



PLAN GRAPHICS SUPPORT REDUCES TIME AND EFFORT IN IMPLEMENTING AN INTERFACE BETWEEN 2250 DISPLAY UNIT AND APPLICATION PROGRAMS

PLAN Graphics Support, a new Type II program, reduces the time and effort required to implement an interface between the IBM 2250 Display Unit (locally attached) and application programs. With this system an application programmer may avoid graphic coding at the FORTRAN or Assembly Language level, and thereby rapidly integrate interactive graphic capability into existing and new applications.

PLAN Graphics Support for System/360 will be available April 30, 1969; for the 1130, May 31, 1969.

A user-oriented statement language has been implemented into PLAN Graphics Support via the facilities provided by PLAN for language definition. By means of the free format language statements and the more conventional fixed format specification cards, the application programmer can specify the graphic displays and interrupt (Light Pen and Keyboards) controls desired by the application user. During the execution of the application, the display console operator may dynamically control his application utilizing the interactive graphic capability of the IBM 2250.

The facilities available to the application user (display console operator) via PLAN Graphics Support include:

Graphic Output

Data lists from the application program may be displayed in any desired format using points, characters, lines, arcs, circles, conic sections, etc. -- the format and control options being previously defined via language statements and/or specification cards.

Graphic Input

Data may be created or modified at the console and passed to an application program via the Alphameric Keyboard or the Light Pen.

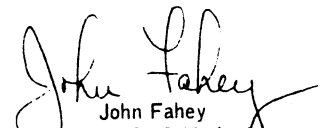
Monitoring and Controlling the Application

The console user dynamically controls subsequent displays and application functions to be executed via the Light Pen, Programmed Function Keyboard, and the Alphameric Keyboard.

PLAN Graphics Support may be used for nearly all applications and industries where graphic output and man-machine interaction enhance the application. It is easy to learn and use -- application can be readily converted to graphics with a minimum of effort. Typical application areas are Engineering Analysis, Petroleum Exploration and Production, Management Information Systems, and Data Reduction.

PLAN (Problem Language ANalyzer) (see sales manual programming section P360A.38) is used by PLAN Graphics Support. Since the two systems coexist, the user has access to all the functional capability in PLAN. Both PLAN and PLAN Graphics Support operate with OS/360 and 1130 Monitor, Version 2.

The sales manual write-up is attached (P360A.48).


John Fahey
Director of DP Marketing

SEE REVERSE SIDE FOR
"NOTE TO WORLD
TRADE READERS"

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Attachments: [12] P 5, P 13, P 360A.27, P 360A.47, P 1130.7, P 1130.9, P 1130.11, P 1130.13, P 1130.15, P 1130.17, P 1130.19, and P 1800.3
Release Date: July 3, 1968
Distribution: All Areas

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it, they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.**



Contents

1130 Remote Job Entry Work Station (1130-CQ-009) is available.

OS/360 and DOS/360 QTAM Slides are available.

1130 REMOTE JOB ENTRY WORK STATION PROGRAM AVAILABLE TO PREPARE FOR USE WITH OS/360

The 1130 Remote Job Entry Work Station Program is available, 1130-CQ-009. Although it requires the OS/360 support (Release 15/16), which will be available July 31, 1968, the 1130 RJE is being made available now. This early availability provides users the opportunity to prepare for the implementation of the complete RJE System.

The program uses the 1130 Computing System as a remote work station for entering OS/360 jobs to be executed at a central computing facility, and for receiving the job output.

The 1130 RJE Work Station has three basic functions:

1. Input of OS/360 jobs and RJE commands through an attached input device.
2. Data transmission to and from the central processor.
3. Data output to an attached printer, punch, or disk.

OS/360 jobs are entered through the card reader or from disk storage. Work station commands are entered from the card reader, disk storage, or the console keyboard.

Job output is directed to the printer, punch, or disk storage. If desired, disk output can be replaced by a user-written output routine. Messages are sent to the console printer or the printer.

The work station program operates under the 1130 Disk Monitor System, Version 2. Communication is over a 1200, 2000, or 2400 bps line, either point-to-point or multipoint, operating in binary synchronous mode.

The program operates in conjunction with the RJE program under OS/360 (MVT) at a central System/360 Model 50, 65, 67 (65 mode), 75, 85, or 91, or operates under OS/360 MFT-II at a central System/360 Model 40, 50, 65, 67 (65 mode), 75 or 85.

Equipment Configuration ... The program requires an 1130 with internal disk storage and 8K words of main storage. If user-written output routines are included, at least 16K words of main storage are required.

The minimum system requires a card reader, card punch, line printer, and Binary Synchronous Communications Adapter.

I/O devices supported are:

- 1442 Card Read Punch Model 6 or 7
- 2501 Card Reader Model A1 or A2
- 1442 Card Punch Model 5
- 1132 Printer
- 1403 Printer Model 6 or 7
- Multiple 2310 Disk Drives
- Keyboard and Console Printer

The system components are utilized as follows:

Card Reader, Punch and Printer

The RJE Work Station Program uses the card I/O device(s) and printer assigned by the Disk Monitor as principal I/O device and principal print device.

Disk Input

Disk input can be from either the internal disk cartridge or any one of the external disk cartridges on the 1130. The location of disk input data is specified by control records in the Job Stream, and can be changed while the Work Station Program is in operation.

Disk Output and Communication Line

These elements of the I/O configuration are established by a special program provided for that purpose and can be changed when the Work Station Program is not in operation. This program, named RJEOO, is described in the TNL.

Disk Output -- Space on either the internal disk cartridge or any one of the external disk cartridges on the 1130 may be specified.

Communication Line -- Point-to-point non-switched, switched, or multipoint may be specified.

Note: 1130s cannot be mixed with other types of terminals on a single multipoint line.

Reference Material ... 1130 Disk Monitor System, Version 2, Programming and Operators Guide, C26-3717 ... TNL to Programming and Operators Guide, N33-8007.

Basic Program Material

SRL Publications -- System/360 Remote Job Entry, C30-2006 and TNL N30-5018.

Documentation -- Program Material List ... Attachment to Users.

Machine Readable -- The program is available in card form.

Ordering Procedure ... See DP Sales Activity Section of the Branch Office Manual.

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

Optional Program Material

Machine Readable -- The Source Programs are available on one 9-Track (800 or 1600 bpi) Distribution Tape Reel (DTR).

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

**OS/360 AND DOS/360 QTAM
NEW TP MARKETING AID**

A new slide set, "QTAM for Teleprocessing on IBM System/360," is available.

The slides and script describe the facilities provided by QTAM and the characteristics that make QTAM an effective installation tool.

The content is appropriate for presentation to top customer management and as an introduction to QTAM for data processing personnel who are responsible for systems design and programming systems selection.

This marketing aid may be used to:

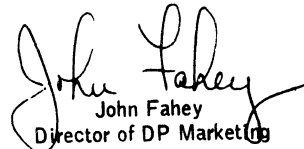
- SELL new communications based systems by illustrating the power and flexibility of QTAM.
- UPGRADE installed systems by showing how QTAM may be used to add TP capability to OS/360 or DOS/360 installations.
- INSTALL on-order TP systems sooner by showing how QTAM can reduce programming time and effort.
- Convey to your customers and prospects the fact that QTAM can provide a solid base for future growth and new applications.

A copy of the slides and script (V20-0183) has been sent to each DP Branch Office, DP Field Systems Center, and DP Education Center. Additional copies may be ordered from Audio-Visual Services, DPD HQ.

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.**


John Fahey
Director of DP Marketing



System/360 Resource Allocation Processor (RAP) - An Additional Facility for Project Management System (PMS/360)

It is the intent of the IBM Corporation to provide a Resource Allocation Processor (RAP), as an additional facility for the Type II Program PROJECT MANAGEMENT SYSTEM (PMS/360).

RAP schedules the start dates of all the activities in a critical path network, taking account of the availability of the resources required for completion of each activity. RAP is a module of PMS/360; it must take its input from the PMS Network Processor, and produce its output through the PMS Report Processor.

RAP will schedule a project to be finished by a fixed time using as few resources as possible, or to be finished as soon as possible without exceeding specified levels of resource usage. The input to RAP from the Network Processor gives the earliest and latest dates on which each activity can start if the project is to be finished on time, together with the resources required for each activity and the resources available for the whole project. RAP schedules the actual start of each activity so that all activities start as soon as possible, commensurate with efficient utilization of specified resource availabilities. By means of the Report Processor, the user can then output the scheduled start of any activity, and the utilization of any resource at any time during the project. RAP incorporates an efficient algorithm to implement this technique, and offers the user a wide range of options so that he may use only those program features which are relevant to his own problem.

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.


John Fahey
Director of DP Marketing

Attachment: [1]
Release Date: July 22, 1968
Distribution: All Areas

P68-105A

STATEMENT OF INTENT

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.

RESOURCE ALLOCATION PROCESSOR (RAP)

A powerful addition to the 3 original processors of PMS/360, RAP can allocate resources throughout a project, and give scheduled start dates to all the activities in a network.

Resource allocation is a technique with applications in many areas, including construction, repair and maintenance, research and development, and manufacturing. It is of particular value in the control of projects where shortage of resources will cause difficulties in meeting target dates. RAP uses an efficient algorithm to implement this technique, and offers the user a wide range of options and features so that he can use only those facilities of the program which are relevant to his own problem.

Description... RAP is a module of PMS/360. It must take its input from the Network Processor, and can only produce printed output by means of the Report Processor. The input from the Network Processor gives the earliest and latest dates on which each activity can start if the project is to be finished on time, together with the resources required for each activity and the resources available for the whole project. RAP schedules the actual start of every activity, so that all activities start as soon as possible, commensurate with efficient utilisation of specified resource availabilities. By means of the Report Processor the user can then output the scheduled start of any activity, and the utilisation of any resource at any time during the project.

Features... Fixed Time or Fixed Resource scheduling... secondary levels... full compatibility with the other processors of PMS/360... serial-parallel allocation technique... allocation for one or more subnets, which may or may not be in the same network... wide variety of possible priority rules for choosing the most important of a set of activities competing for a resource... alternative resources... up to 10 resources per activity (or 7 if each has an alternative)... activities may be split (stopped and restarted later)... the time-clock can be stepped up by any number of time-units, so that approximate schedules can be quickly obtained... more than 200 different resources allowed... scheduling cut-off at any user-defined date... cyclic or dated changes in resource levels... 'customized' reports possible through the PMS/360 Report Processor... regular checkpoint facility.

Customer Responsibility... To understand the RAP documentation, the reader must have previously studied the PMS/360 Application Description Manual (H20-0210). To implement the RAP program, the user must fulfill all the requirements for implementing PMS/360, and also fully understand the features of RAP, and the way in which it fits into PMS/360.

Programming Systems... Written in OS/360 Assembler Language. Operates under the control of OS/360, uses QSAM and BDAM data access methods, and the OS/360 Sof./Merge utility.

System Configuration... Minimum configuration for execution of RAP is the same as for PMS/360, with two additional requirements: at least 128 K bytes of core, and at least two 2311 Disk Storage drives. For large networks, larger core sizes will result in greatly improved program performance.

Special Sales Information... Although core size will not affect the size of network which can be scheduled (given at least 128 K bytes), it can greatly affect program performance. The most important factor is whether the wait list and progress list of activities can stay in core.

If the lists spill out of core onto disk, each scan of the lists will be much slower. Each activity record in the lists is $(68 + 14n)$ bytes long, where n is defined by the user as the most primary resources required by any activity. Approximately 80K bytes are required by the program, OS, buffers, etc. On any configuration a user should calculate the storage available for the lists, and estimate the maximum size and the average record length of the lists. If the lists appear likely to go out of core, performance may be seriously affected.

(Note: The progress list contains all the activities which the scheduler has in progress at any point in time. The wait list contains all the activities which could logically start at that point, but for which resources are not available. While the exact size of the lists cannot be predicted, estimates can be made for a given project on the basis of network size and complexity, average duration of activities, etc.).

For further information contact your Country or Area Scientific Marketing Manager.



**OS/360 COMPONENTS SCHEDULED FOR
JULY 31 AND OCTOBER 31 NOW COMBINED
IN RELEASE 15/16 WITH AVAILABILITY THE
WEEK OF AUGUST 26**

Release 15/16, combining components announced for availability in July and October, will be available the week of August 26. This release contains many previously announced components plus incremental improvements and maintenance. The maintenance includes corrections for about 1,000 APARs (over 100 remove conditions which required system Re-IPLs) to provide an OS/360 release which will have better usability and added capability.

The components originally scheduled for July 31 included in this release are:

MFT Version II (P67-115)
Remote Job Entry for MVT (P67-77)
PL/I F Version IV (P68-73)
Linkage Editor F, Version II (P68-11)
Model 65 Recovery Management (P68-2)
BTAM-BSC 2780 (6-Bit Transcode) (P67-77)
MVT Job Scheduler Improvements (P68-59)
Rollout/Rollin for MVT (P67-86)
RJE 1130 Work Station I Point-to-Point (P67-105)


For contractual commitments see the note on the reverse side.

The components improved from October 31 included in this release are:

Shared DASD for 2311 and 2314 (P68-2)
Time Slicing for MFT and MVT (P68-69)
Graphic Job Processor (P67-115)
RJE - 1130 Work Station (Multipoint) (P67-105)
RJE - 2780 Work Station (P67-77)
FORTRAN Library Improved Object Time Facilities (P68-59)
BTAM-BSC 2780 (EBCDIC) (P67-77)
BTAM and QTAM - 2740 Model 2 (P67-127)
Universal Character Set Support (P68-59)

In addition, there are 25 incremental features that provide new data management capabilities, improved operational characteristics, additional system flexibility, functional improvements, improved performance, language support and compiler improvements. Details are on the inside pages.

Exact delivery date and ordering instructions for Release 15/16 will be announced by P-Letter.


John Fahey
Director of DP Marketing

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.**

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Release Date: July 24, 1968
Distribution: All Areas

P68-106

Note: If there is a contractual commitment for one or more of the functions originally scheduled for July 31 that cannot be met by the availability of Release 15/16 the week of August 26, a special release of OS/360 can be provided that contains these functions. This release will not contain all the functions or maintenance scheduled for Release 15/16, and must be replaced by Release 15/16 upon its availability. If you require additional details, contact your branch manager.

Major System Developments

MFT Version II

Provides multi-jobbing for the 128K and larger user. Some of the features implemented include 15 problem program partitions, independent partition scheduling, small (8K) problem program partitions, disk SYSIN and multiple readers and writers. System restart capability and data set integrity enhance system availability. Details are described in SRL, Planning for Multiprogramming with a Fixed Number of Tasks - Version II (C27-6939).

Scheduler design points for MFT-II are now 30K and 44K instead of 26K and 44K, as originally announced.

The scheduler size has been increased from 26K to 30K to allocate storage for improvements planned for future releases.

MFT-II replaces MFT-I; all SRL documentation for this release refers to "MFT," meaning the Release 15/16 level - MFT-II.

New Slide Set Available --

A new slide presentation, describing the structure and facilities of MFT-II is now available through your district field systems center. This presentation is aimed at customer data processing managers and systems programmers who are familiar with the basic concepts and facilities of OS/360. It can be effectively used to present the expanded capabilities of MFT to those accounts currently operating under OS/360 PCP or MFT-I.

Showing the 47 slides takes about two hours. Additional copies of the slides may be ordered from Audio Visual Services, DPD HQ, White Plains, New York, under reference V20-0174.

Remote Job Entry for MVT

Provides the capability to enter jobs from a 16K Model 25 or larger system using BOS or BPS. The 2780 Data Transmission Terminal and the 1130 Computing System are supported as remote work stations for point-to-point and multi-point connections operating in binary synchronous mode.

Flexibility and control is provided by the Job Entry Control Language. The jobs themselves are completely compatible with jobs submitted to OS/360 from a local level reader. Details are described in the SRL, Remote Job Entry (C30-2006).

Graphic Job Processor

Permits a user to initiate and control jobs directly from the IBM 2250 Display Unit. The jobs scheduled may include graphics, or they may be normal batch processing. Details appear in the SRL, User's Guide for Job Control from the IBM 2250 Display Unit (C27-6933).

Time-Slicing

Permits the CPU to cycle within a group of tasks and thus prevents a compute-bound task from monopolizing CPU time and equalizes response time for applications such as Graphic Job Processing. This option is supported in MVT and MFT-II.

Rollout/Rollin for MVT

Provides the capability for a job step to dynamically acquire additional core beyond the originally specified region size. The additional core can be acquired from the unassigned pool or can involve rollout to borrow space from a lower priority job step. This facility is described in the SRL, Planning for Rollout/Rollin (C27-6935).

Compiler and Language Support Improvements

PL/I F, Version IV

This version provides many advanced functions, as well as a 3.5 times increase in dictionary capacity, permitting larger program segments to be compiled. A partial list of the announced features includes LOCATE-mode, Record I/O, list processing facilities, PL/I Tasking, variable length record handling, data set communication with COBOL, Checkpoint/Restart with PCP and a number of performance, diagnostic and usability improvements.

FORTRAN Library Improved Object Time Facilities

Cause of error, name of routine in which error occurred, description of the error and supplemental information are provided when an object time error occurs. An optional "continue and control" feature (4500-5300 bytes of core) can be generated to provide optional courses of action upon a detected error.

New Data Management and Device Capabilities

Shared 2311 and 2314 DASDs

Two CPUs can share a pool of 2311s, and up to four CPUs can share a pool of 2314s. Catalog, program libraries, and user data sets may be accessed by any CPU. Exclusive access is controllable by the RESERVE user macro-instruction.

BTAM-BSC

BTAM-BSC support is expanded to encompass the 2780 Data Transmission Terminal (6-bit Transcode and

ine terminal test facili-

2740 Model 2

The current available support for 2740 under BTAM and QTAM is extended to support the 2740 Model 2. Also included is support for the Buffer Receive feature (1499) if interval timer is installed.

Universal Character Set Support

The UCS buffer can now be loaded by OS/360 Data Management, eliminating the need to perform this function by a separate job step.

The currently available utility program support will be discontinued after the next OS/360 Release.

Improved Performance

Job Class Facility for MVT and MFT

Permits user control over the mix of jobs sharing the CPU and thus provide better utilization of system resources. Job priority is maintained within class.

Linkage Editor F - Version II

Replaces the 44K Linkage Editor E, improving system performance.

Maintainability and Availability Improvements

Model 65 Recovery Management (MVT and MFT)

Model 65 availability will be improved by the Recovery Management Support under which an attempt is made to recover from a machine check or channel check interruption.

MVT Job Scheduler Improvement

MVT initiators are treated as system sub-tasks and started from cataloged procedures. This change gives improved flexibility and eliminates system wait states when certain failures occur during job initiation or termination.

Incremental Improvements not previously announced

New Data Management Capabilities

2844 Control Unit

A second access path is provided for a single CPU to the 2314 Direct Access Facility, via the 2844 Control Unit.

Graphics

Re-enterable capabilities for ATTNINQ macro, performance improvement for frequently used modules,

Program Function Key 0 for increased number of program interrupts.

2250 Model 1

Permits the use of a 2250 Display as the primary console with MVT, when a 1052 or other console printer is available to provide hard copy.

IEBISAM

Ability to COPY and PRINT logical ISAM data records.

QTAM

Two-way communication for terminal initiated calls and elimination of queue priming are added features.

Improved Operational Characteristics

IPL

An EOB reply to the "Specify System Parameters" message will result in the use of the SYSGEN parameters. In addition, lower case characters and commas are accepted as parameter delimiters.

DISPLAY Operator Command

The operator, by additional operands, is able to obtain a list of the number of jobs, job names in each system queue, time of day on all job started and ended, and other new indicative information.

Mount/Dismount Messages

Data set names are included on MOUNT/DISMOUNT Messages in response to Display DSNAME.

PCP Operator Commands

Operator commands can be entered using a single letter abbreviation.

PROCLIB and SYSJOBQE

Cataloging is assumed and a search is performed automatically, eliminating the need for operator commands at IPL time when these system elements are not on the IPL volume.

Additional System Flexibility and Functional Improvements

Dump/Restore/Initialize Utility Program

The stand alone programs DASDI and DUMP/RESTORE have been combined into a single utility program, IEHDASDR, which has all the functions of the other two programs and operates under OS/360.

Continue Job after Step ABEND

A new JCL option to execute a job step only if a prior

job step has ended abnormally.

Job Step Timing in MVT

The TIME parameter on the EXEC card is changed so that it represents CPU time only, rather than the total of CPU plus unoverlapped WAIT time for the job step. A consecutive WAIT time of 30 minutes automatically cancels the job step unless the step is not being timed or an indefinite time period (TIME=1440) is requested. This change gives greater uniformity for both time limit and for user accounting routines.

MVT Accounting Exit

An exit is provided at step initiation time to correspond with those provided for PCP and MFT-I and II.

PCP Checkpoint/Restart Expanded Support

The check file devices include the 2314 and 2400 Dual Density Tape Units. In addition, all I/O operations for the step being checkpointed will automatically quiesce at checkpoint time.

JCL Continuation and Comments Cards

Greater flexibility is provided by new COMMENTS card, SYSOUT format and simplified continuation card convention.

Tape Block Count

User exit to continue processing on unequal block count condition, if desired.

SYSGEN Data Set Disposition

Three parameters are added to the GENERATE system generation macro instruction, affording greater flexibility in allocating the utility data sets. Information supplied by new UTVOL and UTNAME parameters will be used by the SYSGEN Stage II IEHMOVE step to allocate work areas.

Improved Performance

Blocked SYSIN

DCB attributes are permitted in the Data Definition control statement in the input stream and in cataloged procedures to allow different blocking and number of buffers for each SYSIN data set transcribed by a Reader/Interpreter of MVT or MFT-II.

I/O Requests

I/O requests in MFT-II or MVT can be handled on either a priority or FIFO method for each device based on SYSGEN option. The I/O request priority is the priority of the task. Priority I/O requests can improve response time for graphic or TP applications.

PCI Fetch

Improved program loading under MVT, particularly when using the 2301.

Compiler and Language Support Improvements

PL/IF Version IV

Data interchange with some FORTRAN data sets due to a new implementation of the PL/I UNALIGNED attribute. An incompatibility may occur in bit string arrays.

New STRING built-in function for improved string data handling.

PL/I - Sort interface module for direct use of OS/360 SORT/MERGE.

Separate Tasking/Non-tasking library modules. Use of PL/I tasking requires slightly more object library core storage.

Last argument flagging for CALLS and functions providing compatibility with COBOL and FORTRAN calling sequences.

Improved diagnostics by inclusion of statement numbers in compile-time diagnostic messages for pictures.

Listing improvement due to a collating sequence sort of the aggregate length table.

Performance improvements for:

- Exponentiation with integers
- I/O speed for INPUT or UPDATE INDEXED DIRECT files
- Array expression optimization
- Bit string assignment
- IF statement
- Miscellaneous housekeeping and mapping code changes

RPG

Option to sequence check source cards, change in indicator LO test, and improvements in cataloged procedures.

ALGOL F

The ALGOL Compiler is supported under MVT.

Maintainability and Availability Improvements

Error Recovery

The error Recovery Transient area is expanded to 1024 bytes of nucleus space. This improves error recovery procedures and speed.



COMPLETELY NEW AND ADVANCED CHECKPOINT/RESTART ADDED TO OS/360

A new Checkpoint/Restart Facility will be added to OS/360 for all control program options. It supports programs running under PCP, MFT-II and MVT (including Multiprocessor Model 65). It is a significant advance over the current Checkpoint/Restart approach in that new system features are added and existing OS/360 facilities utilized more efficiently in a multiprogramming environment.

Available June 16, 1969, it will replace the current Checkpoint/Restart.

Additional support is also provided in the OS/360 SORT Program and by implementation of the RE-RUN Clauses in COBOL E and F.

A checkpoint of the user's program and the status of his data sets is taken when specified by a Checkpoint Macro or a COBOL RERUN Clause in the user's program. At the time of the checkpoint, I/O automatically quiesces for the user's data sets and writes a checkpoint data record of the status of his core and the information necessary to reposition his data sets.

The checkpoint data record is used to restart the user's program under operator or programmer control. The facility provides for an automatic restart under operator control without the operator having to resubmit the job. A deferred restart can be made under control of the operator or the programmer through Job Control Language (JCL).

The facility permits restarting without changing Data Definition JCL. It utilizes the system catalog for user data set control and supports the system's procedure libraries. The system automatically obtains the same user core on restart and reallocates devices to permit device substitution. A new feature that permits restart on a specific step in a library procedure is included.

See the reverse side for the list of features included in the new facility.

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.**


John Fahey
Director of DP Marketing

Published by DP Sales Publishing Services, WTHQ

Release Date: July 24, 1968
Distribution: All Areas

Features

Automatic Restart under Operator Control.

Prevents lost time in rescheduling jobs that encounter I/O failures which can be corrected by substitution of a tape or disk device and/or a tape or disk pack. The installation can specify up to 10 user ABEND completion codes that are acceptable for automatic restart, which can be made with no changes in JCL. The operator can delay the automatic restart that would otherwise be immediately restarted by use of the HOLD Command in MFT-II and MVT.

Deferred Restart under Programmer Control.

The programmer can resubmit a job with appropriate JCL changes for restarting on a specific checkpoint number or on a specific step.

Step Restart in Addition to Job Restart.

Permits jobs to be restarted at the beginning of a step or on a checkpoint previously taken within the step. Users who do not use the checkpoint facility can take advantage of this feature to start a job on a step of a procedure.

Suppression of Checkpoints and Restarts through JCL.

The user may not have enough devices to write the checkpoint records and/or may wish to improve the performance of the run. Suppression of checkpoints and restarts can be accomplished by overriding the cataloged procedures or changing the JCL in the input stream.

An End of Volume Exit Routine to Permit Checkpoints to be taken at the time End of Volume occurs.

The user's End of Volume Exit Routine for BSAM or QSAM is given control after volume switching and all necessary label

processing has occurred for tape or DASD devices.

COBOL E and F support the RERUN Clause

Permits COBOL users to take checkpoints on a particular unit under record count control which is specified in a RERUN Clause.

Automatic Quiescing of I/O Operations.

The user will no longer be required to insure that his I/O requests quiesce before he issues the Checkpoint Macro.

The checkpoint data sets are written by BSAM or BPAM.

Permits writing of checkpoint data records on all DASD and Tape Devices that are supported by BSAM or BPAM.

OS/360 Sort Supports the new Checkpoint/Restart.

The user may request this facility for all Sort techniques by the Sort Control Cards.

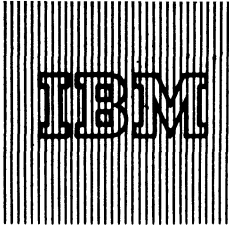
The Checkpoint/Restart Facility works in Conjunction with System Restart.

Jobs that are eligible for restart are automatically restarted during the System Restart procedure under operator control.

The user can specify 10 ABEND completion codes that are eligible for Automatic Restart.

Programs using the current Checkpoint Macro can run under the new facility without change.

Users may wish to make changes to their Checkpoint Macro to gain advantage of the new facility, such as the return of the CHECKID to the programmer. The user can control the generation of the CHECKID.



**OS/360 BTAM WITH BSC FOR S/360 TO 2780
USASCII AVAILABLE JUNE 1969**

Letter P67-77 (Item C) stated that an availability date would be announced for System/360 to 2780 BTAM USASCII. This support will be available June 16, 1969.

Customers affected should be notified.

**SYSTEM/360 MODEL 44/PS RELEASE 4
AVAILABILITY INCLUDES CHANGES TO
THE ASSEMBLER AND DISTRIBUTION MEDIUM**

System/360 Model 44/PS Release 4 is now available. In addition to several maintenance items, Release 4 includes the changes to the Assembler Program which permit assembly of the Commercial Feature instructions BXH, BXLE, LM, STM, and EX.

Effective with Release 4, the distribution medium will be on a Distribution Tape Reel (DTR). When requesting a system, users are no longer required to forward to PID or order a 2400 foot reel of magnetic tape.

The following materials will be distributed automatically to all current users of Model 44/PS:

One (1) DTR (9-track, 800 or 1600 bpi, odd parity, or 7-track, 800 cpi, odd parity) containing the update material. [Card only users will receive the update material contained on the update DTR in card form.]

Basic Program Material List.

Attachment 1 to the Basic Program Material List which contains a description of all APAR fixes included in this release and all outstanding APARs as of May 15, 1968.


John Fahey
Director of DP Marketing

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.**

Published by DP Sales Publishing Services, WTHQ



IBM World Trade Data Processing

**OS/360 MODEL 65 MULTIPROCESSING
EXTENDED TO SUPPORT 2420 AND
1600 BPI DENSITY TAPES**

The initial release of Model 65 Shared Main Storage Multiprocessing, to be available February 15, 1969, will support limited configurations of the 2816 Switching Unit Model 1. Use of the 2816 permits attachment of the 2803 Tape Control Model 2 with the new 2420 Magnetic Tape Unit Model 7 (with data transfer rates to 320 KB), and use of other IBM 2400 Tape Drives with 1600 bpi density.

Configurations permitted include up to 16 tape drives with a single path from each Model 65 CPU to the 2816. Symmetrical 2803 Tape Control Units (without the 2-channel switch feature 8100) meet the multiprocessor requirement for symmetrical addressing.

P68-2 letter and SRL C28-6671 provide additional details about the Model 65 multiprocessing support.


John Fahey
Director of DP Marketing

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.**

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Release Date: August 1, 1968
Distribution: All Areas

P68-109



**NEW VERSION OF PMS/360, A TYPE II PROGRAM,
HAS FOUR MAJOR IMPROVEMENTS**

Version 2 of System/360 Project Management System (PMS/360) is available (360A-CP-04X).

Significant improvements reflected by this version are:

- . The Cost Processor requires twenty fewer data sets than before, reducing Job Control Card requirements.
- . The overall performance has been significantly improved.
- . Fourteen additional cost reports are now included in this system.
- . The Network Processor allows for "time now" processing of incomplete activities.

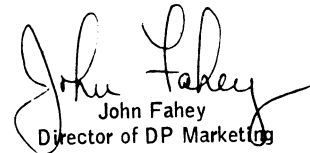
Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.

Current users will receive a letter announcing the availability of Version 2. Included with this letter will be a prepunched program order card that the customer should use in ordering the new version through the IBM branch office.

The new sales manual write-up is attached.


John Fahey
Director of DP Marketing

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Attachments (11): P 1, P 360A.7, P 360A.9, P 360A.23, P 360F.3, P 360G.5, P 360P.13, P 360P.15, P 360P.17, P 360P.19, and P 360P.21.

Release Date: August 2, 1968

Distribution: All Areas

P68-110

**TWO NEW TYPE II PROGRAMS --
LP/360 AND SSP/360 PL/I --
TO BE AVAILABLE SOON**

We are announcing two new Type II programs ...
LP/360 and a PL/I version of SSP/360.

LP/360 will solve linear programming problems under
DOS/360. It will be available March 31, 1969.

SSP/360 PL/I will provide the PL/I user with most of
the basic capabilities in earlier FORTRAN versions of
SSP/360 (see sales manual page P 360A.47). This pro-
gram will be available January 20, 1969.

Linear Programming System/360 (LP/360)

LP/360 will provide DOS/360 users with a simple,
easy-to-use and easy-to-understand means of solving
linear programming problems. This system will be the
S/360 Version of the widely accepted LP-MOSS/1130
program and will operate under DOS/360.

Description: Mathematical optimization is any mathe-
matical technique for determining the optimum use of
various resources - such as capital, raw materials, man-
power, plant, or other facilities - to attain a particular
objective (for example, minimum cost or maximum
profit) when there are alternate uses for the resources.
Linear Programming is the most widely used of these
techniques. It is used to allocate, assign, schedule, se-
lect, or evaluate the uses of limited resources for such
jobs as blending, mixing, cutting, trimming, bidding,
pricing, purchasing, planning, and the transportation
and distribution of raw materials and finished products.

LP/360 will solve 200 row problems on 32K System/
360s and 700 row problems on 64K and larger System/
360s.

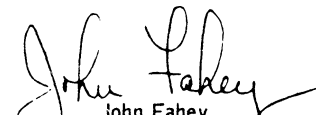
See the attached sales manual page (P 360A.48) for
details.

**System/360 Scientific Subroutine
Package for PL/I (SSP/360 PL/I)**

SSP/360 PL/I consists of a collection of mathematical
and statistical subroutines, input/output free, which
can be combined with a user's input, output, and com-
putational routines to meet his individual requirements.

This version of SSP/360 provides most of the capabil-
ities of the FORTRAN version including matrix and
polynomial operations, numerical quadrature, numeri-
cal differentiation, interpolation, approximation,
smoothing, solution of equations, special functions,
and statistical capabilities such as multiple regression,
canonical correlation, analysis of variance, discriminant
analysis, factor analysis, non-parametric statistics and
distribution functions.

For detailed information see the attached sales manual
page (P 360A.49).


John Fahey
Director of DP Marketing

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate
WT Program Libraries. Programs and associated material may be ordered
as indicated on pages 9013 through 9017, Programming Section, WT DP
Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above
either have been shipped (with additional copies available from the IBM
Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when
available. In the case of the latter, availability will be announced in the
Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it;
they will not receive it automatically nor will they necessarily receive a
prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local
conditions although DTR, disk packs, etc., may be indicated.
- [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 infor-
mation 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.**

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

2
Attachments [2]: [1 thru 3] P 360A.47, P 360A.48 and P 360A.49

Release Date: August 9, 1968
Distribution: DP managers, salesmen, and systems engineers ... FE managers

P68-111



Den Haag

**SYSTEM/360 DATA ACQUISITION
MULTIPROGRAMMING SYSTEM,
A TYPE II PROGRAM, IS AVAILABLE**

Version 1 Modification Level 0 of the System/360 Model 44 Data Acquisition Multiprogramming System (DAMPS) is available (360A-CX-20X). Version 2 will be available March 14, 1969 (see P68-52).

