MICROLOOP OPTION FOR 1800 TRAFFIC CONTROL IS AVAILABLE

Version 2 of the 1800 Vehicular Traffic Control System, which includes the microloop option for traffic control, is available (1800-UG-06X).

Microloop provides a powerful new dimension for traffic control. It optimizes control at an individual intersection, while synchronizing it with adjacent intersections. It also has the ability to change any step timing manually, the capability of synchronizing subsystems, and an improved method of measuring stops and delay.

Current users are being sent a letter announcing the availability of Version 2. This letter is accompanied by a prepunched program order card that the customer should use to order the new version.

See the attached sales manual page (P 1800.5) for additional information.

OPTIONAL FLOWCHARTS ARE AVAILABLE FOR PROJECT CONTROL SYSTEM (PCS)

The optional flowcharts for PCS (360A-CP-06X) are now available. They are combined with the source program statements and are available on one 2400' reel of magnetic tape.

For details, see the attached sales manual page (P 360A.7).

Note to World Trade Readers

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

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

Attachments [6]: P 3, P 5, P 19, P 21, P 360A.7, and P 1800.5

Release Date: March 29, 1968

Distribution: All Areas stems engineers

P68-51
NEW VERSION OF DAMPS TO BE AVAILABLE MARCH 14, 1969

Version 2 of Data Acquisition Multiprogramming System (DAMPS) extends the facilities provided under Version 1 (see P67-98). It is designed for use on the System/360 Model 44 and will be available March 14, 1969.

Version 1 is still scheduled for delivery on September 30, 1968; however, after March 14, 1969, Version 1 will not be maintained.

Real-time applications which run under Version 1 will run under Version 2 without modification, provided adequate storage and the required devices are reserved. DAMPS Version 2 requires the Storage Protection special feature.

Version 2 includes improved multiprogramming features for real-time applications ... support of a full background processing capability ... support for 32 levels of the Priority Interrupt special feature and the IBM 1827 Data Control Unit.

The system will support assignment of program tasks to various priority interrupt levels. Foreground program tasks can be dynamically scheduled for execution during periods while there are no active priority interrupts. To sustain a higher throughput rate for real-time applications, the foreground processing tasks can be multiprogrammed. Customer written application programs can be prepared using the System/360 Model 44 programming system. The DAMPS Version 2 features appear as extensions to the System/360 Model 44 programming system.

A background process, logically independent of the real-time job, will be multiprogrammed at a low priority level. While the background functions under the System/360 Model 44 programming system, the foreground is particularly applicable to real-time on-line applications interfacing directly with the System/360 Model 44. Examples of DAMPS Version 2 applications are:

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

All customers affected by this change should be notified promptly.

The DAMPS Version 2 Application Description Manual (H20-0494) is available from the IBM Distribution Center in Mechanicsburg.

For the Version 2 sales manual write-up, see the reverse side.

John Fahey
Director of DP Marketing
DAMPs Version 2 is a program designed to support the System/360 Model 44 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 System, DAMPS Version 2 supports 32 levels of the Priority Interrupt Special Features and the IBM 1827 Data Control Unit for interfacing directly with scientific applications. A capability for processing non-real-time jobs in the background is also provided. The System/360 Model 44 Programming System processors are compatible with DAMPS and are used in preparation of application programs.

Description: DAMPS Version 2 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. To sustain a higher throughput rate for real-time jobs, the foreground processing tasks can be multiprogrammed. The posture of the system, with respect to priority interrupts, can be altered with special subroutines provided. Foreground tasks use supervisor 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 applications 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.

A background process, logically independent of the real-time job, will be multiprogrammed at a low priority level. The Storage Protection feature is required to protect the real-time application from errors occurring in the background. A full System/360 Model 44 Programming System is reflected in the background.

Features: Special routines can be associated with an immediate response to an external event through the Priority Interrupt special feature... background processing can be easily scheduled during priority interrupt... foreground processing can be multiprogrammed... the user can easily 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 full System/360 Model 44 Programming System is available in the background... the real-time application is protected from the background... a special, real-time channel scheduler is provided for channel service 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: Version 2 substantially reduces the programming effort 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. After release of Version 2, Version 1 will no longer be distributed and maintained by IBM. Real-time applications that are run under Version 1 will run under Version 2 without modification provided that adequate storage and the required devices are reserved. It should be noted, however, that the Storage Protection special feature is an additional requirement of Version 2.

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 Version 2... any user modification of Version 2... 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 System: Version 2 is an extension of the System/360 Model 44 Programming System. The extensions were programmed in the assembler language of the application. 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 (128K); Multiplexer Channel (#5287); High Speed Multiplexer Channel (#5958); Priority Interrupt Feature (#5625); Single Disk Storage Drive (*4613); Store and Fetch Protection (*7533 or *7534); System Input Device (*1442 Model N1, 2501 Model B2 or B3, 2520 Model B3, 2540 Model 1, 2403 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); 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 System/360 Model 44s are also applicable to DAMPS Version 2.
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 sub-channels between real-time and non-real-time devices will degrade the performance of the real-time channel schedules.
4. Except for console typewriter output, devices cannot be shared by both real-time and background jobs.


For further information contact your Regional Manager of Scientific Marketing.
SYSTEM RELEASE 16 OF DOS/360 IS AVAILABLE

Order Now ... highlights are below ... for details, see the attached sales manual pages.

Improvements
- IBM 2314 Direct Access Storage Facility Support
- Additional Index Sequential Options
  - Full Track ADD and Cylinder Index in Core
- New System Resident Utilities
  - VTOC Display
  - Initialize Disk
  - Assign Alternate Track
  - Copy-Restore: Disk with Tape and Disk with Card
  - Copy: Disk to Disk
- New Multiprogramming Features
  - Batched Job Foreground Options
  - Checkpoint/Restart in Foreground Partitions
  - Seek Separation Feature
- Device Independent Access Method
- Private Source and Relocatable Libraries
- CSERV - Punch or Display of Core Image Library
- Disk Label Simplification
- CE Serviceability Program - I/O Trace for More Rapid and Accurate Diagnosis of Machine and/or Program Malfunction.
- BTAM Binary Synchronous Communications for the IBM 2780 (EBCDIC): This Support is Functionally Identical to the Support Provided for the IBM 2780 (6 Bit Transcode, See P68-9)
- QTAM QUEUES. Up to 16 Extents on 2311 or 2314
- QTAM 2260 (local)

Plan to Upgrade
DOS/360 offers your customers ...
- Improved Performance
- Increased Function
- Greater Usability

Extensive Sales Support
DOS/360 offers you support to ...
- Sell - Install Multiprogramming Systems
- Sell - Install Tele-processing Systems
- Sell - Install Large Data Base Systems

FOR IBM INTERNAL USE ONLY

Published by DP Sales Publishing Services, WTHQ
Release Date: April 5, 1968
Distribution: All Areas

John Fahey
Director of DP Marketing

P68-53
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 9033 through 9037, Programming Section, WT DP Sales Manual.

2. Advance copies of the form numbered publications mentioned in the above either have been shipped (with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania) or will be shipped when available. In the case of the later, availability will be announced in the Weekly DP Marketing Publications Release Letter.

3. When a new version of a program is announced current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.

4. 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.
Letter P67-9 stated that an availability date would be announced for System/360 to 2780 BTAM ASCII. The availability date of January 31, 1969 has now been established.

See P67-9 for additional information.

Customers affected should be notified.

MODIFICATION TO MODEL 20 CARD REPORT PROGRAM GENERATOR INCREASES PERFORMANCE

Stacker Selection ... Based on file matching and/or calculation results, stacker selection of input-file cards is now possible without specifying a dummy punch on the Output-Format Specifications form.

The file must, however, be defined as combined. A read operation is generated instead of the dummy punch. Processing time is reduced, and performance increases of up to 30%, and occasionally even more, can be obtained; for example, 33% in a card-sifting application on the MFCM based on file matching.

Availability ... System/360 Model 20 CPS Report Program Generator Version 2, Modification Level 3, 360T-RG-010, is now available and will be distributed automatically to current users.

Published by DP Sales Publishing Services, WTHQ
CHANGES IN VERSION 2 OF DAMPS

Please change the back of P68-52 under the Minimum System Requirements and Program Support Material sections to read:

Minimum System Requirements: System/360 Model 2044G(128K), Multiplexer Channel (#5248), High Speed Multiplexer Channel (#4598), Priority Interrupt Feature (#5625), Second Single Disk Storage Drive (#6415), Store and Fetch Protection (#7533 or #7534), High Resolution Interval Timer (#4555), 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), 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 System/360 Model 44 Programming System Processors are also applicable to DAMPS Version 2.
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 nonreal-time devices will degrade the performance of the real-time channel scheduler.
4. Except for console typewriter output, devices cannot be shared by both real-time and background jobs.

Program Support Material: System Description for Version 2 (availability and number will be announced in a PRL) ... Application Description Manual for Version 2 (H20-0494).
ADDITIONAL FEATURES TO BE AVAILABLE IN NEW VERSION OF 1130 COMMERCIAL SUBROUTINE PACKAGE

Version 3 of the 1130 Commercial Subroutine Package (CSP) [1130-SE-25X] will be available June 1, 1968. It includes:

- I/O routines for the 1403 Printer, 2501 Card Reader, and 1442 Card Punch Model 5.
- Faster (and smaller) versions of the character handling and decimal arithmetic routines. This improvement has been accomplished by a recoding into assembler language of all the routines formerly in FORTRAN.
- New character conversion routines, permitting the user to pack three characters (of a 40-character subset) and/or four decimal digits into one word. These routines can significantly reduce disk storage requirements for many data files.

Availability and form number of a new Application Description Manual for the 1130 Commercial Subroutine Package Version 3 will be announced in a Publications Release Letter.

The 1130 User's Guide will be available for additional support of the Commercial Subroutines. Its release will also be announced in a Publications Release Letter. The sales manual page will be updated when Version 3 is available.

John Fahey
Director of DP Marketing
# Data Processing

## IBM World Trade

### DP SALES MANUAL — PROGRAMMING SECTION CHECK LIST

**STATUS AS OF P68-57**

To order missing Programming pages, circle the page numbers of the required pages on this sheet, fill in your name, position title, and address, and send the form to:

WT DP Sales Publishing Services

Requests for more than twenty pages require management approval.

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**For IBM Internal Use Only**

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**Cancels:**

P68-42

**Attachments [11]:**

[1 thru 11] P 7 and P 360P.1 thru P 360P.19

**Release Date:**

April 15, 1968

**Distribution:**

All Areas
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A NEW BPS/360 UTILITY FOR PROGRAM DISTRIBUTION

A new BPS/360 Distribution Program is now available (360P-UT-208). It performs the following functions:

1. Build two tape loadable programs on an output tape. The two programs are an Initialize Disk (2311/2314) program and a Restore Tape to Disk program.
2. Copy one or more disk files, defined by the file name parameter on the utility modifier cards, to the output tape(s).
3. The volume built by the above two steps will allow a disk pack to be initialized by the first tape loadable program and allow that disk pack to be restored with the disk file(s) information contained on the tape volume by the second tape loadable program.

Performance... The program has three functions whose performance is as follows:

- **Copy** - This segment requires not more than 14 minutes to copy to tape a 2311 disk file whose extents are from cylinder 0 to cylinder 198. It requires not more than 28 minutes to copy to tape a 2314 disk file whose extents are from cylinder 0 to cylinder 198.

- **Initialize Disk** - This segment requires not more than 7 minutes to initialize a 1316 disk pack when performing surface analysis once per track. Increasing the number of times surface analysis is performed adds approximately 5 minutes per repetition.

- **Restore Tape To Disk** - This function requires not more than 14 minutes per one execution of surface analysis. Each additional repetition of surface analysis adds approximately 10 minutes.

Minimum System Requirements... System/360 with 16K bytes of main storage... Card reader (1442, 2501, 2520, or 2540)... Printer (1403, 1404 (continudus forms), 1443 or 1445)... Printer Keyboard (1052)... Tape Drive (2400 series)... Disk Drive (2311 or 2314).

Basic Program Material (360P-UT-208)


Documentation - Program material list.

Machine Readable - Object program available on a 9-track DTR (800 or 1600 bpi) or 7-track DTR (800 cpi) - Data Conversion feature required.

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

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

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

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

John Fahey
Director of DP Marketing

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1. All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.

2. Advance copies of the form numbered publications mentioned in the above list have been shipped forthwith. 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. A new version of a program is announced and users must order it; they will not receive it automatically nor will they necessarily receive a preprinted request card in their area.

4. Programming distribution media may be different in this area based on local conditions without 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 continues to announce major improvements and new functions to the high performance capability of OS/360. Added are:

1. MVT Job Scheduler Improvements ... available July 31, 1968
2. FORTRAN Library Improved Object Time Facilities ... available October 31, 1968
3. Dynamic Support of Universal Character Set Functions ... available October 31, 1968

As OS/360 is extended into new application areas and its multiprogramming capabilities are better understood, appropriate improvements are being made based on actual user experience. Several of these features are representative of this activity.

An OS/360 Operational Characteristics Improvement Program has been established to evaluate, in a concerted way, the production environment requirements. This project depends on user reports via the formal Product and Support Requirement Requests, 120-1702. Each Region and Field System Center has a representative participating in the project who can be contacted for details of the program.

MVT JOB SCHEDULER IMPROVEMENTS

This new facility provides a Job Class parameter in addition to priority, which will be used by the system when deciding which job from the input work queue is to be selected for initiation. By classifying jobs properly, it is possible to control the mixture of job types which execute together. This control is important in a multijob system because it permits optimization of system resource usage according to the applications and hardware configuration.

Job classification for an installation should consider the system resources for which greatest contention is expected. Jobs using that resource can be given the same job class, and will run serially rather than together. A great variety of classification schemes are possible.

Some examples are classifications based on...

- The amount of operator setup action required
- The use of an I/O device type, such as a tape or printer
- The amount of main storage needed
- High or low percentage of CPU usage

An additional improvement is provided by using cataloged procedures to control the characteristics of each initiator active in the system. This change will allow easier operational control, greater flexibility in conjunction with Job Classes, and improved system availability.

An initiator procedure can specify that a unique part of the data set catalog (control volume) be assigned to the initiator for use by a particular job class. Increased system availability will result from an associated logic change which makes each initiator a system subtask. Failures which abnormally terminate the initiator are restricted to the initiator only, and does not require reinitialization of the entire system.

OS/360 FORTRAN LIBRARY IMPROVED OBJECT TIME FACILITIES

The OS/360 FORTRAN Library has been improved to provide additional information in object time error messages. The error messages includes the name of the routine in which the error is detected, a description of the cause of the error, and appropriate supplemental information. The improved messages are available to all users of OS/360 FORTRAN E, G and H.

There is also a SYSGEN parameter for FORTRAN G and H to provide "control" and "continue Execution" options when an error is detected. The job can be terminated or continued with the following options:

- Execute a standard or user supplied routine to take corrective action on the data in error and continue execution.
- Permit a standard or user-specified number of error occurrences before termination.
- Trace-back after a detected error, whether the job terminates or continues.
- Allow user-written library subroutines to take advantage of the expanded error handling facilities.
There is no significant effect on object time performance for error-free programs. However, additional processing time is required to handle error conditions.

The storage requirements of the FORTRAN Library is affected by the addition of improved object time error messages resulting in an increase in the core storage requirements of an object program. This increase is 150 bytes for FORTRAN E (400 bytes for FORTRAN G and H), plus an average of 200 bytes additional for each library subprogram called. In addition, if the user selects the optional "control and continue" feature, core storage from 4500 to 5300 bytes is required for an error monitor depending upon the action desired.

