation System (DPS) program (1130-CX-14X) is used with POSD/II.

A higher compute rate for ray surfaces is incorporated into the program with much faster automatic design optimization due to increased core size.

Some of the major features and advantages are:

- . More flexibility in input.
- . Comments and data identification.
- . Improvements in frequency response and plotting capabilities.
- . Increased number of variables permitted.
- . Procedures for "check pointing" of large problems.
- . Many new functional capabilities such as ray path length calculations and ray aiming provision.

- . More useful energy distribution output.
- . Can store 30 surfaces in core at a time.

The sales manual pages will be issued shortly.


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COMPUTER SYSTEM SIMULATOR/360 (CSS/360), TYPE II PROGRAM AVAILABLE AS IBM CONFIDENTIAL

CSS/360 (360A-SE-29R) is now available on an IBM Confidential basis. It is a simulation program that provides a means for analyzing the operation of computer systems, especially System/360 configurations.

This program, while not compatible with the CSS/7000 versions described in Branch Manager Letter #424, provides all the capability of the CSS/7000 versions plus new features, resulting in a widely expanded capability.

The CSS/360 program and the System Manual (Z20-1860) will not be distributed to customers. However, with local branch management approval, external documentation regarding functions, capabilities, and use of CSS/360 may be made available to customers on a restricted distribution basis.

CSS/360, operating under OS/360, provides a language used to construct a model of the computer system under study. Equipment operation, specified by means of control cards, is automatically accounted for by CSS. High level flowcharts, described in the CSS instruction set, of both the application programs and programming system involved, must be provided by the user. These include statistical information on program timings, job types, and input rates. The level of detail can vary widely, permitting very coarse analysis of operation or studies in great detail. Output statistics describing system behavior are automatically provided. Some examples are job throughput, channel utilization, distribution of response times, queuing delays, storage usage statistics. New features include -- ability to perform processing ... time slicing ... conversational mode terminals ... "Help" facility for special routines ... library facility to store often used subroutines.

SPECIAL INFORMATION ... In no case does CSS produce an optimum system design; rather, it pro-

vides the user with the means to evaluate the operation of a specified system. Judgment must then be exercised to determine the accuracy of the results and whether changes are desired. CSS is not a tool for providing quick timing figures for system proposals and should not be used as such.

See the attached sales manual page (P 360A.1) for additional information.

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