The system is particularly useful for scientific applications requiring quick response to on-line or real-time processes. Some examples of DAMPS applications are:

- hybrid computing
- instrument control
- data acquisition
- laboratory automation

In addition to the devices supported by the System/360 Model 44 Programming System, DAMPS supports 32 levels of the Priority Interrupt Special Feature and the IBM 1827 Data Control Unit for interfacing directly with scientific applications. The system will support the assignment of program tasks to various priority levels. Foreground program tasks can be dynamically scheduled for execution while there are no active priority interrupt levels.

The special features of DAMPS appear as extensions to the System/360 Model 44 Programming System. DAMPS user written applications can be prepared in both FORTRAN IV and Assembler Language.

The new sales manual write-up is on the reverse side.


John Fahey
Director of DP Marketing

Note to World Trade Readers

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

- (1) All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- (2) Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- (3) When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- (4) Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- (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.**

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Data Acquisition Multiprogramming System (DAMPS): DAMPS is designed to support the System/360 Model 44 in on-line scientific applications.

The system is particularly useful for real-time applications requiring quick response to multiple external processes. In addition to the devices supported by the System/360 Model 44 Programming Systems, DAMPS supports 32 levels of the Priority Interrupt Special Feature and the IBM 1827 Data Control Unit for interfacing directly with scientific applications. The System/360 Model 44 Programming System processors are compatible with DAMPS and are used in preparation of application programs. (360A-CX-20X)

Description: DAMPS operates in conjunction with the Priority Interrupt Special Feature and the IBM 1827 Data Control Unit or other real-time interface. The system is designed to interface directly with an on-line, real-time, scientific application.

The system supports the assignment of program tasks to the various priority levels, to be scheduled as immediate response to external events. Foreground tasks may be dynamically scheduled for execution while there are no active priority interrupt levels. The posture of the system, with respect to priority interrupts, can be altered with special subroutines provided. Foreground tasks use supervisor capabilities compatible with the System/360 Model 44 Programming System, including FETCH and LOAD, while priority response routines are provided with special capabilities which support a broad range of processing at a priority level. DAMPS user written application programs are prepared with the System/360 Model 44 Programming System. The features of DAMPS appear as extensions to the System/360 Model 44 Programming System.

Features: Special routines can be associated with an immediate response to an external event through the Priority Interrupt Special Feature ... foreground processing can be easily scheduled during a priority interrupt ... the user can dynamically adjust the programs used for responding to priority interrupts ... the capabilities associated with the System/360 Model 44 Programming System are available to the user for preparation and processing of real-time jobs ... a special, real-time channel scheduler is provided for channels dedicated to the processing of real-time data ... IBM 1827 Data Control Unit and tape subroutines are provided for use with the real-time channel scheduler ... the user, at his own discretion, can save and restore as little of the status of the computer at interrupt time as he deems necessary ... all the dynamic overlay capability available in the Model 44 Programming System is available to the real-time job.

Special Sales Information: DAMPS substantially reduces the programming effort required to implement real-time applications on the System/360 Model 44, by providing both the monitor framework for system operation and the operating system for system development. Because DAMPS is essentially an extension of the System/360 Model 44 Programming System, a high degree of compatibility is maintained with the latter.

Use: DAMPS is an operating system. All the processors of the System/360 Model 44 Programming System are available to prepare on-line, real-time, scientific application programs. The monitor structure to support real-time operation is also provided. The user is responsible for developing the application programs making use of these tools.

Customer Responsibilities: A thorough knowledge of the application ... a thorough knowledge of DAMPS ... any user modification of DAMPS ... installation, maintenance, and operation of all non-IBM equipment involved ... developing, testing, and operating application programs ... operation of the IBM hardware and systems ... programming any unsupported equipment.

Programming Systems: DAMPS is an extension of the System/360 Model 44 Programming System. The extensions were programmed in the Assembler language of the system. Application programs can be developed using the FORTRAN and Assembly languages of the system, with the special features appearing as additions to these languages.

Minimum System Requirements: System/360 Model 2044G, Multiplexer Channel (#5248), High Speed Multiplexer Channel (#4598), Priority Interrupt Feature (#5625), one System Input Device (1442 Model N1, 2501 Model B1 or B2, 2520 Model B1, 2540 Model 1, 2401 Model 1 through 6), one Output Listing Device (1403 Model 2, 3, 7, N1, 1443 Model N1 or any of the above-listed tape units), one Output Punching Device (1442 Model N2, 2520 Model B2 or B3, or any of the above-listed read punches, or any of the above-listed tape units), one Intermediate Storage Area (Second Single Disk Storage Drive [#6415], 2311 Disk Storage Drive, or two of the above-listed tape units), 1827 Data Control Unit configured as required, or some other real-time interface if additional systems programming is contemplated.

Notes on Configuration

1. Configuration restrictions which apply to the S/360 Model 44 Programming System Processors are also applicable to DAMPS.
2. External Interrupt is not supported. If the 1827 Comparator is wired for external interrupt, it must use the Priority Interrupt Special Feature.
3. Sharing channels between real-time and non-real-time devices will degrade the performance of the real-time channel scheduler.

Basic Program Material:

Publications -- Application Directory ... Program Description Manual (H20-0537) ... Operations Manual (H20-0538). If only form numbered manuals are required, order from Mechanicsburg -- not from PID.

Machine Readable*-- The standard system ready for operation is available in card form or on one 9-track (800 or 1600 bpi) or 7-track (800 cpi, Data Conversion feature required) DTR. No tape submittal is required; the DTR will be supplied by PID.

Optional Program Material:

Machine Readable*-- Source statements are available on one 2400 foot reel of magnetic tape, either 9-track (800 or 1600 bpi) or 7-track (800 cpi, Data Conversion feature required). Magnetic tape (2400') may be forwarded or ordered (the order card should accompany the tape order form).

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

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

Additional Program Support Material: System Description Manual (H20-0468)... System Manual (Y20-0211). Availability of assembly listings will be announced in a forthcoming PRL.

Reference Material: IBM System/360 Model 44 Programming System Concepts and Facilities (C28-6810)... IBM System/360 Model 44 Programming System Assembler Language (C28-6811)... IBM System/360 Model 44 FORTRAN IV Language (C28-6815)... IBM System/360 Model 44 Programming System Guide to System Use (C28-6812).

These manuals describe the system which DAMPS is an extension of and compatible with.

For further information contact your Regional DACS Center.



**1130/2250 GRAPHIC SUBROUTINE PACKAGE
ENABLES CERTAIN PROGRAMS TO DISPLAY
ALPHAMERIC OR GRAPHICS ON 2250**

The Graphic Subroutine Package (GSP), now available (1130-LM-008), enables a program written in either 1130 FORTRAN IV or 1130 Assembler Language to display alphameric information or graphic forms on the 2250 screen and to communicate with the 2250 operator.

With the GSP an 1130 FORTRAN programmer can use the 2250 Display Unit Model 4 as an input/output device under the 1130 Disk Monitor System, Version 2.

The GSP subroutines are accessed by means of the CALL statement and provide:

Image Management - Subroutines to initialize graphics, define graphics elements, modify these elements, and terminate graphic activity. Included are subroutines which can alter the visibility (display/non-display) and light pen control (detect/non-detect) of graphic elements.

Image Generation - Subroutines to generate the basic display items (line, points and characters) as the content of graphic elements. Scissoring and scaling is performed as specified by the user's program.

Program - Operator Communication - Subroutines to establish attention sources and process attentions, enter data with the light pen, support the alphameric keyboard, and to control the programmed function keyboard.

Minimum Requirements ... A 16K 1131 Central Processing Unit at EC Level 419689 ECA 38. The 1133 Multiplexer at EC Level 420407 ECA 5.

Basic Program Material ...

SRL Publication - IBM 1130/2250 Graphic Subroutine Package for Basic FORTRAN IV, C27-6934-1.

Documentation - Program Material List and an attachment to users.

Machine Readable - Object Decks provided in card form.

Ordering Procedure ... See 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.

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Release Date: August 15, 1968
Distribution: All Areas


John Fahey
Director of DP Marketing



**DOS/360 IMPROVED BY RELEASE 18
AND READY FOR SHIPMENT WEEK
ENDING AUGUST 23**

DOS/360 Release 18 provides your customer with:

*Two new supervisor performance options in the
Systems Control and Basic IOCS component*

Improvements in Utility Support - Groups 2 and 3

*QTAM's additional support for 2740 Model 2
attached to a 2701, 2702 or 2703*

Basic PL/I's new capabilities

Normal maintenance for APARs

Use DOS/360 Release 18 to upgrade your customers TP and multiprogramming capability. Order now; shipments begin week ending August 23.

A new DOS/360 brochure, 520-2103, is now available from Mechanicsburg. Use this sales tool to sell the full advantages of DOS/360.

Details and other information are included on the inside pages; program material and ordering instructions are on the back page.

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.**


John Fahey
Director of DP Marketing

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Release Date: August 15, 1968
Distribution: All Areas

P68-114

SYSTEM CONTROL AND BASIC IOCS, 360N-CL-453

Two new supervisor performance options are now available in the System Control and Basic IOCS component. One option, Physical Transient Overlap, allows task selection in a multiprogramming environment during FETCH/LOAD and Error Recovery I/O time. The other option, Console Buffering, provides immediate return to the caller after he has issued a WRITE I/O to SYSLOG.

The Physical Transient Overlap option is specified as a keyword operand (PTO=YES) in the FOPT macro at supervisor generation time. This operand is valid only if multiprogramming is specified in the SUPVR macro. The selection of the Physical Transient Overlap option allows the system to select another task during the time that FETCH/LOAD and ERP are performing Input/Output operations.

The Console Buffering option is also specified as a keyword operation (CBF=n) in the FOPT macro at supervisor generation time. From one to nine buffers may be specified. Console Buffering allows the overlap of CPU processing time with write operations to SYSLOG by satisfying the requester's WAIT immediately rather than at actual I/O completion. Only those messages that meet the following criteria will be buffered:

1. The message does not exceed 80 characters.
2. Data and/or command chaining is not performed.
3. The CCB associated with the operation does not indicate the acceptance of unrecoverable I/O errors, posting at device end, or user error routines.
4. The CCB does not request sense information.

Utilities (Group 2), 360N-UT-462

The DOS/360 Copy and Restore utility programs are modified to accept the 2321 Data Cell Drive as an input device to the Copy program and an output device for the Restore program. These programs now permit the user to transfer a file or a volume of data from disk or data cell to tape, and to restore that data to the same type of device at a later date. The restored records occupy areas of the disk pack or data cell identical to the areas occupied by the original file. Consecutive, Indexed Sequential, and Direct Access methods of file organization are supported. Both the Copy and Restore

programs write checkpoint records, enabling the programs to be restarted at the beginning of a new extent or after processing 80 tracks of an extent. The checkpoint file may be assigned either to disk or to tape. An additional option permits copying IPL records during a copy file job. The output created by the DOS/360 Copy Program is designed for use by the DOS/360 Restore program only.

Utilities (Group 3), 360N-UT-463

The programs added to the Group 3 Utilities are:

Initialize Data Cell -- Prepares from one to five cells for use on an 2321 Data Cell Drive. The preparation of each of these data cells consists of VTOC label checking, at which time the user has the option to delete any unexpired files or cancel the job if there are files on the cell that he wishes to keep. Surface analysis is performed on each track, and alternates are assigned for any defective tracks. A five-byte binary home address, a track descriptor record (RO), two dummy IPL records (R1 and R2), and a VOL1 label are then written on subcell 0, strip 0, cylinder 0, and track 0. The VTOC is then written wherever the user indicates.

Assign Alternate Track -- Assigns an alternate track on an IBM 2321 Data Cell at a time other than data cell initialization. An alternate track may also be unassigned with the data being reinstated to the primary track.

QTAM, 360N-CQ-470

QTAM adds the following additional support:

The IBM 2740 Model 2, with or without the Buffer Receive Feature (1499), is supported attached to an IBM 2701, 2702, or 2703. Support of the IBM 2740 Model 2 with the Buffer Receive Feature requires the Timer Feature with the timer allocated to the Foreground 1 partition. The user may still use the GETIME macro in all partitions.

Also included in QTAM is support for terminals available in World Trade marketing areas.

BTAM, 360N-CQ-469

BTAM now includes support for terminals available in World Trade marketing areas.

PL/I, 360N-PL-464

The new capabilities available in Basic PL/I are:

- . The PL/I compiler now supports the 2314 Direct Access Storage Facility at compilation and object time.
- . The 2321 Data Cell Drive is now supported at object time in the same manner as the IBM 2311 with the exception of UNBUFFERED files.
- . The functions of the Indexed Sequential File Management System are now supported by the use of Basic PL/I statements rather than Assembler Language macros.
- . Unlabeled tape files may now be created without a leading tape mark.
- . 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 control format items are now supported for all STREAM files, thus providing the capability to position any STREAM file.
- . More than three extents may now be used on REGIONAL files.
- . Performance and core requirements of Decimal Arithmetic have been improved.
- . The efficiency of the object code produced by the compiler to handle structure operations has been improved.
- . Additional keywords for Indexed Sequential Files have been added to the ENVIRONMENT attribute.
- . The priority of the concatenation (CAT) has been changed to make it higher than that of the infix + and lower than that of the compare operations.

PTF Distribution

PTF's will be distributed with this release of DOS/360. Complete information on PTF distribution format and applicability is available to IBM field personnel via RETAIN.

PTF's represent changes which have not yet been integrated into the system, and whose testing has been limited. No PTF should be applied until an applicable programming problem has been encountered. It is the responsibility of Field Engineering personnel to control selection and application of PTF's to customer systems.

The distribution of PTF's with this release does not imply that IBM will adopt a policy or practice of PTF distribution with future releases of DOS/360 or with any other Type I programming support.

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 TNLs N24-5356, <u>N24-5365</u>	C24-5022-4
Concepts and Facilities TNLs N24-5358, <u>N24-5277</u>	C24-5030-4
Performance Estimates TNL N24-5367	C24-5032-6
Systems Generation and Maintenance	C24-5033-5
Data Management Concepts	C24-3427-3
System Control and System Service Programs TNL N24-5355	C24-5036-3
Supervisor and Input/Output Macros TNL N24-5368	C24-5037-4
Basic Telecommunications Access Method TNLs N30-5509, <u>N30-5515</u>	C30-5001-5
Utility Macros Specifications TNL N24-5354	C24-5042-2
Vocabulary File Program for the 7772 Audio Response Unit	C27-6924-2
Utility Programs Specifications TNL N28-2328	C24-3465-4
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 N26-0582, <u>N26-0587</u>	C24-3414-5
COBOL Programmers Guide	C24-5025-4
COBOL Language Specifications (Note - SRL C24-3433-3 plus TNLs N24-5188, N28-0232, N28-0237 and N28-0241 may be used in lieu of the SRL C24-3433-4 plus TNLs N28-0241, N28-0244)	C24-5038-2
FORTTRAN IV Programmers Guide	C28-6629-1
FORTTRAN IV Language	C26-3570-5
Report Program Generator SRL C26-3570-4 plus TNLs N21-5095, N21-5055, N21-5077, N21-5086, N21-5090 and N24-5195 may be used in lieu of the SRL C26-3570-5 plus TNL N21-5095	C24-5062
Autotest Specifications	C30-5004-2
QTAM Message Control Program	C30-5003-3
QTAM Processing Program Services	C28-8202
Basic PL/I Reference Manual TNLs N33-9015, <u>N33-9031</u>	C24-9005-3
PL/I Programmers Guide	C24-5059
PL/I DASD Macros TNL N24-5301	C24-5066-2
On-Line Test Executive Program Specs and Operating Guide	

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... APAR Information and Attachment III - PTF Information.

Machine Readable

For 2311 Residence -- DOS/360 (without the Teleprocessing components) is distributed on one 2400 foot reel of magnetic tape, either 9-track (800 or 1600 bpi), or 7-track (800 cpi, Data Conversion feature required) or one 1316 Disk Pack.

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

The reels of magnetic tape are in 1316 Disk Pack restore form.

The DOS/360 data is preceded by an initialize 2311 Utility Program and a Restore Tape-to-Disk program.

For 2314 Residence -- DOS/360 (Including Teleprocessing components and Assembler F) 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).

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 (1316 only) 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 - 2311 (6K)	360N-SV-474
(8K)	360N-SV-475
(10K)	360N-SV-473
2314 (8K)	360N-SV-486
(10K)	360N-SV-487
(12K)	360N-SV-488
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 IOCS	360N-IO-478
Autotest	360N-PT-459
Assembler	360N-AS-465
Assembler F	360N-AS-466
COBOL	360N-CB-452
COBOL DASD Macros	360N-CB-468
FORTTRAN 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
Basic PL/I	360N-PL-464*
OLTEP	360N-DN-481

* Changed with Release 18.

DOS/360 is distributed in one of 6 formats: 2311-Resident systems with a 6, 8, or 10K Supervisor, and 2314-Resident systems with an 8, 10, or 12K Supervisor.

The System Control and Basic IOCS components and one of the six 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 one of the following supervisors:

Supervisor - 2311 (6K)	360N-SV 474
(8K)	360N-SV-475
(10K)	360N-SV-473
2314 (8K)	360N-SV-486
(10K)	360N-SV-487
(12K)	360N-SV-488

If no supervisor is indicated on the Program Order Card, PID supplies the 2311-Resident 6K Supervisor, 360N-SV-474.

DOS/360 for 2311 residence 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 Teleprocessing components (BTAM, QTAM, and the Vocabulary File Utility Program, including the Sample Program, VFU1 and Assembler F), which are contained in the second volume.

If the Teleprocessing components and Assembler F are required on 2311 residence, two volumes must be supplied to PID; if they are not required, only one volume need be supplied.

For 2314 residence the entire DOS/360 system (except Autotest) is supplied on two reels of magnetic tape. The 2314 residence is not available on Disk.

Current Users -- Current users will receive a prepunched Program Order Card and a letter announcing the availability of DOS/360 Release 18. This letter instructs them to order this Release through the Branch Office, using the prepunched card to order either the Maintenance Package or the Replacement System.

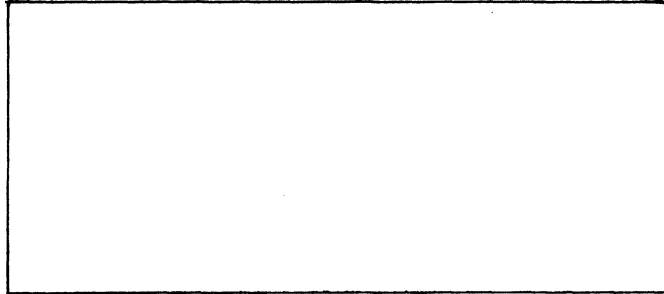
The Maintenance for Release 18 is available as follows:

For 2311	One 2400 foot reel of magnetic tape or one 1316 Disk Pack.
	If maintenance is required for the Teleprocessing components and Assembler F, on additional 2400 foot reel of magnetic tape or one additional 1316 Disk Pack is required.
For 2314	Two 2400 foot reels of magnetic tape.
	Maintenance for 2314 is not available on disk.

When ordering the Release 18 maintenance package or replacement system submit the required tape(s) or disk pack(s). On the back of the prepunched order card indicate either "Maintenance for 2311" or "2314", or "Replacement DOS", and specify the following: "9-track Magnetic Tape @800 bpi" or "9-track Magnetic Tape @1600 bpi" or "7-track Magnetic Tape @800 cpi" (Data Conversion feature required).

Complete ordering instructions are provided with the letter to users.

Additional Comments -- Maintenance package 18 is available for 60 days. It will be obsolete October 15, 1968.



DP SALES MANUAL -- PROGRAMMING SECTION CHECK LIST

STATUS AS OF P68-115

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

DP Sales Publishing Services
IBM World Trade Corporation
240 Westchester Ave.
White Plains, New York 10604

Requests for more than twenty pages require management approval.

Table with columns for programming type, page number, date, revision, and page reference. Includes sections for Programming, System/360 Application Programs, BOS/360, System/360 Conversion Programs, 360/44, 360/67, TOS/360, DOS/360, BPS/360, OS/360, 360/20, 1130, 1800, and 9000.

FOR IBM INTERNAL USE ONLY

Cancels: P68-94
Attachments [17]: P 3, P 5, P 7, P 9, P 11, P 13, P 360A.47, P 360A.49, P 360M.1, P 360M.3, P 360N.7, P 360N.9, P 360N.11, P 360T.7, P 1130.3, P 1130.5, P 9023.
Release Date: August 29, 1968
Distribution: All Areas



NEW VERSION OF RAX (TYPE II) PROVIDES FILE INPUT-OUTPUT CAPABILITIES TO TERMINAL USERS

Version 3 of System/360 Remote Access Computing System (RAX), a time-shared, remote computing system, will be available October 25, 1968.

This version provides the new functional capabilities of file input-output for terminal users . . . SAVEing object program modules from terminals . . . placing program output in a SAVE-file via a FORTRAN WRITE statement . . . SAVE-PURGE facility for 2540.

Terminal users of RAX will be able to read and write permanent or temporary files. Multiple users will be able to access the permanent files simultaneously. The user will be able to specify the file characteristics (logical record size, file name, volume name, disposition, etc.) by using a /FILE terminal command.

Configuration Support . . . A minimum machine size of 128K will be required to use the file input-output capability.

Maximum configuration supported will be the same as supported by RAX Version 2 with the following extensions: up to 3 selector channels . . . up to 64 disk and tape units (maximum of 4 tape units).

To implement the terminal file input-output capability and maintain system's performance, the user will need the maximum number of 1050 terminals supported by RAX Version 3 - 10 terminals for a 64K byte machine . . . 30 for a 128K byte machine . . . 63 for a 256K byte machine.

The capabilities of SAVEing object modules, SAVEing program output, and SAVE-PURGE form 2540 will be supported on the 64K byte system.

Additional Program Support Material . . . Application Description Manual (H20-0545).

For more information on RAX, see the Version 2 write-up on P 360A.22 in the sales manual. For further information contact your Regional Scientific Marketing Manager.

Note: Version 2 of RAX will be obsoleted when Version 3 is available. The sales manual page will be updated at that time.


John Fahey
Director of DP Marketing

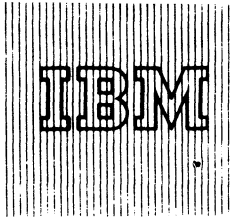
Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.**

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY



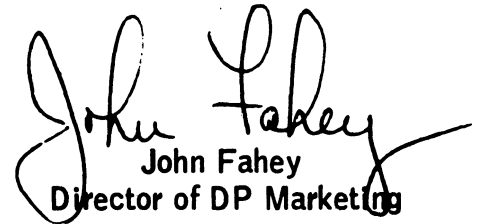
IBM World Trade Data Processing

P68-116A

IBM SYSTEM/360 MODEL 44
PROGRAMMING SYSTEM DISK
RESIDENT ALGOL COMPILER

The availability date of the Model 44 ALGOL
Compiler originally announced in program letter
P95-A as October 1, 1968 has been changed
to March 1, 1969.

All other information in program letter P95-A
remains the same.


John Fahey
Director of DP Marketing

Release Date: August 27, 1968

Distribution: All Areas

P68-116A



PHASE 2 OF SHAS (TYPE II) INCLUDES FOREGROUND MONITOR SYSTEM (TELEPROCESSING)

Phase 2 of the Shared Hospital Accounting System (SHAS) is now available. It consists of the Foreground Monitor System (Teleprocessing) and will be sent automatically to current users as Version 1 Modification Level 1 of SHAS. Availability of Phase 1 of SHAS, which consists of the accounts receivable application in a non-teleprocessing environment, was announced in P68-95.

The SHAS programs provide the on-line facility for applications where immediacy of the information is significant (entry of charges, cash payments, request for demand bills, etc.). For other applications, receivable statement writing, etc., the central facility (with its high speed printer) is used directly.

Current users will receive:

1. Application Directory addition pages 7 and 8 (2 pages)
2. Technical Newsletter (N20-1099) to Program Description Manual (H20-0533)
3. Teleprocessing Operations Manual (H20-0550)
4. The source program modules and catalog control cards, cataloged file descriptions, model job control statements, and sample problem for teleprocessing capability on one nine-track (800 or 1600 bpi) or one seven-track (800 cpi) (Data Conversion feature required) Distribution Tape Reel (DTR).

The Teleprocessing System Manual for this program will be available from the IBM Distribution Center, Mechanicsburg, on September 16, 1968. Preliminary copies may be obtained through your Medical Industry Marketing representative.

Availability of the remaining phase of SHAS is:

Phase 3 - October 30, 1968

- Patient Billing System
- Billing Inquiry
- General Ledger System
- Cost Allocation Programs
- Job Accounting Programs

The new sales manual write-up is printed on the back. Changes are bracketed for convenient reference.

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.**

Published by DP Sales Publishing Services, WTHQ



John Fahey
Director of DP Marketing

FOR IBM INTERNAL USE ONLY

Shared Hospital Accounting System (SHAS): SHAS provides hospital accounting for the multiple hospital environment. The member hospitals are

connected to the central computer facility by Teleprocessing terminals. The accounting applications are Patient Billing, Accounts Receivable, and General Ledger. Accounting for both inpatients and outpatients is provided. In addition to Medicare cost allocation, SHAS determines Medicare insurance proration facilitating the preparation of the Medicare Inpatient and Outpatient billing forms. The design of SHAS facilitates the addition of clinical or administrative user written programs. SHAS programs are designed to provide better administrative and operational control and reduce the ever increasing clerical load associated with hospital administration. (360A-UH-11X)

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

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

Features:

General

- Input Edit Tables and Report Format Control provide flexibility at the user's option to tailor the input and output for each application.
- Hospital Profile provides for individual hospital processing decisions and parameters tailoring SHAS program processing to each hospital on the system.
- The SHAS Executive provides the capability for processing foreground and background programs. Several terminals can transmit and receive data concurrently through foreground programs while batch applications are processed by background programs.
- Job Accounting statistics including terminal and CPU utilization are logged internally and are available in report form.

Security is attained through input and data set identifications to limit access of data. Each hospital is permitted to inquire into or modify its data only.

Executive

Management communications lines ... handle the timer ... handle interrupts (e.g., demand bill request and inquiries) ... queue messages ... manage input/output.

Patient Billing

Setting up patient's files upon admission to hospital ... central pricing of hospital services ... charge posting ... census ... insurance proration (including Medicare) ... record cash payments ... Daily Balance Forward printed at the hospital ... inquiry on the status of patient accounts (detail and summary patient bills) ... automatic preparation of patient bills ... automatic printing of insurance statements ... automatic transfer to accounts receivable ... accumulation of revenue and usage data for Medicare requirements.

Accounts Receivable

Preparation of statements ... recording cash payments ... receivable accounts stored either off-line or on-line ... inquiry on the status of receivables ... on-line account validity check for off-line receivables ... listing of accounts which require a final diagnosis ... listing of receivables by financial class ... aged trial balance ... listing of accounts which have insurance receivables ... listing of accounts which fail to meet installment payments ... consolidated statement for family billing ... bad debt reports.

General Ledger

Ledger posting ... Trial Balance ... Comparative Income and Expense Report ... Balance Sheet ... Operating Statement ... cost allocation methods suitable for Medicare - stepdown and double apportionment.

Special Sales Information: Designers of specific teleprocessing line configurations should consider the impact of increasing memory requirements for DOS Supervisor, QTAM, or compiled COBOL modules.

The application programs include the provision to read and write at the central facility all input and output data that is normally transmitted from terminals. This feature is applied to implement systems without Teleprocessing capabilities.

Special Installation Information: SHAS is a powerful, sophisticated, and complex hospital data processing system. Customers involved with SHAS installations must have a thorough working knowledge of DOS and COBOL, and of QTAM if the installation will have teleprocessing. The flexibility features (e.g., hospital profiles) that let SHAS serve the individual needs of each hospital also increase its complexity of operation and length of required learning time.

In considering the installation and conversion effort and support, a separate system is being installed in each hospital using the system - not just one central computer. Each hospital becomes a computer system user and an IBM customer. Data preparation must be carefully analyzed by the central SHAS site to ensure that proper controls are maintained. Accounts Receivable should be installed first to provide a base of experience with SHAS. These programs use a small number of master files, have a low user urgency if daily running may be delayed, and provide a logical entry into the patient accounting use of SHAS. Special attention should be focused on the preparation of accurate A/R data files for entry into the system. A/R volumes also should be accurately determined in advance to make sure file space is adequate. A non-Teleprocessing system installed first will give the user SHAS experience before installing terminals in the hospitals.

SHAS proposals involving multiple users or Teleprocessing should be reviewed by Systems Assurance.

Use: The SHAS system processes input data against patient and account master files. These files are established through procedures supported by the SHAS programs. Patient admissions and dismissals, charges, payments, and accounting transactions are processed for multiple or single hospitals. Teleprocessing provides an alternate input method and an alternate output for certain operational reports and inquiries. Volume output reports are printed centrally in a Teleprocessing system. File update and report jobs are controlled by the central operator through a higher level function language (series of cataloged job steps).

Balance and edit, maintenance, and error reporting programs process data for all applications. Update programs in each application maintain and back-up tape and Indexed Sequential disk master files. Report programs can select data for individual hospitals from billing and receivables tape and disk files. The Background Monitor supports function initiation and uniform restart capabilities for operator control. The Teleprocessing Foreground Monitor is assembled from user Teleprocessing network specifications.

Customer Responsibilities: A thorough understanding of the system (by personnel in the central facility) before installation ... a thorough understanding of DOS and COBOL, including operating experience with DOS ... a thorough understanding of QTAM for installations with Teleprocessing ... selection of terminal site ... creation of master files ... terminal operation manuals for clerical personnel affected ... preprinted forms for certain reports ... customize formats specified by the user by means of SHAS Input Edit Tables and Report Format Control modules ... create hospital profile parameter records ... make necessary arrangements for communication lines and equipment.

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

Minimum Teleprocessing System Requirements: 2030F Processing Unit (64K), Decimal Arithmetic (#3237), Floating Point Arithmetic (#4427), Interval Timer (#4760), Selector Channel - first (#6960), Selector Channel - second (#6961), Storage Protection (#7520) ... 1052 Printer-Keyboard with appropriate attachments ... 2821 Control Unit Model 1, 100 lines per minute Printer Adapter (#3615) ... 1403 Printer Model N1 ... 1416 Interchangeable Train Cartridge ... 2540 Card Read Punch Model 1 ... 2841 Storage Control Model 1 ... three 2311 Disk Storage Drives Model 1 ... 2415 Magnetic Tape Unit and Control Model 1 ... 2701 Data Adapter Unit Model 1, Terminal Adapter - Type 1 (#4645) or 2702 Transmission Control Model 1, Terminal Control - Type 1 (#4615), Selective Speed (#9684), and IBM Line Adapters as required. System control terminal at the central computer site includes 1051 Control Unit Model 2, First Printer Attachment (#4408) ... 1052 Printer-Keyboard Model 2.

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

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

Minimum Non-Teleprocessing Machine Configurations (formerly announced as the CARE Accounting System): A 2030 Processing Unit Model E (32K) with Decimal Arithmetic (#3237), Floating Point Arithmetic (#4427), Interval Timer (#4760), Selector Channel - first (#6960), Storage Protection (#7520) ... 1052 Printer-Keyboard with appropriate attachments ... 2821 Control Unit Model 1 ... 1403 Printer Model 2 ... 2540 Card Read Punch Model 1 ... 2841 Storage Control Model 1 ... three 2311 Disk Storage Drives Model 1 ... one 2415 Magnetic Tape Unit and Control Model 1.

A 2025 Processing Unit Model E (32K) with Floating Point Arithmetic (#4427), Interval Timer (#4760), Selector Channel (#6960), Storage Protection (#7520) ... Integrated 1403 Attachment (#4590) ... 1403 Printer Model 2 ... Integrated 2540 Attachment (#4595) ... 2540 Card Read Punch Model 1 ... Integrated 2311 Attachment (#4598) ... three 2311 Disk Storage Drives Model 1 ... one 2415 Magnetic Tape Unit and Control Model 1.

Basic Program Material for Phase 1 and 2: (Accounts Receivable, Background Monitor, and Teleprocessing)

Publications -- Application Directory ... Program Description Manual (H20-0533), Technical Newsletter to H20-0533 (N20-1099) ... Operations Manual (H20-0534) ... Teleprocessing Operations Manual (H20-0550).

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

Machine Readable -- One 9-track 2400' reel of magnetic tape (800 or 1600 bpi) or one 7-track 2400' reel of magnetic tape (800 cpi) Data Conversion feature required. The machine readable material contains the source program modules and catalog control cards, model job control statements, and data set file descriptions for compiling and cataloging into the core image and source library for program operation. Also included is a sample problem with control cards for execution.

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.

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

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

Additional Program Support Material: Teleprocessing Systems Manual (availability and form number will be announced in a PRL) ... Systems Manual (Y20-0215-0) ... Application Description Manual (H20-0302-1).

For further information contact your Medical Industry Marketing Representative.



IBM World Trade Data Processing

MAIN STORAGE HIERARCHY SUPPORT TO BE AVAILABLE AS OPTIONAL FEATURE OF OS/360 FOR 2361 MODELS

Main Storage Hierarchy Support for the 2361 Core Storage (LCS) Models 1 and 2, available June 15, 1969, is an optional feature supported under PCP, MFT (Version 2) and MVT. Main storage will be divided into two hierarchies: LCS and Processor Storage, and either will be selectable under user control.

Performance:

With Main Storage Hierarchy Support LCS may improve system performance by

- using larger data sets and thus reducing overlay requirements.
- easing program complexities with increase in main storage size.
- improving multiprogramming by using LCS for appropriate program residence thus increasing number of concurrently executable jobs.