Reference Publications... Further details concerning the OS/360 FORTRAN Library Improved Object Time Facilities will be published in appropriate SRL publications at the time of program availability.

OS/360 UNIVERSAL CHARACTER SET (UCS)

A new function of OS/360 Data Management provides support for the UCS feature of the 1403 Printer, eliminating the additional job step to load the character set image into the UCS buffer.

Scope... The support is provided under all OS/360 configurations to all users of BSAM, QSAM, and EXCP for on-line printing. It includes:

- loading of the UCS buffer with or without fold,
- setting/resetting block data check,
- operator mounting of the print chain,
- image verification,
- system control of the character set loaded.

The user can specify that a character set be loaded either at OPEN time (via the DD card) or during execution while the data set is open (via a system macro instruction), thus allowing for changing character sets within a job step. At the time the character set is loaded, the operator is requested to mount the corresponding print chain.

Character Set Definition... At system generation time, the user specifies which of the IBM standard character sets are to be included in his system. User-designed character sets may be added to the system with a simple assemble-link edit procedure. The IBM standard character sets which may be specified at system generation time are:

<table>
<thead>
<tr>
<th>Character Set</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AN</td>
<td>alphameric</td>
</tr>
<tr>
<td>HN</td>
<td>alphameric</td>
</tr>
<tr>
<td>PCAN</td>
<td>alphameric</td>
</tr>
<tr>
<td>PCHN</td>
<td>alphameric</td>
</tr>
<tr>
<td>PN</td>
<td>alphameric (PL/I)</td>
</tr>
<tr>
<td>QNC</td>
<td>alphameric (PL/I - Comm'l)</td>
</tr>
<tr>
<td>QN</td>
<td>alphameric (PL/I - Scientific)</td>
</tr>
<tr>
<td>RN</td>
<td>FORTRAN-COBOL - Comm'l</td>
</tr>
<tr>
<td>SN</td>
<td>text printing</td>
</tr>
<tr>
<td>TN</td>
<td>text printing</td>
</tr>
<tr>
<td>XN</td>
<td>high-speed alphameric</td>
</tr>
<tr>
<td>YN</td>
<td>high-speed alphameric</td>
</tr>
</tbody>
</table>

* preferred character set

As part of the system generation, the user designates which of his selected character sets are default options, i.e., acceptable for use where no particular character set is requested.

If no character set is specified, the set that is currently loaded will be used if it has been designated as a default option; otherwise, the operator will be requested to specify the set to be used.

MFT and MVT Special Consideration... Since UCS support is effective only for on-line UCS printers, the UCS control information is lost when data sets are passed across intermediate storage devices. Therefore, data sets requiring the same UCS characteristics should be grouped together on the intermediate storage device (e.g., using the SYSOUT Class capability) and printed with the common set of UCS parameters.

Conversion from IEHUCSLD... This new support supersedes the present IEHUCSLD utility program which loads the UCS buffer. IEHUCSLD will be withdrawn after the new function has had sufficient field usage.

Conversion is effected by deleting the job step that executes IEHUCSLD and supplying the corresponding UCS parameters in the DD card to define the UCS printer data set for the output writer class.

Users should be aware that the IEHUCSLD Utility and the new UCS support are not compatible, since the utility does not maintain the control information required by the new support. Consequently, during the conversion period, users are advised to designate all of their character sets as defaults, thus causing the new support to recognize only specific UCS requests (i.e.,...
converted jobs). IEHUCSLD jobs will continue to run as default jobs under the new support without intervention.

System Configuration ... UCS support operates under all OS/360 System configurations; it is applicable only to the 1403 Printer with the UCS feature.

Performance ... The input/output time required to load the UCS buffer is overlapped with the time required to mount the new print chain.

Storage Requirements ... The fixed main storage requirement is increased by eight bytes for each UCS printer UCB. A UCS load at OPEN requires 272 bytes of temporary storage in addition to the current OPEN requirement. A UCS load performed during program execution requires 736 bytes of temporary storage plus a 32-byte call linkage assembled in the problem program. UCS support modules and the character set image library reside on the system residence volume and require approximately three tracks on an IBM 2311 Disk Storage Drive.

Reference Publications ... The following publications will be updated to reflect the new UCS support:

- Job Control Language, C28-6539
- Job Control Language Charts, C28-6632
- Operator’s Guide, C28-6540
- Supervisor and Data Management Services, C28-6646
- Supervisor and Data Management Macro Instructions, C28-6647
- Messages and Codes, C28-6631
- System Generation, C28-6654
- Storage Estimates, C28-6651
- System Programmer’s Guide, C28-6550
- System Control Blocks, C28-6628

Note to World Trade Readers

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

1. All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017, Programming Section, WT DP Sales Manual.

2. Advance copies of the form numbered publications mentioned in the above either have been shipped with additional copies available from the IBM Distribution Center, Mechanicsburg, Pennsylvania or will be shipped when available. In the case of the later, availability will be announced in the Weekly DP Marketing Publications Release Letter.

3. When a new version of a program is announced current users must order it; they will not receive it automatically nor will they necessarily receive a prepunched request card in their Area.

4. 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 DPO Departments (or Regions) as sources of information or for manuals etc., should be understood to mean the comparable WT Department or corresponding organizational level.

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8. References made to Engineering Change requirements should be verified with the local CE office. Although E/C requirements are identical for WT and IBM, availability and shipping dates may 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
PROGRAMMING SUPPORT FOR IBM 50 AND IBM 2495

Here are the details of the programming support for the recently announced IBM 50 Magnetic Data Inscriber and IBM 2495 Tape Cartridge Reader.

An additional input macro-instruction (INTCR) will be added to the set of DOS/360 Multiprogramming Support (MPS) Utility Macro-Instructions. Availability will be January 31, 1969.

The INTCR utility macro-instruction will provide the DOS/360 user with a direct and easy means of generating efficient Tape Cartridge Reader input utility programs tailored to the user's specific needs. The generated utility programs will operate in any partition of DOS/360.

System Configuration

For Assembly -- same as required by the DOS/360 Assembler Program.

For Execution -- 1052 Printer-Keyboard, 2495 Tape Cartridge Reader, 16K bytes of storage for use in a batch job environment, 24K bytes of storage for use in a multiprogramming environment.

Performance ... INTCR is designed to operate in a minimum storage partition of 4K bytes (including buffers and user output routine). Size of buffers, user output routine and user optional routines may cause additional storage requirements.

The speed at which INTCR can read (and edit or translate, where applicable) data from a 2495 Tape Cartridge Reader is dependent on the size of the input buffer. Throughput is dependent upon the speed of user processing routines and any other I/O routines which collectively form the INTCR application program. Additional performance information is contained in the supporting programming publications.

Publication ... Availability of a TNL to the SRL "IBM System/360 Disk and Tape Operating Systems Utility Macro Specifications," C24-5042, will be announced in a future Publication Release Letter.

John Fahey
Director of DP Marketing

FOR IBM INTERNAL USE ONLY

Release Date: April 26, 1968
Distribution: All Areas
SYSTEM/360 MODEL 20 DISK PROGRAMMING SYSTEM UPGRADED

The Model 20 DPS has been improved by the addition of:

- A Tape Sort/Merge Program.
- Five Tape Utility Programs.
- Modifications to various existing DPS programs.

Details are described below.

TAPE SORT/MERGE

The DPS Tape Sort/Merge program, 360W-SM-194, allows the sorting of tape files into ascending and/or descending sequence and the merging of presequenced tape files.

For object program execution, the operator supplies the required control information in the form of control cards.

The DPS Tape Sort/Merge program is an adaptation of the TPS Sort/Merge program, 360U-SM-150, to run under the DPS. It sorts binary data (including alphabetic characters), fixed-point integers, packed or unpacked decimal numbers contained in blocked or unblocked records of fixed or variable length in an ascending or descending order. It also merges presequenced files (2-5 files). Operations are performed according to control data contained in up to 12 fields of each record, with a maximum length of 256 bytes for all control fields. When using the Merge functions, the sequence of all files (1-5 files) is checked. The program provides for exits to user-written routines as well as for checkpoints and restart. Tape input and output files can be

1. contained in more than one reel,
2. selected from or written on a reel containing more than one file,

Tape label checking conforms to established System/360 standards and non-standard labels are bypassed. An exit is provided to allow new processing of additional standard labels of the user. The program runs under supervision of the control programs for either the card or the disk-resident system.


Minimum System Requirements... A 2020 Central Processing Unit Model BC2... One 2501 Card Reader Model A1 or A2, 2520 Read Punch Card Model A1 or 2560 MFCM Model A1... One 1403 Printer Model 2, 7, or N1 or 2203 Printer Model A1 for printing of error, and diagnostic messages... One 2415 Magnetic Tape Unit Model 2 or 5 (at least three tape drives are required)... One 2311 Disk Storage Drive, Model 11 or 12.

Restrictions on tape drive configurations:

With 9-track input tapes and/or 7-track input tapes, that were created with the Data Conversion feature turned on, output tapes must be 9-track tapes and/or 7-track tapes with the Data Conversion feature turned on. Sorting requires 9-track tapes.

With 7-track input tapes that were created with the Data Conversion feature turned off, output tapes can be either 9-track or 7-track tapes. For sorting work tapes may be either track.

All 7-track tapes used in a given Sort or Merge operation must have the same characteristics. For example, if the translate capability of the Compatibility special feature is used when 7-track input tapes are created, it must be used with all 7-track work or output tapes.

Files of variable length records to be sorted or merged must be created on 9-track tapes or on 7-track tapes with the Data Conversion special feature turned on. Therefore, 9-track work tapes must be used when sorting variable-length records.

Checkpoint records are written only on 9-track work tapes or 7-track work tapes with the Data Conversion feature.

TAPE UTILITIES

The DPS Tape Utilities are an adaptation of the TPS Utility Programs, 360U-UT-131...135, to run under DPS. By providing generalized routines, the tape utility programs reduce the need for repetitive programming of certain operations that are performed frequently. The programs assist the user in the day-to-day operation of his installation by providing for the transfer of data from one medium to another. The tape utility programs consist of the following five separate programs:

Card-to-Tape 360W-UT-197
Tape-to-Card 360W-UT-196
Tape-to-Printer 360W-UT-198
Tape-to-Tape 360W-UT-195
Initialize Tape 360W-UT-199

Published by DP Sales Publishing Services, WTHQ
A utility-modifier card, provided for the input and output file, allows the user to specify the blocking factor, record length, control fields, etc. A field-selection card furnishes information to the program for transferring fields from an input record to the same or a different relative position of the output record and for simultaneously converting the data to a different format. Header cards can be used to provide titles for the pages of printed output.

Except for the Initialize Tape Utility program, the tape utilities provide for the transfer from an input medium to an output medium, with the following options: copy, reblock, field select, and reblock and field select. Printer output can be in a byte-for-byte representation of the information in core storage (display) or in an audited listing of the information on core storage (list). The Initialize Tape Utility program can be used to write volume labels and one dummy header label on tape reels.

Tape input and output files can be
1. contained on more than one reel, or
2. selected from or placed on a reel containing more than one file.

Sequence numbering of output cards and sequence checking of input cards can be performed.

Tape label checking conforms to established System/360 standards, and non-standard labels are bypassed. An exit is provided for user-processing of additional user standard labels and Sterling currency routines.

The tape utility programs run under supervision of the control programs for either a card-resident or a disk-resident system.

Performance Data ... See the SRL System/360 Model 20, Disk Programming System, Performance Estimates, C33-6003.

Minimum System Requirements ... When using the control programs for the card-resident system: A 2020 Central Processing Unit Model BC2 ... One card reading device (2501 Model A1 or A2, 2520 Model A1, or 2560 Model A1) ... One 2415 Magnetic Tape Unit 1 or 4 with at least one 9-track read/write head.

The Tape-to-Tape Utility program requires a 2415 Model 2 or 5 in this environment.

For error and diagnostic messages, especially for the Tape-to-Printer Utility program: One 2203 Printer Model A1 or 1403 Printer Model 2, 7, or N1.

Additionally, for the Tape-to-Card Utility program: One card punching device (2520 Model A1-A3, 2560 Model A1, or 1442 Model 5).

MODIFICATION TO DPS PROGRAMS
The programs that have been modified and their current status are:

<table>
<thead>
<tr>
<th>Version</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>360W-CL-171</td>
<td>1 2</td>
</tr>
<tr>
<td>SL-173</td>
<td>1 1</td>
</tr>
<tr>
<td>SL-175</td>
<td>1 2</td>
</tr>
<tr>
<td>RG-180</td>
<td>1 2</td>
</tr>
<tr>
<td>AS-181</td>
<td>1 2</td>
</tr>
<tr>
<td>SM-182</td>
<td>2 1</td>
</tr>
<tr>
<td>UT-183</td>
<td>1 1</td>
</tr>
<tr>
<td>UT-186 thru 191</td>
<td>1 1</td>
</tr>
<tr>
<td>IO-192</td>
<td>1 2</td>
</tr>
<tr>
<td>IO-193</td>
<td>1 1</td>
</tr>
</tbody>
</table>

ENGINEERING CHANGE
For proper use of current Model 20 DPS programs, at least the following Engineering Change Levels are required:

<table>
<thead>
<tr>
<th>Model</th>
<th>Engineering Change Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020 Central Processing Unit (microprogram)</td>
<td>12103 ECA 163</td>
</tr>
<tr>
<td>Storage Control (microprogram)</td>
<td>12448 ECA 316</td>
</tr>
<tr>
<td>I/O Channel (microprogram)</td>
<td>12107 ECA 188</td>
</tr>
<tr>
<td>2311 Disk Storage Drive Model 11 or 12</td>
<td>411283</td>
</tr>
<tr>
<td>2415 Magnetic Tape Unit Model 1-3</td>
<td>730339 ECA 026</td>
</tr>
<tr>
<td>Model 4-6</td>
<td>730346 ECA 031</td>
</tr>
<tr>
<td>1419 Magnetic Character Reader</td>
<td>127244 CEM 167</td>
</tr>
</tbody>
</table>
BASIC PROGRAM MATERIAL


Documentation -- Basic Program Material List.

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

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

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

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

ORDERING PROCEDURE

See DP Sales Activity Section of the Branch Office Manual.

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

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

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

Current users will receive a prepunched Program Order Card and a letter announcing the availability of a Maintenance Package and a Replacement DPS/360 System. Also provided will be Ordering Instructions for either the Maintenance Package or the Replacement System. All orders are to be processed through the Branch Office using the prepunched card.

DTRs are supplied, no tape submittal is required.

REFERENCE PUBLICATIONS

IBM System/360 Model 20, Disk and Tape Programming Systems; Tape Sort/Merge, C26-3804 ... Tape Utility Programs, C26-3808.

ADDITIONAL PROGRAM SUPPORT MATERIAL

See the back of this letter for the subject matter that will appear in the sales manual.
Card Programming Support (CPS)

Basic Utilities
I/OCS
RPG
Basic Assembler
Punched Card Utilities
CICS

Tape Programming System (TPS)

I/OCS for 1419
I/O Control System
Sort/Merge
Utilities Programs
Report Program Generator
Assembler Language

Disk Programming System (DPS)

Assembler Language
Control and Service Programs
I/O Control System
Report Program Generator
Sort/Merge
Utilities Programs
IBM System/360 Model 20 Disk or Tape Programming — System for the IBM 1419
Tape Sort/Merge Program
Tape Utilities Program

Optional Program Material:

Card

Source card images of eleven Model 20 CPS programs are available on one 2400' foot reel of 9-track magnetic tape at 800 or 1600 bpi. A self loading retrieval program is on the beginning of this tape, and operating instructions will be forwarded when the tape is ordered.