Features:

- New system defining parameters to permit initial allocation of main storage in either or both hierarchies.
- Dynamic storage allocation from either hierarchy.
- Dynamic program loading into either hierarchy.
- Scatter loading within or across hierarchies.

Equipment Configuration:

No additional equipment will be required. Because of component restrictions I/O transfer operations between System/360 Models 50, 65, 75 and the 2361 can cause overrun. For overrun considerations in the Model 50, see SRL A22-6898. On the Models 65 and 75 data transfer from the 2314 and 2303 to the 2361 may result in overrun and cause an I/O retry. Transmission between 2301 and 2361 is not possible.

SRL Publication:

Introduction to Main Storage Hierarchy Support - to be available September 1968. Availability and form number will be announced in a PRL.

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.**

Published by DP Sales Publishing Services, WTHQ



John Fahey
Director of DP Marketing

FOR IBM INTERNAL USE ONLY

Release Date: August 30, 1968
Distribution: All Areas

P68-118



IBM World Trade Data Processing

CONTENTS

Model 20 Wholesale IMPACT is available.

Version 3 of Remote Access Computing System will be available October 25, 1968.

SYSTEM/360 MODEL 20 WHOLESALE IMPACT (TYPE II) IS NOW AVAILABLE

Model 20 Wholesale IMPACT (360V-DW-06X) is available.

The IBM IMPACT (Inventory Management Program and Control Techniques) system of scientific inventory management provides the warehouse distributor (or any organization having identical inventory control characteristics) with the information of "when" and "how much" to buy for each inventory item controlled by the system.

Wholesale IMPACT, for five years a significant Type II application in the Distribution Industry, continues to prove its worth every day. IMPACT has been rated by attendees at IBM Distribution Customer Executive Classes during the past year as the most significant topic on the agenda. A proven performer! The release of this program should now open up new markets, provide new account opportunities.

The Service Point and Variable Interval Allocation, and Allocation Print operating programs and macro routines are provided on the Model 20. They are identical to the System/360 Wholesale IMPACT Program Library in terms of scope, names of programs, and input/output format and content. The only difference between the two programs should be noted; initialization must be accomplished on a Model 30 using the System/360 Wholesale IMPACT Program Library (360A-DW-05X).

Education ... Classes for customers and IBMers are conducted on a continuing basis. Eight such schools are scheduled through December 31, 1968 (see July Consolidated Industry Education Schedule newsletter).

A new sales manual write-up is printed on the back; changes are bracketed for convenient reference.

NEW VERSION OF RAX (TYPE II) PROVIDES FILE INPUT-OUTPUT CAPABILITIES TO TERMINAL USERS

Version 3 of System/360 Remote Access Computing System (RAX), a time-shared, remote computing system, will be available October 25, 1968.

This version provides the new functional capabilities of file input-output for terminal users ... SAVEing object program modules from terminals ... placing program output in a SAVE-file via a FORTRAN WRITE statement ... SAVE-PURGE facility for 2540.

Terminal users of RAX will be able to read and write permanent or temporary files. Multiple users will be able to access the permanent files simultaneously. The user will be able to specify the file characteristics (logical record size, file name, volume name, disposition, etc.) by using a /FILE terminal command.

Configuration Support ... A minimum machine size of 128K will be required to use the file input-output capability.

Maximum configuration support will be the same as supported by RAX Version 2 with the following extensions: up to 3 selector channels ... up to 64 disk and tape units (maximum of 4 tape units).

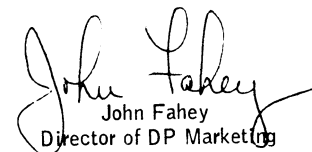
The maximum number of 1050 terminals supported by RAX Version 3 which will provide for implementation of the terminal file input-output capability and maintain system's performance is 30 terminals for a 128K byte machine and 63 for a 256K byte machine.

The capabilities of SAVEing object modules, SAVEing program output, and SAVE-PURGE from 2540 will be supported on the 64K byte machine which can support a maximum of ten 1050 terminals.

Additional Program Support Material ... Application Description Manual (H20-0545).

For more information on RAX, see the Version 2 write-up on P 360A.22 in the sales manual. For further information contact your Regional Scientific Marketing Manager.

NOTE: Version 2 of RAX will be obsoleted when Version 3 is available. The sales manual page will be updated at that time.



John Fahey
Director of DP Marketing

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Cancels: P68-116
Release Date: August 30, 1968
Distribution: All Areas

P68-119

Wholesale IMPACT: This program offers Model 20 users the opportunity to use the IMPACT system of inventory management now in wide use among S/360 and 1400 systems users. The Model 20 IMPACT library contains only the operating programs (SVA and AP) and MACRO routines. Initialization is accomplished on a Model 30 using the Wholesale IMPACT Program Library (360A-DW-05X). The program order number is 360V-DW-06X.

Description: The IBM IMPACT (Inventory Management Program and Control Techniques) system of scientific inventory management provides the warehouse distributor (or any organization having identical inventory control characteristics) with the information of "when" and "how much" to buy for each inventory item controlled by the system. It does this through the means of probability science in conjunction with the many factors influencing the distributor's inventory control decisions. Factors considered include lead time, lead time variability, forecast of demand, forecast error, service desired, inventory carrying costs, purchasing/receiving costs, discount structures, minimums, maximums, shelf lives and pack sizes. The "when" and "how much" answers find the most efficient balance between the cost of carrying inventory, cost of purchasing and receiving, discounts realized, and customer service requirements.

The System/360 Model 20 Wholesale IMPACT Program Library (with its associated education classes and documentation) enables the distributor who has an IBM System/360 Model 20 Data Processing System to successfully operate an IMPACT inventory management system with minimum effort and expense. Programs and/or macro routines are included that perform in the functional areas of forecasting, reviewing, and the control of both independent and joint replenishment ordering.

Features: This application programming system includes two complete programs, plus a group of macro routines. The two Model 20 programs (SVA, AP) are the same as those in the previously developed System/360 Wholesale IMPACT Program Library in terms of scope, names of programs, and input/output format and content.

The System/360 Model 20 Program Library performs the same functions as the comparable components of the System/360 Wholesale IMPACT Program Library, which are forecast demand and measure forecast error, including demand filter and tracking signal tests ... calculate the adjustment factor for lead time variability, and time to the Beta power ... calculate maximum available stock level for a specified shelf life limit ... calculate order points or peek points ... calculate economic order quantities (with an option to include safety stock in the calculation) ... rotate base index values to sequence and format required by the ordering program ... determine when to order items and item groups to meet service objectives ... calculate the product mix to be ordered within an item group that will meet both service objectives and limitations on total order size ... macro routines which assist the user in the preparation of distribution-by-value reports and in the creation of his operating programs.

The following programs and macro routines are provided in the S/360 - Model 20 version of Wholesale IMPACT:

Macros

DBV1	Distribution-by-Value, Pass 1
DBV2	Distribution-by-Value, Pass 2
FCST	Forecast
LBTA	Lead Time Variability and Time to Beta Power
MAXA	Maximum Available
OPPP	Order Point and Peek Point
EOQ	Economic Order Quantity
SRB1	Smooth and Rotate Base Index
INVLV	Inventory Level Evaluation
GOTO	Provides Standard Entry Into and Exit from other IMPACT Macros

Programs

SVA	Service Point and Variable Interval Allocation
AP	Allocation Print

Flexibility in the choice of input and output is provided. Input and output of main data flow in programs may be disk or tape, as specified by the user at assembly time. At run time the user may specify card input in lieu of tape or disk and/or may specify card output in addition to tape or disk. The macro routines are device independent.

Use: The program library includes operating programs and macro routines. Initialization programs which are designed to be used once to set up an IMPACT System, then as required to meet changing conditions, are not part of the Model 20 library. The user must provide time on an S/360 Model 30 or larger to initialize the system using the initialization programs in the System/360 Wholesale IMPACT Program Library (360A-DW-05X). The output from these initialization programs is completely compatible with the Model 20 operating programs and macro routines.

Special Sales Information: To set up and operate a Wholesale IMPACT system, it is necessary to initialize the system at the outset, and re-initialize periodically thereafter.

The Model 20 Wholesale IMPACT Program Library does not include the programs necessary to initialize a system. Where Model 20 IMPACT is being proposed, the prospective user must have a clear understanding of the implications of the requirement to initialize elsewhere.

The initialization programs available in the S/360 Wholesale IMPACT Program Library (360A-DW-05X) perform the following functions:

1. Editing input to proper format.
2. Selection of the forecast model for each item and the initial values for each forecast model parameter.
3. Determination of ordering strategy and depending upon the strategy selected, calculation of either the order quantity or order frequency.
4. Determination of the safety factor (if required).
5. Estimation of the effect on inventory and workload of applying the rules developed.

The requirement for the use of these programs for initial implementation and periodic re-initialization should be considered separately.

Typically, a user who is implementing the IMPACT system for initial implementation will use all of the initializing programs. The requirement for time on a Model 30 or larger system would be of the order of 1 to 3 hours per 1,000 items depending upon the vendor/item mix and the number of re-runs necessary. The user may elect to perform the editing function within his own system. In addition, the user may bypass the programs which calculate the safety factor and estimate the effect of an IMPACT system on an inventory. If the programs which perform these functions are bypassed, the requirement for time to initialize is significantly reduced.

The re-initialization of a Wholesale IMPACT system may involve the use of the ordering strategy program only. The approach adopted will depend upon user policy and how exceptions, which occur during the operation of the system, are handled. It would be reasonable to expect that 15 to 30 minutes of system time per 1,000 items would be required to perform the cost analysis and determine ordering strategy. The time required will, of course, be a function of the vendor/item mix.

Education - two courses are available --

1. An outline for a two-day executive class designed to demonstrate basic principles of inventory management and methods of implementing these techniques with IMPACT. All materials for this class are available from the IBM Distribution Center, Mechanicsburg (R20-0050-1).
2. A ten-day implementation class for people responsible for the implementation and continuing operation of an IMPACT System. (This class is conducted by Distribution Industry Education at selected locations.)

Customer Responsibilities: Because the Model 20 IMPACT library contains operating programs and Macro routines only, the user must make use of the existing System/360 Wholesale IMPACT Program Library's initialization programs. These programs which are used initially and as required thereafter require a 16K System/360 Model D30 using BOS or DOS or a 32K System/360 Model E30 using OS. Detailed machine requirements are provided with the program documentation. The user is responsible for providing his own record-keeping system. In addition, some user programming is required to use the macro routines and to provide linkage between his programs and IMPACT library programs.

Programming Systems: Model 20 IMPACT may be run under either the Disk-Resident Monitor or the Card-Resident Monitor of the System/360 Model 20 Disk Programming System. Programs are written in Assembler Language. Macro routines are written in Basic Macro Definition Language. Macro routines are written in Basic Macro Definition Language for use with Assembler Language programs.

Minimum System Requirements: A 2020 Processing Unit Model D2 with Disk Storage Control (#7495), the appropriate printer attachment, the appropriate card reader attachment, the appropriate card punch attachment ... 1403 or 2203 Printer (48 character set minimum) ... 2501, 2560, or 2520 Model A1 Card Reader ... 2560, 1442, or 2520 Card Punch ... two 2311 Disk Storage Drives (Model 11 or 12) or one 2311 (Model 11 or 12) and one 2415 Magnetic Tape Unit.

Note: The 2560 or 2520 Model A1 can be used as both the card reader and card punch.

Basic Program Material:

Publications - Application Directory ... Program Description Manual (H20-0255-2) ... Operations Manual (H20-0256-2).

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

Machine Readable - The source program and sample problem are available on one 9-track 800 or 1600 bpi Distribution Tape Reel (DTR), or one 7-track 800 cpi DTR (Data Conversion feature required).

DTR's are provided by PID; no tape submittal is required.

If the track and density requirements are not indicated on the back of the program order card, 9-track at 800 bpi DTR will be forwarded. Disk packs must be forwarded to PID with the program order card.

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

Additional Program Support Material: System Manual (availability and form number will be announced in a PRL) ... Application Description Manual (H20-0461-1).

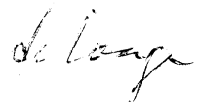
Reference Material: Introduction to IBM Wholesale IMPACT (E20-0278) ... Wholesale IMPACT - Advanced Principles and Implementation Reference Manual (E20-0174).

For further information contact your Industry Marketing - Distribution Representative.

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] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated. [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 World Trade Data Processing



**SYSTEM/360 OPERATING SYSTEM
RELEASE 15/16**

Release 15/16 of Operating System/360 may now be ordered; shipments will begin the week of September 9. This release combines new major functional components, plus incremental improvements and maintenance. Many of the improvements are due to the Operational Characteristics Improvement program.

Announced Components

MFT Version II (P67-115)
Remote Job Entry for MVT (P67-77)
RJE 1130 and 2780 Work Stations (P67-105)
Rollout/Rollin for MVT (P67-86)
Time-Slicing for MVT and MFT (P68-69)
Graphic Job Processing (P67-115)
MVT Job Scheduler Improvements (P68-59)
Universal Character Set Support (P68-59)
PL/I F Version IV (P68-73)
Linkage Editor F Version II (P68-11)
Shared DASD for 2311 and 2314 (P68-2)
Model 65 Recovery Management (P68-2)
FORTRAN Library Object Time Facilities (P68-59)
BTAM - BSC 2780 Support (P67-77)
BTAM and QTAM 2740 Model 2 Support (P67-127)
Automatic Volume Recognition for MFT-II and MVT (see inside page)

Incremental improvements have been included in the system in the following areas:

- . New Data Management Capabilities
- . Improved Operational Characteristics
- . Additional System Flexibility and Functional Improvements
- . Improved Performance
- . Compiler and Language Support Improvements
- . Maintainability and Availability Improvements

Reference P68-106 for details on the new components and incremental improvements in Release 15/16. More information on Release 15/16 and the ordering procedure are on the following pages.



John Fahey
Director of DP Marketing

Published by DP Sales Publishing Services, WTHQ

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.

FOR IBM INTERNAL USE ONLY

Automatic Volume Recognition (AVR) in MVT and MFT - II

AVR, which permits premounting of volumes in an MFT or MVT environment, as well as PCP, has been implemented in Release 15/16. It will be useful where part of the workload is orderly and predictable and job sequence is controlled by appropriate use of the Job Class Facility. This is an operational improvement in addition to those announced in P68-106.

Program Maintenance

The 30-calendar-day period during which a Release is considered current following the availability of the next release has been extended to 90 calendar days for OS/360. This change will take effect immediately. Specifically, Release 14 will be considered current and therefore PTFs will be supplied as required for 90 calendar days following the availability of Release 15/16. This change applies to OS/360 only. The Sales Manual, Programming Section P2 will be modified to reflect this change.

Maintenance Improvements

Results of the maintenance emphasis in Release 15/16:

Corrections for 1074 APARs are included. 133 of these eliminate Wait State conditions. There have been permanent corrections for 172 PTFs, and over 89 System Prose restrictions of prior releases are eliminated by Release 15/16.

Customer and IBM personnel should consult Maintenance and System Prose for descriptions of these corrections.

PTF Distribution

An initial distribution of PTFs on a DTR will be made to every account ordering Release 15/16. Also provided will be a description of the PTFs and instructions on their application.

PTFs represent changes which could not be fully integrated into the system because of their recent completion. Their testing is not as complete as normal distribution components. The PTFs supplied with Release 15/16 should be reviewed as part of the FE/SE pre-system generation planning meeting to determine which should be installed. It is the responsibility of Field Engineering personnel to control selection and application of PTFs to customer systems.

The distribution of PTFs with this release does not imply that IBM will adopt a policy or practice of PTF distribution with future releases of OS or other Type I programming systems.

Release Independent Compilers

The COBOL and FORTRAN Compilers and their related Libraries from Release 15/16 may be used on a Release 14 base system. This will enable users to benefit from the maintenance in these components before Release 15/16 installation is complete.

The following should be observed:

1. The Release 15/16 SYS1.GENLIB must be used to generate the compilers and library.
2. The Release 15/16 SRL material should be used for documentation.
3. The FORTRAN Pound Sign (#) Optional Program Modifications (OPMs) from Release 15/16 should be used for installations which must temporarily continue to use the CSECT name with a Pound Sign appended. Plans must be made to preclude this requirement in future releases.

Program Logic Changes (PLCs)

A PLC is a special form of PTF designed to provide early availability to the field of design improvements in the areas of reliability, availability and serviceability. PLCs will be assigned a PTF number and handled by Field Engineering the same as a PTF.

There are two PLCs, one for MVT and one for MFT, shipped as part of the PTF distribution with Release 15/16. These PLCs are designed to improve system availability by reducing the effect of a system ABEND on system operation. This increase in availability is achieved by:

1. Isolating the region or partition causing the ABEND.
2. Allowing the other regions or partitions to continue processing.

The net result is a "fail soft" effect accompanied by a gradual reduction of available system resources. The region or partition ABENDING is left unchanged, which may permit the problem to be analyzed when a stand-alone core dump can be taken. A message is provided indicating the region or partition ABENDING and the Wait State that would otherwise have occurred.

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 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 or the IBM System/360 Operating System Generation SRL C28-6554.

FE/SE System Generation Planning

Close cooperation between Field Engineering and Systems Engineering is vitally important, particularly when installation of a new release is planned. Field Engineering and Systems Engineering representatives should meet before the system generation is performed. At this meeting all programming components to be used by the customer should be reviewed for known restrictions, PTFs and PLCs. Engineering change level prerequisites must be installed. Appropriate PTFs and PLCs should be installed before attempting customer operations. This review should consider all available information sources, including Installation Newsletters, SECOM and RETAIN.

The FE and SE technical organizations should be informed of any programming situation that prevents an OS installation from advancing to Release 15/16. If local analysis indicates that such a situation results from a Type I problem, Field Engineering Technical Operations will accept a Severity I APAR is submitted and screened through normal procedures, defining the problem.

Judgment should be exercised when the severity of a problem is established, taking into account the frequency of the problem, the amount of rerun time or number of re-IPL's it causes, the total effect of a bypass on the installation, and the total account situation.

Announcement Documentation

Documentation sent with the prepunched order card to current users of OS/360 is:

1. Memo to Users - descriptions of all new functions in the release, plus other pertinent information about the release.
2. Maintenance Prose - descriptions by APAR number of the APARs corrected in the release.
3. System Prose, Fixed - descriptions by component of other restrictions in previous releases, now corrected.

Information copies of the above documentation are also being sent to Branch Offices and Field Systems Centers.

Note: A new PLM "IBM System/360 Operating System Release 15/16" (Y28-6681) will be available. This PLM will outline the current status, new features/function, and incremental improvements to Release 15/16. Included will be the Memo to Users, EC change levels and a list of modules changed, added or deleted, plus lists of APARs, PTFs, and PROSE items resolved and unresolved. Availability of the PLM will be announced by the weekly Publications Release Letter. This PLM may be ordered now for shipment when available.

Floating Point Engineering Change Support

The "tolerance code" made available initially in Release 14 FORTRAN Library is also incorporated in the Release 15/16 FORTRAN Library. FORTRAN load modules must be linkage edited using a Release 14 or Release 15/16 FORTRAN Library to obtain the tolerance code that operates properly with or without the System/360 Engineering Change. FORTRAN H programs using the DMOD and AMOD functions will have to be recompiled with Version II to obtain the on-line "tolerance code" for these functions.

FORTRAN Control Section Naming

New OPMs, similar to those initially provided in Release 14 (reference P68-7 and Installation Newsletters 67-25, 68-01 and 68-02), are also provided in SYS1.SAMPLIB of Release 15/16. These OPMs are for installations which must temporarily continue to use the CSECT name with a Pound Sign appended. This is the last release in which these OPMs will be available.

The OPMs in SYS1.SAMPLIB for Release 15/16 are:

Pound Sign FORTRAN E	OPM00001
Pound Sign FORTRAN G	OPM00002
Pound Sign FORTRAN H	OPM00003

Engineering Change Requirements

There are no new engineering change (EC) requirements beyond those required for Release 14, except for support of the following new functions. For these functions, the added EC requirements are:

Model 65 Recovery Management

2065	EC 705255	ECA 105
Over 512K	EC 705341	ECA 144

Remote Job Entry

2703	EC 307050	ECA 39
------	-----------	--------

Shared 2311 and 2314

2314	EC 420919	ECA 79
2314	EC 420945	ECA 80
2841	EC 413410	ECA N/A
2844	EC 420919	ECA 32
2844	EC 420945	ECA 33

(In addition, channels sharing DASDs must have the isolation feature on the channels and control units involved.)

MVT (PCI Fetch)

2860	EC 705807	ECA 44
2860	EC 705864	ECA 55
2846	EC 705319	ECA 2

Universal Character Set - UCS

2821	EC 125632	ECA 49
------	-----------	--------

BTAM/RJE 2780 EBCDIC

2040	EC 255761	ECA 125
2050	EC 707039	ECA 19
1131	EC 419631	ECA 1
2701	EC 305857	ECA 46

BTAM/RJE 2780 Point-to-Point

2780-1, 2780-2	EC 814837	ECA N/A
----------------	-----------	---------

BTAM/RJE 2780 Multipoint

2780-1, 2780-2	EC 814843	ECA N/A
----------------	-----------	---------

BTAM/RJE 2780

2780-1, 2780-2 EC 307755 ECA N/A
 (This is the extended Retry Transmission Feature.)

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

ALGOL Programmer's Guide TNLs N33-8000, N33-8002, N33-8012, N33-8013*	C33-4000-0	FORTRAN E Programmer's Guide TNLs N28-0578, N28-0580*	C28-6603-2
Assembler E Programmer's Guide	C28-6595-1	FORTRAN H Programmer's Guide	C28-6602-3*
Assembler F Programmer's Guide TNL N26-0567	C26-3756-2	FORTRAN G Programmer's Guide TNLs N28-0579, N28-0581*	C28-6639-1
COBOL F Programmer's Guide	C28-6380-2*	Graphic Programming Services for 2250 Display Unit TNL N27-1289*	C27-6909-4
Job Control Language	C28-6539-7*	Graphic Programming Services for 2260 Sub-Programs TNL N27-1288*	C27-6912-5
Operator's Guide	C28-6540-7*	Operator's Guide for the 2250 Display Unit Model 1	C27-6941-0*
System Programmer's Guide	C28-6550-4*	FORTRAN Library Sub-Programs	C28-6596-3*
Storage Estimates	C28-6551-6*	PL/I F Comp Subroutines TNL N33-6004*	C28-6590-1*
System Generation TNLs N28-2313*, N28-2325*, N28-2348*	C28-6554-4*	Graphic Programming Services for FORTRAN IV TNLs N33-6006, N33-6007*	C27-6932-2*
Checkpoint/Restart	C28-6656-2*	PL/I F Programmer's Guide TNLs N28-2249, N28-2270, N28-2303*, N28-2324*	C28-6594-3*
Messages and Completion Codes	C28-6631-5*	TESTRAN	C28-6648-0
Programmer's Guide to Debugging TNLs N28-2305*, N28-2311*	C28-6670-0	Remote Job Entry TNLs N30-2510*, N30-2520*	C30-2006-1*
COBOL E Programmer's Guide TNL N28-0229	C24-5029-2	Users Guide for Job Control From the 2250 Display Unit	C27-6933-1*
Basic Telecommunications Access Method TNLs N30-2504, N30-2508, N30-2512*, N30-5027	C30-2004-1	Sort/Merge TNL N28-2323*	C28-6543-4
QTAM Message Control Programs TNLs N30-2503*, N30-2515*	C30-2005-1	Maintenance TNL N28-2160	C27-6918-0
QTAM Message Control Processing Program	C30-2003-2	Utility Programs	C28-6586-8*
On-Line Test Executive Program TNLs N28-2287, N28-2320*	C28-6650-0		
Supervisor and Data Management Services TNLs N26-0574*	C28-6646-1*		
Supervisor and Data Management Macro-Instructions TNL N26-0573*	C28-6647-2*		
Linkage Editor TNLs N28-2319*, N28-2330*	C28-6538-5*		

* 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 PID.

Documentation -- Program Material List . . . OS/360 Prose . . . PTF writeup . . . FORTRAN OPM's . . .

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 -- Two 2400 foot reels 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 pre-punched Program Order Card and a letter announcing the availability of release 15/16 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 15/16 provides a starter system for 2314 residence. Program distribution medium for 2314-resident systems will be on two reels of either 7- or 9-track magnetic tape. Tapes will be in the dump/restore format. Users who order the 2314 Starter System should indicate 2314 on the back of the program order card.

Since all 2314s provide sufficient capacity for system generation from the full OS/360 libraries, no customization (see P67-1) is planned for 2314-resident systems.

A 2314 user having two or more 2311 Disk Drives but no tape may order the 2311-resident system using the 1316 Disk Pack as the distribution medium. System configurations which do not include either 2311s or tape must make local arrangements for a system with both 2314 and Tape to perform the tape-to-2316 Disk Pack restore operation.

A branch office unable to arrange for tape-to-2316 Disk Pack conversion should contact the regional manager of Programming Systems Marketing for assistance.

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-503**
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**
TESTSTRAN	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	360S-IO-523**
Indexed Sequential Access Methods (BISAM, QISAM)	360S-IO-526**
Sort/Merge	360S-SM-023**
FORTTRAN E	360S-FO-092 Note 1**
FORTTRAN G	360S-FO-520 Note 1**
FORTTRAN H	360S-FO-500 Note 1**
FORTTRAN 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, and EREP for Model 40	360S-DN-527**
SERO, SER1, and EREP for Model 50	360S-DN-528**
SERO, SER1, and EREP for Model 65	360S-DN-529**
SERO, SER1, and 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**
Graphic Job Processor	360S-RC-541**
Linkage Editor F	360S-ED-521**
Recovery Management Mod/65	360S-DN-539**
Remote Job Entry	360S-RC-536**

**Component change with this release.

***Component new 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 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 15/16.

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 15/16
Component Sizes

Distribution volume space (2311 tracks)

Component Name	Component Number 360S	Notes	Starter System	DLIB01		DLIB02*						
				PROCLIB	PL/LIB	FORLIB	COBLIB	SORTLIB	SAMPLIB	MODLIB**	GENLIB	MACLIB
Starter System (for 2311)	CI-514	7	700									
Primary Control Prog.	CI-505	1,8		5		18	185	1331	84			
MVT	CI-535	9		2			57		5			
Primary Data Mgmt.	DM-508	1					72		105			
BDAM	DM-509	5					8		2			
ISAM	IO-526	6					50		4			
BTAM	CQ-513						18		51			
RJE	RC-536	10					30		26			
QTAM	CQ-519						33		52			
Graphic Job Processor	RC-541						40					
Graphic Subroutine Program	LM-537						6	29				
Graphic Programming Services	IO-523	3					14	19			119	
ASSEMBLER E	AS-036	1		3			9	42				
ASSEMBLER F	AS-037	4		3			38					
TESTSTRAN	PT-516	4		2			26				51	
Sort/Merge	SM-023	2		2			11	14	77			
Linkage Editor E	ED-510	1		2				29				
Linkage Editor F	ED-521	1,4						20				
OS/360 Utilities	UT-506	1		2			9	97				
Independent Utilities	UT-507	1						32				
COBOL E	CO-503	5		3			28	98				
COBOL E Library	LM-504	3			13							
COBOL F	CB-524	5		3			4	88				
COBOL F Library	LM-525	3						9				
FORTTRAN E	FO-092	5		4			9	31				
FORTTRAN G	FO-520	5		3			10	24				
FORTTRAN H	FO-500	5		3			6	158				
FORTTRAN Library	LM-501	3			1			40				
PL/I F	NL-511	5,6		4			4	297				
PL/I F Library	LM-512	3			70			43				
RPG	RG-038			3			3	49				
SERO, SER1 & EREP for Model 40	DN-527	2						19				
SERO, SER1 & EREP for Model 50	DN-528	2						19				
SERO, SER1 & EREP for Model 65	DN-529	2						22				
Recovery Management Model 65	DN-539	2,3						16				
SERO, SER1 & EREP for Model 75	DN-530	2						20				
ALGOL	AL-531	3			3		3	29				
ALGOL Library	LM-532	3						17				
ON-Line Test Exec. Prog.	DN-533	2						7				

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

** On DLIB03 if the full OS/360 is received.

Notes:

1. Minimum component for a system able to perform system generation. See also Note 4 where appropriate.
2. Recommended use.
3. Used by and required with the preceding component(s) in the chart.
4. Alternative component to the preceding component in the chart. Either or both may be selected.
5. BDAM is required by the direct access statements of COBOL, FORTRAN and PL/I.
6. ISAM is required by 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 System Generation SRL (C28-6554).
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.
10. RJE users must order 360S-CI-535, 360S-DM-509 and 360S-CQ-513.

Additional Program Support Material:

Program Logic Manuals (available from the Distribution Center, Mechanicsburg)

COBOL E	Y24-5009-1,	TNL Y28-6385
ALGOL F Compiler	Y33-8000, TNLS Y33-8001,	Y33-8003*
Assembler E	Y26-3598	
Assembler F	Y26-3700	
Checkpoint/Restart	Y28-6672-1*	
RPG	Y26-3704	
Graphic Problem Oriented Routines	Y27-7110,	TNLs Y27-7141
	Y27-7150	
Graphic Access Method	Y27-7113-2,	TNLs Y27-7153
	Y27-7160*	
MFT Control Program	Y27-7128-3*	
Graphic Programming Services for FORTRAN	Y27-7152	TNL Y27-7163*
Graphic Job Processor	Y27-7159**	
2250 Operator Console	Y27-7169**	
Model 65 Recovery Management	Y27-7155**	
COBOL F	Y28-6382-1,	TNL Y28-6391*
Sort/Merge	Y28-6597-2	
FORTRAN E	Y28-6601-2,	TNLs Y28-6383
	Y28-6819	
Sequential Access Method	Y28-6604-1,	TNL Y26-8010*
Introduction to Control Program Logic	Y28-6605-3,	TNL Y28-2295*
Catalog Management	Y28-6606,	TNL Y26-8013*
Direct Access Device Space Management	Y28-6607-3,	TNL Y26-8012*
Input/Output Support (OPEN/CLOSE/EOV)	Y28-6609-1,	TNLs Y28-2219
	Y26-8014*	
Linkage Editor E	Y28-6610-2,	TNL Y28-2301*
Linkage Editor F	Y28-6667**	
TESTRAN	Y28-6611	
Fixed Task Supervisor	Y28-6612-3*	Y27-7172*
P C P Job Management	Y28-6613-2	TNL Y28-2331*
Utilities	Y28-6614-3*	
Guide to Model 91	Y28-6665-0,	TNL Y28-2290*
Input/Output Supervisor	Y28-6616-3*	TNL Y28-2310*
Basic Direct Access Method	Y28-6617-3	
Indexed Sequential Access Method	Y28-6618-1	
FORTRAN G	Y28-6638-1*	
FORTRAN H	Y28-6642-2*	
On-Line Test Executive	Y28-6651	TNLs Y28-2825*,
	Y28-2285*	
MVT Logic Summary	Y28-6658-1*	
MVT Supervisor	Y28-6659-2*	TNL Y27-7167*
MVT Job Management	Y28-6660-2*	TNL Y28-2316*
	Y28-2329*	
Initial Program Loader and Nucleus		
Initialization Program	Y28-6661	TNLs Y28-2245
	Y27-7170*	Y28-2292*
PL/I (F)	Y28-6800-3*	TNL Y33-6002*
PL/I (F) Subroutine Library	Y28-6801-3*	TNL Y33-6001*
Update Analysis	Y28-7106	
Basic Telecommunications Access Method	Y30-2001-2	TNL Y30-2511*
QTAM	Y30-2002-1**	TNLs Y30-2514*,
	Y30-2007	
Remote Job Entry	Y30-2005-1**	
OS/360 Rel 15/16	Y28-6681**	

Program Listings: Operating System/360 program listings are available on microfiche in the following groups:

Program Listing Type	Group Code
S/360 OS (Primary Control Program, Primary Data Management, Basic Direct Access Method, Indexed Sequential Access Method, OS/360 Utilities, Independent Utilities, SERD and SER1, Recovery Management, BTAM/QTAM, MVT, On-Line Test)	1010*
S/360 OS Remote Job Entry	1015**
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 Linkage Editor F	1075**
S/360 OS Sort/Merge	1080*
S/360 OS TESTRAN	1085*
S/360 OS Graphic Programming Services, Graphic Job Processor ** Graphic Subroutine Program**	1090*
S/360 OS RPG	1095*

* Denotes change with this release
 ** New with this release

Optional Program Material: The Optional program material list is distributed with a condensed Symbolic Library. It is available from PID on 9-track magnetic tape (800 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 DSN=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
	Linkage Editor F	360S-ED-521
	ALGOL	360S-AL-531
	ALGOL Library	360S-LM-532
	Report Program Generator	360S-RG-038
2	COBOL E	360S-CO-503
	COBOL E Library	360S-LM-504
	COBOL F	360S-CB-524
	COBOL F Library	360S-LM-525
3	FORTRAN E	360S-FO-092
	FORTRAN G	360S-FO-520
	FORTRAN H	360S-FO-500
	FORTRAN Library	360S-LM-501
4	PL/I F	360S-NL-511A
		360S-NL-511B
		360S-NL-511C
5	PL/I F	360S-NL-511D
		360S-NL-511E
6	PL/I F Subroutine Library	360S-LM-512A
		360S-LM-512B
7	TESTRAN	360S-PT-516
	Index Sequential Access Method	360S-IO-526
	Graphic Subroutine Program for FORTRAN	360S-LM-537
	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
8	Primary Control Program	360S-CI-505A
		360S-CI-505B
		360S-CI-505C
9	Primary Data Management	360S-DM-508A
		360S-DM-508B
	Independent Utilities	360S-UT-507
	SERO, SER1, EREP	360S-DN-527
		360S-DN-528
		360S-DN-529
		360S-DN-530
	On-Line Test Executive Program	360S-DN-533
	Model 65 Recovery Management	360S-DN-539
10	MVT	360S-CI-535A
		360S-CI-535B
		MACRO
	Remote Job Entry	360S-RC-536
	Graphic Job Processor	360S-RC-541
11	Sort/Merge	360S-SM-023A
		360S-SM-023B
		360S-SM-023C
	OS/360 Utilities	360S-UT-506

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

See GI 20 for complete information before ordering additional program support material.



IBM World Trade Data Processing

**1130 DISK MONITOR SYSTEM VERSION 1
AVAILABILITY EXTENDED TO JUNE 30, 1969**

Programming and publication maintenance support of 1130 Disk Monitor System Version 1 is extended to June 30, 1969, and will be withdrawn on that date. This additional extension is to provide continuing support to our 1130 customers during their conversion to Disk Monitor System Version 2.

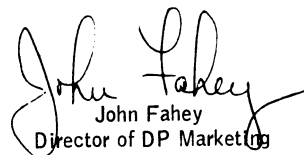
By November 15, 1968, programming announcements will be made covering specifications and schedules for all Type II programs which are now dependent upon 1130 Disk Monitor System Version 1.

This Disk Monitor System Version 1 extension, combined with the forthcoming announcements on the 1130 Type II library, will provide the information required for establishing the optimum conversion program for our customers.

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.**



John Fahey
Director of DP Marketing

FOR IBM INTERNAL USE ONLY

Published by DP Sales Publishing Services, WTHQ

Release Date: September 6, 1968
Distribution: All Areas

P68-121



IBM World Trade Data Processing

REMOTE JOB ENTRY (RJE) WORK STATION PROGRAMS TO BE AVAILABLE FOR MODEL 20

The RJE Work Station Programs permit a Model 20 equipped with a Binary Synchronous Communications Adapter to submit OS/360 jobs over communications facilities to a Central System/360 Model 40 (or larger) for execution, and to receive job output from the Central System. Job Output is available immediately upon completion of the job, or on a deferred basis, if desired. Users at work stations other than the originator's may also be designated as recipients for job output.

Model 20 RJE support will be provided under CPS, TPS, and DPS. The Central System will operate under OS/360 MVT and MFT-II as outlined in Programming Letters P67-77, P68-34, and P68-45.

Availability: Model 20 TPS and DPS programs August 15, 1969; CPS September 15, 1969.

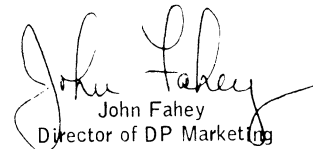
Publications: SRL -- IBM System/360 Model 20, Remote Job Entry Work Station Program. Availability will be announced in a future Publications Release Letter.

For more information see the performance estimate charts and the sales manual text on the inside pages.

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.



John Fahey
Director of DP Marketing

FOR IBM INTERNAL USE ONLY

Published by DP Sales Publishing Services, WTHQ

Storage Estimates

Core Storage

Card input/output and printer capabilities will be provided in CPS, TPS and DPS in 12,288 bytes of core storage. In TPS and DPS, tape input/output, disk input/output or the 2152 Printer-Keyboard will require 16,384 bytes of core storage.

The following tables provide more detailed estimates for RJE use in CPS, TPS and DPS:

TPS Tape IOCS

General routines	(no label)	720
Input	(undefined, ERROPT = name, CONTROL)	210
Output	(undefined)	<u>200</u>
		1130

DPS Disk IOCS

General routines	(sequential)	2350
Input		170
Output		<u>190</u>
		2710

Core Estimates

	CPS	TPS Basic	DPS Basic	TPS + Tape I/O	DPS + Tape I/O	DPS + Type- writer
IOCS* Card-Printer	870	870	870	870	870	870
IOCS Tape Disk	-	-	-	1,130	2,710	--
IOCS Typewriter	-	-	-	-	-	200
Buffers	1,150	1,150	1,150	1,390	1,260	1,230
RJE	3,600	3,600	3,600	4,000	4,000	4,200
MONITOR	-	1,700	2,600	1,700	2,850	4,200
Total **	5,620	7,320	8,220	9,090	11,690	10,700

* 2501 with 2520 (or 1442-5) assumed. In DPS, use of 2520 or 2560 as card read/punch will require 16,384 bytes of core -- see following table.

** Core requirements for BSCA IOCS must also be considered. Estimated requirements based on line configurations are:

Leased Point-to-Point	3500 bytes
Leased Multipoint	3600 bytes
Switched	3700 bytes
Switched (Autocall)	3950 bytes

See SRL Publication C33-6003 for additional information.

Card/Printer IOCS

	2501/2520	2520	2501/2560	2560
Basic	210	210	210	210
Printer	310	310	310	310
Reader	200	-	200	-
Punch	150	-	800	-
Read/Punch	-	<u>610</u>	-	<u>1000</u>
	870	1130	1520	1520

CONTROL and PRINTOV is assumed for the printer. OVERLAP and CONTROL is assumed for card I/O. Core requirements for the 1442-5 are the same as for the 2520 Card Punch shown above.

REMOTE JOB ENTRY (RJE) WORK STATION PROGRAMS: Permit a System/360 Model 20, equipped with a Binary Synchronous Communications Adapter to submit OS/360 jobs over communications facilities to a Central System/360, Model 40 or above, for execution, and to receive output from the Central System upon completion of the job. Output may also be received at the work station on a deferred basis if so desired. Users at work stations other than the senders may also be designated as recipients for job output.

Model 20 RJE support is provided under CPS, TPS and DPS. The Central System operates under OS/360 (MVT and MFT-II). The Job Entry Control Language (JECL) used by Model 20 RJE programs is compatible with JECL for other work stations.

The Model 20 RJE programs provide the following functions:

Input of OS/360 jobs and RJE commands through an input device.

Data transmission to and from the Central System.

Output to an attached output device.

In CPS, TPS and DPS, input of OS/360 jobs is provided through the card reading device attached to the Remote Work Station. Output is provided through the attached card punching device and line printer.

Additionally, in TPS and DPS input of OS/360 jobs, and output from the Central System may be on magnetic tape. In DPS only, input/output is provided on disk or the 2152 Printer-Keyboard.

Transmissions to and from the Central System/360 are via the Binary Synchronous Communications Adapter (connected over 600 to 50,000 bps non-switched or multi-point lines, or over switched lines up to speeds limited by these lines) in EBCDIC, and in transparent text. Model 20's cannot be intermixed with other BSC devices on the same leased multidrop line.

A facility is provided in TPS and DPS whereby the user may create tape or disk data files acceptable to the RJE program, or print or punch tape or disk data files created by the RJE program.

When the Remote Job Entry programs are used, the Model 20 is dedicated to the communications job.

All input is read as 80 character records. Job entries or JECL commands can be read from the card reader, a tape drive or a disk drive. Only JECL commands are allowed through the Printer-Keyboard. The RJSTART command, used for work station start-up, must be submitted through the card reader, and must have a valid terminal identification.

It is not possible to read data files from more than one tape or disk drive but both tape and disk are allowed.

Output at the work station consists of RJE messages and job output. Job output, consisting of SYSOUT data sets created by the job, is directed to the printer, punch or the device specified for user exit. The data directed to user exit can be punched, printed, written on tape or disk, or deleted.

By means of user-written routines, the user can have access to input data before transmission and received output data for editing and/or rerouting.

RJE messages can be written on the Printer-Keyboard if one is attached to the Model 20; otherwise they are printed on the line printer.

Error messages are provided by the RJE program to indicate line errors, invalid RJE commands, tape and disk I/O errors, etc. If a Printer-Keyboard is available and logically attached, the message codes appear on it, otherwise they are displayed in the ESTR registers.

The RJE programs are modularly constructed. By means of the RJE macro statement, unwanted code is removed and the program is tailored to the user's requirements. The RJE macro statement consists of keyword entries which describe the I/O devices to be used and the features to be included. This statement is input for the generator program to be distributed with the CPS RJE program, or for the TPS and DPS macro assemblers.

The RJE programs use the Binary Synchronous Communications Adapter Input/Output Control System (BSCA IOCS) for control of message and data exchange on the transmission line including error recovery. They also use the existing IOCS programs for control of input/output operations. Card I/O and printer functions are supported under CPS, TPS and DPS; tape functions are supported in TPS and DPS. Disk and Printer-Keyboard functions are supported under DPS only.

In CPS the RJE program operates as a stand-alone program. In TPS and DPS it operates in a batch-job environment, under control of the applicable Monitor and Job Control Programs.

Minimum System Requirements:

Card Programming Support (CPS)

For Generation and Assembly --

Submodels 2 or 5

2020 Processing Unit Model BC2 or BC5 ... A Card Reading Device (2501 Model A1 or A2; a 2520 Model A1 or a 2560 Model A1) ... A Card Punching Device (1442 Model 5; a 2520 Model A1 or A2 or a 2560 Model A1) ... A Printer (2203 Model A1, 1403 Model 2, 7 or N1)

Submodel 4

A 2020 Processing Unit Model BC4 ... A 2560 Model A2 ... A 2203 Printer Model A2

For Program Execution --

All systems require a Binary Synchronous Communications Adapter (Feature #2074)

with EBCDIC and Full Transparency Text Mode.

For Submodels 2 and 5

A 2020 Processing Unit Model BC2 or BC5 ... A Card Reader ... A Line Printer ... Optional BSCA features as required by the user program

Devices and Models Supported

2020 Processing Unit Models D2, D5, DC5, E5 ... Card Reading Devices (2501 Models A1 and A2, 2520 Model A1, 2560 Model A1) ... Card Punching Devices (1442 Model 5, 2520 Models A1 and A2, 2560 Model A1) ... Printers (2203 Model A1, 1403 Models 2, 7 and N1)

For Submodel 4

A 2020 Processing Unit Model BC4 ... A 2560 Model A2 ... A 2203 Model A2 ... Optional BSCA features as required by the user program.

Devices and Models Supported

2020 Processing Unit Model D4

Tape Programming System (TPS)

Submodels 2 and 5 only

For Assembly --

A 2020 Processing Unit Model BC2 or BC5 ... A 2415 Magnetic Tape Unit Model 2 or 4 (at least one drive must be equipped with 9-track heads). If seven track tapes are used, the data conversion feature is required ... A Card Reading Device (2501 Model A1 or A2, a 2520 Model A1, a 2560 Model A1) ... A Card Punching Device (1442 Model 5, 2520 Model A1 or A2, 2560 Model A1), if punching of the object deck is specified ... A Printer (2203 Model A1, 1403 Model 2, 7, or N1), if program listings and diagnostic messages are required.

For Program Execution --

All systems require a Binary Synchronous Communications Adapter (Feature #2074) with EBCDIC and Full Transparency Text Mode.

A 2020 Processing Unit Model BC2 or BC5 ... A Card Reader ... A Line Printer ... Optional BSCA features as required by the user program.

Devices and Models Supported

2020 Processing Unit Models D2, D5, DC5, E5 ... Card Reading Devices (2501 Model A1 or A2, 2520 Model A1, 2560 Model A1) ... Card Punching Devices (1442 Model 5, 2520 Models A1 and A2, 2560 Model A1) ... A Printer (2203 Model A1, 1403 Model 2, 7 or N1), if printing is specified ... 2415 Magnetic Tape Unit Models 1-6*

Disk Programming System (DPS)

For Assembly --

Submodels 2 and 5

A 2020 Processing Unit Model BC2 or BC5 ... A Card Reading Device (2501 Model A1 or A2, a 2520 Model A1, a 2560 Model A1) ... A Card Punching Device (1442 Model 5, a 2520 Model A1 or A2, a 2560 Model A1), if punching of the object deck is specified ... A Printer (2203 Model A1, a 1403 Model 2, 7 or N1), if program listings or diagnostic messages are required ... A 2311 Disk Storage Drive (Model 11 or 12).

Submodel 4

A 2020 Processing Unit Model BC4 ... A 2560 Model A2 ... A Printer (2203 Model A2), if program listings and diagnostic messages are required ... A 2311 Disk Storage Drive Model 12.

For Program Execution --

All systems require a Binary Synchronous Communications Adapter (Feature #2074) with EBCDIC and Full Transparency Text Mode.

Submodels 2 and 5

A 2020 Processing Unit Model BC2 or BC5 ... A Card Reader ... A Line Printer ... A 2311 Disk Storage Drive Model 11 or 12 ... Optional BSCA features as required by the user program.

Devices and Models Supported

A 2020 Processing Unit Model D2, D5, DC5, E5 ... Card Reading Devices (2501 Model A1 or A2, 2520 Model A1, 2560 Model A1) ... Card Punching Devices (1442 Model 5, 2520 Model A1 or A2, 2560 Model A1) ... A Printer (2203 Model A1, 1403 Model 2, 7 or N1) ... 2311 Disk Storage Drives -- Models 11 or 12 (two on Submodel 2, four on Submodel 5)* ... 2152 Printer Keyboard* ... 2415 Magnetic Tape Units Models 1-6*

Submodel 4

A 2020 Processing Unit Model D4 ... A 2560 Model A2 ... A Printer 2203 Model A2 ... A 2311 Disk Storage Drive Model 12 ... Optional BSCA features as required by the user program.

Devices and Models Supported

A 2020 Processing Unit Model D4 ... A 2560 Model A2 ... A Printer 2203 Model A2 ... Two 2311 Disk Storage Drives Model 12 ... 2152 Printer - Keyboard.

*Note -- If tape I/O or disk I/O or 2152 Printer-Keyboard is specified, a 2020 Processing Unit with 16,384 bytes of core storage will be required.

IBM

IBM World Trade Data Processing

P68-123

SYSTEM/360 VEHICLE SCHEDULING PROGRAM (VSP) IS AVAILABLE

VSP is now available. The order number is 360A-ST-06X.

The program computes near-optimal routes for delivery of products or services by a fleet of vehicles. Because of the wide range of program options, it can be applied to almost every fleet routing and delivery situation. VSP determines the routes a group of vehicles must travel to meet certain commitments in the delivery of products or service from a central depot to customers at given locations. The result is a feasible schedule representing a good balance of basic variables such as travel time and number of vehicles used. In addition to fulfilling a daily routing function, the program can be applied to realign fixed routes, aid in determining possible locations of warehouses and depots to service potential customers, plan for a new fleet, and provide statistical and cost data relative to the efficiency of a fleet. The program consists of two main sections, the Network Analysis Program and the Schedule Production Program.

The Network Analysis Program analyzes a network representing the potential calling points by computing distances between all points.

The Schedule Production Program uses the output of the Network Analysis Program, together with the list of calls to be made, to determine feasible routes approaching optimum loads and minimum travel time; the most important result being that fewer vehicles may be required.

Users of this program must be fully familiar with the features of VSP. Capable personnel must be assigned to gather the data for the Network Analysis Program, establish work standards, and determine special requirements (e.g., specific unloading times, limited accessibility) for each delivery point. Results are dependent on the accuracy and reliability of the data collected. Programming will be required if the user chooses to expand or tailor the output of VSP.

The availability of the assembly listings [microfiche] for the Schedule Production and Distance Listing phases of VSP will be announced in a PRL. Preliminary copies may be obtained from SD & I Centers.

The assembly listings [microfiche] relating to the Network Analysis phase of VSP will be made available at SD & I Centers to field personnel on a need-to-know basis as IBM Confidential Material.

The new sales manual write-up is printed on the reverse side. Changes are bracketed for convenient reference.


John Fahey
Director of DP Marketing

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.**

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Release Date: September 16, 1968
Distribution: All Areas

P68-123

Vehicle Scheduling Program (VSP): VSP provides a comprehensive tool in the planning and operating of a distribution and delivery system. It computes near-optimal routes for delivery of products or services by a fleet of vehicles. Because of the wide range of program options, it can be applied to most fleet routing and delivery situations. The advantages over manual methods are increased efficiency and speed of scheduling, improved routing, and cost reductions (through better fleet utilization). (360A-ST-06X).

Description: VSP determines the routes a group of vehicles must travel to meet certain commitments in the delivery of service or products to customers at given locations. The program tends to optimize basic factors such as travel time and number of vehicles. VSP consists of two main sections, the Network Analysis Program and the Schedule Production Program. The first program analyzes a network representing the potential calling points by computing either actual or approximate distances between all points. The second program can repetitively produce schedules which meet various restrictions such as route-time, speed, vehicle capacity, and customer requirements.

The program can be used to solve many types of delivery problems. In addition to fulfilling the daily routing function, VSP can also be applied to realign fixed routes, aid in determining feasible locations of warehouses and depots to service potential customers, plan for a new fleet, and provide statistical and cost data relative to the efficiency of a fleet.

Input to the Network Analysis Program can be either of two types: True Distance or Coordinates. Both methods are concerned with zones, not actual customers. A zone is defined as a delivery area (e.g., a shopping center, a postal zone, or a section of a city), which can contain from 1 to 255 customers. The True Distance Method considers distances over actual roads between all points, intersections, and zones. Individual speed can be specified for each road in the network, if desired. This method, while more time consuming to prepare, gives a higher degree of accuracy as the output file will represent the combined knowledge of a firm's manual routing and dispatching departments. True Distances are best suited for networks in which customer location can be determined in advance with relatively few changes so that it needs to be run infrequently. Both methods produce a file representing all practical combinations of potential delivery zones.

The Schedule Production Program uses the output of the Network Analysis Program, together with the list of calls to be made. It then prepares feasible routes approaching optimum loads and minimum travel time, within the restrictions imposed by the user; the most valuable result is that fewer vehicles may be required. The output of the program consists of a printed list of the recommended routes. A summary of the fleet utilization is also produced. All output is stored on disk and can be modified by the user to prepare a variety of specialized reports, including: warehouse picking and loading lists, invoices in route sequence, special driver instructions; plus various analytical reports. The output can, of course, also be used as the entry back into the customer's existing data processing flow. VSP can, therefore, be a link to a more fully integrated distribution system.

Features: The features of the Schedule Production Program listed below are of particular interest as they allow the schedules to be tailored to meet specific demands of customer service and fleet utilization. These features are designed as options which are used only when requested by the user and can then be combined in almost any manner.

- . Limited calling times by stop
- . Average time at all stops in addition to loading/unloading
- . Special additional time for an individual stop
- . Vehicle limits by calling point
- . Up to 255 different vehicle types and capacities
- . Modification of average vehicle speed
- . Earliest possible starting and latest possible finishing time for the fleet
- . Maximum route time by vehicle type
- . Maximum number of calls per route
- . Multi-compartment vehicles
- . Variable assignment of trailers to vehicles
- . Average unloading time per unit
- . Dual specification of load e.g. weight and volume
- . Multiple day journeys
- . Low priority orders
- . Traveling time between calls within a zone.

Use: VSP consists of two basic parts, which can be thought of as separate programs and run independently if desired. These are the Network Analysis and Schedule Production Programs.

After determining whether to use the True Distance or the Coordinate Method of input, the user must prepare the appropriate Network description cards for the Network Analysis Program. The output file from this first phase is then used as partial input for the Schedule Production Program. In addition, for this second phase, the user must specify the various delivery requests and restrictions, fleet descriptions, and limits to be imposed.

Output from the program consists of a suggested schedule for each route, a summary of fleet utilization, and disk storage of all output. Although the user is not required to write any additional programs, he may do so to create input for either phase or to expand the output from the Schedule Production Program.

Customer Responsibilities:

1. The user must be familiar with the options and features of both the Network Analysis and the Schedule Production Programs.
2. Capable user personnel must be assigned to choose between the True Distance and the Coordinate methods and gather the appropriate data. Sufficient time should be given to data gathering prior to implementation of VSP.

3. Overall work standards and special requirements for each delivery must be documented prior to producing the first workable schedule.
4. Some user programming may be required to tailor the input and output of the Schedule Production Program, as mentioned above.
5. A period of parallel operation should be planned when both VSP and the manual system are used. This will allow time to try various combinations of the program features to produce the desired routings.

Programming Systems: VSP is written in Basic Assembler Language and operates under the IBM System/360 Disk Operating System (DOS). Use is also made of the DOS Sort/Merge.

Minimum System Configuration: System/360 Model E30 (32K), (1051-1052 and attachments), 1442 Card Read Punch Model N1, 1443 Printer Model N1, two 2311 Disk Storage Units (control units for reader, printer and disk). This includes provision for DOS disk residence.

Sales Information: The full capacity of VSP in terms of number of deliveries and number of zones will require a system larger than the 32K two-disk minimum. The core requirements by number of deliveries is shown below. The number of zones assumes a maximum of six 2311s although more may be used. The computing time required for a large number of zones can be quite long. Consideration should, therefore, be given to:

1. Larger core. This will substantially reduce the time required by the Network Analysis Program, or
2. Use of very large System/360 external to the installation. Since the Network Analysis Program is usually run infrequently, this may be quite reasonable.

Some options of the Schedule Production Program require additional core storage beyond the basic delivery record length of 14 bytes:

- 3 bytes for Limited Calling Time, plus 6 bytes per Limited Calling Time Delivery record
- 2 bytes for Dual Specification of Load
- 1 byte for Limited Vehicle Size by Calling Point
- 1 byte for Special Time for an Individual Call

Since many combinations of these options can be used, the total record length per delivery can vary from 14 to 21 bytes (excluding specific Limited Calling Time Deliveries). Be certain the proposed system is large enough to handle the maximum number of orders a user might deliver (about 15,000 bytes are available with 32K, using the 6K supervisor).

Schedule Capacities			
Record Length	Maximum number of Deliveries		
	32K	64K	128K
14 bytes	1070	3360	7930
15	1000	3130	7400
16	940	2940	6940
17	880	2760	6530
18	830	2610	6170
19	790	2470	5840
20	750	2350	5550
21	710	2240	5290

When the Limited Calling Time option is requested, the given Maximum Numbers of Deliveries must be reduced by approximately one-third of the Number of Limited Calling Time Deliveries.

The Network Analysis program capacities shown next assume up to six 2311s allowing 60 cylinders for DOS. While this causes the maximum number of zones to be reached before core is exceeded on the larger systems, considerable speed is gained through the use of more core storage. The decomposition feature referred to is a method of increasing both the speed and capacity of the program.

Network Capacities						
Method	Maximum Zones & Storage Required					
	32K	DISKS	64K	DISKS	128K	DISKS
True Distance						
No decomposition:						
Speed on link	689	2	2129	4	2700	6
Average speed	862	2	2662	6	2700	6
With decomposition:						
Speed on link	976	2	2700	6	2700	6
Average speed	1394	2	2700	6	2700	6

Coordinates						
With barriers and congested areas	1500	2	2700	6	2700	6
No barriers or congested areas	2000	3	2700	6	2700	6

Basic Program Material:

Publications -- Application Directory ... Program Description Operations Manual (H20-0506) ... Application Description Manual (H20-0464). If only the form numbered manuals are required, order from the IBM Distribution Center, Mechanicsburg -- not PID.

Machine Readable* -- The relocatable programs and sample problem deck are available on one 9-track DTR (800 or 1600 bpi) or one 7-track DTR (800 cpi) Data Conversion Feature required or one 1316 Disk Pack. (Disk Pack must be forwarded to PID with the program order card).

Optional Program Material:

Machine Readable* -- The source programs and flow charts for the Schedule Production phase of VSP are available on one 9-track DTR (800 or 1600 bpi) or one 7-track DTR (800 cpi) Data Conversion Feature required.

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

* If the track and density requirements are not specified on the back of the program order card, a 9-track (800 bpi) DTR will be forwarded. DTRs will be supplied by PID; no tape submittal is required.

IBM Confidential Material -- Portions of the Optional Material relating to the Network Analysis phase of VSP will be made available at SD & I Centers to field personnel on a need-to-know basis as IBM Confidential material.

Additional Program Support Material: System Manual (Y20-0168) ... availability and form number for the Assembly Listings for the Schedule Production and Distance Listings on microfiche will be announced in a PRL.

Reference Material: Promotional Brochure "VSP/360: Direct Route to Improved Vehicle Scheduling" (520-1914) ... VSP/360 Promotional Kit (slides and narrative) (V20-0156).

For further information contact your regional Scientific Marketing Representative.


IBM World Trade Data Processing
OS/360 BTAM & QTAM

The Basic and Queued Telecommunications Access Methods under OS/360 are being expanded to provide programming support for World Trade Telegraph terminals.

This support will enable the IBM 2701, 2702, and 2703 to control the transfer of data between IBM System/360 and certain World Trade telegraph terminals over leased point-to-point telegraph lines (single-current or double-current) at speed options of 50, 75 or 100 bits per second. Transmission may be in simplex mode or half-duplex contention mode using either the five-bit International Telegraph Alphabet #2 Code or the ZSC3 Figure Protected Code.

The programming support will operate with any of the 2701/2702/2703 World Trade telegraph features.

Telegraph terminals supported are:

Siemens T37, T68 and T100
Lorenz LO 15C and LO 133
Creed Models 75 and 444
Olivetti Type T2
Sagem Model SPE

Terminal components supported are:

Keyboard
Printer
Paper Tape Reader
Paper Tape Punch

Availability

This programming support will be available from WT Program Libraries on June 15, 1969.

Publications

The publications updated by Technical Newsletters to reflect this new support are:


TNL N30-2501 to SRL C30-2004-1 ... IBM System/360 OS B.T.A.M. has been released. Advance copies have been shipped. Additional copies are available from Mechanicsburg, Pa.

TNL N30-2502 to SRL C30-2005-1 ... IBM System/360 OS Q.T.A.M. Message Control Program. Refer to the Weekly Publications Release Letter for availability of this TNL

Minimum System Configuration

Main Storage: 128K bytes
Standard instruction set
One selector channel for system residence
One multiplexer channel for communication control units
One card reader *
One card punch *
One direct access storage device for system residence and disk queues *
One printer *
At least two additional direct access storage devices for system generation *
Communication equipment necessary to interface to the communication line

* See Pages 360S.8-9, "System Generation", for acceptable units and possible substitutions.



John Fahey
Director of DP Marketing

Release Date: September 16, 1968

Distribution: All Areas



IBM World Trade Data Processing

P68-125

CONTENTS

Linear Programming System/360 will be available
June 30, 1969.

Graphic Analysis of Three Dimensional Data will
be available December 31, 1969.

**NEW TYPE II PROGRAM, LINEAR PROGRAMMING SYSTEM/1130 (LPS/1130)
TO BE AVAILABLE JUNE 30, 1969**

LPS/1130 will be available June 30, 1969. It will provide 1130 Disk Monitor (Version 2) users with a simple, easy-to-use and easy-to-understand means of solving linear programming problems. LPS/1130 is the successor to the widely accepted LP-MOSS/1130 program, and will take advantage of additional core storage and input-output devices. Input data to LPS/1130 are compatible with those of LP-MOSS/1130 and LPS/360.

Mathematical optimization is any mathematical technique for determining the optimum use of various resources -- such as capital, raw materials, manpower, plant, or other facilities -- to attain a particular objective (for example, minimum cost or maximum profit) when there are alternate uses for the resources. Linear Programming is the most widely used of these techniques. It is used to allocate, assign, schedule, select, or evaluate the uses of limited resources for such jobs as blending, mixing, cutting, trimming, bidding, pricing, purchasing, planning, and the transportation and distribution of raw materials and finished products.

When using the minimum 8K configuration for LPS/1130, the program has a logical processing capacity for 500 rows; over 600 disk sectors are available for data storage. (Note: LP-MOSS/1130 has capacity for 700 rows and 800 sectors on an 8K machine.)

LPS/1130 has a logical processing capacity of 1,500 rows on a 16K or larger 1130. Problem size is also limited by disk storage space available, arithmetic accuracy, and solution time.

The system is written almost entirely in FORTRAN with some Assembler language routines. LP-MOSS was written entirely in FORTRAN.

See the reverse side for details.

Published by DP Sales Publishing Services, WTHQ

SEE REVERSE SIDE FOR
"NOTE TO WORLD
TRADE READERS"

NEW TYPE II PROGRAM, GRAPHIC ANALYSIS OF THREE DIMENSIONAL DATA (GATD), TO BE AVAILABLE DECEMBER 31, 1969

When GATD is available on December 31, 1969, geologists, engineers, and other professional problem analysts will be able to use an IBM 2250 man-machine oriented system with powerful facilities for on-line graphic analysis of three-dimensional data.

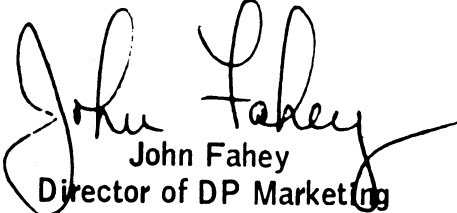
Many industries are concerned with the quantitative description of three-dimensional surfaces as approximated by field or laboratory observations. Since it is usually impossible to obtain a sufficient number of measurements to adequately define a surface, a numerical model of the surface is developed. The numerical model is used to predict the value of the surface where observations are not present.

By means of light pen interaction with a series of 2250 displays, the professional problem analyst can:

- Define, delimit, and access both original and intermediate data.
- Enter parameters that control operation of individual programs.
- Select any desired sequence of available programs for execution.
- Make logical decisions on the basis of program generated displays.
- Examine and, if necessary, add, delete, or modify data values.
- Build numerical models of three-dimensional surfaces from irregularly-spaced input points.
- Display three-dimensional data in the form of contour maps, perspective diagrams, cross-sections, and "fence" diagrams.

GATD operates under OS/360 and in conjunction with PLAN (Problem Language Analyzer) and PLAN Graphic Support (see sales manual P 360A.38 and P 360A.48). The user of GATD has access to all the functional capabilities in PLAN and PLAN Graphics Support.

See the reverse side for details.


John Fahey
Director of DP Marketing

FOR IBM INTERNAL USE ONLY

Linear Programming System (LPS/1130): LPS/1130 provides the 1130 Disk Monitor System (Version 2) user with a simple, easy to understand, easy to use

means of solving linear programming problems and with a powerful tool for implementing other mathematical optimization applications. LPS/1130 is the successor to the widely accepted LP-MOSS/1130 program and will take advantage of additional core storage and input/output devices. Input data to LPS/1130 are compatible with those of LP-MOSS/1130 and LPS/360. The latter provides future growth paths for LPS/1130 users.

Description: Mathematical optimization is any mathematical technique for determining the optimum use of various resources -- capital, raw materials, manpower, plant, or other facilities -- to attain a particular objective such as minimum cost or maximum profit, when there are alternate uses for the resources. Linear programming is the most widely used of these techniques and has been used to allocate, assign, schedule, select, or evaluate the uses of limited resources for such jobs as blending, mixing, cutting, triming, adding, pricing, purchasing, planning, and the transportation and distribution of raw materials and final products.

LPS/1130 has a logical processing capacity of 500 rows on an 8K 1130 and 1,500 rows on a 16K or larger 1130. Problem size is also limited by disk storage space available, arithmetic accuracy and solution time.

Features: Large problem capacity (500 rows on an 8K system and 1,500 rows on a 16K system) ... Flexible processing control (optional conditional control of processing sequence) ... Simple problem definition (easy-to-use format and extensive data maintenance functions) ... Specification of starting solution basis, comparison of problem to form easier problem ... advanced mathematical methods -- automatic iterative limit scaling for accuracy, revised simplex method (product form of inverse), bounded variable feature for range limits and constraints and bounded variables to simplify problem description and to increase problem capacity and solution speed ... multiple pricing ... efficient triangularization inversion method for accuracy ... extensive post optimal analysis options (finite parametric analysis for all problem data and activity -- post-bound relationship for all variables) ... extensive checking (input check for duplicate entries, solution processing check to test for need of early inversion and automatic solution check).

Use: LPS/1130 is governed by procedure control cards which specify the solution sequence. Input data may originate on cards and be stored on disk for subsequent processing. Several problems may be stored on the disk and updated, rerun, or combined. For example, a corporate model can be formed from divisional models, or a total production plan from the plans for individual products.

Reports may be on cards or printer. Output options include a full solution report, comprehensive solution analysis and parametric analysis reports.

Precision and Accuracy: All computations are performed to extended precision (31-bit arithmetic).

Machine and System Configuration: LPS/1130 requires an 1130 with at least 8,192 words of storage, one disk storage drive, and a 2501 Card Reader or 1442 Card Read Punch Model 6 or 7 Read Punch or an 1134 Paper Tape Reader. System generation and maintenance requires either a 2501 Card Reader and a 1442 Card Read Punch Model 5 or a 1442 Card Read Punch Model 6 or 7. A paper-tape-only configuration may not be used for system generation and maintenance.

The system can take advantage of additional core storage, to a maximum of 32,768 words, and up to three disk storage drives, and allows the use of an 1132 Printer, 1403 Printer, 1442 Card Punch and a 1055 Paper Tape Punch.

The recommended 1130 system for good performance and easy operation includes an 1130 with at least 16,384 words of storage and two disk storage drives, a 1442 Card Read Punch for 2501 Card Reader and an 1132 Printer for 1403 Printer.

Programming System: LPS/1130 operates under control of the IBM 1130 Disk Monitor System, Version 2. The source language is primarily FORTRAN with some Assembler language routines.

Program Support Material: The availability of an Application Description Manual will be announced in a Publication Release Letter.

Reference Material: Introduction to Linear Programming (E20-0171) ... Aluminum Alloy Blending (E20-0127) ... Electric Arc Furnace Steelmaking Manual (E20-0147) ... Feed Manufacturing (E20-0148) ... Ice Cream Blending (E20-0156) ... Blast Furnace Burdening (E20-0160) ... Cotton Blending (E20-0164) ... Gasoline Blending (E20-0168) ... LP-MOSS/1130 Program Reference Manual (H20-0345) ... Linear Programming System/360 Application Description Manual (H20-0512).

For further information contact your Regional Scientific Marketing Manager.

Graphic Analysis of Three Dimension Data (GATD): GATD is an IBM 2250 mainframe oriented system with powerful facilities for on-line graphic analysis of three-dimensional data for use by geologists, engineers, and other professional problem analysts.