To order the source card images of the Model 20 card programs, the requester must forward or order one reel of magnetic tape following the current ordering procedures in the Branch Office Manual, DP Sales Activity. The source card images of all of the programs listed below are provided on the one reel of tape.

Card Program Listing:

<table>
<thead>
<tr>
<th>Program Number</th>
<th>Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y24-9000</td>
<td>System/360 Model 20 Basic Assembler</td>
</tr>
<tr>
<td>Y24-9001</td>
<td>System/360 Model 20 Input/Output Control System for Punched Card Equipment</td>
</tr>
<tr>
<td>Y24-9002</td>
<td>System/360 Model 20 Input/Output Control System for 1419 Magnetic Character Reader</td>
</tr>
<tr>
<td>Y24-9003</td>
<td>System/360 Model 20 Input/Output Control System for Communications Adapter</td>
</tr>
<tr>
<td>Y24-9004</td>
<td>System/360 Model 20 Basic Utility Programs (Except Trace)</td>
</tr>
<tr>
<td>Y24-9009</td>
<td>System/360 Model 20 Basic Trace (4K). The 8K, 12K and 16K versions, 360T-UT-104, 360T-UT-107 and 360T-UT-105, can be derived from the 4K versions by the exchange of the two START cards as commented in the symbolic deck.</td>
</tr>
<tr>
<td>Y24-9010</td>
<td>System/360 Model 20 Report Program Generator for Punched Card Equipment</td>
</tr>
<tr>
<td>Y24-9011</td>
<td>System/360 Model 20 Punched Card Utility Programs I</td>
</tr>
<tr>
<td>Y24-9012</td>
<td>System/360 Model 20 Punched Card Utility Programs II</td>
</tr>
<tr>
<td>Y24-9013</td>
<td>System/360 Model 20 Universal Character Set Utility Program</td>
</tr>
</tbody>
</table>

Optional Program Material:

Tape

The source card material of Model 20 TPS programs are available on a 9-track tape to be handled with the Model 20 TPS Utility Programs.

The optional program components listed below are available on one 2400' magnetic tape, 9-track at either 800 bpi or 1600 bpi.

There is no optional program material available for the I/O and Basic Monitor Macro Definitions, 360U-I0-151, and I/O Macro Definitions for the IBM 1419, 360U-I0-152.

Tape Program Listing:

<table>
<thead>
<tr>
<th>Program Number</th>
<th>Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>360U-CL-141</td>
<td>Job Control Program of Tape-Resident System</td>
</tr>
<tr>
<td>SL-142</td>
<td>Load System Tape Program</td>
</tr>
<tr>
<td>SL-143</td>
<td>Copy System Tape Program</td>
</tr>
<tr>
<td>SL-144</td>
<td>Directory Service Program</td>
</tr>
<tr>
<td>SL-145</td>
<td>Core-Image Maintenance Program</td>
</tr>
<tr>
<td>SL-146</td>
<td>Macro Maintenance Program</td>
</tr>
<tr>
<td>SL-147</td>
<td>Linkage Editor Program</td>
</tr>
<tr>
<td>AS-149</td>
<td>System/360 Model 20 TPS Assembler Program</td>
</tr>
<tr>
<td>RG-148</td>
<td>System/360 Model 20 TPS Report Program Generator</td>
</tr>
<tr>
<td>UT-131</td>
<td>Tape-to-Tape</td>
</tr>
<tr>
<td>UT-132</td>
<td>Tape-to-Card</td>
</tr>
<tr>
<td>UT-133</td>
<td>Card-to-Tape</td>
</tr>
<tr>
<td>UT-134</td>
<td>Tape-to-Printer</td>
</tr>
<tr>
<td>UT-135</td>
<td>Initialize Tape</td>
</tr>
<tr>
<td>SM-150</td>
<td>System/360 Model 20 TPS Sort/Merge Program</td>
</tr>
</tbody>
</table>

Disk

The entire source statements of all Model 20 DPS programs are made available in card-image format on one 2400' magnetic tape, 9-track at 800 bpi or 1600 bpi.

Program Listing:

<table>
<thead>
<tr>
<th>Program Number</th>
<th>Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>360W-A5-181</td>
<td>Assembler</td>
</tr>
<tr>
<td>CL-170</td>
<td>Control and Service Programs</td>
</tr>
<tr>
<td>CL-171</td>
<td>Card-Resident CRI</td>
</tr>
<tr>
<td>SL-172</td>
<td>Disk-Resident CRI</td>
</tr>
<tr>
<td>SL-173</td>
<td>Load System Disk</td>
</tr>
<tr>
<td>SL-174</td>
<td>Library Allocation Organization</td>
</tr>
<tr>
<td>SL-175</td>
<td>Physical and Logical Unit Tables Service</td>
</tr>
<tr>
<td>SL-176</td>
<td>Core Image Maintenance</td>
</tr>
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<td>SL-177</td>
<td>Library Service</td>
</tr>
<tr>
<td>SL-178</td>
<td>Distribution Package Retrieval</td>
</tr>
<tr>
<td>SL-179</td>
<td>Linkage Editor</td>
</tr>
<tr>
<td>IO-192</td>
<td>I/O and Basic Monitor Macro Definitions</td>
</tr>
<tr>
<td>IO-193</td>
<td>I/O Macro Definitions for 1419</td>
</tr>
<tr>
<td>RG-180</td>
<td>Report Program Generator</td>
</tr>
<tr>
<td>SM-182</td>
<td>Sort/Merge</td>
</tr>
<tr>
<td>SM-194</td>
<td>Utility Programs</td>
</tr>
<tr>
<td>UT-183</td>
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</tr>
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</tr>
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<td>UT-186</td>
<td>Disk-to-Disk</td>
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<tr>
<td>UT-187</td>
<td>Disk-to-Tape</td>
</tr>
<tr>
<td>UT-188</td>
<td>Disk-to-Card</td>
</tr>
<tr>
<td>UT-189</td>
<td>Card-to-Disk</td>
</tr>
<tr>
<td>UT-190</td>
<td>Disk-to-Printer</td>
</tr>
<tr>
<td>UT-191</td>
<td>Tape-to-Tape</td>
</tr>
<tr>
<td>UT-195</td>
<td>Tape-to-Card</td>
</tr>
<tr>
<td>UT-196</td>
<td>Card-to-Tape</td>
</tr>
<tr>
<td>UT-197</td>
<td>Tape-to-Printer</td>
</tr>
<tr>
<td>UT-198</td>
<td>Tape-to-Card</td>
</tr>
<tr>
<td>UT-199</td>
<td>Initialize Tape</td>
</tr>
</tbody>
</table>

The requester may forward or order one magnetic tape, following the correct ordering procedures in the Branch Office Manual, DP Sales Activity.

If the density desired is not indicated on the program order or is not available, see GI page 20 for complete information before ordering additional program support material.
REMOTE JOB ENTRY WORK STATION FOR
BOS/360 AND BPS/360 IS NOW AVAILABLE

Release 16 of BOS/360 and Version 1 Modification
Level G (16) of BPS/360 Basic Tape System are now
available.

The Remote Job Entry Work Station Program and
maintenance are included in these releases.

In addition, BOS/360 includes improvements to Report
Program Generator (RPG) and Index Sequential Access
Method (ISAM) functions.

REMOTE JOB ENTRY (RJE)

RJE Work Station Program permits System/360 Model
25*, 30, 40, 50, 65, 67 (65 mode) 75, or 85 using
BOS/360 or BPS/360 and connected to a central proc­
essor by a binary synchronous communication line to
be used as an RJE work station. This program operates
in conjunction with the OS/360 RJE Program**
resident at the central processor. The program provides
the RJE user the ability to submit OS/360 jobs to be
run at a central computing facility and optionally re­
ceive all or part of the output from these jobs at his
remote System/360.

The RJE program provides 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
   computing system.
3. Data output to an attached printer or punch,
   or passed to a user-written output routine for
   processing.

OS/360 jobs are entered through the card reader. Work
Station commands are entered either through the card
reader or the printer-keyboard. Prior to transmission
to the central computer, a sequence check is made of
the RJE control statements associated with a Job
Entry.

Job Entry output is directed to the printer, punch, or
passed to a user-written output routine. Messages are
sent to the printer-keyboard or the system line printer.

BOS/360 ISAM LOAD AND ADD

In addition to currently available functions allowing
record retrieval and updating for ISAM files, the user
will be able to:

- Load a new file.
- Add records to an existing file.
- Retrieve records from a file and add records to
  the same file.
- Retrieve records from a file, update, and add rec­
 ords to the same file.
- Process key fields for both input and output
  records.

While some of the new functions can be performed
with an 8K system, in general, combinations of these
functions will require 16K, especially for large record
sizes.

SYSTEM REQUIREMENTS

See programming section of the sales manual.

BASIC PROGRAM MATERIAL AND ORDERING
PROCEDURE

For Release 16 of BOS/360 see the reverse side.

Version 1, Modification Level (G) 16 of BPS/360 Basic
Tape System, 360P-AS-091, will be distributed automatic­
ally to all current users. The modification consists of
a 9-track DTR (800 or 1600 bpi) containing the update
material, and TNL N33-8541 to C24-3354-6, TNL N33-
8539 to C24-3391-3, TNL N33-8540 to C24-5061-2,
and memo to users with an attachment.

* Model 25 available 1Q69.
** OS/360 RJE MVT available July 31, 1969 (P67-77).
   OS/360 RJE MFT-II available April 30, 1969 (P68-34).

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Release Date: April 25, 1968
Distribution: All Areas
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 (360-B-CL-302), Consecutive Processing Macros (360-B-10-303), ISFMS Macros (360-B-10-304), Direct Access Macros (360-B-10-305), and STR Macros (360-B-10-310).

System/360 Basic Operating System Specifications, Assembler with Input/Output Macros with TNLs N24-5334, N24-5335, N24-5341, and N33-8534

C24-3361-5

System/360 Basic Operating System Control Programs and Assembler Operating Guide with TNL N33-8533

C24-3450-2

System/360 Basic Operating System Programmers Guide with TNLs N24-5336, N24-5328, and N33-8533

C24-3372-6


C24-5024-3

System/360 Basic Operating System, System Generation and Maintenance with TNL N33-8532

C24-5060-2

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

C24-5060-2

System/360 Basic Operating System, Utility Programs Specifications and Operating Guide

C24-3409-3

1070 PCS (360-BV-032)

C26-5996-1

System/360 Basic Operating System 1070 Process Communication Supervisor

C26-3627-1

Autotest (360-B-PT-306)

C24-3378-2

System/360 Basic Operating System Specifications, Autotest (BK Disk) with TNLs N21-5011, N21-5041 and N21-5070

Note: ML C24-8979-1 plus Tha 360-4046, N21-5046 and N21-5075 may be used in lieu of the ML C24-8979-1 plus Tha 360-4046, N21-5046 and N21-5075.

C24-3378-2

Report Program Generator (360-BG-RG-307)

C24-3387-4

System/360 Basic Operating System Specifications, Report Program Generator (BK Disk) with TNLs N21-5060, N24-5196 and N21-5064

Note: ML C24-8979-1 plus Tha 360-4048, N21-5101, N24-4196 and N21-5064 may be used in lieu of the ML C24-8979-1 plus Tha 360-4048, N21-5101, N24-4196 and N21-5064.

C24-3387-4

Sort/Merge (360-BW-SM-308)

C24-3321-3

Basic Operating System/360 Basic Specifications, Sort/Merge Program (BK Disk) with TNL N21-5045

C24-3321-3

Assembler (360-BW-AS-309)

Basic Operating System/360 and System/360 Basic Programming Support - Macro Definition Language BK Disk/Tape

C24-3364-3

If only the publications or if additional copies of the publications are required, order them from the IBM Distribution Center, Mechanicburg — 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 initializing 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 order specify.) 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
- Utilities, Group 1
- Utilities, Group 2
- Consecutive Processing Macros
- ISFMS Macros
- Direct Access Macros
- Autotest
- RPG
- Sort/Merge
- Assembler
- STR Macros
- 1070 PCS
- BSC
- Remote Job Entry

To order BOS/360, specify on the IBM Program Order for System/360 Operating Systems (120-1411) the Basic Control Program, 360-B-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 360-B-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 16. 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 16.

To order the tape maintenance package for System Release 16, specify Tape Maintenance Package, 9-track Distribution Tape Reel (DTR) at 800 or 1600 bpi or 7-track DTR at 800 cpi. It is not available on Disk. Disk only users must order the Replacement System for Release 16.

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 16.

* Denotes change from previous release.
NEW VERSION OF SSP/360 PROVIDES MAJOR EXTENSIONS OVER PREVIOUS VERSION

Version 3 of the Scientific Subroutine Package (360A-CM-03X) is now available. It consists of a collection of over 250 FORTRAN subroutines, input-output free, which can be combined with a user's input, output, or computational routines to meet his individual requirements. Many of the subroutines are available in both single and double precision.

Version 3 provides major extensions to SSP/360 Version 2 in the areas of non-parametric statistical tests, regressions, correlations, distribution functions, matrix analysis, polynomial roots, permutations, smoothing, and differentiation.

Current users will receive a prepunched program order card and a letter announcing the availability of Version 3. The letter instructs them to order the new version through the branch office. They must use the prepunched program order card.

Availability of the updated System Manual (Y20-0092) will be announced in a Publication Release Letter.

For the new sales manual writeup, see the back of this letter.

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: April 29, 1968
Distribution: All Areas
Scientific Subroutine Package: Provides a new and powerful computational ability for the scientist and engineer. It consists of a collection of over 250 FORTRAN subroutines.

Description: This package provides a basic mathematical and statistical subroutine library. The library includes a wide variety of subroutines to perform the functions listed below. Most of the new subroutines are available in both single and double precision.

New or substantially expanded capabilities are indicated with an asterisk.

Individual subroutines, or combinations of them, can be used to carry out the following functions in:

Statistics - analysis of variance (factorial design) . . . correlation analysis* . . . multiple linear regression . . . stepwise regression* . . . polynomial regression . . . canonical correlation . . . factor analysis (principal components, varimax)* . . . discriminant analysis (many groups) . . . probit analysis* . . . time series analysis . . . data screening and analysis . . . nonparametric tests* . . . random number generation (uniform, normal) . . . distribution functions*.

Mathematics - inversion . . . eigenvalues and vectors* . . . simultaneous linear algebraic equations* . . . transpositions . . . matrix arithmetic (addition, product, etc.) . . . matrix partitioning . . . matrix tabulation and sorting of rows or columns . . . elementary operations on rows or columns of matrices . . . matrix factorization* . . . integration of given or tabulated functions . . . solution of systems of first-order differential equations . . . Fourier analysis of given or tabulated functions . . . Bessel and modified Bessel function evaluation . . . Gamma function evaluation* . . . Jacobian elliptic functions . . . elliptic, exponential, sine cosine, Fresnel integrals . . . finding real roots of a given function . . . finding real and complex roots of a real polynomial* . . . polynomial arithmetic (addition, division, etc.) . . . polynomial evaluation, integration, differentiation . . . Chebyshev, Hermite, Laguerre, Legendre polynomials . . . minimum of a function . . . approximation, interpolation and table construction* . . . permutations* . . . differentiation*.

Features: All subroutines are free of input/output statements . . . subroutines do not contain permanent maximum dimensions for the data arrays named in their calling sequence . . . all subroutines are written in FORTRAN . . . all subroutines are documented uniformly.

Use: The user may incorporate any scientific subroutine in his own FORTRAN program, which may provide input and output, by utilizing the FORTRAN CALL statement.

Customer Responsibilities: The customer must be familiar with the System/360 FORTRAN Language.