Description: Many industries are concerned with the quantitative description of three-dimensional surfaces as approximated by field or laboratory observations. Since it is usually impossible to obtain a sufficient number of measurements to adequately define a surface, a numerical model of the surface is developed. The numerical model is used to predict the value of the surface when observations are not present.

Features: By means of light pen interaction with a series of 2250 displays, the professional problem analyst can:

- 1. Define, define, and access both original and intermediate data.
- 2. Enter parameters that control variation of individual programs.
- 3. Select any desired sequence of available programs for execution.
- 4. Make logical decisions on the basis of program generated displays.
- 5. Examine and, if necessary, add, delete, or modify data values.
- 6. Build numerical models of three-dimensional surfaces from irregularly-spaced input points.
- 7. Display three-dimensional data in the form of contour maps, perspective drawings, cross-sections, and "fence" drawings.

Use: In operation, the user views a series of 2250 displays called panels. By light pen interaction with graphic elements on these panels the user can define, define, and access data; control disposition of intermediate and final data; select and enter program parameters; select programs to be executed; make logical decisions on the basis of program generated displays. Therefore, the light pen is used to guide the entire solution path from selection of data through processing of data to final disposition of data.

Customer Responsibility: The user supplies his own file and search routines as well as his specific plotting device for final output. Incorporation of these routines under the GATD system is facilitated by use of PLAN Graphic Support and subroutines supplied by the GATD system. Once these routines are incorporated under GATD, the user has complete on-line graphic control of problem solution from selection of data in mass files to final display of results. In addition, GATD provides for virtually open ended user additions and modifications to the system.

Programming Systems: The GATD system modules are coded in ASA FORTRAN and require the Graphic Programming Services for FORTRAN. The system will operate under OS/360. In addition, the Problem Language Analyzer (PLAN) and PLAN Graphic Support (Time II programs) are required.

Special Sales Information: GATD uses specific "know how" of professional problem analysts to reduce problem solution time from days and weeks to minutes and hours. GATD can be applied whenever analysis of three-dimensional data is facilitated by machine communications. Some of the primary application areas are petroleum exploration and production, mining, civil engineering, oceanography, meteorology, medical research, and manufacturing.

Minimum Machine Configuration: System/360 Model 40 G with Floating Point Arithmetic having a minimum 256K bytes of storage when used as a dedicated system. The minimum partition size is 1008. GATD requires the following additional system facilities beyond those for an OS/360 operation.

- 1. Two IBM 2311 Disk Storage Drives or equivalent for PLAN, PLAN Graphic Support, and GATD system Functions.
- 2. Two magnetic tape drives for intermediate output plus an additional tape drive if plotting output is desired.
- 3. One 2250 Display Unit Model 1 or one 2250 Display Unit Model 2 with one 2040 Display Control Model 2 with Absolute Vectors and Control (=1002), Absolute Keycode (=1245), 8K buffer (=1499), Character Generator (=1380), Light Pen (=4705), and Programmable Function Keyboard (=5355).

All of the above features except alphanumeric keyboard and function keyboard are standard on the 2250 Model 3.

Program Support Material: Application Description Manual (H20-0539)

Reference Material: PLAN Graphics Support Application Description Manual (H20-0535) ... PLAN Application Description Manual (H20-0490)

For further information contact your Process Industry Marketing Representative.

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] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated. [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 E/C AVAILABILITY.**



NEW TYPE II PROGRAM MINIMIZES COSTS IN FOUNDRY OPERATIONS

The 1130 Charge Materials Allocation Processor (1130 CMAP), which will be available October 31, 1969, provides a means for foundries and other metal melting facilities to achieve significant savings by calculating a least cost initial charge of raw materials for the furnace.

Users ... Potential users include both ferrous and non-ferrous foundries which have a wide variety of raw materials, blend to a wide variety of metallurgical specifications, or have rigid metallurgical tolerances.

Here's how it works ... An input translator accepts problem data in formats familiar to melt shop personnel, and then uses the Linear Programming System/1130 (LPS/1130) for calculation. The output writer prints problem solutions in formats planned for easy use by foundry personnel. An inventory control option permits automatic updating of inventory data on the disk. The CMAP modules interface LPS/1130. CMAP allows foundry personnel who have little or no background in linear programming techniques and who have had a minimum of computer training to use this sophisticated management tool.

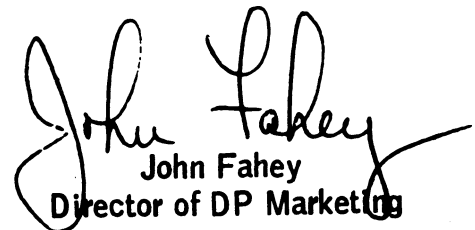
Advantages to Users ... This program aids in minimizing the cost of initial charges, evaluating operating practices, purchasing more economically, establishing a materials inventory policy ... and it is easy to use.

See the reverse side for detailed information.

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.**


John Fahey
Director of DP Marketing

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Charge Materials Allocation Processor (CMAP): CMAP provides a means for ferrous and nonferrous foundries and other metal melting and blending facilities to achieve significant savings by calculating a least cost initial charge of raw materials for a melting furnace.

Description: There may be many possible combinations of input raw materials which may be used to produce metal to given metallurgical specifications. CMAP determines which combination of raw materials results in the lowest cost initial furnace charge, consistent with good operating practice and meeting the metallurgical specifications input by the user.

A linear programming technique is used to solve the problem by calling the routines of the Linear Programming System/1130 (LPS/1130). A specially structured input translator accepts the problem data in a format familiar to and convenient for metallurgists and other melt shop personnel. An output writer prepares and prints reports in a format familiar to foundry personnel.

The program may be executed as often as necessary to analyze the effect of changes in materials, costs, and specifications, providing data which is not readily available through manual calculations. An inventory control feature of CMAP will maintain raw material inventory data, giving a user the first phase of an inventory control system.

Features: CMAP provides the following advantages to the customer --

- . Minimize the cost of initial charges
- . Purchase more economically
- . Evaluate operating practices
- . Establish a materials inventory system
- . Use terminology familiar to user

Special Sales Information: This program is particularly useful to foundries and other metal melting operations which have a wide variety of raw materials, blend to a wide variety of metallurgical specifications, or have rigid metallurgical tolerances. Customers with less stringent melting specifications can still use CMAP to achieve savings by evaluating scrap costs and determining the least cost initial charge. The user does not need to be familiar with computers or linear programming techniques to use basic features of CMAP.

Use: Input to CMAP consists of a description of the chemical content of each raw material, the cost of each raw material, the available amount of each raw material, and the metallurgical specifications and the weight of the heat to be melted. The customer may specify relationships between various elements in the heat to be produced.

A solution is calculated and reports are printed for the user expressing the solution in shop terminology. The customer may make certain adjustments to fit his special operating practices, if necessary. The adjustments are analyzed and additional reports prepared showing the effect of the adjustments. Materials used in the solution may be automatically deducted from the inventory file on disk.

Customer Responsibilities: The customer must be able to provide an accurate description of the chemical content of each raw material. Raw materials must be physically segregated, and the customer must realize the need for and value of materials segregation and know the precise materials composition.

Some type of costing system must be in use so the customer can identify accurate costs for each raw material including in-house scrap. The customer must be able to weigh raw materials to a fairly precise degree.

The user must be familiar with the 1130 CMAP documentation and understand the input formats and procedures for using the program. Knowledge of the basic operating procedures of the Disk Monitor System is a prerequisite to the effective use of CMAP.

The customer must order the 1130 Disk Monitor System (1130-OS-005) and the LPS/1130 to generate the system and execute CMAP.

Programming Systems: The program is written in FORTRAN, operates under control of the 1130 Disk Monitor System, Version 2, and requires LPS/1130.

Minimum Machine Configuration: For generation, maintenance, and execution -- 8K 1130 with single disk storage drive ... 1131 Model 2B, 1132 Printer (Optional), and 1142 Card Read Punch Model 6 or 7. A 2315 Disk Cartridge must be dedicated to CMAP - LPS/360.

Program Support Material: Application Description Manual (H20-0546).

Reference Material: An introduction to Linear Programming (E20-8171) ... Aluminum Alloy Blending (E20-0127).

For further information contact the Process Industry Marketing Manager for Primary Metals (P1) located in the Midwestern Regional HQ.



NEW TYPE II PROGRAM MINIMIZES COSTS IN FOUNDRY OPERATIONS

The 1130 Charge Materials Allocation Processor (1130 CMAP), which will be available October 31, 1969, provides a means for foundries and other metal melting facilities to achieve significant savings by calculating a least cost initial charge of raw materials for the furnace.

Users ... Potential users include both ferrous and non-ferrous foundries which have a wide variety of raw materials, blend to a wide variety of metallurgical specifications, or have rigid metallurgical tolerances.

Here's how it works ... An input translator accepts problem data in formats familiar to melt shop personnel, and then uses the Linear Programming System/1130 (LPS/1130) for calculation. The output writer prints problem solutions in formats planned for easy use by foundry personnel. An inventory control option permits automatic updating of inventory data on the disk. The CMAP modules interface LPS/1130. CMAP allows foundry personnel who have little or no background in linear programming techniques and who have had a minimum of computer training to use this sophisticated management tool.

Advantages to Users ... This program aids in minimizing the cost of initial charges, evaluating operating practices, purchasing more economically, establishing a materials inventory policy ... and it is easy to use.

See the reverse side for detailed information.

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.**


John Fahey
Director of DP Marketing

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Charge Materials Allocation Processor (CMAP): CMAP provides a means for ferrous and nonferrous foundries and other metal melting and blending facilities to achieve significant savings by calculating a least cost initial charge of raw materials for a melting furnace.

Description: There may be many possible combinations of input raw materials which may be used to produce metal to given metallurgical specifications. CMAP determines which combination of raw materials results in the lowest cost initial furnace charge, consistent with good operating practice and meeting the metallurgical specifications input by the user.

A linear programming technique is used to solve the problem by calling the routines of the Linear Programming System/1130 (LPS/1130). A specially structured input translator accepts the problem data in a format familiar to and convenient for metallurgists and other melt shop personnel. An output writer prepares and prints reports in a format familiar to foundry personnel.

The program may be executed as often as necessary to analyze the effect of changes in materials, costs, and specifications, providing data which is not readily available through manual calculations. An inventory control feature of CMAP will maintain raw material inventory data, giving a user the first phase of an inventory control system.

Features: CMAP provides the following advantages to the customer --

- . Minimize the cost of initial charges
- . Purchase more economically
- . Evaluate operating practices
- . Establish a materials inventory system
- . Use terminology familiar to user

Special Sales Information: This program is particularly useful to foundries and other metal melting operations which have a wide variety of raw materials, blend to a wide variety of metallurgical specifications, or have rigid metallurgical tolerances. Customers with less stringent melting specifications can still use CMAP to achieve savings by evaluating scrap costs and determining the least cost initial charge. The user does not need to be familiar with computers or linear programming techniques to use basic features of CMAP.

Use: Input to CMAP consists of a description of the chemical content of each raw material, the cost of each raw material, the available amount of each raw material, and the metallurgical specifications and the weight of the heat to be melted. The customer may specify relationships between various elements in the heat to be produced.

A solution is calculated and reports are printed for the user expressing the solution in shop terminology. The customer may make certain adjustments to fit his special operating practices, if necessary. The adjustments are analyzed and additional reports prepared showing the effect of the adjustments. Materials used in the solution may be automatically deducted from the inventory file on disk.

Customer Responsibilities: The customer must be able to provide an accurate description of the chemical content of each raw material. Raw materials must be physically segregated, and the customer must realize the need for and value of materials segregation and know the precise materials composition.

Some type of costing system must be in use so the customer can identify accurate costs for each raw material including in-house scrap. The customer must be able to weigh raw materials to a fairly precise degree.

The user must be familiar with the 1130 CMAP documentation and understand the input formats and procedures for using the program. Knowledge of the basic operating procedures of the Disk Monitor System is a prerequisite to the effective use of CMAP.

The customer must order the 1130 Disk Monitor System (1130-OS-005) and the LPS/1130 to generate the system and execute CMAP.

Programming Systems: The program is written in FORTRAN, operates under control of the 1130 Disk Monitor System, Version 2, and requires LPS/1130.

Minimum Machine Configuration: For generation, maintenance, and execution -- 8K 1130 with single disk storage drive ... 1131 Model 2B, 1132 Printer (Optional), and 1142 Card Read Punch Model 6 or 7. A 2315 Disk Cartridge must be dedicated to CMAP - LPS/360.

Program Support Material: Application Description Manual (H20-0546).

Reference Material: An introduction to Linear Programming (E20-8171) ... Aluminum Alloy Blending (E20-0127).

For further information contact the Process Industry Marketing Manager for Primary Metals (P1) located in the Midwestern Regional HQ.



**VERSION 2 OF SYSTEM/360 MEDICAL
INFORMATION SYSTEM PROGRAMS (MISP)**

This announcement supplements P67-128 and describes additional capabilities of MISP. The controlled release plan announced in P67-128 remains in effect. Any changes to this plan will be stated by December, 1968.

Support will be added to MISP to allow the 2760 Optical Image Unit as an input device for a Hospital Information System using MISP as the system framework. The support will consist of a new module in the MISP Executive Program to control the 2760 using tables supplied by the user and a program to construct the tables.

Availability of the added support is June 15, 1970.


Minimum System Requirements ... Use of the 2760 requires a 2040 Model G, 128K of storage. All other system requirements remain the same. Terminal configuration supported is a 2740 Model 1 equipped with Record Checking (6114) and 2760 Attachment (8301) with a 2760 Optical Image Unit Model 1.

All customers affected by this announcement should be notified. For details see sales manual text printed on reverse side.

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.**


John Fahey
Director of DP Marketing

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Medical Information System Programs (MISP): A special release procedure for MISP is in effect during 1968.

MISP is released under direct control of Industry Marketing - Medical, since testing of MISP is dependent on the extent to which system facilities and parameters are required by user application programs. This controlled release plan will assure the most complete testing in hospitals under varying environmental conditions and provide a suitable marketing and technical support environment for installation of hospital information system (HIS). Changes to the availability procedure will be stated by December 1968. Sites with an installed or on-order configuration that satisfies the requirements of MISP and with an installation plan approved by DP Medical Industry Marketing are eligible to obtain the announced programs for installing. These sites, using MISP to install a HIS in 1968, will be considered in field test status and will receive special IBM support. MISP programs and documentation will be offered only after a written agreement has been signed between the customer and the IBM branch office (a sample agreement can be obtained through DP Medical Industry Marketing, GEM HQ). Customers affected should be provided with this information as soon as possible and the names of potential test sites with specific installation schedules nominated to Medical Industry Marketing. No customer commitment may be made relative to this program before written acceptance by Medical Industry Marketing of the proposed candidate account. The controlled release plan will help in assuring a coordinated installation program among the customer, the branch office, and Medical Industry Marketing.

Description: Recognizing the need for each hospital to install a system tailored to individual needs, the input, output, communications, and processing required in all hospital areas (admitting, nurse station, pharmacy, etc.) were analyzed in detail, and common program modules and functions defined. These common programs and facilities form the Medical Information System Programs (MISP), written especially for hospitals allowing easier installation of user applications in each hospital area. MISP in combination with user programs accepts admitting information, doctors' orders, laboratory results, etc.

The programs may be divided into three categories: Executive, Subroutine Library and System Utilities.

The Executive Programs use DOS facilities, initialize, suspend or terminate system operation, select, initialize and terminate application programs, maintain system status and priority, manage communication lines, handle the timer, initialize time-called programs, handle interrupts, queue messages, accept macro orders and manage I/O.

The library programs are commonly-used subroutines assembled with user-written instructions to construct the application programs. Routines are available to insert orders into the Patient Master Record (PMR), scan the PMR for information based on user-specified parameters, scan and update both activity and reminder tables, check messages for valid source, access PMR based on admission number, search tables, perform various conversions between date and time, define work areas and registers, move characters, load and store, pack, unpack and initialize fields, compute totals, compare fields and formulate characters.

The system utility programs will also be available. These programs assist the user in loading the information that describes his system for the Executive and user application programs. Programs are available for defining and loading application data sets, loading and modifying time-dependent functions, formatting and clearing the PMR, loading and modifying the Executive tables, adjusting date and time, and performing terminal test and control functions. A utility to construct tables for the Interpretive Program support of the 2760 Optical Image Unit will be available later (see note below).

Representative record layouts are provided with the programs. These designs include control tables required to describe each user's specific installation, service area master records, patient orders and station activity tables.

Features: Capability for operating both Teleprocessing and background programs simultaneously ... locations can be defined by symbolic reference ... centrally located patient master record ... executive program design allows application program exchange between hospitals ... hospital application programs constructed with powerful MISP subroutine library ... modular program construction allows generation of individually tailored system.

Customer Responsibilities: Gathering master file data ... constructing and coding Assembler Language application programs within the requirements of the MISP environment ... parallel operation during system checkout ... keymat design and procedure handbooks ... training personnel on terminal and system operation ... backup procedures and restart programs ... assuring accuracy of system input and output ... selection of terminal and system sites ... design of display frames and the necessary application programs for the 2760 (see note below).

Branch Office Responsibility: The serviceability requirements of a HIS are especially significant due to the vital nature of the application. These requirements will be proportionate to the scope of a particular HIS. The branch office must address the systems serviceability requirements for the specific needs of the customer and his specific use of MISP in his installation. DP Regional Systems Assurance approval and Field Engineering review for the particular customer situation are required.

Special Sales Information: The Medical Information System Programs reduce the customer programming effort, provide a basis for uniformity in system design among users, and offer a means for each customer to construct a hospital information system to meet his own needs. System installation and customer classes are planned nationally at central locations, and dates will be announced through Medical Industry

Marketing. Enrollments will be coordinated on an installation date priority basis through the Regional Medical Representatives and the Medical Development Programming Center, Cranford, N. J.

Programming System: The Medical Information System Programs use DOS/360. The program modules are written in Assembler Language and use BTAM (including the communication serviceability facilities for the 2740/2760) for teleprocessing control. For background jobs the user can use any object program or job (RPG, Sort/Merge, etc.) supported by DOS/360 that does not require the timer facility, other than time of day, and does not use the MISP Executive Programs. In a minimum system (2030F with 65,536 bytes and with an 8,192 byte supervisor and 20 terminals) the background partition is 10,240 bytes (minimum allowable).

Minimum System Requirements: System/360 Model 2030F (2040G with 2760 support - see Note 1), Interval Timer (=4760), Selector Channel (=6960), Storage Protection (=7520), Decimal Arithmetic (=3237), 1051 Attachment (=7915) ... 1442 Card Read Punch N1 ... 1443 Printer Model N1 ... 1051 Control Unit Model N1, CPU Attachment (=3130), First Printer Attachment (=4409), First Punch Attachment (=4410), First Reader Attachment (=4411), Systems Console Attachment (=9708) ... 1052 Printer-Keyboard Model 8 ... 2841 Storage Control Model 1 ... four 2311 Disk Storage Drives Model 1 ... 1316 Disk Packs Model 1 as required ... 2702 Transmission Control (15 lines), Terminal Control - Type 1 (=4615), Selective Speed (=9684), 31 Line Expansion (=7955) and Terminal Control Base dependent on number of lines and terminals required, 2740 Model 1 equipped with Record Checking (=6114) and 2760 Attachment (=8301) with a 2760 Model 1 Optical Image Unit (See Note 1).

The minimum processor (Model 2030F, 64K) is intended to provide a suitable growth program for a customer installation (from accounting to limited Teleprocessing and HIS testing, and leading to an operational HIS). Most customers will require a 128K, Model 2040G processor for an operational HIS; an operational HIS should include additional on-line error recording and error recovery facilities. These facilities cannot be included in a 64K, Model 2030F processor with 20 terminals, a 10K background program area and an 8K supervisor. Consult your Medical Industry Marketing Representative and Regional DP and FE Systems Assurance Representatives for the specific trade-offs for your customer before contacting the customer. Individual terminal configurations use 1051 Control Unit with special features (see note below). Most 1050 terminals will have a 1092 Programmed Keyboard Model 2 with Multiple Key Depression (=5247), 1051 Attachment (=7915), and 1052 Type Entry Key and Sensing for 256 Keymats (RPQ E38484). Depending on the particular terminal location, a 1052 Printer-Keyboard or 1053 Printer will also be required. The suggested laboratory configuration includes a 1093 Programmed Keyboard Model 2 (RPQ E38484) in addition to a 1092. The suggested Admitting terminal includes a 1056 Card Reader Model 2, a 1092 (RPQ E38484), and a 1052. A system operator's terminal should include at least one component of every type used throughout the hospital.

Other input/output units may be required to satisfy the individual user application and backup requirements. The programs provide an interface for user programs written to support these devices. Consideration must be given to: volumes of input and output in light of required throughput speeds ... background system availability ... accounting system needs ... audit, backup and restart programs and procedures ... other devices supported by DOS/360.

Reference Material: Application Description Manual (Y20-0153).

For further information contact your Medical Industry Marketing Representative.

Note: Programming support for the 2760 Optical Image Unit will be available June 15, 1970.



CONTINUING SUPPORT FOR MANUFACTURING INDUSTRIES VIA NEW TYPE II PROGRAM

System/360 Model 20 Bill of Material Processor (360V-ME-08X) is now available. It provides the capability to load, retrieve, reorganize, and maintain part number master and product structure records.

This application program represents an extension of the support by IBM in the area of manufacturing application definition and implementation to the System/360 Model 20. The package provides manufacturing organizations with programs that establish and maintain basic information files describing the structure of products, and a program to provide the retrieval of this information.

The program uses a direct access file-oriented concept that requires a part number master (inventory-type) file to be on-line simultaneously with a product structure file. The part number master file can be loaded, maintained, and reorganized using programs supplied with the Bill of Material Processor, or the user may write his own programs to accomplish these functions. Product structure file load, maintenance, and reorganization are provided by the Bill of Material Processor, which is written in Assembler Language using the Input/Output Control System.

While timings can vary widely depending upon the exact nature of user data, overall performance is approximately equal to that of the 1440 Bill of Material Processor.

See the reverse side for the new sales manual write-up.


John Fahey
Director of DP Marketing

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.**

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Bill of Material Processor: This program has the capability to load, maintain, retrieve, and reorganize part number master and product structure records. (360V-ME-08X)

Description: The program represents an extension of the support by IBM in the area of manufacturing application definition and implementation to the System/360 Model 20. The package contains generalized source programs to load and maintain product structure and part number master records on IBM 2311 disk files ... generalized source programs to reorganize the product structure and part number master files ... a generalized source program to perform six basic product structure retrievals (single level, indented and summarized parts lists and single level, indented and summarized where-used parts lists).

The program uses a direct access file-oriented concept that requires the part number master (inventory-type) file to be on-line simultaneously with the product structure file.

Features:

- Product Structure records are linked to the Part Number Master (inventory-type) records.
 - Disk file chaining is used to organize product structure data in two inherent sequences:
 1. Assembly or bill of material sequence (i.e., linking the components of an assembly).
 2. Where-used sequence (i.e., linking the usages of a part number on higher assemblies).
 - Raw material can be included in the product structure file, providing for complete where-used cross reference of each raw material.
 - User designs his own record layouts by incorporating his own information plus certain required data into Part Number Master and Product Structure records.
 - Low level coding is automatically maintained when adding records to the Product Structure file.
 - Assembly to sub-assembly continuity is verified. This feature guarantees that the product structure records can be "exploded."
- Plus
- Bi-directional file chains to speed the maintenance of part number where-used data.
 - A run activity control technique to aid in restart and reconstruction and to facilitate additional retrieval features.

Special Sales Information: The Part Number Master File cannot be over one-half total available disk area. This requirement is necessary because the Part Number Master File Reorganization Program completely rewrites the file, and, therefore, requires a new area equal in size to the old area.

Please note that because of multiple levels of control, the user can build his own engineering change procedures into the Product Structure File Load and Maintenance program.

Since the Bill of Material Processor uses the Index Sequential File Management System implemented in the Model 20 Disk Programming System, the user may, if he desires, write his own part number master file data management programs in lieu of those provided by the package. This may be done using either RPG or Assembler Language.

While timings can vary widely depending upon the exact nature of user data, overall performance is approximately equal to that of the 1440 Bill of Material Processor.

Use:

File Load and Maintenance: The user prepares his bills of material and transactions in his predefined card formats. The programs load and maintain this information on disk in a logical structure consistent with the relationship of the data.

Retrieval: The user prepares a simple inquiry transaction card to request one of his six basic product structure retrieval reports. The program retrieves the information from the disk files and prints the required document in user-defined format.

Reorganization: At the user's discretion, he can reorganize one or both files with programs supplied.

Customer Responsibilities: A thorough knowledge of Bill of Material Processor concepts (explained in the Application Description Manual) by the system designer is necessary. To implement this system, the following steps must be taken -- determine the format and content requirements of the records ... design additional input edit routines (if desired) ... establish control sequence (up to three levels available) ... design print formats and write routines to implement them ... tailor the Assembler Language Source Programs to fit his requirements.

Programming Systems: The following modules of the System/360 Model 20 Disk Programming System are required for the assembly and execution of the System/360 Model 20 Bill of Material Processor:

Program Name	Program Number
Disk-Resident Control Programs	360W-CL-171
Macro Maintenance Program	360W-SL-176
Library Service Programs	360W-SL-177
Core Image Maintenance Program	360W-SL-175

Assembler Program	360W-AS-181
Initialize-Disk Utility Program	360W-UT-183
Disk-to-Card Utility Program	360W-UT-189
Input/Output and Basic Monitor Macro Definitions	360W-IO-192
Punch Card Utility Programs	360-UT-100

The above modules of the System/360 Model 20 Disk Programming System are required; however, if any others are present, they will not affect the System/360 Model 20 Bill of Material Processor programs. Also, it should be noted that the System/360 Model 20 Bill of Material Processor programs will execute under either the Disk-Resident Control Programs (360W-CL-171) or the Card-Resident Control Programs (360W-CL-170). The Punch Card Utility (360T-UT-100) is used in the selective reproduce procedure of the modification process.

Note: If the user has a 2560 attached to his system, he may find it useful to have the Punch Card Utility Program (360T-UT-101). Although it is not a required program, it will simplify generation of the sample problem.

Minimum System Requirements: A 2020 Processing Unit Model D4 with Disk Storage Control, the appropriate printer attachment, the appropriate card reader attachment, the appropriate card punch attachment ... 1403 or 2203 Printer (48 character set minimum) ... 2501, 2560, or 2520 Model A1 Card Reader ... 2560, 1442, or 2520 Card Punch ... two 2311s (Model 11 or 12).

Note: The 2560 or 2520 Model A1 can be used as both the card reader and card punch for the System/360 Model 20 Bill of Material Processor.

Basic Program Material:

Publications -- Application Directory ... Program Description Manual (H20-0553) ... Operations Manual (H20-0554). If only the form numbered manuals are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

Machine Readable -- The generalized source programs, macros, and sample problem may be obtained on one 9-track DTR (800 or 1600 bpi) or one 7-track DTR (800 cpi) (Data Conversion feature required), or one 1316 Disk Pack. If track and density requirements are not indicated on the back of the program order card, 9-track (800 bpi) will be forwarded. 1316 Disk Packs must be forwarded with the program order card. DTRs are provided by PID; no tape submittal is required.

Ordering Procedure: See the Branch Office Manual, DP Sales Activity section, page 4-401.

Additional Program Support Material: Application Description Manual (H20-0478) ... Systems Manual (V20-0255).

Reference Material: Bill of Material Processor -- A Maintenance and Retrieval System (E20-0114) ... The Production Information and Control System (E20-0280).

For further information contact your Regional Manufacturing Industry Marketing Representative.



Data Processing

P68-129

**TIME SHARED REMOTE SYSTEM (RAX)
AVAILABLE FOR MODEL 44 CUSTOMERS**

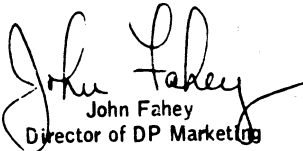
RAX, a time-shared computing system, is now available for System/360 Model 44 users (360A-CX-21X).

RAX, for Model 44, allows users to submit Model 44 Programming System FORTRAN IV and Assembler Language jobs for compilation and time-sliced execution from local and remote terminals simultaneous with similar operations at the on-line computer site. It also allows programmers to compile, modify, and execute from their terminals, while non-computer-oriented users can be conversationally interacting with programs previously stored in the RAX library.

The advantages to users are that a full USASI (United States of America Standards Institute) FORTRAN language, as well as an assembly language, is provided; and the modularity and compatibility capabilities of the System/360 Models 30, 40, and 50 RAX Program (360A-CX-17X) Version 2 are continued with the System/360 Model 44 RAX System, which means that the Model 44 RAX user will have:

- A common terminal command language.
- SYSGEN tailoring of RAX to fit the specific installation requirements.
- The same type terminal support.
- The same data management facility.

The new sales manual write-up, which has detailed information, is on the following pages.


John Fahey
Director of DP Marketing

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Release Date: September 26, 1968
Distribution: All Areas

P68-129 

Remote Access Computing System (RAX) Model 44:

RAX is a time shared, remote computing system for System/360 Model 44 with the same

functional capabilities as RAX for the System/360 Models 30, 40, 50. RAX provides sustained access to a System/360 from remote locations to enable programmers, engineers, scientists, and other users to obtain fast turnaround and reduced problem-solution time for their computational problems. (360A-CX-21X)

Description: Users of RAX can submit full USASI FORTRAN IV and Assembler Language jobs for compilation and time-sliced execution from local and remote terminals, simultaneously with similar operations at the on-line computer site. Programmers can compile, modify, and execute programs from their terminals while non-computer-oriented users can be conversationally interacting with programs previously saved in the RAX library.

RAX user flexibility is continued on the Model 44 version by a modular and compatible design. Two memory sizes (128K and 256K bytes) can be used. Two terminals (the IBM 1050 data communications terminal and the IBM 2260 Display Station) can be used, with up to a maximum of 63 simultaneously operational. Two IBM 2311 Disk Storage Drives are necessary but up to eight can be utilized by RAX.

In addition to modularity, RAX flexibility is enhanced by its functional compatibilities being available from the smallest to the largest configuration.

Features:

- Up to 63 terminals can be used with RAX, depending upon the amount of core memory available. The number of RAX terminals supported for the allowable memory configurations are:
 - 256K byte memory - maximum of 63 IBM 1050 terminals
 - maximum of 8 IBM 2260 Display Stations
 - total number of 1050 terminals and 2260 Display Stations may not exceed 63
 - 128K byte memory - maximum of 27 IBM 1050 terminals
 - IBM 2260s can be used with this memory configuration with 1 - 2260 equated to 3 - 1050s in determining the 27 terminal limit
- Users may share programs and data which are stored in the RAX user library. File security is provided by means of a lock code, which is used to prevent unauthorized deletion or modification of any file in the library.
- A restart capability is provided for resumption of jobs after recovery from systems error. Upon recovery, RAX will indicate to each user the last line of input accepted, or repeat the last few lines of output.
- The 2260 Display Stations allow entry of up to 12 lines of input at a time. The Non-Destructive Cursor feature is used to provide for single character modification within a line when updating program or data files.
- Object program execution storage of 64K bytes is provided.
- Users of RAX may enter programs and data one line at a time from their terminals, or use a single terminal command to insert a previously stored data or source program module into their job stream at compile time.
- Up to 7 IBM 2311 Disk Storage Drives are supported for on-line library storage.
- The user may enter either FORTRAN or Assembler jobs from his terminals. However, all input/output must be programmed in FORTRAN. Execution of privileged instructions in a user program is not allowed by RAX.
- A DISPLAY command is available for total or selective listing of a user's input or library files.
- A full USASI FORTRAN is provided by FORTRAN IV in 44 RAX.

Use: Sustained access to a System/360 from remote locations enables engineers, scientists, and other users to realize fast turnaround and reduced problem solution time. FORTRAN programmers can compile, modify, and execute programs from their remote terminals, while non-programmers are using programs previously saved in the RAX library. Familiarity with the RAX terminal command language and the operation of his terminal device enable the user to exploit the computational power of System/360 in a very convenient manner.

RAX provides a facility for conversational interaction between a user and an executing program. This is accomplished by the use of input/output statements in a problem program which addresses the user's terminal as an I/O device. Thus, programs can be written to take advantage of the "on-line" presence of the user by permitting him to selectively modify his input, observe intermediate results as they are calculated, and alter parameters - or perhaps the execution sequence - of the program based on his interpretation of these results.

Customer Responsibilities: A customer using RAX must take the following steps prior to installation to insure that the use of the system will be satisfactory.

- The customer is responsible for ordering and installing satisfactorily the communications equipment required.
- Appropriate training must be given to users on the terminal command language, the programming languages, and terminal operations.
- It is highly recommended that a systems programmer become familiar with the internal operations of the system.

- Distribution of the RAX program will be on tape. RAX users must have access to a tape configuration on which to punch the object and source program decks.

Sales Information: Most System/360 Model 44 customers and prospects are potential prospects for RAX.

- RAX can constitute the entire justification for a system in engineering research firms, in universities, or in engineering departments of large firms.
- RAX provides justification for upgrading and adding equipment for customers who want to provide access to a computing service for their scientific and technical personnel.

RAX enables IBM customers to acquaint themselves with remote computing time-sharing systems. A small additional investment permits batch-oriented installations to evaluate the benefits of this emerging system concept for their own operations.

By building a library of interactive application programs, an installation can extend the capabilities of System/360 to a broader range of users.

Programming System: RAX is written in System/360 Model 44 Assembler Language and includes the FORTRAN IV Compiler and the FORTRAN IV Library.

Minimum Machine Requirements: System/360 2044 Processing Unit Model G with one Multiplexer Channel (#5248) and one High Speed Multiplexer Channel (#4598) Floating Point Arithmetic (#4427), Store and Fetch Protection features (#7531, 7532, 7533); 2540 Card Read Punch, 1403 Printer Model 2, 3, 7, or N1, two 2311 Disk Storage Drives, for attaching 1050 Data Communication Terminals, EITHER a 2702 Transmission Control with Terminal Control - Type 1 (#4615), Selective Speed (#9684), and appropriate line adapters UR 2701 Data Adapter Units with Terminal Adapter - Type 1 (#4645 or 4646) and appropriate line adapter for each line. Up to 27 - 1050 Data Communication Terminals may be attached to the minimum configuration.

Terminal Configuration: The minimum IBM 1050 Data Communication Terminal consists of one IBM 1051 Control Unit Model 2 with the First Printer Attachment feature (#4408) and one IBM 1052 Printer-Keyboard Model 2. The 1052 Printing Element used by RAX is Data 1 font (#9575 or #9576). The 1050 can utilize the 1054 Paper Tape Reader or 1056 Card Reader attached as Reader #1 on the 1051. For use with the 1056, cards can be prepared on either the 26 or 29 keypunch. The 1056 must have the Extended Character Read Special Feature.

Below are indicated 1050 special features that can be used with RAX (A); features that can be attached but are not utilized by the system (B); and features that must not be attached to a RAX terminal (C). (AR) status means that, where the component is installed, the referenced feature must be available.

Component	Feature No.	Status
<u>1051 Control Unit Models 1 & 2</u>		AR
I/O Unit Attachments		
Card Punch Attachments	1635	B
1st Printer Attachment for mdl 1 or 2	4408	AR for 1052
1st Punch Attachment	4410	AR for 1055, 1057, 1058
1st Reader Attachment	4411	AR for 1054, 1056
2nd Printer Attachment	6381	B
2nd Punch Attachment	6383	B
2nd Reader Attachment	6384	B
Auto Fill Char Gen	1287	B
Auto Ribbon Shift & Line Feed Select	1295	B
Audible Alarm	1307	B
Automatic EOB	1313	A
CPU Attachment	3130	C
Forms Stand Stacker	4450	B
1447 Attachment	4461	C
Home Comp Recgn'n	4605	B
Home Correction	4607	B
Home Loop Input Component Interlock	4606	B
IBM Line Adapter	4647	A
Subchannel 1	4691	A
Subchannel 2	4692	A
Subchannel 3	4693	A
Subchannel 4	4694	A
IBM Line Adapter	4790	A
I/O Comp Table	4632	B
Keyboard Request	4770	A
Line Correction	4795	B

Component	Feature No.	Status
<u>1051 Control Unit Models 1 & 2</u> (con't.)		
<u>I/O Unit Attachments</u>		
Line Cor Release	4796	B
Master Station	5050	B
Open Line Detection	5465	B
Reader Stop Prefix J	6060	B
Switch Unit		
for Mod 1	7660	C
for Mod 2	7661	C
Tel Line Attachment	7835	C
Vertical Forms Control	8715	A
<u>1052 Printer-KeyBoard Model 1 or 2 only</u>		AR
Accelerated Carrier Return	1006	B
Auto EOB	1313	A
Forms Feed Control	4452	A
Home Loop Input Component Interlock	4606	B
Open Line Detection	5465	B
<u>1053 Printer Model 1</u>		B
<u>1054 Paper Tape Reader Model 1</u>		A
Edge-Punch Read	3570	C
Reels, Center Roll Feed and Take-up	6120	B
Telegraph Speed	7910	C
<u>1055 Paper Tape Punch Model 1</u>		A
Edge-Punching	3571	C
Reel-Take-up	6121	B
<u>1056 Card Reader (Model 1 Recommended)</u>		A
Card Reader Program	1640	B
Extd. Character Reading	3861	AR
Feed, 51 Col Card	4004	C
Feed, Short Card Pack	4006	C
High Speed Skip	4595	B
Telegraph Speed	7910	C
<u>1057 Card Punch Model 1</u>		A
Extd. Character Punch	3860	AR
Operator Panel	5478	B
<u>1058 Printing Card Punch Model 1</u>		C

The IBM 2260 Display Station must have an Alphameric Keyboard feature and be connected to the multiplexer channel through a directly attached 2848 Display Control Model 3 with the Non-Destructive Cursor feature. One 2848 Model 3 with up to eight 2260 Display Stations is supported.

The 128K byte core system (Processing unit model G) will support a maximum of twenty-seven 1050s. A tradeoff on core storage will allow one 2260 to replace three 1050s and vice versa. For purposes of calculating the mix of terminal lines entering the system, 600 bytes of memory are required for each 1050 terminal and 1800 bytes per 2260 terminal after the basic I/O routines are incorporated.

Maximum Support Configuration: System/360 2044 Processing Unit Model H with a Multiplexer Channel (#5248) and two High Speed Multiplexer Channels (#4598, 4599), Store and Fetch Protection (#7531, 7532, 7533, 7534), Floating Point Arithmetic (#4427), 2540 Card Read Punch, 1403 Printer Model 2, 3, 7 or N1, eight 2311 Disk Storage Drives, two 2702 Transmission Controls, up to sixty-three 1050 Data Communications Terminals, one 2848 Model 3 Display Control with Non-Destructive Cursor feature (#5340, 5341), Channel Adapter (#9011), and up to eight 2260 Display Stations with the Alphameric keyboard feature (#4766) (with a maximum of 63 - 1050s and 2260s combined), four 2400 9-track tape drives.

Basic Program Material:

Publications -- Application Directory ... Program Description Manual (H20-0565) ... Operations Manual (H20-0563). If only the form numbered manuals are required, order from the IBM Distribution, Mechanicsburg -- not from PID.

Machine Readable* -- Object program load modules and sample problem decks are available on either one 9-track Distribution Tape Reel (DTR) (800 or 1600 bpi) or one 7-track DTR (800 cpi) - Data Conversion feature required.

Optional Program Material:

Machine Readable* -- Source Decks and Assembly Listings are available on magnetic tape. Either or both may be ordered. Each requires only one 2400 reel of magnetic tape 9-track (800 or 1600 bpi).

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

Ordering Procedure: See the Branch Office Manual, DP Sales Activity section. DTRs are provided by PID; no tape submittal is required. Magnetic Tapes (2400') may be forwarded or ordered (the order card should accompany the tape order form).

NOTE: Systems Generation -- Distribution of the RAX program will be on tape. RAX users must have access to tape configuration on which to punch the object and source program decks.

Additional Program Support Material: Application Description Manual (H20-0514) ... System Manual (Y20-0262).

Reference Material: IBM Operating System/360 FORTRAN IV (C28-6515) and 44 PS Assembler Language (C28-6811) describe the languages implemented under RAX.

For further information contact your Regional Scientific Marketing Manager.

**IBM 1130 AUTOMATED CHEMISTRY PROGRAM
(1130 ACP) IS NOW AVAILABLE (TYPE II)**

ACP for the 1130 is available (1130-UH-13X). The program (within the Clinical and Administrative Record System - CARE) supports the IBM 1080 Data Acquisition System in the Clinical Laboratory.

1130 ACP processes the punched card output of the 1080 establishing the calibration function from control standards, checking the quality of control standards used, computing the test result, adjusting the result for instrument drift and specimen interaction, comparing the results with the mean and standard deviation for all results for that test, and associating each result with the proper specimen identification number.

1130 ACP prepares a quality control report. Included in this report are test result calibration control information, dilution factor (if any), abnormal indication for 1 or 2 standard deviations and specimen number.

1130 ACP also sets up a file by specimen number and test results for each test ordered . . . the data from this file can be transferred to and integrated with a Patient Master Record by user-written routines.

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.**


John Fahey
Director of DP Marketing

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Release Date: September 30, 1968
Distribution: All Areas

P68-130



Automated Chemistry Program: This program is within the Clinical and Administrative Record System (CARE) for support of the IBM 1080 Data Acquisition System in the clinical laboratory. (1130-UH-13X)

Description: This program processes the punched card output of the IBM 1080 Data Acquisition System.

Processing of 1080 Punched Card Output -- Establishes the calibration function from control standards ... checks the quality of the control standards used ... computes the test result ... adjusts the test result for instrument drift that might have occurred ... adjusts the test result for interaction between specimens (high concentration followed by low concentration) ... compares test result with mean and standard deviation of cumulative data for all results for that test ... associates each test result with the proper specimen identification number.

Setting Up A Test Result File -- Sets up a file by specimen number, and tests results for each test ordered ... the data from this file can be transferred to and integrated with a Patient Master Record by user-written routines.

Print Out Of Quality Control Report -- Prepares a quality control report for review by the laboratory prior to release of test data for distribution to the ward or clinic ... the quality control report lists for each specimen processed: test result, dilution factor (if any), abnormal indication for 1 or 2 standard deviations, and specimen number.

Features: This program encompasses the following unique features that produce more reliable test results -- check reliability of control standards ... adjust for analyzer drift ... adjust for interaction of specimens with widely differing concentrations ... report quality control information ... flag abnormal test results for retesting of these specimens.

Special Sales Information: The output from this program can be combined with the user-provided basic patient data and printed by simple user-written routines to serve as a Patient Summary Sheet for tests processed by 1130 ACP.

Use: This program is loaded into the library and called via job control cards ... environmental data are loaded and retained on disk via a maintenance program included with this program; this is a one time operation for a given operating environment ... 1080 card output can then be processed.

Customer Responsibilities: The user is responsible for providing basic patient data, associating patient number and specimen number ... setting up the 1080 by providing a description of which analyzer strip chart recorders are associated with which 1084, a description of the tests run on each 1084, test number and name, concentration of each calibration-standard, control standards used, and chemistry procedure used.

Programming Systems: These programs are written in FORTRAN IV and Assembler language. They are designed to operate under the 1130 Disk Monitor System Version 1.

Minimum System Requirements: An 1131 Model 2B (8K) Central Processing Unit with 2315 Disk Cartridge, 1132 Attachment (#3616), Expansion Adapter (#3854), 1442 Model 6 or 7 Attachment (#4454) ... 1442 Card Read Punch Model 6 ... 1132 Printer Model 1.

Basic Program Material:

Publications -- Application Directory ... IBM 1130 Automated Chemistry Program (1130 ACP) Program Description Manual (H20-0542) ... Operations Manual (H20-0543). If only the form numbered manuals are required, order from the IBM Distribution Center, Mechanicsburg, not from PID.

Machine Readable -- One card deck consisting of control cards and object modules necessary to store the program in the User's Area of the 1130 Monitor disk and a sample problem with control cards for execution, available in card form.

Optional Program Material:

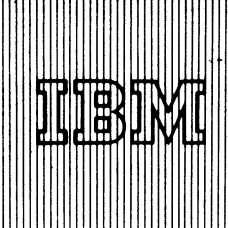
Machine Readable -- One 9-track DTR (800 bpi or 1600 bpi), containing the source decks. DTRs are provided by PID; no tape submittal is required.

Ordering Procedure: See the Branch Office Manual, DP Sales Activity Section.

Additional Program Support Material: Application Description Manual (H20-0432) ... System Manual (Y20-0216)

Reference Material: System Summary (A26-5574) ... Installation Manual - Physical Planning (A26-3684) ... Functional Characteristics (A26-3661) ... Disk Monitor System Reference Manual (C26-3750) ... Basic FORTRAN IV Language (C26-5933) ... Assembler Language (C26-5927) ... Subroutine Library (C26-5929) ... Functional Characteristics (A26-5881) ... Data Presentation System -- User's Manual (H20-0338).

For further information contact your Regional Medical Industry Marketing Representative.



RPG GIVES NEW DIMENSIONS TO 1130 COMMERCIAL TYPE APPLICATIONS

RPG for use with the IBM 1130 System will be available July 15, 1969.

The RPG support provides an easy to learn language specifically oriented to the commercial applications.

A Compiler Program

The 1130 RPG support consists of a problem-oriented symbolic language and compiler program. The user describes his problem by coding source statements on RPG coding forms which describe the input and output files, records and fields, and the data processing which is to be performed. The compiler program converts those source statements to an object program with subroutine linkages which in turn are executed to accomplish the problem solution.

Introduces New Capabilities

The 1130 RPG uses the same coding forms as System/360 RPGs and provides similar functional capabilities. Language compatibility is dependent on similar devices and RPG functions. 1130 RPG introduces several new or improved functions which (1) reduce the coding to accomplish output editing (edit codes), (2) open new application areas in RPG source language (e.g., grocery spread cards through the use of a chain op code), and (3) simplification and reduction of coding in processing logical subroutines (closed subroutines).

New I/O Subroutines

New Input/Output subroutines are available with RPG to create and process indexed sequential and blocked sequential files on the 2310 Disk Storage drives or the single internal disk cartridge of the 1130 Models 2 and 3. These subroutines may also be used by 1130 Assembler Language programs to create and process files. The

subroutines accomplish these functions:

- Create an indexed sequential file.
- Add records to an existing indexed sequential file.
- Sequentially process IS file, either within limits or the entire file.
- Randomly process individual records of IS files.
- Sequential input or output of a blocked sequential file.
- Random input or update of records in a blocked sequential file.

A Disk RPG

The RPG program is a disk resident component of the Disk Monitor (Version 2), executed by an RPS execute control card. RPG source statements are read from the card reader, processed, and the generated object program stored in disk working storage for subsequent execution, storing or punching by the user.

See the reverse side for performance, minimum system requirements, and publications.


 John Fahey
 Director of DP Marketing

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Release Date: October 1, 1968
Distribution: All Areas

Performance

Compile time

8K words of core storage required, additional storage is used if available.

Approximately 24 cylinders of disk storage as program residence.

Disk working storage sufficient to hold the generated object program. Working storage is also required for temporary storage of source statements when they exceed the number which can be contained in available core storage (approximately 200 source statements in an 8K system, 660 statements in a 16K system, 1752 statements in a 32K system).

Compile time varies according to location of working storage, list option selected, number of source statements and device configuration. A Disk-to-print program of 40 statements with no listing and working storage assigned to disk cartridge other than system residence will compile in 25 to 30 seconds.

Object Program Execution

Storage is required according to the complexity of the program. The 40-statement Disk-to-print program referenced above requires approximately 4655 words of core storage including necessary subroutines and Disk Monitor, Version 2.

Execution time depends primarily on the device configuration of the system. The Disk-to-print program referenced above requires approximately 1.8 minutes to read, process, and print 1000 records from a blocked sequential disk file to a 1403 Printer.

Minimum Systems Requirements

Compile

1131 CPU, Model 2B or 3B
(Minimum of 8K words of storage and single internal disk storage.)

2501 or 1442 Card Reader

1132, 1403 or Console Printer

Object Program Execution

1131 CPU, Model 2B or 3B
(Minimum of 8K words of storage and single internal disk storage.)

Input/Output devices as required by the program.

Devices supported:

1131 CPU, Models 2B, 2C, 2D, 3B, 3C; and 3D.

1442 Punch, Reader/Punch, Model 5, 6, or 7.

2501 Reader, Model A1 or A2.

1132 Printer.

1403 Printer, Model 6 or 7.

2310 Disk, Models B1 and B2 (up to 4 units).

The console printer is supported as an output device both at compile and object execution time.

Publications

Publications will be available from Mechanicsburg as indicated.

1130 RPG Specifications, C21-5502, available now.

TNLs to the following SRLs will be available June 30, 1969.

1130 RPG Specifications, C21-5002 . . . 1130 Disk Monitor, Version 2 Programming and Operator Guide, C26-3717 . . . 1130 Subroutine Library, C26-5929 . . . 1130 Disk Monitor, Version 2, Y26-3714.

A PLM on 1130 RPG will also be available June 30, 1969.

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.



PROGRAM ANNOUNCEMENT

BOS/360 RELEASE 17 AVAILABLE WITH IMPROVED RPG

Basic Operating System Release 17 is available. It includes four significant improvements to the RPG component:

Dual I/O Areas

Dual I/O areas may be assigned to the following types of sequential files: input, output, and update. The supported devices are disk, tape, card reader (no stacker select specified), and card punch.

Specifying dual I/O areas allows faster object thruput by enabling or extending I/O and CPU processing overlap.

Tape Rewind/Unload

RPG allows the user to specify what action is to be taken upon opening and closing a tape file. Single and multivolume labeled tapes are supported. Single volume unlabeled input/output files and multivolume unlabeled output files are supported.

User specified tape rewind/unload options facilitate the processing of multivolume files and multifile volumes and the batched processing of tape files.

LO Indicator

The object time test for indicator LO being on when LO is specified in columns 7 - 17 of the calculation specifications will be eliminated.

The test for LO being on is unnecessary since LO is always on.

Repetitive Master Record Search

RPG will bypass the retrieval of a record when processing a direct access file (DAM) and it is determined that the record required is the same as the previous record retrieved. BOS RPG presently (BOS RPG release 1 - 8) provides this function when processing Indexed Sequential files.


When several consecutive transactions reference the same record on a direct access file, a substantial performance improvement can be realized by retrieving the record only for the first transaction. For Master Record Search the key length is to be specified for every file.

Program material and ordering instructions are on the reverse side.

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.**


John Fahey
Director of DP Marketing

Published by DP Sales Publishing Services, WTHQ

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 (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 C24-3361-6

System/360 Basic Operating System Control Programs and Assembler Operating Guide with TNL N33-8533 C24-3450-3

System/360 Basic Operating System Programmers Guide with TNLS N24-5328, N33-8531, and N33-8544 C24-3372-6

System/360 Basic Operating System Operating Guide, Operator Messages with TNL N33-8537 C24-5024-3

System/360 Basic Operating System, System Generation and Maintenance with TNLS N33-8532 and N33-8545 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 with TNL N28-2338 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 Communication: 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 C24-3378-2 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.

Report Program Generator (360B-RG-307)

System/360 Basic Operating System Specifications, Report Program Generator (8K Disk) with TNLS N21-5060, N24-5196, N21-5064, N21-5081, and N21-5091 C24-3387-4

Note: SRL C24-3387-4 plus TNLS N24-5159, N24-5175, N24-5196, N21-5060, N21-5064, N21-5081, and N21-5091 may be used in lieu of the SRL C24-3387-4 plus TNLS N24-5159, N21-5060, N21-5064, N21-5081, and N21-5091.

Sort/Merge (360B-SM-308)

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 cpi (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
Remote Job Entry	360B-CQ-311

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 17. 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 17.

To order the tape maintenance package for System Release 17, specify Tape Maintenance Package, 9-track Distribution Tape Reel (DTR) at 800 or 1600 bpi or 7-track DTR at 800 cpi (Data Conversion feature required). It is not available on disk. Disk only users must order the Replacement System for Release 17.

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 17.

* Denotes change from previous release.



P68-133

PROGRAM ANNOUNCEMENT

**NEW TYPE II PROGRAM GIVES USER
ACCESS TO OPERATIONS AVAILABLE
IN 2938 ARRAY PROCESSOR (RPO)**

The Array Processing Subroutine Package gives the user convenient access to the operations available in the IBM 2938 Array Processor and provides a set of analytical routines for use in digital signal analysis. These programs are designed for use on the System/360 Model 44 or the System/360 Model 65 or 75 and will be available July 31, 1969.

The subroutines are divided into two basic groups. The first group, designated the "Array Processor Access Method" (APAM), is designed to enhance and simplify the use of the 2938 Array Processor, an RPO peripheral processor attachable to System/360 Model 44 or System/360 Model 65 or 75.

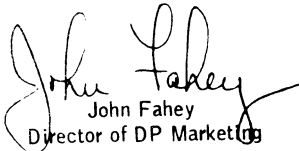
The Array Processor performs a basic set of arithmetic operations on arrays of data. All internal arithmetic operations are performed in floating-point. However, the input data may be in halfword fixed-point as well as fullword floating-point format since automatic conversion to floating-point format is performed by the Array Processor. The primary purpose of the Array Processor is to reduce drastically the time required to perform arithmetic operations on arrays of data.

APAM provides convenient functional control of the operations of the Array Processor by means of simple 'CALL' Statements without the burden of detailed systems programming. By interfacing with the control programs of Operating System/360 or the Model 44 Programming System, APAM provides the user with all the services offered by these control programs.

The second group of subroutines is designated Signal Processing Subroutines. These subroutines provide a series of analytical methods for use in digital signal analysis in many areas (e.g., seismic exploration, vibration analysis, turbulence research, image enhancement). These routines are designed to utilize the features of the Array Processor and APAM. All of these routines are computational modules that can be combined with a user's input, output, or computational routines to meet his individual needs.

The combination of these two groups of subroutines provides a modular and efficient set of subroutines which greatly facilitates the use of the Array Processor. The package can be applied to the solution of problems in signal analysis, matrix arithmetic, mathematical statistics, numerical solution of differential equations and many other areas requiring the processing of arrays of data. It is particularly well suited to application areas such as the processing of digital seismic data, where very large quantities of data must be processed rapidly and accurately.

The sales manual write-up is attached to P68-135.



John Fahey
Director of DP Marketing

Note to World Trade Readers

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

- 11) 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.
- 12) Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- 13) When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a pre-punched request card in their Area.
- 14) Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- 15) All references made to the Program Information Department (PID) should be understood to mean the appropriate WT Program Library.
- 16) 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).
- 17) 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.
- 18) 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.**

FOR IBM INTERNAL USE ONLY

Published by DP Sales Publishing Services, WTHQ

Release Date: September 30, 1968
Distribution: All Areas

P68-133



**GENERALIZED INFORMATION SYSTEM
(TYPE II) TO BE AVAILABLE 9/29/69;
APPLICATION POSSIBILITIES ARE VARIED**

The System/360 Generalized Information System (GIS) will be available September 29, 1969.

Note: GIS (Basic) will be available June 30, 1969, as announced in P68-66. The files and procedures defined and used in GIS (Basic) are compatible with those used by GIS, except that GIS allows up to 16 files instead of three in a retrieval or file modification procedure.

GIS, in conjunction with the IBM System/360 Operating System (OS/360) Multiprogramming with a Variable number of Tasks (MVT), provides a powerful technique for addressing specific data processing needs as well as many of the requirements of executive management systems. In response to initial, spontaneous, and changing requirements, GIS provides sets of generalized routines which enable data set creation, maintenance, and data retrieval. With this system, existing or new files are described once to GIS and are thereafter symbolically referenced by the user in his procedure specifications. The system user may perform these functions from terminals supported by the OS/360 Queued Telecommunication Access Method (QTAM).

The Generalized Information System will be particularly advantageous in application areas where frequent changes in program design, application logic, or report requirements would invalidate the efficiency ordinarily attainable with assembly-level coding. The applicability of GIS ranges from narrowly defined uses to the most general, for example:

- . Credit Control -- credit risk data base maintenance.
- . Resource Management -- Evaluation, inventory analysis, and exception reporting.
- . Middle and Executive Management Information Systems -- using terminals to obtain decision data from files generated by on-line and off-line transaction systems.

Implementing a particular application ordinarily requires a computer programmer to code a multitude of specific routines. Typically, the system requirements associated with this application do not remain stable. Additional routines are needed to provide greater capabilities; new reports are identified to answer spontane-

ous information demands not anticipated at the time the application was initially defined. Accordingly, this dynamic operational environment imposes a significant continuing demand on programmers to maintain existing programs.

In contrast to conventional practices, the GIS user describes his new or existing files in a procedure that does not involve detailed programming. This file description is a one-time task. As a result of processing by a GIS program component, these file descriptions enable the user to address the contents of his files by means of user selected symbolic names. No longer must he repeat, in every procedure, the size of each field, its units, relative location, and other data management parameters.

When the user applies GIS techniques to write his file creation, maintenance, and retrieval procedures, they will be compiled by a GIS program component after diagnostic testing to ensure their validity. Once compiled the executable code may be applied to the user's data or stored in a GIS library for subsequent recall by a single symbolic name. With some limitations, user routines written in other languages, such as PL/I or COBOL, may access GIS files. GIS procedures can link to OS/360 Assembly Language user routines referenced within GIS procedures.

Hence, GIS provides a technique to precompile a library of customized application programs for system requirements that can be anticipated. In response to spontaneous requirements, new procedures can be written, compiled and executed - using existing single or multiple files - to provide customized reports.

Of particular importance to the multi-file retrieval requirements of management information systems, the limitation of three files in GIS (Basic) has been removed. Up to sixteen files may be used in retrieval or modification procedures in GIS.

Provision is made for a multitasking or terminal processing capability designed to work with OS/360 using MVT and QTAM.

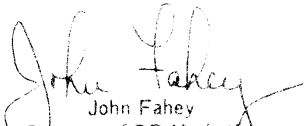
Note: The system user must provide the QTAM program, describing the Teleprocessing network, to interface with GIS. An outline of the user's responsibilities to provide this interface is included in the Application Description Manual.

GIS requires a minimum of 153,600 bytes of dynamic main storage, OS/360 Multiprogramming with a Variable number of Tasks, and OS/360 access methods. This will lead to a minimum machine configuration with 524,288 bytes, or at least a System/360 Model

2050 I.

The Application Description Manual (H20-0574) is now available. A Publication Release Letter will announce the availability of a Marketing Kit containing slides and narrative.

The new sales manual write-up is attached to P68-135.


John Fahey
Director of DP Marketing

Note to World Trade Readers

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

- 11 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.
- 12 Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publication Release Letter.
- 13 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.
- 14 Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- 15 All references made to the Program Information Department (PID) should be understood to mean the appropriate WT Program Library.
- 16 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).
- 17 Communications facilities, procedures 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.
- 18 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.**



DP SALES MANUAL -- PROGRAMMING SECTION CHECK LIST

STATUS AS OF P68-135

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

DP Sales Publishing Services
IBM World Trade Corporation
240 Westchester Avenue
White Plains, New York 10604

Requests for more than twenty pages require management approval.

CIRCLE

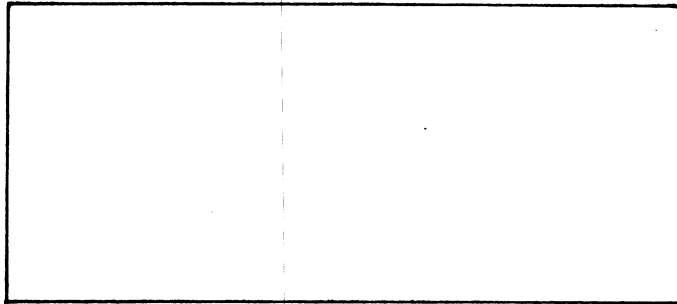


Table with columns for programming type, page number, date, revision, and page number. Includes categories like Programming, System/360 Application Programs, BOS/360, System/360 Conversion Programs, 360/44, 360/67, and TOS/360.

Table with columns for programming type, page number, date, revision, and page number. Includes categories like DOS/360, BPS/360, OS/360, 360/20, 1130, 1800, and 9000.

FOR IBM INTERNAL USE ONLY

Cancels: P68-115

Attachments (33): P 3, 5, 9, 11, 13 ... P 360A.9, 11, 13, 15, 29, 31, 33, 43, 45, 47, 49, 51 ... P 360B.1, 3 ... P 360N.3, 5, 7, 9, 11 ... P 360S.11, 13 ... P 360T.9, 11 ... P 360V.1, 3 ... P 1130.5, 19, 21.

Release Date: October 16, 1968

Distribution: All Areas

IBM World Trade Data Processing

P68-136

PROGRAM ANNOUNCEMENT

IMPROVEMENTS TO PL/I INCLUDED IN TOS/360 RELEASE 12

Important usability and performance improvements to Basic PL/I are contained in TOS/360 Release 12, which is now available. This is in addition to the normal maintenance for APAR's for the system.

The new Basic PL/I features are:

Usability

- Execution time error messages may now be augmented by the number of the source statement causing the error, if UPSI bit 1 has been on during compilation.
- 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 control format items are now supported for all STREAM files, thus providing the capability to position any stream file.
- Text in many error messages is reworded to better explain the cause of error.
- Error flags in the symbol table, formerly described by numbers, are now described in text.
- Unlabeled tape files may now be created without a leading tapemark.

Performance

- Improved performance and better core utilization in Decimal Arithmetic operations.
- More efficient object code for structure assignments.

In addition, the priority of the concatenation (CAT) operator has been changed to make it lower than that of the infix + and higher than that of the compare operations.

Minimum system requirements are unchanged. Basic program material, ordering instructions, and program maintenance information are on the reverse side.

Important Information

This letter is a program announcement and was mailed concurrently to USA and other countries when appropriate, should be applied to the local office.

- 1) All programs announced in this letter should be ordered to the appropriate WT Program Manager. Program material may be ordered as indicated in pages 102-103 of the Programming Section, WT DP Sales Manual.
- 2) Advance copies of the IBM publications mentioned in the above letter have been announced in the literature available from the IBM Distribution Center. Most of the publications will be shipped when available. In the case of the publications which will be announced in the Weekly DP News, the announcement will be published.
- 3) When a new IBM publication is announced, users must order it; they will not receive it automatically. They may, however, receive a preproduction issue of the publication.
- 4) Programming and other publications are available on local conditions with the DP Sales Manual. Contact your local office.
- 5) All references made in this letter to the Programming (PIO) should be understood to refer to the appropriate IBM publication.
- 6) Any reference made in this letter to sources of information or to sample programs should be understood to mean the comparable WT Department publications and programs.
- 7) Communications facilities and procedures which are not offered in all WT countries are indicated in this letter. Availability of suitable communications facilities and procedures in your country should be consulted.
- 8) References made in this letter to local publications should be verified with the local office. Local publications are identical for WT and IBM, availability and pricing are not. NO PRODUCTION COMMITMENTS FOR LOCAL PUBLICATIONS. REQUIREMENTS SHOULD BE MADE TO THE LOCAL OFFICE IN CONNECTION WITH LOCAL PUBLICATIONS.

Published by DP Sales Publications Section, WT 480

FOR IBM INTERNAL USE ONLY

John Fahey
Director of DP Marketing

Release Date: 1968-11-15

Distribution: 100000

Basic Program Material

The following publications and other information appropriate to the components ordered are shipped by PID with the TOS/360 order. Machine readable material is distributed on tape or disk.

SRL Publications

System/360 Disk and Tape Operating Systems - Concepts and Practices TNLs N24-0201 and N24-0202	C24-5030-4
System/360 Tape Operating Systems - System Generation and Maintenance TNLs N24-0203 and N24-0204	C24-5035-5
System/360 Tape Operating Systems - Performance Estimates TNLs N24-0205 and N24-0206	C24-5030-4
System/360 Tape Operating Systems - Executive Guide TNL N24-0207	C24-5021-5
System/360 Disk and Tape Operating Systems - Operator and System Service Programs TNLs N24-0208, N24-0209, N24-0210, N24-0211, N24-0212	C24-5034-1
System/360 Tape Operating Systems - Supervisor and Main Output Machine Programs TNLs N24-0213 and N24-0214	C24-5035-3
System/360 Tape Operating Systems - Job Management Concepts TNL N24-0215	C24-5430-3
System/360 Disk and Tape Operating Systems - Assembler Specifications TNLs N28-0220 and N28-0221	C24-3434-5
System/360 Disk and Tape Operating Systems - Job Control Merge Program Test Programs Note 1	C24-3438-3
System/360 Tape Operating Systems - Autotest Specifications TNLs N21-5024, N21-5025, N21-5026	C24-3441-1
System/360 Disk and Tape Operating Systems - Utility Program Specifications TNL N28-0222	C24-3435-4
System/360 Disk and Tape Operating Systems - COBOL Language Specifications TNLs N28-0241 and N28-0242	C24-3433-4 Note 2
System/360 Disk and Tape Operating Systems - COBOL Programmer's Guide	C24-5025-4
System/360 Basic FORTRAN IV Language	C28-6679-1
System/360 Disk and Tape Operating Systems - FORTRAN IV Programmer's Guide	C24-5038-2
System/360 Disk and Tape Operating Systems - Report Program Generator Specifications TNL N21-5095	C26-3570-5 Note 3
System/360 Disk and Tape Operating Systems - Utility Block Specifications TNL N24-5354	C24-5042-2
System/360 Disk and Tape Operating Systems - PL/I Programmer's Guide	C24-9005-3
PL/I Subset Reference Manual TNLs N33-9015 and N33-9016	C28-8202-0
System/360 Disk and Tape Operating Systems - On-Line Test Executive Program Specifications and Operating Guide	C24-5066-2

Form numbers which have changed since previous releases are underlined.

- Note 1:** SRL C24-3438-1 plus TNLs N21-5021, N21-5036, N21-5042, N21-5050, N28-0264 and N28-0265, or SRL C24-3438-2 plus TNLs N21-5026, N21-5042 and N21-5050 may be used in lieu of the SRL C24-3438-1.
- Note 2:** SRL C24-3433-1 plus TNLs N21-5030, N28-0232, N28-0237, N28-0241 and N28-0244 may be used in lieu of the SRL C24-3433-4 plus TNL N28-0241 and N28-0244.
- Note 3:** SRL C26-3570-4 plus TNLs N21-5095, N21-5055, N21-5077, N21-5086, N21-5091 and N24-4195 may be used in lieu of C26-3570-5 plus TNLs N21-5095.

Documentation -- Program Material Lists Attachment I -- Temporary Restrictions; Attachment II -- Revision of Supporting Documentation, Attachment III to the basic program material list.

Machine Readable -- TOS/360 is distributed on one 2400 foot reel of magnetic tape, either 9-track (800 or 1600 bpi) or 7-track (800 cpi) Data Conversion feature required.

Ordering Procedures

Place the purchase order for publications or additional copies of the publications are required, order them from the IBM Distribution Center, Mechanicsburg -- not from PID.

New Users -- The TOS/360 is distributed with the pre-generated system with a 6K Supervisor (360M-SV-413) on a disk pre-generated system with an 8K Supervisor (360M-SV-411).

Each TOS/360 order includes the entire collection of machine readable program components, including loadable and reloadable libraries, listed below.