Programming Systems: The Scientific Subroutine Package has been developed using System/360 Basic Programming Support FORTRAN Compiler (tape). However, the subroutines of SSP/360 should compile and execute with any System/360 FORTRAN compiler capable of accepting Basic Programming Support FORTRAN statements.

Basic Machine Configuration: A System/360 configuration suitable for the FORTRAN compiler chosen. The machine configuration required for any given problem depends on the number of subroutines used, the size of the compiled subroutine, the size of the compiled main program, the size of the control program, and the data storage requirements.

Basic Program Material:


Machine Readable: - The FORTRAN source statement cards for all subroutines and the sample program source decks with data are available either on one 9-track magnetic tape (800 or 1600 bpi), one 7-track magnetic tape (800 cpi), or one 1316 Disk Pack. The Data Conversion feature is required with 7-track tape.

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


For further information contact your Regional or District Scientific Marketing Representative.
MODIFICATION TO OS/360 INDEPENDENT UTILITIES NOW BEING DISTRIBUTED

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.

CORRECTION TO P68-62 REMOTE JOB ENTRY

The footnote found on the bottom left column of P68-62 should read: OS/360 RJE MVT available July 31, 1968 (P67-77) instead of 1969.

John Fahey
Director of DP Marketing

Published by DP Sales Publishing Services, WTHQ

Attachments [8]: P 5, P 11, P 13, P 3608.3, P 360F.3, P 360N.3, P 360N.5, P 360T.9
Release Date: May 1, 1968
Distribution: All Areas
NEW DECISION TABLE PROGRAM TO BE AVAILABLE OCTOBER 31

The System/360 Decision Logic Translator, to be available October 31, 1968, provides customers with a decision table implementation program that converts tabular oriented logic into a FORTRAN source program.

Decision tables provide an easily read and understood tabular approach to solution of complex decision logic. This technique allows a problem to be reduced to its simplest form by arranging and presenting logical alternative courses of action under various combinations of conditions.

The System/360 Decision Logic Translator incorporates many logic capabilities and FORTRAN features into the decision table language to provide the user flexibility, minimum decision table sizes, minimum number of source statements, error checking, sorting, and other capabilities. The use of the program can result in significant savings in implementation time and in cost of installation of complex applications.

The sales manual write-up is on the back of this letter.

PMS/360 FLOWCHART, SYSTEM MANUALS REVISED, AVAILABLE

In the announcement of Version 1, Modification Level 1 (P67-142), the optional Flowchart Tape and System Manuals were temporarily withdrawn. These items are now updated to Modification Level 1. The flowcharts are now in the form of a manual (Y20-0204). The System Manuals are the Network Processor System Manual (Y20-0083), the Cost Processor System Manual (Y20-0084), and the Report Processor System Manual (Y20-0085). All of these manuals are available from the IBM Distribution Center, Mechanicsburg.

The sales manual page will be updated shortly.

John Fahey
Director of DP Marketing
Areas of application of decision tables and the S/360 Decision Logic Translator apply and its solution. The concise format of decision tables allow them to present information so that it is easily read and understood, and to present logic simply so that its concepts are readily grasped. The tabular approach is used to express complex decision logic in a manner that encourages the analyst to reduce a problem to its simplest form by arranging and presenting logical alternative courses of action under various combinations of conditions.

The Decision Logic Translator incorporates many logical capabilities and FORTRAN features into the decision table language.

Features:
- The number of tables to translate is not limited, the limit is due to the size of the FORTRAN program which is obtained.
- Tables may contain a mixture of limited and extended entry rows.
- The logical connectivity between conditions in a rule may be either "AND" or "OR". Both connectives may appear in the same table and rule.
- A variable value may be compared with the values of a simply subscripted array in the condition area of a decision table.
- Arrays with up to three subscripts may be used.
- Blocks of FORTRAN arithmetic statements may be defined in addition to the FORTRAN statement.
- FORTRAN Features ... the use of the specification statements -- DIMENSION, COMMON, EQUIVALENCE and FORMAT ... the use of FUNCTION and SUBROUTINE statements ... the use of the direct access input/output statements -- DEFINE, FILE, FIND, READ, WRITE.
- Tape or disk may be used to store the output FORTRAN source statements which will be acceptable input to the FORTRAN compiler for translation into machine language and execution without further manipulation.
- Each main program or subroutine may have up to 20 closed tables.
- There may be up to 99 references to a simple closed table.
- The table columns may be 2, 8, or 16 spaces wide depending on the needs of this table.

Sales Information: All current users of the 1401 Decision Logic Translator program and all analysts and programmers are potential users of the S/360 Decision Logic Translator program.

Sample Applications Areas:
- In the Manufacturing and Scientific Industries
  - The main applications are for Automated Design Engineering (ADE) and Automated Manufacturing Planning (AMP). These applications represent a precise method and set of tools for studying engineering problems and establishing working computer-oriented systems. They both accept customer requirements input and through the medium of explicit design logic stored in the computer, by means of decision table technique, produces the completed design information for manufacturing. Error-checking, bid and order costing can be incorporated into such systems.
- In the Distribution Industries
  - Decision tables are very useful for credit checking, price computation, and inventory control.
- In the Transportation Industries
  - Decision tables are used to establish automated reservation systems and set prices.
- In the Service Industries
  - Decision table techniques are used in insurance area to establish the policy type and the tariffs from a customer request.
  - Decision tables can be used effectively for systems analysis, procedure design, program debugging, and many varied applications.
  - Decision tables may also be employed to describe an entire data processing system as well as a portion of the system.

Use: This program is designed primarily for areas concerned with problems having a complex decision logic.

Decision tables are a means of bringing together and presenting the related information to express complex decision logic in a way that is easy to visualize and follow. They can be used independently of, or to complement, flow charts and block diagrams in recording, decision-making and problem-solving operations in business, mathematical and the science fields. Decision tables can be used effectively for system analysis, procedure design and documentation. Their use expedites and simplifies the time-consuming functions of problem definition, system analysis and programming.

Once the system is established, it is easy to maintain, and the documentation and program are easy to change.

Customer Responsibility: The S/360 Decision Logic Translator provides output in the form of FORTRAN source programs. To augment the many capabilities of the program it is recommended that the customer have an individual who is knowledgeable in FORTRAN and familiar with the applications.

The customer must be prepared to compile test and implement the FORTRAN programs obtained from the Decision Logic Translator processor.

Programming System: The program is written in System/360 Assembler Language and operates under the Disk Operating System (DOS). The Standard Instruction Set is required to assemble the original programs and the Floating Point feature (4427) is required to compile the FORTRAN source program produced.

Minimum Machine Configuration: System/360 Model E supported by DOS/360...two 2311 Disk Storage Drives...Printer, Card Reader, and Card Punch (selected from the set supported by DOS/360)....1052 Printer-Keyboard.


Further information may be obtained from your Regional Manufacturing Industry Marketing Representative.

Note to World Trade Readers

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1. All programs announced as available have been shipped to the appropriate WT Program Libraries. Programs and associated material may be ordered as indicated on pages 9013 through 9017 Programming Section, WT DF 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 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 preannounced 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 D/D Departments (or regions) as source for information or for manuals, etc., should be understood to mean the available WT Department for corresponding organizational level.

7. Communications facilities or services may be required which are not available in all WT countries. In case of any doubt as to availability of suitable communication 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 PRODUC TIV COMMITMENTS FOR PROGRAMS WITH E/C LEVEL REQUIREMENTS SHOULD BE MADE TO CUSTOMERS PRIOR TO VERIFICATION WITH LOCAL CE MANAGER OF EC AVAILABILITY.
We are announcing three Information Systems which significantly advance IBM System/360 capabilities for data base maintenance, creation, and query:

- Generalized Information System (Basic)
- Information Management System/360
- Public Utility Customer Information Control System

Information Systems fall within two broad classifications: Executive Information Systems and Operational Systems.

Executive information systems support the spontaneous or unanticipated requirements needed by various levels of management and their staffs. Further, an executive information system provides facilities for preparing reports that cannot be anticipated in advance—but deal with the available data. A prime example of this type of system is the Generalized Information System (Basic).

Operational systems are large volume, transaction-oriented, detail-level information systems. They are characterized by repetitive, well-defined, pre-planned activities related to those operations involved in the daily conduct of business. Examples of operational system applications are order entry, engineering records, sales reporting, inventory status, etc. The Information Management System/360 and the Public Utility Customer Information Control System are particularly well suited to this purpose.

The programs are described on pages 2 and 3 of this letter. For more details, see the attached sales manual pages.

John Fahey
Director of DP Marketing

Published by DP Sales Publishing Services, WTHQ
GENERALIZED INFORMATION SYSTEM
BASIC (GIS)

GIS (Basic) will be available June 30, 1969.

This announcement supersedes all former Basic GIS announcements and should be read in its entirety.

GIS (Basic), in conjunction with OS/360, provides a powerful technique for addressing specific data processing needs and the requirements of executive information systems. In response to 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.

GIS (Basic) 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 (Basic) 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 -- obtaining 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 spontaneous information demands not anticipated at the time the application was 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 symbolic names. No longer must the user repeat, in every procedure, the size of each field, its units, relative location, and other data management parameters.

When the user applies GIS (Basic) techniques to write his file creation, maintenance, and retrieval procedures, they will be compiled by a GIS (Basic) 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 higher level languages (such as PL/I) may access GIS files. GIS procedures can link to OS/360 Assembly Language user routines referenced within GIS procedures.

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 -- drawing on single or multiple files -- to provide customized reports.

For further information on the availability of a Sales and Systems Guide and a Marketing Kit, contact your Regional Scientific Marketing Manager.
**INFORMATION MANAGEMENT SYSTEM/360 (IMS/360)**

IMS/360 will be available July 31, 1969. It enhances the capability of the Operating System/360 and facilitates implementation of medium to large common data bases in a multi-application environment. This environment accommodates both Teleprocessing and conventional batch processing concurrently or separately. The system allows the evolutionary expansion of data processing applications from a batch to a Teleprocessing environment.

The combined Teleprocessing data base facilities of the Information Management System/360 operate under Operating System/360 MFT-II (Multiprogramming with a Fixed Number of Tasks, Version II) or MVT (Multiprogramming with a Variable Number of Tasks).

The batch-only data base facilities of IMS/360 can operate under Operating System/360 PCP (Primary Control Program), MFT-II, or MVT.

The data base processing facilities are provided by a new data management concept known as Data Language/I. These facilities assist the data base definition, creation, access and maintenance functions.

**HIGHLIGHTS ...**

- The user can enter messages from remote input/output devices allowing both data base inquiry and update.
- The user can transmit messages to remote input/output terminals in response to application program message processing.
- A terminal command language provides for system control from a master terminal and for input message editing through all terminals of the system.
- Application programs for message processing can be scheduled concurrently where each program is operative under a unique storage protection key of OS/360.
- Centralized definition and control of all data base facilities are provided through Data Language/I to help the user maintain data base integrity in the Teleprocessing multi-programming environment.
- The system provides checkpoint/restart capabilities.

**PUBLIC UTILITY CUSTOMER INFORMATION CONTROL SYSTEM**

The System/360 Customer Information Control System will be available June 30, 1969. It is a new program modularly constructed to provide the basic control system structure for the installation of electric, gas, and telephone company information systems. The Customer Information Control System is designed primarily for inquiry and order entry applications; it has the capability for limited message switching and administrative message handling, and functions as an interface between user written processing programs and the IBM System/360 Operating System (OS/360). Maximum OS/360 serviceability features are incorporated into the user's system. Used in conjunction with OS/360, the Customer Information Control System schedules tasks, loads user programs, and provides linkage to OS/360 access methods.

This program reduces the resources involved in the implementation of an information system by providing a structure into which the user puts his programs.

The Customer Information Control System:

- Provides macro instructions which facilitate user communication with his input-output devices and terminals.
- Incorporates program features that protect the system from uncontrolled arrival of requests and the resultant heavy processing program demands for the resources of the system.
- Provides control programming services that reduce the detailed programming by the user.
- Provides the facility to generate a tailored Control System from symbolic descriptions in control cards.
- Provides multi-programming capabilities for transaction processing.
- Incorporates features which will facilitate the serviceability of the system components to maximize availability.
- Records system performance statistics.
- Uses OS/360 services.
NEW VERSION OF RAX LIFTS RESTRICTIONS ON USE OF EMBEDDED BLANKS AND KEY WORDS

Version 2 of System/360 Remote Access Computing System (RAX), a time-shared, remote computing system, is now available (360A-CX-17X).

This version lifts the restrictions on the use of embedded blanks and key words, providing a standard Basic USASI FORTRAN. By means of the ADJUST parameter on the /FTC card a user can include embedded blanks and use key words in his program. NOADJUST will not allow the above flexibilities but will be 35% faster in compilation, thereby improving systems response. An installation will be able to define its own default option on the above.

Version 2 includes no functional changes to the configuration or capabilities of RAX.

Version 1 is obsoleted. Current users will receive a prepunched program order card and a letter announcing the availability of the new version. The letter instructs them to order the new version through the branch office. They should use the prepunched program order card.

For details see the sales manual text on the inside pages.

John Fahey
Director of DP Marketing

Published by DP Sales Publishing Services, WTHQ

Release Date: May 1, 1968
Distribution: All Areas

FOR IBM INTERNAL USE ONLY P68-67
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.

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-sharing execution. Programs reside in the RAX library. RAX users can submit jobs at any time from other on-line equipment at the computer site. Programmers can compile, modify, and execute programs from their terminals or non-time-sharing oriented users can be conversationally interacting with programs previously stored in the RAX library.

RAX user flexibility is provided by a modular and compatible design. Three System/360 models (30, 40, and 50) are supported. These memory sizes (4, 12, 25, and 264k bytes) are used with the five 5070 input/output terminals, the IBM 1050 Data Communication Terminal, and the IBM 2260 Display Station. At least one IBM 2311 Direct Access Storage Device is necessary, but up to each can be utilized by RAX.

In addition to compatibility, RAX flexibility is extended by its functional capabilities available with the smallest use of the largest configuration.

Features:
- Up to 66 terminals can be used with RAX, depending upon the amount of core memory available. The number of RAX terminals supported for the available memory configuration is:
  - 256k byte memory – maximum of sixty-three 1050 Data Communications Terminals
  - 125k byte memory – maximum of sixty-three 1050 terminals
  - 64k byte memory – maximum of ten 1050 terminals

- Users may share programs and data stored in the RAX user library. File security is provided by means of a lock code 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 system error. On recovery, RAX will indicate to each user the last line of input accepted or the last line of output.

- The 2260 Display Stations allow entry into or change of lines of input at a time. The Non-Destructive Cursor feature is used to provide for the single character modification within a line when updating program or data files.

- Object program execution storage of 27k bytes is provided on the minimum memory configuration. At least one 1050 Data Communication Terminals may not exceed thirty-three.

- Users may share programs and data stored in the RAX user library. File security is provided by means of a lock code 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 system error. On recovery, RAX will indicate to each user the last line of input accepted or the last line of output.

- The 2260 Display Stations allow entry into or change of lines of input at a time. The Non-Destructive Cursor feature is used to provide for the single character modification within a line when updating program or data files.

- Object program execution storage of 27k bytes is provided on the minimum memory configuration. At least one 1050 Data Communication Terminals may not exceed thirty-three.

- Users of RAX may enter programs and data on a line at a time from their terminals or use a single terminal command to insert a previously stored data or source program module into his job stream at compile time.

- Up to seven 2311 Disk Storage Drives are supported for on-line library storage.

- The user may enter either Basic FORTRAN IV or Basic Assembler jobs from his terminals. 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.