The following program components for the 6K Supervisor components are included. To order these components separately, use the IBM Program Order form IBM System/360 Operating Systems (360-1411) -- System Control and Basic (OS), 360M-CV-415 and Supervisor (6K), 360M-SV-413 or Supervisor (8K), 360M-SV-411, and any other components may require from the list below. Each component includes program documentation and maintenance manuals as required, most appear on the order form.

If a specification item is not specified, the 6K Supervisor will be shipped.

Supervisor (6K)	360M-SV-413 or
OS/360	360M-SV-414
System Control	360M-CV-400 *
JCL	360M-CT-404 *
MPS Utility Macros	360M-UT-411 *
Utilities	360M-UT-402
Tape Start/Status	360M-SM-400 *
Assembler	360M-AS-465 *
COBOL	360M-CP-402 *
FORTRAN	360M-FO-409
RPG	360M-RG-408
Computer I/O Modules	360M-IO-412 *
Autotest	360M-AT-407 *
Optical Character Reader	360M-IO-417*
PL/I	360M-PL-410*
OLTEP	360M-ON-418*

* Change from previous release.

+ Should be ordered in either COBOL (360M-CV-402) or RPG (360M-RG-408) is ordered.

If the distribution media is not specified on the IBM Program Order, 9-track tape at 800 bpi will be forwarded.

Magnetic tapes may be ordered or forwarded in accordance with current procedures as described in the DP Sales Activity Section of the Branch Office Manual.

Current Users -- Current users will receive a pre-announced Program Order Card and a letter announcing the availability of System Release 12 and its Maintenance Packages. This card, requiring IBM Branch Office approval, should be used to order either the Maintenance Package or a replacement TOS/360 from PID.

The maintenance package for TOS/360 System Release 12 is available on one Distribution Tape Reel (DTR), either 9-track (800 or 1600 bpi) or 7-track (800 cpi). Data Conversion feature required.

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

Complete ordering instructions are provided in the letter to users.

Maintenance Packages will be available from PID for a period of 60 days following the availability announcement of System Release 12.

Program Maintenance

The 360-cpi data is provided during which a release is considered current following the availability of the next release has been announced in 90 calendar days for TOS/360. This change will have effect immediately. Specifically, Release 11 will be considered current until the availability of Release 12 is announced. However, the 360-cpi data releases are available until Release 12. The only format tape 90 will be available to users for change.



**A MODEL 20 TYPE II PROGRAM FOR
MANUFACTURING ORGANIZATIONS WILL
BE AVAILABLE EARLY NEXT YEAR**

System/360 Model 20 Requirements Planning and Inventory Control System Program will be available March 31, 1969.

This application programming system provides manufacturing organizations with easy-to-modify routines to retrieve records or a series of records which have been organized and maintained by the System/360 Model 20 Bill of Material Processor (360V-ME-08X).

The package provides an integrated system for requirements planning and inventory control of manufactured and purchased items. It contains four programs which run under an application control program.

Order File Organization
Status Updating
Requirements Planning
Order Policy

The program will run under the IBM System/360 Model 20 Disk Programming System. It is written in a modular manner to provide for maximum facility in tailoring a customized system with standard or user-specified input and output formats.

For detailed information refer to the text on the reverse side and the Application Description Manual (H19-0007).

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.**


John Fahey
Director of DP Marketing

FOR IBM INTERNAL USE ONLY

Published by DP Sales Publishing Services, WTHQ

Release Date: October 18, 1968
Distribution: All Areas

Requirements Planning and Inventory Control System: This group of integrated programs will allow manufacturing companies to achieve economic management of their manufacturing inventories. Programs are provided to (1) create and update the order file, (2) update inventory status with all transactions, (3) plan future requirements by explosion and forecasting, and (4) assure an economic coverage of requirements by means of an order policy based on order point and order quantity rules.

Description: The system consists of a mainline routine, an Order File Organization routine, and three application programs: Status Updating, Requirements Planning, and Order Policy.

Mainline -- This control program resides in core storage throughout the system run. On the basis of program control cards, it selects the next phase, loads it, and controls execution of the program.

Order File Organization -- This contains the routines required to create and maintain the open-order file. It includes the functions add, update, and delete. The output of this program is an audit list.

Status Updating -- All transactions (issues, receipts, orders, etc.) are processed and the item master and open-order records are updated. A status and transaction list may be printed for each active item, or for every item in the file. Updated inventory account totals are printed at the end of the run.

Requirements Planning -- The requirement fields in the item master records are updated by means of input cards and explosion of the input through the product-structure chain. Gross requirements are netted against available inventory. Planned orders for each period are determined for finished products and components by means of lotsizing and offsetting routines. Forecasts for unscheduled requirements and scrap rates are made using exponential smoothing.

Order Policy -- All items are periodically checked to determine whether all the requirements for a user-specified time period are filled by stock on hand or open orders. If the requirements are not met, one of the following actions will be suggested to guarantee the balancing between the requirements and the availability inventory: order, reschedule order, follow-up, or cancel order. A suggestion to remove an item has been inactive for a specific length of time. Planning Status Report lists may be printed for every item in the file or only for those items that have unfilled requirements within the specified planning period.

Features:

Five programs are provided to assist the user in developing an integrated, economic, inventory control system.

The Bill of Material Processor is required to (1) create and maintain the item master and product-structure files and (2) provide the product-structure access routines needed for requirements processing and explosion.

It is possible to implement the three application programs (Status Updating, Requirements Planning, and Order Policy) as an integrated system or independently.

Transactions are valued using standard unit cost.

Open-order records are created only for placed purchase or production orders. A suggestion to order does not create an order.

Unit of packing is included in the item master record. Therefore, orders are rounded to commercial or shop quantities.

The order file is created and maintained by the system. Updating the open-order file may occur through a separate Order File Organization run or as part of the Status Updating run. These two runs may be made at any desired frequency. The Requirements Planning and Order Policy programs are run at the end of each requirements period.

Stock value adjustment is performed, and work-in-process and allocated inventories are updated. The BOMP-20 routines are required for this operation.

Forecasting of unscheduled requirements and scrap rates is done by means of first-order exponential smoothing. Lot sizes are computed by means of the Floating Economic Order Quantity formula.

The operations of the Requirements Planning and Inventory Control System can be combined with the operations of an automated accounting system.

The modular concept allows the user to tailor the system to his particular requirements.

The user has the option of using the standard record formats as provided, or to create his own.

User-written sub-routines may be added at specific program exits.

Variable control data may be changed for each program run.

The item master file is organized indexed-sequentially. The product-structure and open-order files are direct-access files chained to the item master file.

The item master file may be accessed and processed by RPG programs.

Special Sales Information: The system is designed to utilize the disk access routines in the System/360 Model 20 Bill of Material Processor (360V-ME-08X). The program is also required for the creation and maintenance of the item master and product-structure files.

Use: Six different program runs are possible.

Create the open-order file.

Maintain the open-order file.

Update status by orders and transactions.

Determine order policy for special items.

Forecast scrap rate and unscheduled requirements, combined with a shifting of the requirement periods and an order policy run.

Plan requirements and order policy run.

User's Action:

Record lengths must be determined with a view towards the number of item master, product-structure and open-order records to be processed and the capacity of the disk storage available.

Organization, construction, and maintenance of the item master and product-structure files.

An understanding of the concepts utilized to select the most meaningful values as parameters. IBM Production and Information Control System (PICS) manual discusses many of these concepts.

Designing of record formats and the assignment of transaction codes if the standards are not used.

Programming Systems: The program is written in the IBM System/360 Model 20 DPS/TPS Assembler language, using the DPS IOCS.

Minimum System Requirements: IBM System/360 Model 20 (D2) 16 K ... one card reading device ... one card punching device ... 7495 Storage Control ... two 2311 Disk Storage Drives.

Program Support Material: Application Description (H19-0007).

Reference Material: PICS-Production Information and Control System (E20-0280) ... IMPACT-Inventory Management and Control Techniques (E20-8105) ... Bill of Material Processor-A Maintenance and Retrieval System (E20-0114) ... System/360 Model 20 Bill of Material Processor (H20-0478).

**IBM SYSTEM/360 MODEL 20
 CAPACITY LOADING AND SCHEDULING SYSTEM**

The IBM Capacity Loading and Scheduling System for the Model 20 (CLASS 20) is designed to compute the schedules for the entire order inventory of a manufacturing plant and to allocate the required operations to the machines available. This system can be applied to both single-part and assembly production. It can be adapted easily to existing data organizations.

The system is composed of three individual programs as follows.

- The Order Management program updates the shop-order file and holds this inventory available for scheduling. The input required for the program, following the initial collection of order-inventory data, consists of transaction data only.

Additions are included in the status file in sorting sequence.
 Cancelled operations, parts, and orders are removed from the file.
 Changes are incorporated as required.
 Operations reported complete are marked accordingly.

Transactions must be sorted by order number, part number, and operation number.

- The Inventory Scheduling program (infinite capacity loading) computes latest start and end dates for every operation, based on the assumption of infinite capacity. It uses processing times and transit times (between operations) and considers the product structure to determine latest start dates for all parts on the basis of the desired end dates (backward scheduling). If a computed start date falls into the past, then a new but delayed end date is computed (forward scheduling) -- unless the desired end date can be kept by reducing transit times.

Parts may be independent of each other. They may also be linked to each other in an order structure or network.

The output consists of (1) a schedule listing that contains operation schedules computed for all orders, and (2) a graphic machine loading summary which contains, for each scheduling period, a comparison of capacity available versus capacity required. This facilitates early recognition of excess capacity and/or capacity bottlenecks, making it possible to take steps towards a more economical loading.

- The Finite Capacity Loading (operations sequencer) program allocates the individual operations to specific machines, determining the final schedules.

From the scheduled orders (output of the Inventory Scheduling program), operation queues are built at the individual work centers. Two criteria govern the selection, and subsequent allocation, of operations from these queues:

- (1) A priority specification which can be controlled by the user to a large extent, and
- (2) the objective of minimum idle times at the individual machines.

The output of the Finite Capacity Loading program consists of:

- a list specifying the sequence of operations at each work center or individual machine, and a graphic statement of idle times;
- a schedule list showing the expected throughput of operations, parts, and orders through manufacturing; and
- a projection of capital investment - (work in process inventory).

The principal features of the system are as follows.

- Flexibility of Input.
 The user may adapt input and program flow to his existing organization by means of parameter cards.
Data Formats: The locations and lengths of fields in the various data cards are optional. However, maximum lengths must not be exceeded.
Program Parameters: Scheduling periods and keydates, computation and weighting factors.
- Flexibility of Output.
 List formats can be varied as well as the information to be printed. Print routines are clearly identified to facilitate replacement.
- Types of File Organization.
 Order Inventory file -- sequential, multi-volume if required. Scheduled Order file -- sequential, multi-volume if required.
 Queuing file (imminent operation) -- direct access.
- Work Centers.
 The maximum number of work centers is 300.
 Daily capacity can be specified for each individual machine. An individual machine can be excluded from scheduling by means of a suppression specification.
- Substitute processing times can be computed in case projected processing times are not available.

- Transit times (between two operations) are computed from parameters furnished to the system.

Special Sales Information

The general scope of CLASS 20 refers to the manufacture of single parts and assemblies.

The system does not require the use of other IBM-supplied programs. Since the order file and the scheduled orders are stored sequentially, magnetic tape can be used for these files instead of disk packs, so that all disk drives can be used for the Queuing file.

The user can determine the intervals between scheduling runs.

The three system programs are executed independently of each other. However, each program is based on the output of the preceding program. Prior to the execution of the Finite Capacity Loading program, a decision must be made concerning the capacity to be considered available. (Planning for shift work, subcontracting, etc.)

Prerequisites of Usage

The following prerequisites must be fulfilled prior to the introduction of the system:

- (1) For schedule computations, a shop calendar is required that uses 3-digit continuous ascending numbers.
- (2) The existing work stations must be grouped into work centers.
- (3) Orders must be recorded by quantities and schedules.
- (4) a. All parts and assemblies -- and, if necessary, the assembly activity -- must be described in routing plans.
 b. The schedule structure of a product must be known, i. e., the schedules for parts and assemblies to be incorporated in an order must be available.
- (5) For the purpose of data processing, immediate operation-complete reports are required.

System Environment and Programming Language

CLASS 20 is executed under control of the IBM System/360 Model 20, Disk Programming System (disk-resident or card-resident).

The system programs are written in the DPS/TPS Assembler language, using the DPS Input/Output Control System.

Minimum Machine Requirements

For the disk-only configuration the minimum machine requirements are as follows.

- One IBM 2020 Central Processing Unit with 16,384 bytes of core storage and decimal arithmetic;
- one card-reading device;
- one card-punching device (for assembly of CLASS 20 programs).
- two IBM 2311 Disk Storage Drives Model 12 (including 7496 Disk Storage Control); and
- one printer (with 120 print positions).

Program Support Material

Application Description Manual:
 IBM System/360 Model 20,
 Capacity Loading and Scheduling System,
 Form H19-0008

Reference Material

IBM publication The Production Information and Control System, Form E20-0280.



PL/I'S LANGUAGE AND USABILITY FEATURES GREATLY IMPROVED UNDER DOS-TOS/360

Several major features of the PL/I Language and important usability improvements will be implemented in the next releases of the PL/I D-Level Compiler. Availabilities are: for DOS/360 April 30, 1969; TOS/360 August 29, 1969.

Additional Language Features

- . LIST - Directed Input/Output
Allows free-form data transmission.
- . INITIAL Attribute
Enables initialization of variables at the time that storage is assigned.
- . Certain Keyword Abbreviations
Reduces the overall effort of source program coding.
- . Built-in Functions ADD, MULTIPLY and DIVIDE
Permit user control over the precision resulting from these functions.

Improved Usability Features

- . Debugging Facilities
Provide for tracing of object program flow; initiated by source program CALL statements.
- . XREF Option
Causes a cross reference listing to be written.
- . Improved Diagnostics
The number of messages and their clarity is improved.
- . PROCESS Card
Allows compile-time options to be specified, overriding Job Control options.

Improvements in generated code will produce an average of a 10 per cent object time savings and an average of a 10 per cent savings in core storage for generated code.

Selling Points ... Along with the current PL/I Marketing Campaign, this announcement emphasizes IBM's continuing effort to enhance PL/I. The new features strengthen the existing marketing advantages such as:

- . Increased programmer productivity.
- . Advanced features designed for new application areas.
- . IBM's lead in the development and implementation of this major new language.

PL/I offers NSRI potential through cost savings and growth facilities for our customers.

Details are on the reverse side.

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.**

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Release Date: October 25, 1968
Distribution: All Areas



John Fahey
Director of DP Marketing

Details

- . LIST - directed transmission is supported for STREAM files. The LIST option permits the user to transmit data from or to an external medium or string without specifying a format for the data. The data transmission is directed by the data list and the data itself.
 - . The INITIAL attribute enables the user to specify, in a DECLARE statement, an initial constant value to be assigned to a data item when storage is allocated to it.
 - . The key word abbreviations that may be used are: CHAR, DCL, DEF, ENV, EXT, INIT, PIC
 - . The built in functions ADD, MULTIPLY, and DIVIDE are implemented. Each of these functions allows the user to control the precision of the result which is returned to the point of invocation.
 - . Debugging Facilities
 - . Exhibit Change
 - During the first execution of a special CALL statement, names passed with the statement will be printed with their corresponding values. On further executions, a name and value will be printed only when the value has changed since the previous execution.
 - . Tracing
 - The tracing facility prints the label of the block on entry and gives a message to indicate the exit. Tracing can be enabled and disabled for a block by special CALL statement. For each executed GO TO statement, the label and address associated with the target statement are given, except in case the GO TO statement is in an on-unit, the on-condition and the address associated with the target statement are given.
 - . Diagnostic Improvements
 - . The number of diagnostics concerning DECLARE statements are increased. DECLARE statement diagnostics will be expanded to contain the variable name associated with the error. Error recovery, especially with DECLARE statements, will be aided by improved association of severity codes with the errors.
 - . Diagnostic messages are improved in the clarity of their texts.
 - . PROCESS Card
 - The PROCESS card allows the programmer to specify compile time options which may override Job Control options. It precedes the PL/I source program and has an asterisk in column one.
- Options which may appear in the operand field

of the Process card are:

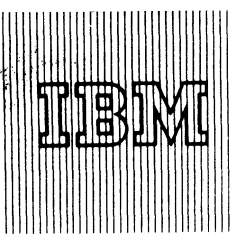
1. Options already supported by DOS/TOS Job Control for PL/I - DECK, NODECK, LIST, NOLIST, LISTX, NOLISTX, SYM, NOSYM, ERRS, NOERRS, 48C, 60C.
2. New Options
 - a. OPT, NOOPT (not supported by Job Control)
 - OPT - causes the optimization of object code
 - NOOPT - suppresses the OPT option
 - b. STMT, NOSTMT (not supported by Job Control)
 - STMT - causes statement numbers from the source program to be contained in the diagnostic messages printed during the execution of the compiled program.
 - NOSTMT - suppresses the STMT option
 - c. XREF, NOXREF (supported by Job Control)
 - XREF - causes a cross reference listing to be written on SYSLST
 - NOXREF - suppresses the XREF option

Minimum System Requirement

No changes.

Publication

TNL N33-9040 for PL/I Subset Reference Manual, C28-8202.



**IBM SYSTEM/360 MODEL 20 CAPACITY
LOADING AND SCHEDULING SYSTEM
(CLASS 20)**

This system will be available May, 1969.

Description: CLASS 20 maintains and establishes schedules for planned and open orders of a manufacturing plant. In addition, CLASS 20 provides a forecast of capacity requirements and computes appropriate processing sequences for the available machines.

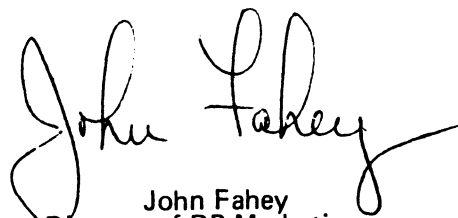
The system is designed for small and medium-size users in the manufacturing and assembly industry. The extent of coverage is shown by the following objectives: [1] Assurance that schedules are met, [2] shorter production time, [3] level machine loads, [4] reduction of manufacturing costs. The program handles single-part and assembly production.

The package consists of:

1. Order Management
2. Inventory Scheduling, plus Network Scheduling (optional)
3. Finite Capacity Loading

The system is designed for execution under the IBM System/360 Model 20 Disk Programming System. It is written in DPS/TPS Assembler language, using the DPS Input/Output Control System.

For detailed information, refer to the sales manual Text and the Application Description Manual (Form No. H19-0008). Consult the weekly Publications Release Letter for actual availability date of this manual.


John Fahey
Director of DP Marketing

Release Date: October 22, 1968
Distribution: All Areas
Attachment: P 9025



PROGRAM ANNOUNCEMENT

POWERFUL USA STANDARD COBOL TO BE AVAILABLE FOR OS-DOS/360 ... TOGETHER WITH A LANGUAGE CONVERSION PROGRAM

The full USA Standard COBOL will be implemented for OS/360 and DOS/360 with existing and new IBM extensions. This is the most powerful COBOL ever available for System/360.

Highlights of the new and improved functions and usability features are:

New for OS/360 and DOS/360

- . Segmentation
- . Table Handling
- . Write before Advancing
- . Comments in Data Division
- . Cross Reference Listing
- . Condensed Procedure Map Listing
- . Individual options for Data and Procedure Map

New for DOS/360 and Improved for OS/360

- . Sort Verb
- . Report Writer

Conversion Aids

- . Differences Manual and LCP

The compilers and LCPs will be available October 31, 1969

The United States of America Standard Institute* approved the USA Standard COBOL** (USA Standard X3.23 - 1968 COBOL) on August 23, 1968. IBM has actively cooperated with the standardization effort. The OS/360 and DOS/360 USA Standard Compilers will implement the full USA Standard COBOL.

IBM's implementation of USA Standard COBOL Compilers complies with the first draft International Organization for Standards (IOS) recommendation for COBOL. Elements of the USA Standard COBOL, not included in the initial availability of the compilers, are described on the inside pages under the DOS and OS paragraphs.

Asynchronous process for OS/360 COBOL F will not be delivered. See the OS paragraph for details.

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.**

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY



John Fahey
Director of DP Marketing

* Formerly known as American Standards Association (ASA).

** The Standard COBOL, frequently referred to as USASI COBOL, should not be confused with The United States of America Standard Code for Information Interchange (USASCII).

The USA Standard COBOL Compiler for OS/360 contains significant new functions and facilities beyond those currently available in OS/COBOL F. The USA Standard COBOL compiler for DOS/360 is equivalent to the OS/360 version and represents a major expansion of the COBOL language now available to the DOS user. The new compilers retain all the current System/360 COBOL capabilities.

Highlights - New Features

Segmentation - New for DOS and OS. The programmer identifies the overlay segments of the program, the compiler generates the overlay structure to provide more efficient core usage.

Table Handling - New for OS, New for DOS. A new INDEXED BY option for more efficient direct and relative addressing of tables. Table Search is simplified by SEARCH and SET statements.

Sort Verb - New for DOS, improved flexibility for OS.

Report Writer - New for DOS, improved for OS. The programmer can specify, in the Data Division, the report format. This minimizes the amount of Procedure Division code and enables simplified report preparation within the COBOL program.

Write Before Advancing - Improved Printer efficiency by printing before spacing.

The *CORRESPONDING* option of ADD, SUBTRACT, and MOVE - New for DOS.

Language Extensions ... The current and new IBM extensions to System/360 COBOL are available in the new compilers.

START statement, permits initiation of sequential processing of an ISAM file at any record specified.

Special Register items, allow access to:

TIME-OF-DAY
CURRENT-DATE
I/O Error Codes

Special Registers for sort optimization at object time
SORT-FILE-SIZE, SORT-CORE-SIZE, SORT-MODE-SIZE

Apply CORE-INDEX - Specifies highest level index in core for indexed files.

New Usability Features ... Cross reference listing -- Condensed Procedure listing option -- Individual options for Data Map and Procedure Map.

Conversion Aids

A detailed list of differences between USA Standard COBOL and the current System/360 COBOL Compilers (D, E, and F) is contained in the Differences Manual, C28-6395.

Language Conversion Program (LCP) ... Converts System/360 COBOL source programs to USA Standard COBOL source programs will be provided.

The LCP will function under:

DOS to convert DOS/360 COBOL D to
DOS/360 USA Standard COBOL

OS to convert OS/360 COBOL E or F
to OS/360 USA Standard COBOL

The differences between System/360 COBOL and USA Standard COBOL are largely syntactical in nature. The LCP's are provided to ease the conversion by reducing conversion costs and minimizing programmer's involvement.

Input

The input to the LCP must be a System/360 COBOL source program which

adheres to the appropriate COBOL specification.

will compile and execute correctly on the current compiler.

Output

The listing identifies all changes made to the original source program and flags the statements, if any, which require verification or remain to be manually converted.

The converted source program (optional output).

The LCP will function on the following System/360 Models: DOS, on Models 25, 30, 40, 50, 65, 67 (in 65 mode) and 75. It requires a minimum partition size of 14K bytes of main storage. OS, on Models 30, 40, 50, 65, 67 (in 65 mode), 75, 85 and 91. It requires a minimum of 17K of main storage (25K if Report Writer is used).

Equipment Configuration LCP ... In addition to the features required for the operating system (OS or DOS), the following features must be present: Commercial Instruction Set (Model 91, the decimal simulator) ... an Input Data Set - Source Program ... an Output Data Set - Corrected Source Program (user option) ... a Listing Data Set ... three Utility Data Sets - The Utility Data Set may be tape or disk, but they must all be the same device type.

DOS/360

DOS/System 360 COBOL D is not affected by this announcement.

The DOS/360 USA Standard COBOL Compiler requires a minimum partition size of 54K bytes of main storage, except when using the Report Writer feature, which necessitates a minimum partition size of 80K bytes.

Equipment Configuration ... The compiler operates under DOS on System/360 Models 30, 40, 50, 65, 67 (in 65 mode) and 75. In addition to the features required for the Disk Operating System, the following features must be present at compile time:

The Commercial Instruction Set.

Floating Point Arithmetic if floating point literals or calculations are used.

Four utility data sets on 2400 Tape Units, 2311 Disk Drives, or 2314 Disk Storage Facility. One utility data set must be on a 2311 or 2314.

System units required are source input, object output (punch and/or link), and program listing.

All devices currently supported by DOS/360 COBOL are supported by DOS/360 USA Standard COBOL.

Publications -- IBM System/360 Disk Operating System: USA Standard COBOL, C28-6394 ... IBM System/360 COBOL Differences: USA Standard COBOL Conversion, C28-6395.

Restriction ... The following will not be included in the initial availability. The BLOCK CONTAINS clause for the specific case where logical record size is greater than physical record size for data sets whose organization is Direct. The availability date will be provided by June 30, 1969.

OS/360

COBOL E - The COBOL E Compiler is not affected by this announcement.

OS/360 COBOL F Maintenance -- The USA Standard COBOL Compiler replaces the OS/360 COBOL F. It retains all of the advanced features of COBOL F and includes new features contained within the Standard COBOL Language, as well as new IBM extensions to that language. Any future improvements and language enhancements will be considered for the USA Standard Compiler only.

COBOL F will continue to have normal maintenance for two years after the availability of OS/360 USA Standard COBOL before it is withdrawn. The object time library will be maintained for one additional year.

COBOL F Asynchronous Processing -- Support for the Asynchronous (Random) Processing feature previously defined for OS/360 COBOL F will not be delivered because its definition is in conflict with the current CODASYL definition of the equivalent feature.

An Asynchronous Task Group has been appointed by CODASYL and is engaged in a thorough review of the scope, language, and rules for the feature. The USA Standards Institute is expected to base its standardization of Asynchronous Processing upon the output of the CODASYL Task Group.

It is IBM's position that a COBOL Language feature of as high a level of complexity as Random Processing should be supported in a manner consistent with industry standards.

Equipment Configuration ... The OS/360 USA Standard COBOL Compiler operates in a minimum of 80K bytes of storage. It makes use of additional storage up to that specified. It will operate under OS on Systems/360 Models 40, 50, 65, 67 (in 65 Mode) 75, 85 and 91.

In addition to the features required by the Operating System, the following features must be present at compile time:

The Commercial Instruction Set (decimal simulator on the 91)

Floating Point Arithmetic if floating point literals or calculations are used.

Four Utility Data Sets on 2400 Tape Units, 2311 Disk Drives or 2314 Disk Storage Facility. One Utility Data Set must be on a 2311 or 2314.

The compiler is capable of producing a card deck and a SYSLIN data set. SYSIN, SYSLIB, and SYSPRINT are used for input, source language library input and listing output respectively.

Object Time Core Requirements -- CPU must be large enough to contain the object program and the necessary control program. The Commercial Instruction Set is required.

Object Program I/O -- All devices supported by the current OS COBOL F Compiler, as of the availability of this compiler, are supported.

Publications -- IBM System/360 Operating System: USA Standard COBOL, C28-6396 ... IBM System/360 COBOL

Differences: USA Standard COBOL Conversion, C28-6395.

Restrictions ... The following will not be included in the initial availability: The BLOCK CONTAINS clause for the specific cases where logical record size is greater than physical record size ... Physical, rather than logical REWIND/NOREWIND interpretation ... Label processing at CLOSE time, rather than at end of file on input and update mode sequential data sets ... Implementation of the USE BEFORE/AFTER STANDARD LABEL clause. The availability dates will be provided by June 30, 1969.

Action Required ... Customers affected by the withdrawal of Asynchronous Processing under OS/360 COBOL F should be notified.



P68-146

NEW VERSION OF RAX (TYPE II) PROVIDES FILE INPUT-OUTPUT CAPABILITIES TO TERMINAL USERS

Version 3 of System/360 Remote Access Computing System(RAX), a time-sharing, remote-computing system, is available. Current users will be notified of the availability of the new version by a letter (which instructs them to order the new version through the branch office) and prepunched program order card. They should use the prepunched card to order.

This version incorporates all the features of Version 2 and also provides the new functional and machine capabilities of:

- . file input-output for terminal users
- . SAVEing object program modules from terminals
- . SAVEing program output in a SAVE-file via a FORTRAN WRITE statement
- . SAVE and PURGE from the batch card reader
- . an extended machine configuration
- . a maximum of 30 terminals on a 128K byte machine

File Input-Output: The RAX file input-output capability opens up an entirely new area of usage for the RAX system by making permanent and temporary files available to the terminal user. The user is able to specify the file characteristics (logical record size, file name, volume name, disposition, etc.) from the terminal. Multiple users are able to access the permanent files simultaneously. File Input-Output requires a minimum machine size of 128K bytes.

SAVEing Object Programs: The expanded SAVE function allows the terminal user to selectively save object program modules in addition to his source programs. An object program saved in the RAX library can be INCLUDED in subsequent terminal or batch programs without the necessity to recompile.

SAVEing Program Output: The expanded SAVE function also allows the terminal user to save selected object program output by means of the FORTRAN WRITE statement. FORTRAN input-output unit 10 is used to designate the SAVE-file. With this feature, the terminal user can cause a program to generate output which can be subsequently used by himself or some other user from a terminal or from the batch card reader.

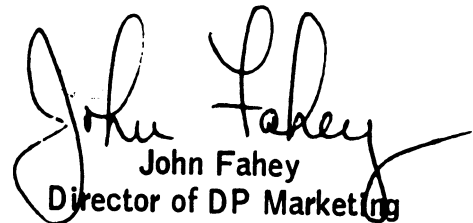
SAVE-PURGE Facility for 2540: The terminal user's capability to SAVE and PURGE programs and data has been extended to the batch card reader. With Version 3, large programs or data files can be put into the RAX library through the batch card reader.

Extended Machine Configurations: The maximum local machine configuration supported by Version 3 is the same as supported by RAX Version 2 with two extensions. Version 3 will support up to 3 selector channels. It will also support up to 64 disk and tape units (a maximum of four of which may be tape units).

Terminals Supported: The maximum number of 1050 terminals supported by RAX Version 3 is:

64K byte machine	10 terminals
128K byte machine	30 terminals
256K byte machine	63 terminals

See the following pages for the new sales manual write-up.


John Fahey
 Director of DP Marketing

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Remote Access Computing System (RAX): Provides sustained access to a System/360 from remote locations to enable programmers, engineers, scientists, and other users to obtain fast turnaround and reduced problem-solution time for their computational problems. (360A-CX-17X)

Description: RAX is a time-shared, remote-computing system. Users of RAX can submit Basic FORTRAN IV and Basic Assembler Language jobs for compilation and time-sliced execution from local and remote terminals, simultaneous with similar operations from other on-line equipment at the computer site. Programmers can compile, modify, and execute programs from their terminals while non-computer oriented users can be conversationally interacting with programs previously stored in the RAX library.

Terminal users of RAX can access up to 64 disk units to read or write permanent or temporary files. Multiple users are able to access these files simultaneously. The temporary files allow storage of intermediate results for later recall in that program or subsequent programs.

RAX user flexibility is provided by a modular and compatible design. Three System/360 models (30, 40, and 50) and three memory sizes (64K, 128K, and 256K bytes) are supported. Two terminals (the IBM 1050 Data Communications Terminal and the IBM 2260 Display Station) can be used with up to a maximum of 63 terminals simultaneously operational. Two IBM 2311 Disk Storage Drives are necessary, but up to 64 can be utilized by RAX.

Features:

- Up to 63 terminals can be used with RAX, depending upon the amount of core memory available.
- Terminals may be 1050s, which provide keyboard input, typewriter output as well as card and paper tape input and output, or 2260s, which provide keyboard input and CRT display of up to 12 lines of output. The 1050s and 2260s may be combined on the same system provided that the configuration restrictions are observed. The 1050s may be at a remote location from the computer. The 2260s must be local.
- The terminal user may save source or object programs and data or program output in the RAX user library. Saved information may be shared with other terminal users. File security is provided by means of a lock code which prevents unauthorized deletion or modification of any file in the library.
- The terminal user may use permanent or temporary files for input or output. When using the File Input-Output capability of RAX the user is able to specify the file characteristics (logical record size, file name, volume name, disposition, etc.) from the terminal. Multiple users are able to access the permanent files simultaneously. File Input-Output requires a minimum of 128K bytes and one 2311 in addition to system residence and user Library units.
- A restart capability is provided for resumption of jobs after recovery from systems error. Upon recovery, RAX will indicate to each user the last line of input accepted or repeat the last few lines of output.
- The 2260 Display Stations allow entry of up to twelve lines of input at a time. The Non-Destructive Cursor feature is used to provide for single character modification within a line when updating program or data files.
- Object program execution storage of 32K bytes is provided on the minimum memory configuration. 64K bytes are available on the 128K and 256K byte configurations.
- Users of RAX may enter programs and data one line at a time from their terminals or use a single terminal command to insert a previously stored data or program module into their job stream at compile time.
- The user may enter either USASI Basic FORTRAN IV or Basic Assembler jobs from his terminals. All input-output must be programmed in FORTRAN, and the execution of privileged instructions in a user program is not allowed.
- A DISPLAY command is available for total or selective listing of a user's input or library files.
- RAX provides for the running of background batch processing through the 2540 Card Read Punch. The background batch jobs utilize the machine when it is not serving the terminals. Virtually any job prepared for terminal processing will run in batch mode. In addition, the batch can address file input-output on magnetic tape. Batch mode makes possible lengthy computer runs where turnaround time is not of prime importance and can be used to enter large programs and data files into the library.

Use: Sustained access to a System/360 from remote locations enables engineers, scientists, and other users to realize fast turnaround and reduced problem solution time. FORTRAN programmers can compile, modify, and execute programs from remote terminals, while non-programmers may use programs previously stored in the RAX library. Familiarity with the RAX terminal command language and the operation of the terminal device enables the user to exploit the computational power of System/360 in a convenient manner.

RAX provides a facility for conversational interaction between a user and an executing program. This is accomplished by the use of input/output statements in a program which addresses the user's terminal as an I/O device. Thus, programs can be written to take advantage of the "on-line" presence of the user by permitting him to selectively modify his input, observe intermediate results, and alter parameters - or perhaps the execution sequence - of the program based on his interpretation of these results.

Customer Responsibilities: A customer using RAX must take the following steps before installation to insure satisfactory operations:

1. Order and install (satisfactorily) the communications equipment required.
2. Train operators to use the terminal command language, the programming languages, and terminal operations.
3. Familiarize a system's programmer with the internal operations of the system.

Sales Information: Most System/360 Model 30, 40, or 50 customers and prospects are potential prospects for RAX.

- RAX can constitute the entire justification for a system in engineering research firms, in universities, or in engineering departments of large firms.
- RAX provides justification for upgrading and adding equipment for customers who want to provide access to a computing service for their scientific and technical personnel.

RAX enables IBM customers to acquaint themselves with remote computing time-sharing systems. A small additional investment permits batch-oriented installations to evaluate the benefits of this system concept for their own operations.

By building a library of interactive application programs, an installation can extend the capabilities of System/360 to a broader range of users.

Programming System: RAX is written in BPS Basic Assembler Language.

Minimum System Requirements: System/360 Model 30F with one Selector Channel, Interval Timer, Storage Protection, Decimal Arithmetic, Floating Point Arithmetic features ... 1052 Printer-Keyboard Model 8 as a system console ... 2540 Card Read Punch ... 1403 Printer Model 2, 3, 7 or N1 ... two 2311 Disk Storage Drives; for attaching 1050 Data Communication Terminals EITHER a 2702 Transmission Control with Terminal Control - Type 1 (#4615), Selective Speed (#9684), and appropriate line adapters OR a 2701 Data Adapter Unit with Terminal Adapter - Type 1 (#4645 or 4646) and appropriate line adapter for each line (up to 4). Up to ten 1050 Data Communication Terminals may be attached to the minimum configuration. 2260 Display Stations are not supported on the 64K byte configuration.

Memory Size Restrictions: The number of RAX terminals supported for the allowable memory configurations are:

256K byte memory	-	maximum of sixty-three 1050 Data Communications Terminals
	-	maximum of eight 2260 Display Stations
	-	total number of 1050 terminals and 2260 Display Stations may not exceed sixty-three
128K byte memory	-	maximum of thirty 1050 terminals
	-	maximum of eight 2260 Display Stations
	-	maximum number of 1050s is reduced by three for each 2260 used
64K byte memory	-	maximum of ten 1050 terminals

File Configuration: A minimum of two 2311 disk units is required by RAX but the system can use up to 64 disk units.

- One of the required disk units is for system residency and the other for the user library.
- Systems with more than 30 terminals require an additional 2311 for system residence.
- Up to six additional 2311s may be used for the user library storage.
- One additional 2311 is required for storage of permanent and temporary files when the terminal file input-output capability is used.
- Additional 2311s may be used to store permanent and temporary files but the total number of 2311s on a system may not exceed 64.
- Up to four 2400 tape drives (7- or 9-track in any combination) may be used in place of 2311s for file input-output for the background batch jobs.

Terminal Configuration: The minimum IBM 1050 Data Communication Terminal consists of: one IBM 1051 Control Unit Model 2 with the First Printer Attachment feature (#4408) and one IBM 1052 Printer-Keyboard Model 2. The 1052 Printing Element used by RAX is Data 1 font (#9575 or #9576). The 1050 can utilize the 1054 Paper Tape Reader or 1056 Card Reader attached as Reader #1 on the 1051. For use with the 1056, cards can be prepared on either the 26 or 29 Keypunch. The 1056 must have the Extended Character Read Special Feature.

Below are indicated 1050 special features that can be used with RAX (A); features that can be attached but are not utilized by the system (B); and features that must not be attached to a RAX terminal (C). (AR) status means that, where the component is installed, the referenced feature must be available.

Component	Feature No.	Status
<u>1051 Control Unit Model 1 & 2</u>		AR
I/O Unit Attachments		
Card Punch Attachments	1635	B
1st Printer Attachment for mdl 1 or 2	4408	AR for 1052
1st Punch Attachment	4410	AR for 1055, 1057, 1058
1st Reader Attachment	4411	AR for 1054, 1056
2nd Printer Attachment	6381	B
2nd Punch Attachment	6383	B
2nd Reader Attachment	6384	B
Auto Fill Char Gen	1287	B
Auto Ribbon Shift & Line Feed Select	1295	B
Audible Alarm	1307	B
Automatic EOB	1313	A
CPU Attachment	3130	C
Forms Stand Stacker	4450	B
1447 Attachment	4461	C
Home Comp Recgntn	4605	B
Home Correction	4607	B
Home Loop Input Component Interlock	4606	B
IBM Line Adapter	4647	A
Subchannel 1	4691	A
Subchannel 2	4692	A
Subchannel 3	4693	A
Subchannel 4	4694	A
IBM Line Adapter	4790	A
I/O Comp Table	4632	B
Keyboard Request	4770	A
Line Correction	4795	B
Line Cor Release	4796	B
Master Station	5050	B
Open Line Detection	5465	B
Reader Stop Prefix J Switch Unit	6060	B
for Mod 1	7660	C
for Mod 2	7661	C
Tel Line Attachment	7835	C
Vertical Forms Control	8715	A
<u>1052 Printer-Keyboard mdl 1 or 2 only</u>		AR
Accelerated Carrier Return	1006	B
Auto EOB	1313	A
Forms Feed Control	4452	A
Home Loop Input Component Interlock	4606	B
Open Line Detection	5465	B
<u>1053 Printer Mdl 1</u>		B
<u>1054 Paper Tape Reader mdl 1</u>		A
Edge-Punch Read Reels, Center Roll Feed and Take-up	3570	C
Telegraph Speed	6120	B
	7910	C
<u>1055 Paper Tape Punch mdl 1</u>		A
Edge-Punching	3571	C
Reel-Take-Up	6121	B
<u>1056 Card Reader (Model 1 Recommended)</u>		A
Card Reader Program	1640	B
Extd. Character Reading	3861	AR
Feed, 51 Col Card	4004	C
Feed, Short Card Pack	4006	C
High Speed Skp	4595	B
Telegraph Speed	7910	C
<u>1057 Card Punch, Model 1</u>		A
Extd. Character Punch	3860	AR
Operator Panel	5478	B
<u>1058 Printing Card Punch, Model 1</u>		C

For systems larger than 64K, support is provided for IBM 1050 Data Communication Terminals and/or 2260 Display Stations. Additionally, terminal work file capability is available with the larger configurations. The IBM 2260 Display Station must have an Alphameric Keyboard feature (#4766) and be connected to the multiplexer channel through a directly attached 2848 Display Control Model 3 with the Non-Destructive Cursor feature (#5340 and #5341). One 2848 Model 3 with up to eight 2260 Display Stations is supported.

Maximum Support Configurations: System/360 Model 50 H (256K byte memory) with three Selector Channels, Interval Timer, Storage Protection, Decimal Arithmetic, Floating Point Arithmetic, 1052 Printer-Keyboard Model 7, 2540 Card Read Punch, 1403 Printer Model 2, 3, 7, or N1, up to sixty-four 2311 Disk Storage Drives, up

to sixty-three 1050 Data Communication Terminals (connected via communications equipment to 2701 and/or 2702 control units), one 2848 Display Control Model 3 with Non-Destructive Cursor feature and up to eight 2260 Display Stations with the Alphameric keyboard feature (with a maximum of sixty-three 1050s and 2260s combined), four 2400 tape drives (with a maximum of 64 disk and tape drives).

Basic Program Material:

Publications -- Application Directory ... Program Description Manual (H20-0354-1) ... Operations Manual (H20-0355-1). If only the form numbered manuals are required, order from Mechanicsburg -- not from PID.

Machine Readable* -- Object program load modules and sample problem decks are available on either one 9-track DTR (800 or 1600 bpi) or one 7-track DTR (800 cpi) - Data Conversion feature required.

Optional Program Material:

Machine Readable* -- Source Decks and Assembly Listings are available. Either or both may be ordered. Each requires either one 2400' reel of magnetic tape 9-track (800 or 1600 bpi) or 2400' reel of magnetic tape 7-track (800 cpi) - Data Conversion feature required.

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

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

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

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

NOTE: Systems Generation -- Distribution of the RAX program will be on tape. RAX users must have access to tape configuration on which to punch the object and source program decks.

Additional Program Support Material: Application Description Manual (H20-0545) ... System Manual (Y20-0101).

Reference Material: IBM System/360 Basic FORTRAN IV Language (C28-6629) ... BPS Basic Assembler Language (C28-6503) describe the languages implemented under RAX) ... IBM System/360 BPS Specifications Direct Access Storage Device - Utility Programs (C24-3363) and IBM System/360 BPS Operating Guide - Utility Programs Direct Access Storage Device (C24-3392) describe utility programs which can be used to maintain backup copies of RAX user library disk packs.

For further information contact your Regional Scientific Marketing Manager.

Note to World Trade Readers

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

- (1) All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- (2) Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- (3) When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- (4) Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- (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**IBM World Trade Data Processing**

P68-147

PROGRAM ANNOUNCEMENT**MATHEMATICAL PROGRAMMING SYSTEM/360
REPORT GENERATOR (MPSRG)
IS AVAILABLE (TYPE II)**

MPS/360 Report Generator is now available (360A-CO-20X).

The MPSRG provides the Mathematical Programming System/360 (360A-CO-14X) user with a simple-to-use facility for transforming Mathematical Programming System/360 output into management reports. MPSRG contains:

- A control card type report language in which the user defines the report to be produced.
- A set of three procedures, operating under the control of Mathematical Programming System/360, which compile and execute the report generator statement.

The availability of the assembly listings (Microfiche) from Mechanicsburg will be announced in a PRL. Preliminary copies may be obtained from Industry Development - Scientific Applications, DPD HQ in White Plains.

See the reverse side for the new sales manual write-up.


John Fahey
Director of DP Marketing

Note to World Trade Readers

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

- 11 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.
- 12 Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- 13 When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a pre-punched request card in their Area.
- 14 Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- 15 All references made to the Program Information Department (PID) should be understood to mean the appropriate WT Program Library.
- 16 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).
- 17 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.
- 18 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.**

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Release Date: October 29, 1968
Distribution: All Areas

P68-147

Mathematical Programming System/360 Report Generator: The MPS/360 Report Generator provides the MPS/360 user with a fast, easy-to-use, report writing capability. The MPS/360 Report Generator (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. (360A-CO-20X)

Description: MPSRG is a language processor which facilitates output analysis functions and report writing associated with the Mathematical Programming System/360 (360A-CO-14X). The user may write an MPSRG program to 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.

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, and 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. It operates under the control of MPS/360, which operates under OS/360 PCP, MFT, or MVT operations, and uses the BSAM and EXCP data access methods.

Minimum Machine Configuration: MPSRG requires a System/360 with at least 65,536 bytes and the universal instruction set. If the system output is a printer, it must have 132 print positions. A minimum of 44K bytes must be available for MPSRG. MPSRG supports the 2400 series magnetic tape units (9-track only) and the 2311, 2314, 2301, 2302, and 2303 Direct Access Storage devices.

<u>File Name</u>	<u>Description</u>
REPROFILE	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.

Basic Program Material:

Publications -- Application Directory ... Operations Manual (H20-0561) ... Program Description Manual (H20-0560). If only the form numbered manuals are required, order from Mechanicsburg -- not PID.

Machine Readable -- The relocatable load modules and sample problem may be obtained on one 9-track DTR (800 bpi or 1600 bpi) or one 7-track DTR (800 cpi, Data Conversion feature required). DTRs are provided by PID; no tape submittal is required.

Optional Program Material:

Machine Readable -- The symbolic programs may be obtained on one 9-track 2400' tape (800 bpi or 1600 bpi) or one 7-track 2400' tape (800 cpi, Data Conversion feature required). Magnetic tapes (2400') may be forwarded or ordered (the program order card should accompany the tape order form). If the track and density requirements are not indicated on back of the program order card, 9-track at 800 bpi will be forwarded.

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

Program Support Material: Mathematical Programming System/360 Application Description Manual (H20-0136) ... System Manual (Y20-0294).

Reference Material: MPS/360 Control Language - User's Manual (H20-0290) ... MPS/360 Linear and Separable Programming - User's Manual (H20-0476) ... MPS/360 System Manual (Y20-0065).

For further information contact your Regional or District Scientific Marketing Representative.

Note: The availability of the assembly listings (microfiche) from Mechanicsburg will be announced in a PRL. Preliminary copies may be obtained from Industry Development - Scientific Applications, DPD HQ in White Plains.



PROGRAM ANNOUNCEMENT

NEW SORT/MERGE AUGMENTS
DOS/360 SUPPORT

A new sort/merge program brings broader dimensions to DOS/360 support. This program provides all functions of the currently available DOS sort/merge programs (360N-SM-400, 450) plus many new capabilities. Availability -- January 30, 1969. New features provided are:

- . Support for 2314 Direct Access Storage Facility
- . Improved multiprogramming support - sort may operate in any or all partitions
- . Improved performance when sorting with large partition sizes (56K).
- . Improved input/output capability - the sort user may input from any device by means of Exit 15 and may output to any device by means of Exit 35.
- . Improved user exits - extended capability

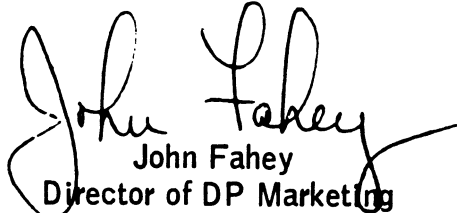
This sort is designed to be tailored at system generation time to meet the specific requirements of the customer installation. This selection capability conserves library space. The following facilities may be generated:

- The entire Sort/Merge Library
- The entire Sort Library
- The entire Merge Library
- A 2400 Sort Library
- A 2311 Sort Library
- A 2314 Sort Library

Users converting to this new sort should carefully review the modified control card format and user exit conventions.

The minimum partition size for the 2311 or 2400 sorts is 10K of main storage; 22K for the 2314 sort.

Currently available Disk and Tape Sort/Merge programs, 360N-SM-400,450, will continue to be maintained. See the reverse side for results of the comparison runs between these two programs and the new Sort/Merge program, plus minimum system requirements and publications.


 John Fahey
 Director of DP Marketing

Note to World Trade Readers

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

- [1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
- [2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
- [3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
- [4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
- [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.

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Cancel: P67-51
 Release Date: October 29, 1968
 Distribution: All Areas

Performance ... Comparison runs between the current DOS/360 Disk and Tape Sort/Merge programs and the new Sort/Merge reflect:

1. Performance degradation frequently results when operating in small partition sizes, (10K-22K).

Factors affecting sort performance are the physical and logical record sizes (blocking factor), file size, type and number of work devices, randomness of the data to be sorted, size and location of extents in the case of DASD, and the channel activity at the time of the sort.

Performance in 10K shows degradation for most applications. This degradation increases as input/output blocking increases (especially above 500-byte blocks) and when merge order for 2400s is high (6-8).

Some actual test cases run by IBM indicated that execution times for this new sort were the product of the current sort execution times and a performance factor which has the following ranges.

	<u>Range</u>	<u>Median</u>
2311	1.0 - 2.5	1.6
2400	0.9 - 1.6	1.4

(Example: A 2400 tape sort (360N-SM-400) which takes 60 minutes may take between 54 and 96 minutes under the new Sort/Merge).

Performance in 22K shows degradation for most applications using IBM-2311s as work units or using IBM-2400s on one channel as work units. Actual measurements show the performance factors ranging from 0.8 - 1.6 with a median at 1.2.

Overall systems performance should be considered when selecting a Sort/Merge program. Many customers who find it necessary to sort in 10K - 22K environment may elect to use this program in a trade-off for new functions at lesser sort performance. Others should consider the merits of using the presently available sort/merge program.

2. Performance improvements:

An increase in performance may be experienced for many sorting requirements in memory greater than 22K. Specific test cases measured at 56K and 120K reflect the following factors:

<u>Partition Size</u>	<u>Range</u>	<u>Median</u>
56K	0.7 - 1.2	0.9
120K	0.6 - 1.0	0.8

A review of the Timing Estimates SRL will assist the user in determining the performance of his sorting requirements.

Minimum System Requirements ... 16K bytes of main storage for 2400/2311 modules ... 32K bytes of main storage for 2314 modules ... Standard instruction set ... One selector channel ... One 2311 Disk Storage Drive or one 2314 Direct Access Storage Facility for sort input, output, and work files if DASD devices are desired ... One 1403 or 1443 Printer or one 1052 Printer keyboard ... One 1442, 2501, 2520, or 2540 Card Reader, or 2400-series Magnetic Tape Unit, or one 2311 Disk Storage Drive or 2314 Direct Access Storage Facility assigned to SYSIPT and SYSRDR ... Three 2400 series Magnetic Tape Units if tape work files are desired ... One additional 2400 series Magnetic Tape Unit if tape input/output is desired.

The Tape and Disk Sort/Merge program supports -- A maximum of 512K bytes of main storage ... A maximum of 8 extents on 2311 Disk Storage Drive, or 2314 Direct Access Storage Facility, or ten 2400-series Magnetic Tape Units can be used for intermediate storage ... One to ten 2400-series Magnetic Tape Units for input/output to a sort operation. Any number of alternate tape units can be supported ... One to nine 2400, 2311, or 2314 for input/output to a merge operation ... 2804/2816 ... The 2400-series Magnetic Tape Units may be Models 1 through 6.

Publications ... IBM S/360 Disk Operating System, Tape and Disk Sort/Merge Program ... IBM S/360 Disk Operating System, Tape and Disk Sort/Merge Program, Timing Estimates ... IBM S/360 Disk Operating System, Tape and Disk Sort/Merge Program Logic Manual. Form numbers will be announced in a future PRL.



BPS/360 MODULAR FILE MAINTENANCE PROGRAM AVAILABLE ... COUPLED WITH A NEW WAY OF PACKAGING BPS/360 PROGRAMS

The BPS Modular File Maintenance Program is now available [360P-UT-219]. This maintenance program is being announced in conjunction with a new method of packaging BPS programs for distribution to new and current users.

Modular File Maintenance Program

The program performs these functions:

Building of self-loading master and update DTR(s).

Update of current master tapes by merging with an update DTR(s) to produce new master tapes.

Retrieval of individual programs from both master and update DTR(s).

Retrieval of header records.

Packaging of BPS/360 Programs

All BPS/360 programs will now be shipped in six functional Volumes.

Volume 1 (Basic or Optional) is available on one 9-track magnetic tape (2400') only.

Each Volume (2-6, Basic) is individually available on one 9 or 7-track DTR.

Each Volume (2-5, Optional) is individually available on one 9 or 7-track magnetic tape (2400').

For users not having magnetic tape, non-tape programs will be supplied individually on cards in either object or symbolic format.

Except for three I/O programs, the programs are written onto masters in both object and symbolic code formats.

See the details on the next pages.


John Fahey
Director of DP Marketing

Note to World Trade Readers
This letter is a reprint of an IBM Programming Announcement and was mailed concurrently to USA and WT offices. The following changes, when appropriate, should be applied to the text for WT use.
[1] All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.
[2] Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the latter, availability will be announced in the Weekly DP Marketing Publications Release Letter.
[3] When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.
[4] Programming distribution media may be different in this area based on local conditions although DTR, disk packs, etc., may be indicated.
[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.

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Release Date: October 30, 1968
Distribution: All Areas

Modular File Maintenance Program

The complete Modular File Maintenance Program is supplied in both object (basic) and symbolic (optional) formats (see chart, distribution volume 3). The program performs these functions:

Building of self-loading master and update DTR(s) such as those on which IBM will now supply BPS programs and updates. This function can be employed by users to prepare master and update tapes containing user-written programs.

Update of current master tapes by merging with an update DTR(s) to produce new master tapes. IBM will supply update DTR(s) only for the basic volumes of BPS programs. For the optional volumes, complete replacements must be ordered.

Retrieval of individual programs from both master and update DTR(s). The output media can be card, tape, printer, or any combination of these.

Retrieval of header records only to identify the programs on masters and update DTR(s).

Each master and update DTR supplied by IBM consists of two files. The first file contains IPL, supervisor, job control, and the update/retrieval phase of the Modular File Maintenance Program. The second file is a series of data modules, each containing a header record and one phase of a BPS program (IPL, supervisor and job control are each considered phases of a BPS program).

The header records on a current master and an update DTR(s) control the merging operation by which a new master is created. A program phase is omitted from the new master when the header for that phase on the update DTR(s) specifies a delete action.

Minimum System Requirements ... System/360 Model 30, 40 or 50 with 8K bytes of main storage ... Card Reader - 1442, 2501, 2520, or 2540 ... Card Punch - 1442, 2520 or 2540 ... Printer - 1403, 1404 (continuous forms only) or 1443 ... Tape - 2400-series, 9-track or 7-track with Data Conversion feature. One to three drives required depending on functions performed.

Performance ... The Modular File Maintenance Program runs at approximately the rated speed of the slowest I/O device used.

Basic Program Material ... Consists of program material list ... SRL - IBM System/360 Basic Programming Support, Modular File Maintenance Program, Specifications and Operating Guide, C24-5069, and the object program (included on basic distribution volume number 3).

Packaging BPS Programs

All BPS/360 programs will now be shipped in six functional Volumes.

Volume 1 (Basic or Optional) is available on one 9-track magnetic tape (2400') only.

Each Volume (2-6, Basic) is individually available on one 9 or 7-track DTR.

Each Volume (2-5, Optional) is individually available on one 9 or 7-track magnetic tape (2400').

For users not having magnetic tape, non-tape programs will be supplied individually on cards in either object or symbolic format.

Except for three I/O programs, the programs are written onto masters in both object and symbolic code formats.

Maintenance will be distributed automatically to all current BPS users. Shipments began this week.

Current users for all the BPS programs will receive the following materials:

Documents - Memo to user and attachments ... Program Material List ... Attachment 1 - SRL Matrix ... Special Information - Basic Card Utilities Volume 5 ... Reblock Operating Instructions Volume 2 ... Multiplex Modifications Volume 2 ... Instructions for Using Maintenance DTRs ... Program Retrieval Information.

Publications * - SRL's - BPS/360 Modular File Maintenance Program Specifications and Operating Guide, C24-5069 ... BPS/360 Merge Program Operating Guide, C 24-3413-3 ... System/360 Basic FORTRAN IV Language, C28-6629-1.

TNL's - N21-5094 and N21-5097 for C24-3418-2 ... N28-2337 for C24-5027-2 ... N28-2339 for C24-3396-3 ... N28-2340 for C24-5026-2 ... N28-2342 for C24-3392-7 ... N28-2343 for C24-3363-5 ... N28-2346 for C24-3320-6.

*Publications will be distributed to affected current users for the programs they are registered for.

Machine Readable Material † - Machine readable material will be distributed to affected current users for the programs they are registered for.

† All maintenance machine readable material will be supplied on either one or two Distribution Tape Reel(s); or for those customers requiring cards, in card form. The DTR(s) will be 9-track 800 or 1600 bpi or 7-track 800 cpi (Data Conversion feature required) as specified in your original request for the programs.

New users -- see page 4 of this letter for the new sales manual text.

BPS/360 BASIC AND OPTIONAL PROGRAM MATERIAL PACKAGING

		Distribution Volume/Number		Available on Cards	Levels Ver Mod		DISTRIBUTION Volume Media	
		Basic	Optional		Ver	Mod	Basic	Optional
Basic Tape System (8K) RPG (8K Tape)	360P-AS-091 RG-201	1* *	1	no no	1 1	H(17) 6	2400' Reel of Mag. Tape	2400' Reel of Mag. Tape
FORTRAN IV (Tape)	360P-FO-031	2*	2	no	3	0	DTR	2400' Reel of Mag. Tape
Card to Printer and/or Punch	360P-UT-050	3	3	yes	3	3		
Card to Tape	UT-051			no	3	4		
Tape to Printer	UT-052			no	3	3	ALL	ALL
Tape to Card	UT-053			no	3	3		
Tape to Tape	UT-054			no	3	3	ON	ON
Multiple Utility	UT-055			no	2	4		
Storage Print	UT-056		**	yes	1	2	A	A
Initialize Tape	UT-057			no	3	4		
Sort/Merge (8K Tape) 1 Channel	SM-043			no	3	7		SINGLE
2 Channel	SM-044			no	3	8	SINGLE	
Universal Character Set Utility	UT-048			yes	1	3		2400' REEL
Autotest (Tape)	PT-045			no	2	2		OF MAG.
Tape Compare	UT-202			no	1	3		TAPE
Modular File Maintenance	UT-219			no	1	0	DTR	
Copy Disk to Tape, Restore Tape to Disk	360P-UT-061	4	4	no	1	4		
Copy Disk to Card, Restore Card to Disk	UT-062			yes	1	2		
Storage Print	UT-056		**	no	1	2		
Initialize Tape	UT-057			no	3	4		
Universal Character Set Utility	UT-048			yes	1	3	ALL	ALL
Card to Disk	UT-063			yes	3	4		
Disk to Card	UT-064			yes	3	3	ON	ON
Disk to Tape	UT-065			no	3	4		
Tape to Disk	UT-066			no	3	5	A	A
Disk to Disk	UT-067			yes	3	4		
Clear Disk	UT-068			yes	3	3		
Initialize Disk (2311)	UT-069			yes	4	2	SINGLE	SINGLE
Copy Data Cell to Tape, Restore Tape to Data Cell	UT-071			no	1	3		
Copy Disk to Disk	UT-072			yes	1	3	DTR	
Disk to Printer	UT-073			yes	3	3		2400' REEL OF MAG. TAPE
Alternate Track Assignment	UT-098			yes	3	3		
Multiple Disk to Printer	UT-203			yes	2	2		
Initialize Data Cell	UT-204			yes	1	3		
16K Initialize Disk (2311/2314)	UT-206			yes	1	2		
16K Alternate Track Assignment (2311/2314)	UT-207			yes	1	1		
Distribution Program	UT-208			no	1	0		
Alternate Track Assignment (2321)	UT-212			yes	1	2		
Basic Assembler	360P-AS-021	5	5	yes	2	1	ALL	ALL
Absolute Loader	UT-017			yes	2	5	ON	ON
Input/Output Support Package	UT-018		**	yes	3	2	A	A
Dump Program	UT-019			yes	2	4	SINGLE	SINGLE
Relocating Loader	UT-020			yes	2	4		2400' REEL OF MAG. TAPE
Report Program Generator (Card)	RG-200			yes	2	3	DTR	
FORTRAN IV (16K Card)	FO-205		**	yes	2	1		
Input/Output 1412/1419	360P-IO-058	6	***	yes	3	5	ALL ON	***
Input/Output 1418/1428	IO-059		***	yes	2	4	A SINGLE	***
Input/Output 1231 N1	IO-060		***	yes	2	3	DTR	***

*These programs are directly tape loadable. Therefore, the file maintenance program is not present on Basic Volumes 1 and 2.

**No optional material.

***Optional material not required as basic material is distributed in symbolic form.

Basic Program Material:

The following SRL publications and documentation appropriate to the components ordered are shipped by PID with each initial BPS/360 order.

SRL Publications:

— Volume 1 —	
BPS/360 Programmer's Guide - 8K Tape (360P-AS-091) TNLs N24-5327, N24-5339 and N33-8541	C24-3354-6
BPS/360 Assembler with Input/Output Macros - 8K Tape (360P-AS-091) TNL N24-5342	G24-3355-5
BOS/BPS/360 Macro Definition Language - 8K Disk/Tape (360P-AS-091)	C24-3364-3
BPS/360 Operating Guide - Basic Tape System - 8K (360P-AS-091) TNLs N24-5322, N24-5353 and N33-8539	C24-3391-3
BPS/360 System Generation and Maintenance - Basic Tape System (360P-AS-091) TNL N33-8540	C24-5061-2
BPS/360 Specifications - Report Program Generator (360P-RG-201) TNLs N21-5059, N21-5087, <u>N21-5094</u> and <u>N21-5097</u>	C24-3418-2 Note 8
— Volume 2 —	
S/360 Basic FORTRAN IV Language (360P-F0-031)	C28-6629-1
BPS/360 FORTRAN IV Programmer's Guide (360P-F0-031) TNL N28-0230	C28-6583-2
— Volume 3 —	
BPS/360 Modular File Maintenance Program Spec- ifications and Operating Guide (360P-UT-219)	C24-5069-0
BPS/360 Sort/Merge Program Specifications (360P- SM-043, 044) TNL N28-2346	C24-3320-6 Note 1
BPS/360 Sort/Merge Program Operating Guide (360P- SM-043, 044)	C24-3413-3 Note 2
BPS/360 Autotest Specifications - 8K Tape (360P- PT-045) TNLs N21-5025 and N21-5068	C24-3343-2
BPS/360 Operating Guide Autotest - 8K Tape (360P- PT-045) TNLs N21-5026 and N21-5069	C24-3417-2
— Volumes 3 and 4 —	
BPS/360 Specifications - Card and Tape Utility Programs (360P-050-057, 202) TNL N28-2340	C24-5026-2 Note 3
BPS/360 Operating Guide - Card and Tape Utility Programs (360P-UT-050-057, 202) TNLs N21-5037 and <u>N28-2337</u>	C24-5027-2 Note 4
BPS/360 Operating Guide Universal Character Set Utility Program (360P-UT-048) TNL N28-2339	C24-3396-3
— Volume 4 —	
BPS/360 DASD Utility Programs-Specifications (360P- UT-061-069, 071, 072, 073, 098, 203, 204, 206, 207, 212) TNL N28-2343	C24-3363-5
BPS/360 DASD Utility Programs - Operating Guide (360P-UT-061-069, 071, 072, 073, 098, 203, 204, 206, 207, 212) TNLs N28-2309 and <u>N28-2342</u>	C24-3392-7
BPS/360 Distribution Program Specifications and Operating Guide (360P-UT-208)	C21-5001-0
— Volume 5 —	
BPS/360 Basic Assembler and Basic Utility Programs (Card) Specifications and Operating Guide (360P-UT-017, 018, 019, 020) (360P-AS-021)	C28-6503-6
BPS/360 Specifications - Report Program Generator - Card (360P-RG-200)	C24-3374-2 Note 5

BPS/360 Operating Guide - Report Program Generator -
Card (360P-RG-200) C24-3464-1
TNLs N24-5171 and N21-5066

BPS/360 Support Programmers Guide FORTRAN IV
(360P-UT-208) C21-5000-1
TNL N28-0219 Note 6

BPS/360 Specifications - FORTRAN IV - 16K Card
(360P-F0-205) C21-9040-1
TNL N28-0223 Note 7

— Volume 6 —

BPS/360 Input/Output 1412/1419 Specifications and
Operating Guide (360P-IO-058) TNL N24-5228 C24-3398-4

BPS/360 Input/Output 1418/1428 Specifications and
Operating Guide (360P-IO-059) C24-3437-2
TNL N24-5350

BPS/360 Input/Output 1231 (360P-IO-060) C24-3408-2

New or revised publications are underlined.

Note 1: SRL C24-3320-5 plus TNLs N21-5028, N21-5052, and N28-2346 may be used in lieu of the SRL C24-3320-6 plus TNL N28-2346.

Note 2: SRL C24-3413-1 plus TNLs N21-5008, N21-5020, N21-5029, N21-5046, N24-5027, N28-2244 or SRL C24-3413-2 plus TNLs N21-5046 and N28-2244 may be used in lieu of the SRL C24-3413-3.

Note 3: SRL C24-5026-1 plus TNLs N21-5030 and N28-2340 may be used in lieu of C24-5026-2 plus TNL N28-2340.

Note 4: SRL C24-5027-1 plus TNLs N21-5031, N21-5037, N24-5104, and N28-2337 may be used in lieu of the SRL C24-5027-2 plus TNLs N21-5037 and N28-2337.

Note 5: SRL C24-3374-1 plus TNLs N21-5065 and N24-5052 may be used in lieu of the SRL C24-3374-2.

Note 6: SRL C21-5000-0 plus TNLs N21-5010, N21-5043 and N28-0219 may be used in lieu of the SRL C21-5000-1 plus TNL N28-0219.

Note 7: SRL C21-9040-0 plus TNLs N21-5007 and N28-0223 may be used in lieu of the SRL C21-9040-1 plus TNL N28-0223.

Note 8: SRL C24-3418-1 plus TNLs N24-5056, N24-5160, N24-5176, N24-5200, N21-5059 and N21-5087 may be used in lieu of the SRL C24-3418-2 plus TNLs N21-5059, N21-5087, N21-5094 and N21-5097.

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 1 - SRL Matrix ... Special Information - Basic Card Utilities Volume 5 ... Reblock Operating Instructions Volume 2 ... Multiplex Modifications Volume 2 ... Instructions for using Maintenance DTRs ... Program Retrieval Information.

Machine Readable:

TAPE USERS All machine readable will be available as follows:

- Volume 1 (Basic or Optional) is available on one 9-track magnetic tape (2400') at 800 or 1600 bpi only.
- Each Volume (2-6, Basic) is individually available on one 9-track DTR, 800 or 1600 bpi, or one 7-track DTR 800 cpi (Data Conversion feature required).
- Each Volume (2-5, Optional) is individually available on one 9-track magnetic tape (2400') 800 or 1600 bpi, or on one 7-track magnetic tape (2400') 800 cpi (Data Conversion feature required).

CARD USERS Refer to the chart on page 3 for the individual programs that are available in card format, either object or symbolic.

All programs should be ordered by their individual program numbers and not by the Distribution Volume numbers they are contained in.

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

DTRs are provided by PID; no tape submittal is required. If the track and density requirements are not indicated on the back of the Program Order Card, 9-track, 800 bpi will be forwarded.

All New Users will only receive future Maintenance for those specific programs for which they indicated a desire for Maintenance.