- RAX supports Basic USASI FORTRAN, and there are no restrictions on the use of embedded blanks or key words. This is done by use of the ADJUST/NOADJUST parameter on the FORTRAN card. By means of the ADJUST parameter on the FORTRAN card a user can include embedded blanks and use key words in his program. NOADJUST will not allow the above flexibility but will be 35% faster in compilation. Interfacing requires systems response. An installation will be able to define its own default option on the above.

Use: Sustained access to a System/360 from remote locations enables engineers, scientists, and other users to obtain fast turnaround and reduced problem-solving time. FORTRAN programmers may compile, modify, and execute programs from remote terminals, while non-programmers may use programs previously stored in the RAX Library. Familiarity with the FORTRAN language and the operation of the terminal device enables the user to exploit the computational power of System/360 in a meaningful 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 an I/O device 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 ensure satisfactory operation:

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 systems programmer with the internal operation 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 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 2 as a system console. 2540 Card Read/Punch... 1403 Printer Model 2, 3, 7 or 11... two 2311 Disk Storage Drives; for attaching 1050 Data Communication Terminals EIGHT, 2702 Transmission Control with Terminal Control - Type 2461S, Selective Speed (9684), and appropriate line adapters OR a 2701 Data Adapter Unit with Terminal Adapter - Type 1 (4654 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.

Terminal Configuration: The minimum IBM 1050 Data Communication Terminal consists of:
- one IBM 1031 Control Unit Model 2.
- two IBM 1032 Printer-Keyboard Models 2.
- one IBM 1052 Printer-Keyboard Model 2.
- The 1052 Printing Element used by RAX is Data Unit (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: 1051 Control Unit Model 1 & 2

<table>
<thead>
<tr>
<th>Feature No.</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Card Punch Attachments</td>
<td>1635</td>
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<tr>
<td>1st Printer Attachment for</td>
<td>4408</td>
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<tr>
<td>1st Punch Attachment</td>
<td>4410</td>
</tr>
<tr>
<td>2nd Reader Attachment</td>
<td>4411</td>
</tr>
<tr>
<td>2nd Printer Attachment</td>
<td>6381</td>
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<tr>
<td>2nd Punch Attachment</td>
<td>6383</td>
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<tr>
<td>2nd Reader Attachment</td>
<td>6384</td>
</tr>
<tr>
<td>Auto Fill Char Cen</td>
<td>1297</td>
</tr>
<tr>
<td>Auto Ribbon Shift &amp; Line</td>
<td>1447 Attachment</td>
</tr>
<tr>
<td>Feed Select</td>
<td>4605</td>
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<tr>
<td>Audible Alarm</td>
<td>4607</td>
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<tr>
<td>Automatic E09</td>
<td>1307</td>
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<tr>
<td>CPU Attachment</td>
<td>3130</td>
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<tr>
<td>Forms Stand Stacker</td>
<td>4450</td>
</tr>
<tr>
<td>1447 Attachment</td>
<td>4461</td>
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<tr>
<td>Home Loop Input Component</td>
<td>4605</td>
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<tr>
<td>Interlock</td>
<td>4606</td>
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<tr>
<td>IBM Line Adapter</td>
<td>4647</td>
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<tr>
<td>IBM Line Adapter</td>
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<tr>
<td>Subchannel 1</td>
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<tr>
<td>Subchannel 2</td>
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<td>Subchannel 4</td>
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<tr>
<td>IBM Line Adapter</td>
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<td>I/O Corp Table</td>
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<tr>
<td>Keyboard Request</td>
<td>4770</td>
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<tr>
<td>Line Correction</td>
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<td>Line Cor Reinge</td>
<td>4796</td>
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<tr>
<td>Master Station</td>
<td>5650</td>
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<tr>
<td>Open Line Detection</td>
<td>5645</td>
</tr>
<tr>
<td>Reader Stop Prefix</td>
<td>6060</td>
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</tbody>
</table>
For systems larger than 64K, support is provided for IBM 1050 Data Communication Terminals and/or 2260 Display Stations. Additionally, work file capability and expanded program save features are available with the larger configurations. The IBM 2260 Display Station must have an Alphanumeric Keyboard feature and be connected to the multiplexor channel through a directly attached Display Control Model 3 with the Non-Destructive Cursor feature. One 2848 Model 3 with up to eight 2260 Display Stations is supported.

The 120K byte core system (Processing unit model G) will support a maximum of thirty 1050s and two 2260s. 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 Model S0 H (256K byte memory) with two 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, 5, 7 or N1, eight 2311 Disk Storage Drives, two 2702 Transmission Controls up to sixty-three 1050 Data Communications Terminals, one 2848 Display Control Model 3 with Non-Destructive Cursor feature and up to eight 2260 Display Stations with the Alphanumeric keyboard feature (with a maximum of sixty-three 1050s and 2260s combined), four 2400 9-track tape drives.

Basic Program Material:

- 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 are available on 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, page 4-401.


Reference Material: IBM System/360 Basic FORTRAN IV Language (C28-6629) ... BPS Basic Assembler Language (C28-6503) describe the languages implemented under RAX.

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 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 comparable WT Program Library.

6. Any reference made to PID 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 or suitability of 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 OR EC AVAILABILITY.
ELEVEN INDEPENDENT PROGRAMS
HIGHLIGHT VERSION 2 OF MODEL 20
TELEPHONE ACCOUNTING SYSTEM

Version 2 of the Model 20 Telephone Company
Revenue Accounting System can now be ordered.
Shipments will begin the week ending May 10.

Version 2 implements the toll ticket format change
introduced October 1, 1967, and the interstate
toll rate change which became effective
November 1, 1967.

This version includes eleven independent but
interrelated programs. Each program functions as
a unit and is processed only as often as required.

Version 1 is obsoleted. Current users will receive
a prepunched program order card and a letter an-
nouncing the availability of the new version. The
letter instructs them to order the new version through
the branch office. They must use the prepunched
program order card.

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

NOTE: This program formerly had the number
360A-SU-11X. With Version 2, the program
number is changed to 360V-SU-11X. All Type II
programs for the Model 20 will be in the new 360V
series.

Published by DP Sales Publishing Services, WTPO

FOR IBM INTERNAL USE ONLY
Model 20 Telephone Company Revenue Accounting System: Is designed to perform efficiently the high volume revenue accounting operations of the small- and medium-sized telephone company. The Telephone Revenue Accounting System will significantly reduce the cost in man hours and length of conversion required for installation. (360V-SU-11X)

Description: The Telephone Revenue Accounting System includes eleven independent but interrelated programs. Each program functions as a unit and is processed only as often as required.

The primary functions of the Telephone Revenue Accounting System include: creation and maintenance of toll message pricing data ... editing and pricing of both manually and automatically originated toll messages (either intrastate or interstate) ... preparation of customer toll statements ... preparation of customer bills together with a customer remittance card which later serves as customer payment input data ... processing and control of customer payments and adjustments with maintenance of accounts receivable ... review of customers whose payments are delinquent and preparation of customer reminder and denial-of-service notices.

Features: The user is permitted extensive flexibility in the design of input/output formats through the use of Report Program Generator (RPG) as a source language ... modular construction allows selection of only the routines and functions required (i.e., V&H or Block and Section Methods of distance calculation for toll messages) ... extensive controls are built into the system to ensure accuracy of all operation and to provide required audit trails ... exits are provided in RPG to allow users to insert their own subroutines ... automatic production of multiple copies of both customer and toll statements ... automatic punching and interpreting of cash remittance cards ... consistent application of company policy in the treatment of delinquent accounts ... automatic determination of the day-of-week during editing (Monday-Friday, Saturday, Sunday, or holiday) using only toll ticket date and a standard formula.

Customer Responsibilities: The user should perform the following before actual installation of the package --

1. Make a detailed analysis of the package design and capabilities.
2. Compare the package against his own desired system design.
3. Define the areas where differences exist and make a decision as to whether the programs in the package or the system design or both should be modified.
4. Obtain the source deck of terminating point data used to prepare the terminating point master rate deck.
5. Use the program documentation to prepare, in punched card form, rate tables that reflect the user’s existing tariff structures.
6. Design both card and paper document formats relative to the requirements of this package.
7. Establish, according to the user’s policy, the criteria to be used as limits in the treatment program.
8. Understand the operation of Report Program Generator as a means of originating unique user programs and making necessary modifications to this package.

Failure to do the above can easily result in a difficult and protracted installation period.

Programming Systems: System/360 Model 20 Report Program Generator is the major programming language used. System/360 Model 20 Basic Assembler language is used for subroutines which augment Report Program Generator routines.

Minimum System Requirements: 8K 2020 Processor (Model C1) with Card-Print Control (#1580), 2203 Attachment (#8082), 2560 Attachment (#8099) ... 2560 Multi-Function Card Machine with Card Print—first 2 lines (#1575), 2203 Printer Model A1 with Print Positions, 24 additional (#5558).

Basic Program Material:

Publications -- Application Directory ... Application Description Manual (H20-0193) ... User’s Manual (H20-0264) ... Operator’s Manual (H20-0265). If only the form numbered manuals are required, order from the IBM Distribution Center, Mechanicsburg -- not from PID.

Machine Readable -- The source decks, sample problem data, and table cards (when required) will be distributed in card form.

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

Additional Program Support Material: System Manual (Y20-0172)

Reference Material: System/360 Model 20 Report Program Generator Operating Procedures (C26-3800) ... System/360 Model 20 Basic Assembler Operating Procedures (C26-3802).

For further information contact the Public Utilities Industry Manager, DPD HQ.
TIME SLICING PROVIDED FOR OS/360 USERS OF MVT OR MFT-II

Time Slicing, a new feature for use with the MVT or MFT-II option of OS/360, will be available October 31, 1968. Time Slicing is not supported for use with Model 65 multiprocessing configurations.

This feature supplements the normal task dispatching by adding the optional ability to designate tasks whose CPU use is to be limited. Other tasks in the system, outside of the time sliced group, follow the normal dispatching rules with highest priority task given control of the CPU.

The Time Slicing feature is designed for use when interactive applications, such as graphic job processing, require that several multiprogrammed terminals be given equal response time, even though one may be using much more CPU time than the others. The Time Slicing option may be elected at system generation time and further modified at the time of system initialization.

Time slicing used with MFT-II can be applied to any group of contiguous partitions. When used with MVT time slicing operates among all tasks of a designated priority. Multiple priorities may be specified so that time slicing operates in more than one group. A job is subject to time slicing by having its priority or partition match the group being time sliced.

With MVT, a job step or sub-task may also be time sliced by using the CHAP (Change Priority) macro-instruction to make the new priority equal to a time sliced priority.

PERFORMANCE ... When the Time Slicing option is selected, a slight increase in the time to perform task switching should be expected. The total added time depends upon CPU speed and length of the time slice selected.

Contention for the use of the single SVT transient area in MFT-II may cause noticeable performance degradation if non-resident SVC routines (such as OPEN) are frequently used by different time sliced tasks. Short batch jobs (which often require many transient SVC routines) should, therefore, not be time sliced when run with MFT-II.

The Time Slicing option requires approximately 400 bytes of additional nucleus space when used with MFT-II, and approximately 1,300 bytes, plus 16 bytes for each priority subject to time slicing, when MVT is used.

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Attachments [6]: P 1, P 360A.21, P 360A.23, P 360A.37, P 360V.1, and P 1130.17
Release Date: May 15, 1968
Distribution: All Areas
MARVEL/360 is available (360A-C0-15X).

The optional program material consisting of the source program will be available November 29, 1968.

MARVEL is a language processor for the data preparation, matrix generation, output analysis, and management report writing functions associated with the Mathematical Programming System/360 (360A-C0-14X). MARVEL was designed and implemented to provide powerful functional capabilities in this fast growing area of mathematical programming. The comprehensive language and processor capabilities necessitated "trading off" performance for function, which reduces the applicability of MARVEL in a high-speed production environment; IBM does not plan to further improve this performance level.

Because of its extended functional capabilities, MARVEL may be used most effectively in the development of new LP applications and for solving non-repetitive problems.

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

John Fahey
Director of DP Marketing
**Marvel**: Marvel/360 (360A-CO-15X) used in conjunction with the Mathematical Programming System/360 (360A-CO-14X), provides powerful functional capabilities for data preparation, matrix generation, output analysis, and management report writing.

**Marvel Execution Speeds**: Marvel execution speeds are quite slow; IBM does not plan to improve its performance.

**Description**: Marvel is a language processor which facilitates the data preparation and output analysis functions associated with the Mathematical Programming System/360 (360A-CO-14X). The user may write a Marvel program to generate a linear programming input matrix for MPS/360, analyze a MPS/360 solution, and produce output on an external file pertaining to this solution, or generate a management report from an MPS/360 solution. Marvel operates under the control of MPS/360 and is called with the MPS Procedure Call statement.

**Features**: Elements referenced by row and column name ... automatic array overflow onto a DASD when memory is exceeded ... easy retrieval of MPS/360 data ... transfer of program control based on intermediate results.

**Use**: The Marvel language operates on arrays or tables of data, but is unique in that it references the elements of arrays by row and column name rather than numerical subscripts. The arrays to be used are first defined and input data is read into them. The data records may contain the array, row, and column names into which the data element is to be stored; thus, there is no need for any particular ordering. The Marvel program may contain arithmetic or logic statements required to perform the desired data transformation for output. Results may be filed on work files or output files, and previously filed data may be retrieved. Format specifications are required only for initial input and final output; intermediate results are filed automatically in a common format.

**Customer Responsibilities**: The user must learn the Marvel programming language to implement its applications. He must also be familiar with MPS/360.

**Performance Information**: Marvel supports two configurations -- the 128K configuration and the 256K and above configuration. Marvel performs best on the 256K and above configuration; the 128K configuration is approximately half the speed of the 256K configuration.

The table below contains the execution speeds of a single Marvel program which performs matrix generation and report writing on a 128K and 256K configuration.

<table>
<thead>
<tr>
<th></th>
<th>128K</th>
<th>128K</th>
<th>256K</th>
<th>256K</th>
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<td></td>
<td>M40</td>
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</tr>
<tr>
<td>Marvel - Preprocessor</td>
<td>1.20</td>
<td>.71</td>
<td>1.20</td>
<td>.61</td>
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<tr>
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<td>9.51</td>
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<td>2.19</td>
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<tr>
<td>MPS/360 - Optimization</td>
<td>4.05</td>
<td>1.76</td>
<td>4.05</td>
<td>1.76</td>
</tr>
<tr>
<td>Marvel - Report Writing</td>
<td>31.12</td>
<td>13.92</td>
<td>15.60</td>
<td>7.07</td>
</tr>
</tbody>
</table>

**Notes**: (1) Times are in minutes. (2) Model is 129 rows x 512 columns.

**Programming Systems**: Marvel is written in the basic assembler language and operates under OS/360. It uses BSAM and EXCP data access methods.

**Minimum Machine Configuration**: Marvel requires a S/360 with 128K bytes of storage, the Universal Instruction set, and, if the systems output device is a printer, it must have 132 print positions.

**Program Storage Requirements**, including access methods, for the two configurations are -- 63K bytes for the 128K configuration and 128K for the 256K and above configuration. Additional memory (minimum of 5K) is used for array storage.

The following table lists the files used by Marvel. These files may be stored on a 2314, 2311 DASD, or a 2400 series magnetic tape unit. Note that the OS/360 Input, Output, and Residence devices are not included in this table.

<table>
<thead>
<tr>
<th>File Name</th>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBJ</td>
<td>Contains object program produced by Marvel preprocessor.</td>
<td>Required</td>
</tr>
<tr>
<td>CALC1 &amp; CALC2</td>
<td>Used by CALCULATE statement when memory is exceeded.</td>
<td>Optional</td>
</tr>
<tr>
<td>OVERFLOW</td>
<td>Contains arrays which cannot be maintained in memory.</td>
<td>Optional - Must be DASD.</td>
</tr>
</tbody>
</table>

**Basic Program Material**:

- *Publication*: Application Directory ... Primer Manual (H20-0490-0) ... Program Description Manual (H20-0505-0) ... Operations Manual (H20-0512-0) and TNL H20-1850.
- *Machine Readable*: The Marvel System is distributed on either a 9-track (800 bpi or 1600 bpi) or a 7-track (800 cpd) DTR (Data Conversion Feature required).
- *Ordering Procedure*: See the Branch Office Manual, DP Sales Activity section.
  - If only the form numbered manuals are required, order them from the IBM Distribution Center, Mechanicsburg - not from PID.
  - 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.
- *DTR's are provided by PID*: No tape submittal is required.
- *For further Information*: Contact your Regional or District Scientific Marketing Representative.
OS/360 RELEASE 14 MAINTENANCE
PACKAGE FOR USERS OF COBOL AND
FORTRAN AVAILABLE

A Compiler Maintenance Release of OS/360,
Release 14 CMR, is now available.

Release 14 CMR is composed of the COBOL and
FORTRAN Compilers with their related libraries.
These components can be incorporated into Release
14 through a Processor-only SYSGEN. Only those
users who have already ordered Release 14 and use
COBOL or FORTRAN should order Release 14 CMR.
Those users who order Release 14 will also re­
ceive Release 14 CMR if COBOL or FORTRAN are
requested.

Corrections for 119 APARs are included in Release
14 CMR. The number that have been solved for
each component is as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>No. of APARs Fixed</th>
</tr>
</thead>
<tbody>
<tr>
<td>COBOL E</td>
<td>35</td>
</tr>
<tr>
<td>COBOL F</td>
<td>16</td>
</tr>
<tr>
<td>FORTRAN E</td>
<td>4</td>
</tr>
<tr>
<td>FORTRAN G</td>
<td>25</td>
</tr>
<tr>
<td>FORTRAN H</td>
<td>31</td>
</tr>
<tr>
<td>FORTRAN Library</td>
<td>8</td>
</tr>
</tbody>
</table>

Four OS/360 PROSE restrictions are also corrected.

The remainder of this letter contains ordering
procedures and other details.

John Fahey
Director of DP Marketing

DOCUMENTATION

The Release 14 SRLs are still applicable for Re­
lease 14 CMR. One new TNL is required, and
will be shipped by PID with each order:

TNL N28-2341 to the Storage Estimates
SRL C28-6551-4.

Release 14 CMR consists of:

1. A Memo to Users containing a description
   of the Release and its purpose.
2. Maintenance PROSE indicating APARs
   that have been corrected.
3. System PROSE indicating restrictions
   that have been eliminated.
4. Operating instructions.
5. A Description of a new COBOL F Message.
6. A Program Material list which updates the
   Release 14 basic and optional Program
   Material lists.

Items 1, 2 and 3 will be sent with the prepunched
order card. The remainder of the documentation
will be sent with the Release 14 CMR as shipped.
Information copies of items 1, 2 and 3 will be sent
to branch offices and field systems centers.

FE-SE SYSTEM GENERATION PLANNING

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

Field Engineering and Systems Engineering repre­
tenatives should meet before system generation
will be performed. All programming components
to be used by the customer should be reviewed for
known restrictions or PTF's. Applicable PTF's
should be installed before attempting customer
operations. The review should consider all available
published information plus information carried in RETAIN or SECOM.

NOTE - This is especially important in relation to FORTRAN H Version II. The bulk of the corrections are in response to APARs submitted on Version I. The number of PTFs that are available and the known problems still outstanding should be reviewed thoroughly.

EC REQUIREMENTS

There are no new EC requirements for Release 14 CMR.

FORTRAN CONTROL SECTION NAMING

As of Release 14 all three FORTRAN Compilers generate code without a Pound Sign (#) appended to the control section name. Optional program modifications (OPMs) were provided in SYS1.SAMPLIB of Release 14. New OPMs for FORTRAN E & G are in SYS1.SAMPLIB of Release 14 CMR. The Release 14 OPM for FORTRAN H is still applicable. These OPMs are for those installations which must continue temporarily to use CSECT names with a Pound Sign (#). For additional information, see P68-7 and Installation Newsletters 67-25, 68-01 and 68-02. It is our intent that the OPMs for FORTRAN Pound Sign will not be provided beyond October, 1968.

MACHINE READABLE

Release 14 CMR is distributed --

For the 2311 user - On one 2400' reel of magnetic tape, either 9-track (800 or 1600 bpi), or 7-track (800 cpi, Data Conversion feature required), or on a 1316 Disk Pack.

For the 2314 user - On one 2400' reel of magnetic tape, either 9-track (800 or 1600 bpi), or on 7-track (800 cpi, Data Conversion feature required).

The tape will be in a dump/restore format. The user must also specify if it is to be restored to a 2311 or 2314 disk drive. 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 tape (2400') may be forwarded to PID or ordered. The order card should accompany the tape or the tape order form; Disk Pack (1316 only) must be forwarded to PID with the program order card.

ORDERING PROCEDURE

Current users of FORTRAN and/or COBOL OS/360 will receive a prepunched order card and a letter announcing the availability of Release 14 CMR, and instructing them to order the new release through the Branch Office using this prepunched card. Users who have not yet ordered Release 14, will when ordering Release 14, receive Release 14 and Release 14 CMR if COBOL or FORTRAN are requested. They will be required to provide for one additional volume over their requirements for Release 14. This additional volume will be for Release 14 CMR, 2311 or 2314 must be specified.

* Standard program order card may be used provided 360S-CI-505 CMR is specified.

OPTIONAL PROGRAM MATERIAL

The Optional Program Material (source statements) for COBOL and FORTRAN (P68-8 Distribution Volume Numbers 2 and 3) available with Release 14 is obsoleted. It will become available again in a future OS/360 release reflecting the level of COBOL and FORTRAN at that time. The microfiche used by Field Engineering in servicing an account reflects the up-to-date status of Release 14 CMR COBOL and FORTRAN.

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 WT 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 EPD Department (or regions) as sources of information or for manuals, etc., should be understood to mean the comparable WT Department (or corresponding organizational level).

7. Communications facilities or services may be required which are not offered in all WT countries. In case of any doubt as to the availability of suitable communications facilities, the country Teleprocessing Coordinator should be consulted.

8. References made to Engineering Change requirements should be verified with the local CE office. Although E/C requirements are identical for WT and IBM, availability and shipping dates will differ. NO PRODUCTION COMMITMENTS FOR PROGRAMS WITH E/C LEVEL REQUIREMENTS SHOULD BE MADE TO CUSTOMERS PRIOR TO VERIFICATION WITH LOCAL CE MANAGER OF E/C AVAILABILITY.
RELEASE 17 IMPROVES DOS/360

Release 17 of DOS/360 with its functional and performance improvements can now be ordered. Shipments will begin the week ending May 24. Affected are:

- RPG
- BTAM
- OLTEP
- System Control and Basic IOCS
- PL/I
- CE Serviceability Programs

Release 17 also includes maintenance and the new high performing Assembler F component. (This support was scheduled for July 29, 1968.) Details are given below.

Plan to upgrade your DOS/360 customer systems with these increased capabilities.

ASSEMBLER F (360N-AS-466)

A high-performance assembler implementing the full System/360 Assembler Language (Except for CXD, DXD, and type Q DCs, which have no significance under DOS). It provides new and improved functions for users with a minimum of 64K of main storage:

- High performance – up to 45% faster than the present DOS/360 supported assembler, Assembler D (360N-AS-465).
- Up to two continuation cards per statement rather than one.
- Multiple-operand DC and DS statements.
- Bit-length modifiers, in addition to byte-length modifiers, in DC and DS statements.
- Enhanced diagnostic capability.

Any source program that can be assembled by Assembler D (360N-AS-465) can be assembled by Assembler F without change.

Assembler F requires a minimum of 44K bytes of main storage and executes in the background partition only.

RPG (360N-RG-460) provides:

- Support of the 2321 Data Cell Drive as storage for user data files.
- Generation of programs to create and add records to Indexed Sequential files on the 2311, 2314, and 2321 direct access storage devices is supported. Data files created on the 2321 may optionally have high level indices located on a disk volume.
- The ability to process information within the key field of Indexed Sequential records where the key is not part of the data portion of the record.
- Sequence checking of source statements. A warning diagnostic is issued for out-of-sequence statements.
- Programmer control of data tape positioning at OPEN, CLOSE, and EOV. An additional entry on the File Description Specification permits the options of REWIND, NO REWIND, AND REWIND-UNLOAD.
- Printer speed has been improved by overlapping processing with the printer output cycles.
- Two input/output areas can be assigned to sequential files on card, tape, disk, or data cell if enough main storage is available. An additional entry on the File Description Specification identifies the relative priority of multiple files when a second area is to be assigned. An entry in the RPG Control Card specifies the amount of main storage available at object execution.
- Extraneous logic pertaining to the LO indicator has been removed.
- The retrieval of a record will be bypassed if the desired record is in main storage from a previous request. This applies to records retrieved by key from Direct Access or Indexed Sequential files by chaining or Record Address File (RAF) processing.

Performance

With the use of two I/O areas per file, processing time is overlapped with I/O time. Thus, execution speed for those programs that are primarily devoted to input/output can be increased to approximately the rated speed of the slowest I/O device.
Note: It is now required that key length be specified on the File Description Specification for all Indexed Sequential files and for Direct Access files retrieved by key.

BTAM (360N-CQ-469)

Expanded to include on-line terminal test facilities for Binary Synchronous Communications. This support provides the ability to test communications network of a computer system and/or verify hardware malfunctions. The Binary Synchronous configurations supported are:

System/360* to System/360*
BTAM provides the BSC on-line test facility over nonswitched (leased or private direct connection) and switched (dial) networks.
Request for test message initiation (RFT)
RFT message recognition
Transparent test messages
Strong and weak test patterns
EBCDIC code
USACII code

System/360* to 1130 or 2780
BTAM provides the BSC on-line test facility over nonswitched (leased or private direct connection), point-to-point, or multi-point (centralized), networks and over switched (dial) networks.
Request for test message initiation (RFT with \( x = 0 \) only - see BTAM SRL, C30-5001)
RFT message recognition
Transparent test message
Strong and weak test patterns (1130 only)
EBCDIC code
Transcode (6 bit) (2780 only)

*System/360 model 30, 40, 50, 65, 67 (65 mode), or 75.

BTAM Functional Improvements:

- Buffer pool management for all 2740 terminals now includes support for multiple buffers.
- Read initial with reset (TIR) for the basic 2740 and the 2740 with checking. This overcomes the potential problem of losing data when a read initial follows a write initial with reset.
- Write continue (TT) for the basic 2740.

BTAM support for the 2740 model 2 with buffer receive (1499) and record checking (6114) features is now available. (This support was scheduled for August 1968.)

OLTEP (360N-DN-481)

Improved to support unit tests to measure inter-record gap timings for all models of the 2400 series magnetic tape drives.

SYSTEM CONTROL AND BASIC IOCS (360N-CL-453)

A new function has been added to the librarian maintenance program to allow updating of individual statements within a book of a source statement library. One or more source statements may be added to, deleted from, or replaced in a book in the library without replacing the entire book.

The following options are available with this update feature:

- Change Level Number verification can be required prior to the updating of a book, if the optional „C“ parameter was included in either the CATALS statement (when the book was cataloged) or the END statement of the previous update.
- Change Level Number updating may be performed.
- Temporary updating may be performed. With this option, the old book is renamed and retained in addition to the updated book.
- Resequencing of a book may be performed during an update.

PL/I (360N-PL-464)

Changed to improve diagnostic message capabilities in the following areas:

- Error flags in the Symbol Table, formerly described by numbers, are now described in text.
- Text in many error messages is reworded to better explain the cause of error.
- 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.

CE SERVICEABILITY PROGRAMS

CE Serviceability Programs are designed to be used by IBM Customer Engineers. Their purpose is to facilitate more rapid and accurate diagnosis of machine and/or program malfunction. This release provides a FETCH/LOAD trace program and a TRANSIENT DUMP program. A detailed description may be obtained from your Customer Engineer.

PTFs

PTFs applicable to DOS/360 Release 17 are contained in the Source Statement library. The book title is X.PTFS and may be printed and punched using normal system facilities. An IBM representative should advise the customer on selection and applications of these PTFs.
IBM Disk Operating System/360

### Basic Program Material

The following SRL publications appropriate to the components ordered are shipped by the Program Information Department (PID) with each initial D05/360 order.

**SRL Publications:** System/360 Disk Operating System -- Operating Guide
- TNL N24-5356
- Concepts and Facilities
- TNL N24-5358
- Performance Estimates
- Systems Generation and Maintenance
- TNL N24-5357
- Data Management Concepts
- System Control and System Service Programs
- Supervisor and Input/Output Macros
- Basic Telecommunications Access Method
- Utility Macros Specifications
- Vocabulary File Program for the 7772 Audio Response Unit
- Utility Programs Specifications
- C24-5022-4
- C24-5030-4
- C24-5032-5
- C24-5033-4
- C24-5036-3
- C24-5037-3
- C24-5001-5
- C24-5042-2
- C24-3465-4
- C24-3438-3
- C24-3439-1
- C24-3414-5
- C24-5025-4
- C24-3433-4
- C24-5039-1
- C24-3414-5
- C24-5052-8
- C24-5026-2
- C24-3433-6
- C24-3458-2
- C24-6629-1
- C24-3570-4
- C24-8202
- C24-9005-2
- C24-5059
- C24-5066-2

### Ordering Procedures

See DP Sales Activity section of the Branch Office Manual.

For Release 17, the following information is provided:

- Magnetic Tapes (2400 bpi) may be forwarded to PID or ordered. The order card should be used to order either the tape or disk option.
- The tape or disk option (1316 only) must be ordered with the order card.

When ordering 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
- System Control and Basic IOCS
- Direct Access Methods
- Consecutive Disk IOCS
- Consecutive Tape IOCS
- ISFMS
- Consecutive Paper Tape IOCS
- IBM Program Order
- Autotest
- Assembler
- Assembler F
- COBOL
- COBOL DSAD Macros
- FORTRAN IV Report Program Generator
- Group 1 Utilities - Unit Recd/Disk
- Group 2 Utilities - Tape
- Group 3 Utilities - Data Cell
- MPS Utility Macros
- Vending File Utility Program
- Disk Sort/Merge
- Tape Sort/Merge
- Basic PL/I
- OLETPE

**D05/360** is distributed in one of 6 formats: 2311-Resident systems with a b, 8, or 10K Supervisor, and 2314-Resident systems with an 8, 10, or 12K Supervisor.

The System Control and Basic IOCS component is one of the six Supervisor components and is required to order these components, specify on the IBM Program Order for System/360 Operating Systems (120-1441) -- System Control and Basic IOCS, 360N-CL-453, and one of the following supervisors:

- Supervisor = 2311 (6K) 360N-SV-474
- System Control
- Direct Access Methods
- Consecutive Disk IOCS
- Consecutive Tape IOCS
- ISFMS
- Consecutive Paper Tape IOCS
- IBM Program Order
- Autotest
- Assembler
- Assembler F
- COBOL
- COBOL DSAD Macros
- FORTRAN IV Report Program Generator
- Group 1 Utilities - Unit Recd/Disk
- Group 2 Utilities - Tape
- Group 3 Utilities - Data Cell
- MPS Utility Macros
- Vending File Utility Program
- Disk Sort/Merge
- Tape Sort/Merge
- Basic PL/I
- OLETPE

**D05/360** for 2311 residence is available on two reels of magnetic tape or two disk packs. The first volume contains all of the D05/360 components listed above except the Teleprocessing components (BTAM, QTM, 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 D05/360 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 preprinted Program Order Card and a letter announcing the availability of D05 Release 17. This letter instructs them to order this release through the Branch Office. Current users must use the preprinted card to order either the Maintenance Package or the Replacement System for Release 17.

When ordering the Release 17 maintenance package or replacement system submit the required tape or disk pack. On the back of the preprinted order card indicate either "Maintenance for 2311" or "2314", or "Replacement D05", 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). Maintenance for 2314 not available on Disk.

Complete ordering instructions are provided with the letter to users.

**Additional Comments** — Maintenance package 17 is available for 60 days. It will be obsolete July 24, 1968.

-- New with Release 17.

Page 3 of 4
### Additional Program Support Material:

#### Program Logic Manuals

<table>
<thead>
<tr>
<th>Program Component Name</th>
<th>Program Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOS/360</td>
<td></td>
</tr>
<tr>
<td>System Control</td>
<td>Y24-S017-3</td>
</tr>
<tr>
<td>Librarian Maintenance</td>
<td>Y24-S079</td>
</tr>
<tr>
<td>Linkage Editor</td>
<td>Y24-S080</td>
</tr>
<tr>
<td>Supervisor and Trans</td>
<td>Y24-S084</td>
</tr>
<tr>
<td>IPL and Job Control</td>
<td>Y24-S086</td>
</tr>
<tr>
<td>Logical I/OCS Introd.</td>
<td>Y24-S020-3</td>
</tr>
<tr>
<td>Unit Record, Mag. Tape</td>
<td>Y24-S087</td>
</tr>
<tr>
<td>Sequential and Direct Access Files</td>
<td>Y24-S088</td>
</tr>
<tr>
<td>ISFMS</td>
<td>Y24-S089</td>
</tr>
<tr>
<td>BTAM</td>
<td>Y30-S001-2</td>
</tr>
<tr>
<td>QTAM</td>
<td>Y30-S002-2, TNL Y30-S004</td>
</tr>
<tr>
<td>Utilities</td>
<td>Y24-S023, TNL Y24-S0002</td>
</tr>
<tr>
<td>Disk Sort/Merge</td>
<td>Y24-S024, TNL Y24-S0291</td>
</tr>
<tr>
<td>DOS/360 and TOS/360</td>
<td></td>
</tr>
<tr>
<td>OLTEP</td>
<td>Y24-S056-1</td>
</tr>
<tr>
<td>MPS Utilities</td>
<td>Y24-S045-1, TNL Y24-S0568</td>
</tr>
<tr>
<td>Tape Sort/Merge</td>
<td>Y24-S056-1</td>
</tr>
<tr>
<td>Assembler</td>
<td>Y26-S042-1</td>
</tr>
<tr>
<td>Assembler F</td>
<td>Y26-S071-1</td>
</tr>
<tr>
<td>RPC</td>
<td>Y26-S070-1</td>
</tr>
<tr>
<td>COBOL</td>
<td>Y24-S025-2, TNL Y25-S0390</td>
</tr>
<tr>
<td>FORTRAN IV</td>
<td>Y24-S032</td>
</tr>
</tbody>
</table>

#### Program Listings:
The DOS/360 assembly listings and/or Macro (Source Statement Library) \textit{S}SERV listings are available on Microfiche. Specify Group Code 2030 for the assembly listings or Group Code 2032 for the Macro \textit{S}SERV listings. The assembly listings are equivalent to the output listings produced by assembling the symbolic modules as required for each of the DOS/360 Components listed below. The Macro \textit{S}SERV listings are equivalent to a \textit{S}SERV display on a printer of the Macros of the Components where applicable.

Optional Program Material (Symbolic Modules):

- Use the IBM Program Order for IBM System/360 Operating Systems, 120-141.

The optional program components are available on ten distribution volumes, each identified for PII ordering purposes by a Distribution Volume Number. Distribution requests may be made by ordering IBM 1316 Disk Packs, a 9-track magnetic tape (1000 bpi or 1600 bpi), or 7-track magnetic tape (800 cpi) with the Data Conversion feature.

Each tape may also be restored to a 2316 Disk Pack on a 2314 Disk Drive. When a 2316 "N" Pack, the user should designate the device as a 2316 for all operations involving the restoring and using of a Disk Pack. However, it should be initialized as a 2316.

Magnetic tapes may be ordered or shipped, or disk packs may be forwarded in accordance with current procedures described in the DP Sales Activity section of the Branch Office Manual. A separate magnetic tape or disk pack is required for each distribution volume. The external tape or disk pack label must show the distribution volume number indicated below, as well as the information required under current procedures.

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

#### Distribution Volume Number

<table>
<thead>
<tr>
<th>Program Component Name</th>
<th>Program Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 System Control</td>
<td>360N-CL-453</td>
</tr>
<tr>
<td>2 Assembler</td>
<td>360N-AS-465</td>
</tr>
<tr>
<td>3 Assembler F</td>
<td>360N-AS-466</td>
</tr>
<tr>
<td>4 Group 1 Utilities</td>
<td>360N-UT-461</td>
</tr>
<tr>
<td>5 Group 2 Utilities</td>
<td>360N-UT-462</td>
</tr>
<tr>
<td>6 Group 3 Utilities</td>
<td>360N-UT-463</td>
</tr>
<tr>
<td>7 MPS Utilities</td>
<td>360N-UT-471</td>
</tr>
<tr>
<td>8 COBOL</td>
<td>360N-CB-452</td>
</tr>
<tr>
<td>9 Disk Sort/Merge</td>
<td>360N-SM-450</td>
</tr>
<tr>
<td>10 Tape Sort/Merge</td>
<td>360N-SM-400</td>
</tr>
<tr>
<td>11 FORTRAN IV</td>
<td>360N-F0-451</td>
</tr>
<tr>
<td>12 Report Program Generator (RPQ)</td>
<td>360N-RG-460</td>
</tr>
<tr>
<td>13 Autotest</td>
<td>360N-P0-459</td>
</tr>
<tr>
<td>14 BTAM</td>
<td>360N-CQ-469</td>
</tr>
<tr>
<td>15 QTAG</td>
<td>360N-CQ-470</td>
</tr>
<tr>
<td>16 Vocabulary Utility File</td>
<td>360N-UT-472</td>
</tr>
<tr>
<td>17 Basic PL/I</td>
<td>360N-PL-464</td>
</tr>
<tr>
<td>18 1285 Optical Character Reader</td>
<td>360N-IO-478</td>
</tr>
<tr>
<td>19 Magnetic Ink Character Reader I/OCS</td>
<td>360N-IO-477</td>
</tr>
<tr>
<td>20 Basic I/OCS</td>
<td>360N-CL-453</td>
</tr>
<tr>
<td>21 On-Line Test Executive Program</td>
<td>360N-DN-481</td>
</tr>
</tbody>
</table>

The above distribution volumes do not contain source statements which are available in source format with the basic machine readable material for DOS/360. Therefore, there is no optional program material for the following DOS/360 Components:

- Consecutive Disk I/OCS, 360N-10-455; Consecutive Tape I/OCS, 360N-10-456;
- Direct Access Method, 360N-10-454; ISFMS, 360N-10-457; Consecutive Paper Tape I/OCS, 360N-10-458; COBOL DASD Macros, 360N-CB-468.

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 preprinted 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.
PL/I MOVES AHEAD WITH VERSION 4

IBM continues to extend the functional scope and capability of PL/I Version 4 of the OS/360 PL/I F level compiler will be available July 31, 1968.

In two years OS/360 PL/I has advanced with the announcement and delivery of four major versions of this compiler:

- August 1966 ..... the first PL/I compiler release.
- January 1967 ..... primarily a functionally oriented release.
- October 1967 ..... a performance oriented version.
- July 1968 ..... will provide additional and major features described below:

Functional Additions:
- **LOCATE** - mode record Input/Output
  improving throughput by processing directly in Data Management I/O buffers.
- List processing facilities
  enabling indirect referencing for data chaining and table handling.
- Variable length record handling
  permitting processing unknown length records as well as self-defining records.
- Intermixed record formats
  processing of files with varied record descriptions using the list processing and LOCATE mode facilities.
- PL/I Tasking
  allowing the creation and priority control of tasks within a PL/I program with OS/360 MVT.
- Checkpoint/Restart
  enabling use of OS/360 Primary Control Program checkpoint facility.

Performance Improvements:
- Additional in-line conversions
  improved performance of a variety of data conversions including arithmetic, numeric and string data.
- Improved PL/I Housekeeping
  reduces overheads of many PL/I procedures.

Usability Features
- Increased dictionary capacity
  a 3.5 to 1 increase permitting compilation of significantly larger program segments than previously possible.

Published by DP Sales Publishing Services, WTHQ

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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.
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FOR IBM INTERNAL USE ONLY

Release Date: May 16, 1968
Distribution: All Areas
 Functional Additions

 Locate Mode Input/Output
 Locate Mode Input/Output permits the processing of data directly in the I/O buffer areas. The language implemented is:

 LOCATE statement
 SET option in the READ statement
 REWRITE statement without the FROM option

 The user of locate mode I/O is responsible for the correct alignment of data within the buffers.

 Based Storage and List Processing

 The List Processing facilities included are: the use of offsets, or relative pointers, in addition to pointers. The REFER attribute has been introduced for the definition of self-defining structures and the processing of variable length records. The new attribute is specified in the revised SRL IBM System/360 PL/I Reference Manual, C28-8201-1.

 The List Processing features implemented are:

 IN and SET options in the ALLOCATE statement
 IN option in the FREE statement
 AREA, BASED, POINTER, OFFSET, REFER attributes
 NULL, NULLO, EMPTY, ADDR built-in functions
 AREA ON condition
 Pointer qualification

 VARYING strings in Record I/O

 Record I/O is permitted on scalar VARYING strings of varying length.

 Tasking

 The tasking facilities of PL/I permit the creation and control of tasks within a PL/I program. The language facilities implemented are:

 TASK EVENT and PRIORITY options in the CALL statement
 WAIT statement
 EVENT option in the DISPLAY statement
 NOLOCK option in the READ statement
 EXCLUSIVE attribute
 EVENT and TASK attributes
 COMPLETION, STATUS and PRIORITY built-in functions and pseudo-variables

 Checkpoint and Restart

 The PL/I user may call a library routine for interface with the OS/360 checkpoint facility, available with the Primary Control Program.

 STRINGRANGE

 The STRINGRANGE prefix and ON condition permit control over processing with the SUBSTR built-in function or pseudo-variable where the substring does not lie within the source string.

 PUT DATA

 The PUT DATA statement is permitted without a data list. It causes all variables known at that point in the program, to be written according to the rules of data-directed output.

 Positioning Control for Stream I/O

 The LINESIZE option may now be specified for files processed by STREAM transmission without the PRINT attribute. The SKIP option and SKIP and COLUMN format items may be used in GET and PUT statements for these files.

 DELETE Statement

 The DELETE statement is supported for sequential access to data sets with INDEXED organization.

 Carriage Control in Record I/O

 Options CTLASA (ASA control) and CTL 360 (machine code control) in the ENVIRONMENT attribute cause the first character of a record to be interpreted as carriage control.

 Performance Improvements

 The following improvements will be made in the speed of object program execution. Their effect depends on the usage of the features in an individual program:

 Conversions

 In-line code is generated for certain cases for conversions between the following data types, in addition to the in-line conversions already implemented in Third Version.

 Fixed binary to fixed-length bit string
 Fixed-length bit string to fixed binary
 Float to fixed binary
 Execution speed for these conversions will be improved by at least 5 to 1.

 PL/I Housekeeping Overheads

 Further reductions are made in the overheads for invoking small PL/I procedures by using static rather than dynamic storage for procedures which are neither REENTRANT nor RECURSIVE. The overhead for such a procedure is reduced by approximately 1.5 to 1.

 VARYING Strings

 In-line code is generated for assignment to VARYING character strings and concatenation of VARYING strings, provided that the maximum length is not greater than 256 bytes. Execution speed for these operations is improved by up to 1.5 to 1.
Constant Subscripts
If a subscript to an array reference is a decimal integer constant and the corresponding multiplier is constant, then the addressing calculation is performed at compile time.

Constant Expressions
Signed constants and concatenation of string constants are processed at compile time.

Commoning of Base Registers
A common register is used for a number of references to the same variable, when the referencing of the variable requires more than one instruction.

Usability Features

Dictionary Capacity
The capacity of the dictionary of the PL/I F compiler has been increased by 3.5 to 1 (1.5 to 1 if the SIZE compiler option specifies less than 52K bytes). This feature permits the successful compilation of programs which would previously have caused the dictionary to overflow.

There is a degradation of compile performance varying between 5% and 20% using this feature: it is therefore invoked by a compiler option EXTDIC.

Data Set Communication with COBOL
Specification of COBOL in the ENVIRONMENT attribute permits the reading and writing of data sets created using the COBOL algorithm for mapping structures.

Blocking Factors for SYSIN, SYSPRINT
The maximum blocking factor for SYSIN and SYSPRINT may be increased provided that sufficient core remains available to the compiler.

Macro Deck Option
The use of compiler option MACDCK will cause the output from the compile time processor to be placed on the SYSPUNCH file.

Source Listing Control
A third argument may be specified in the SORMGIN option to specify a column in the source records to be interpreted for carriage control for the source program listing.

Planning Considerations

Incompatible Changes
The following incompatible changes may cause some programs to give different results under Third and Fourth Versions of the PL/I F compiler:

Concatenation Operator
The concatenation operator is moved above the comparison operators in the priority list determining the order of evaluation of an expression. Additional parentheses will ensure compatible results. This change is provided to align PL/I with commonly accepted usage.

String to Arithmetic Conversion
Strings will be converted to arithmetic data of maximum rather than default precision in those cases where the precision cannot be deduced from the context. The FIXED built-in function may be used to ensure compatible results. This change prevents loss of high order significance.

E and F Format Items
Data written out with E and F format items will be rounded.

Tasking
The tasking facilities provide an advanced, new function. Careful program development planning and debugging are necessary to assure proper program execution synchronization within programs using this feature. Additionally, while object execution performance may be improved by using the PL/I tasking facility, some additional object core will be required. The Programmer Guide C28-6594 will provide the appropriate guidelines for effective use of the tasking facility.

Use in the PL/I program of TASK, EVENT or PRIORITY options in a CALL statement requires MVT.

Use in the PL/I program of a WAIT statement with multiple events requires the Multiple Wait option to be used in System Generation.

Use of the TASK, EVENT or PRIORITY options in a CALL statement requires the programmer to specify TASK as an option in the OPTIONS list of each external procedure in the program.

Data Management
The specification by the user of a REGIONAL or INDEXED data set organization, requires the presence in his generated system of BDAM and ISAM modules respectively.

The presence of BSAM/QSAM is always required.

Publications
Details of these features are provided in the following revised publications:

IBM System/360 Operating System PL/I Library, Computation Subroutines, C28-6590
FUNCTIONS AND FACILITIES OF CARE A/S INCLUDED IN SHAS

This announcement cancels P67-140.

All hospital accounting program functions and facilities formerly announced as Clinical and Administrative Records System Accounting System (CARE A/S) will now be contained within the Shared Hospital Accounting System (SHAS) in a 32K non-Teleprocessing minimum configuration. The CARE A/S, announced for availability September 16, 1968, is withdrawn.

Customers affected by these changes should be notified promptly.

See below for more details, new schedules, and documentation.

SHARED HOSPITAL ACCOUNTING SYSTEM (SHAS) TO BE RELEASED IN THREE PHASES

This announcement supersedes P67-5, P67-6 and P67-104.

Significant Changes:

- Originally announced for 2Q68, SHAS will now be released in 3 phases between June 28 and October 30.
- Additional Program Facilities and Reports
  - Minimum Configuration: The SHAS application programs without Teleprocessing will now operate in a 32K minimum core system. (64K minimum core still required for any system using any Teleprocessing functions including inquiry.)
  - The 32K non-Teleprocessing version of SHAS was formerly announced as the CARE Accounting System.
  - All program functions and facilities of both SHAS and CARE A/S are being provided except General Ledger Inquiry.

Additional Information:

- Inquiry Capability is clarified into 2 levels (see below).

Special Installation Information has been added to the sales manual page which is most significant.

Availability:

Phase 1 - June 28, 1968
- Accounts Receivable System
- Background Monitor Requirements
- A/R Report Format Control Programs
- A/R Hospital Profile Load Programs
- A/R Balance and Edit Programs

Phase 2 - September 16, 1968
- Foreground Monitor System (SHAS Teleprocessing)
- Accounts Receivable Inquiry

Phase 3 - October 30, 1968
- Patient Billing System
- Billing Inquiry
- General Ledger System
- Cost Allocation Programs
- Job Accounting Programs

Additional Program Facilities and Reports: (Not previously announced)

- Accounts Receivable
  - New Accounts Report
  - A/R Changes
  - Bad Debt Report
  - Deleted Bad Debts
  - Family Directory
  - Account Directory - Alpha and Numeric Sequence
  - Guarantor Directory

- Patient Billing
  - Religion Census
  - Census Summary
  - Daily Balance Forward on both regular and alpha census
  - Statistics
    - Medicare
    - Non-Medicare
    - Title XIX
    - Cumulative Male/Female
    - Outpatient

- Inpatient Bills
  - Medicare Cycle, Part A
  - Medicare Final, Part A
  - Summary Cycle
  - Summary Final

- Outpatient Bills
  - Summary
  - Inquiry Bill Detail by Insurance Summary

FOR IBM INTERNAL USE ONLY

Release Date: May 27, 1968
Distribution: All Areas

P68-74
Additional System Features
- Outpatients - three types with automatic discharge
- Revenue Information in Doctor Analysis
- Bad Debt Account Processing
- Proration Insurance Plan Coding Procedures
- Background Monitor Job Scheduler, including
  - Uniform Restart Capability
- Contract Accounts Receivable Processing and Reporting
- Hospital Profile - with Load and Maintenance Programs
- Four Insurance Plans (Instead of three previously planned)

Inquiry Capability: (Available only with Teleprocessing)

Billing Inquiry: Two levels of billing inquiry are provided. The first level provides the most rapid response on the status of a patient account, while the second provides the most detail on the account.

At the first level, upon inquiry, a summary bill indicating patient and third party billing amounts by insurance classification is returned to the terminal. Each bill is retrieved from a billing index file created during the daily billing run, and is current as of that run. This inquiry is called Billing Index Inquiry.

At the second level, upon inquiry, a summary or detail bill is returned to the terminal. This bill has the same format as a final patient bill, listing specific insurance classifications as well as indicating patient and third party billing amounts as of the last update of the master file. This bill can be obtained either between jobs processed in the background partition or while the system is dedicated to the inquiry billing programs resident in the background partition (e.g., during peak checkout hours). When a background job is completed, the inquiry billing program processes pending inquiries and transmits prorated up-to-date billing information to inquiring terminals. This inquiry is called Billing Master Inquiry.

Therefore, Billing Index Inquiry provides the capability to obtain a summary patient bill quickly and without foreknowledge of the patient's dismissal from the hospital. Billing Master Inquiry can also be used to provide a prebilling capability. In this case, batches of anticipated patient dismissals can be entered via the terminal card reader or keyboard. More detailed bills are processed and returned to the terminal for later presentation to patients upon dismissal from the hospital.

Accounts Receivable Inquiry: In A/R similar inquiry support is provided. At the first level, account status including account number, name, and patient balance is returned to the inquiry terminal from the information on the A/R Index. The second level inquiry provides A/R Index information or account status information in the form of the A/R Status report. The second level inquiry response, like its billing counterpart, is created between jobs being processed in the background.

Ledger Inquiry for General Ledger will not be provided.

Availability and form number of a new Application Description Manual will be announced in a Publication Release Letter. Preliminary copies may be obtained from your Medical Industry Marketing Representative. The current manual (H20-0302-0) is now obsolete.

A series of customer classes for SHAS will be conducted on a schedule to be announced by Medical Industry Marketing.

Customers affected by these changes should be notified promptly.

The revised sales manual text appears on the next page.

For further information contact your Medical Industry Marketing Representative.

John Fahey
Director of DP Marketing
Shared Hospital Accounting System (SHAS):

SHAS provides hospital accounting for the multiple hospital environment. The member hospitals are tied 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.

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 processing on and off-line data entry into 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 identification to limit access of data. Each hospital is permitted to inquire into or modify its data only.

Executive

Management communicates lines . . . Handle the timer . . . Handle interrupts (e.g., demand bill request and inquiries) . . . Queue messages . . . Manage input/output.

Patient Billing


Accounts Receivable

Preparation of statements . . . Recording cash payments . . . Receivable accounts stored in either off-line or on-line . . . Inquiry on the status of receivables . . . On-line account activity report . . . List 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


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 multiple 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 using hospital - 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-T P System installed first will give the user SHAS experience prior to 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 is required. Installations, 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 DOS/360. The application programs are written in COBOL and Assembler Language. Also used are Sort/Merge and Utility Programs. Teleprocessing programs utilize Queue Teleprocessing Access Method (QTAM).

Minimum Teleprocessing System Requirements: 2030F Processing Unit (64K), Decimal Arithmetic (#3237), Floating Point Arithmetic (#4427), Interval Timer (#4760), Select/Channel - 1st (#4960), Select/Channel - 2nd (#4961), Storage Protection (#7520) . . . 1052 Printer-Keyboard with appropriate attachments . . . 2821 Control Unit Model 1, 100 lines per minute Printer Adapter (#3615) . . . 1403 Printer Model 1, 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 Model 1 Data Adapter Unit, Terminal Adapter - Type 1 (#4645) or . . . 2702 Model 1 Transmission Control, Terminal Control - Type 1 (#4645) or . . . Select/Feedback (#4964), and IBM Line Adapters 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 (#4413), IBM Line Adapter (#4459), Line Correction (#4792), Line Correction Release (#4796) . . . 1052 Printer-Keyboard Model 2 . . . 1056 Model 1 Card Reader . . . 29 Card Punch Model A22* . . . 59 Card Verifier Model 2.

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

Minimum NonTeleprocessing Machine Configuration: (formerly announced as the CARE Accounting System) A 25300 Processing Unit E Model 1 (32K) with Decimal Arithmetic (#3237), Floating Point Arithmetic (#4427), Interval Timer (#4760), Select/Channel - 1st (#4960), 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.


For further information contact your Medical Industry Marketing representative.
DOS/360 EXTENDED TO SUPPORT 2826 PAPER TAPE CONTROL UNIT MODELS 1 AND 2, 1017 PAPER TAPE READER AND 1018 PAPER TAPE PUNCH

Programming Support for the 2826 Model 1, the 1017, and the 1018 will be an extension of the DOS/360 Consecutive Paper Tape I/OCS. Support for the 2826 Model 2, the 1017, and the 1018 will be an extension of the current DOS/360 Basic Telecommunications Access Method (BTAM). Details are below.

Availability will be July 31, 1969.

John Fahey
Director of DP Marketing

CONSECUTIVE PAPER TAPE I/OCS

The DOS/360 Consecutive Paper Tape I/OCS is being expanded to include:

2826 Control Unit Model 1
1017/1018 Paper Tape Reader/Punch

This new programming support is that of the 2671 Paper Tape Reader expanded to meet the 2826/1017/1018 requirements. The existing programming support for the 2671 is not affected by this extension.

The extended parts are:

- The declarative macro-instruction DTFPT
- The declarative macro-instruction PTMOD in the Logical I/OCS.
- The transient error routine for the 1017/1018 devices in the Physical I/OCS.

Minimum System Configuration ... System/360, 16K bytes of main storage ... Multiplexer Channel ... Otherwise, configuration (CPU Features, number and types of I/O devices and channels) required by the Disk Operating System.

Devices supported ... 1017/1018 Paper Tape Reader/Punch ... 2826 Control Unit Model 1. This Control Unit can operate up to two readers and two punches simultaneously. It must be attached to the Multiplexer Channel.

Publications ... A Technical Newsletter to IBM System/360, Disk Operating System Supervisor and Input/Output Macros, C24-5037 will be announced in a future Publications Release Letter.

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Distribution: All Areas

BASIC TELECOMMUNICATIONS ACCESS METHOD

The DOS/360 Basic Telecommunications Access Method is being expanded to include the:

2826 Control Unit Model 2
1017/1018 Paper Tape Reader/Punch

The 2826 Control Unit Model 2 allows attaching up to eight readers and eight punches. Only one reader and one punch can operate simultaneously via the I/O multiplexer channel. One subchannel is assigned to the readers and one to the punches.

The system uses the "service request" concept; that is, the 1017 Paper Tape Reader signals to the CPU, through the 2826 Control Unit, that data is to be requested from a device. "Service request" is initiated by operating the start key of the reader which causes "Device End" to be sent to the CPU. Then the device is in the ready state. The program contacts the readers which are in the ready state according to a scanning list specified by the user. This facility is not available to the 1018 Paper Tape Punch; the system punches the tape under control of the user's program, not upon "service request."

Integration of the 2826 support in DOS/BTAM is governed by the following rule: user's programs handling Teleprocessing devices other than the 1017 Paper Tape Reader and 1018 Paper Tape Punch with the existing DOS/BTAM will be able to run on DOS/BTAM supporting the 1017 and 1018 attached to the 2826 Model 2, without any changes at the source and the object-code levels.

The Teleprocessing functions performed by BTAM routines are extended to meet the 2826/1017/1018 requirements. The extended parts are:

- The declarative macro-instructions DTFBT and BTMOD
- The data-handling macro-instructions READ and WRITE

Minimum System Configuration ... System/360, 32K bytes of main storage ... Multiplexer channel, since the 2826 Control Unit, Model 2, is attached to this channel ... Otherwise, configuration required by the DOS/360 BTAM.

Devices supported ... 1017/1018 Paper Tape Reader/Punch ... 2826 Control Unit Model 2.

Publications ... A Technical Newsletter to IBM System/360, Disk Operating System, Basic Telecommunications Access Method, C30-5001 will be announced in a future Publications Release Letter.
Note to World Trade Readers

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A NEW MODIFICATION TO VERSION 2 OF SYSTEM/360 ATTACHED SUPPORT PROCESSOR (ASP) SYSTEM

Extensions of the ASP system supporting the use of the OS/360 Multiprogramming with a Variable Number of Tasks (MVT) Control Program and allowing control of application job execution on the Support Processor will be available December 20, 1968. With these extensions, the ASP system will provide the performance advantages of Multiprogramming (MVT) with the operational advantages of the ASP system on from one-to-three-processor systems.

With the support of OS/360 MVT, the ASP system adds the capability for supporting the concurrent execution of several jobs on the Main Processor. The number of jobs to be executed concurrently will be determined on a dynamic basis by the ASP system. Only as many OS/360 initiators will be started as there are jobs which may be concurrently executed. Available core storage will be automatically analyzed to determine whether an additional job may be started. In addition, the ASP system will schedule jobs for execution by programmer-supplied job classification to balance the Main Processor’s workload.

This scheduling algorithm will attempt to maintain a balance between high and intermediate input/output and high-compute jobs to optimize CPU utilization.

Job execution on the Support Processor permits the Support Processor to execute jobs from the ASP job queue under control of the ASP system, which is executing as a high-priority task with OS/360 MVT. This feature allows an installation to utilize excess computing capacity of the Support Processor for the execution of jobs and provides a means of continuing system execution from an existing job queue when the Main Processor is unavailable (provided the system is suitably configured to support this mode of operation). In addition, this feature extends the ASP system to this single processor user, who may now obtain the operational advantage of ASP (except for 709X Emulation) by using ASP as a high-priority task to control job execution for his processor.

For details see the reverse side, the System Description Manual (H20-0466-1), which describes the facilities that are currently available in Version 2, Modification Level 0, and a revised System Description Manual (H20-0529) which includes a description of support for MVT and local execution.
Version 2 extends ASP Version 1 to support Dual Main Processors. Improvements have also been made to enhance system operation and to facilitate implementation of local modifications and extensions. Through a reduction in required operator intervention, ASP provides an improved operational environment, enhancing system workload capacity and reducing CPU time. The Version 2 configuration consists of two or more IBM System/360 computers connected via the channel-to-channel adapter. The Support Processor (Model 40 or larger) provides the support functions (including card punching, punching, and printing) under computer control, while one or two high-speed Main Processors (usually Models 50, 65, 75, or 85) perform the application workload. ASP also permits intermixing of O/S/360 and 709X Emulator jobs in the input stream, supports remote job processing from STR terminals, and permits other background functions to share Support Processor CPU time with the primary support functions.

These features are made possible by:

1. Computer-controlled execution of support functions in a multiprogrammed mode on a lower cost Support Processor. This feature permits — priority job scheduling — automatic processing of system input and output data sets — automatic switching between O/S/360 and 709X Emulator jobs — concurrent processing of peripheral and other user programs, such as Card-to-Tape, Tape-to-Tape, Tape-to-Printer, Tape-to-Card, Card-to-Printer, Card-to-Card, 709X Direct Couple Operating System (DCS) Tape Format Delocating, Remote Terminal Transmission, Remote Terminal Reception, User-written background programs.
2. Reduction of resource interference on Main Processor in terms of Core Storage — core buffering of Main Processor input and output data sets in the Support Processor. CPU Time — multiplexer channel interference and intertask service for peripheral input/output devices eliminated in Main Processor.

ASP provides a standard sequence of functions for each job in the Support Processor: Input Service, Main Processor Service, Printer Service, Punch Service, and Job P que. This standard sequence may be altered by control cards for a particular job. Special control cards are not required for jobs using the standard sequence. The ASP control cards provide a simple means of altering this sequence for a particular job.

For jobs to be executed under the control of the 709X Emulator, the ASP must use a ASP job card and 709X Emulator control cards in addition to the control cards required by the 709X/94 programming system being used. The ASP system separates the ASP control cards and the 709X Emulator control cards from the program, supplying the 709X/94 programming system with its system input job stream only. The Support Processor may assume the functions of the on-line unit record devices for the 709X Emulator provided the operator is not required (by program logic) to attend to or examine these devices during program execution.

Sales Information: ASP is designed for the user whose computer installation is operated on a job shop basis. The degree to which an installation will realize the functional and performance advantages of the ASP system is determined by the nature of the job mix.

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

1. The customer must be responsible for ordering and installing satisfactorily all required communications equipment.
2. Appropriate training must be given the application programmers and system analysts in O/S/360 and 709X Emulator operation, in addition to training in the use and/or operation of ASP.
3. It is highly recommended that a customer system programmer become familiar with the internal operation of the system. This knowledge will enable him to customize the ASP system to the unique operational environment of his installation.
4. The customer is responsible for any programming of remote terminals necessary for their operation.
5. The customer is responsible for converting his own modifications and extensions of ASP from Version 1 to Version 2.

Programming Systems: The ASP system programs are written in O/S/360 Macro Assembly Language. Programs to provide additional functions, known as Dynamic Support Programs (DIP's), can be incorporated into the Support Processor by the customer at his installation. These programs also must be written in O/S/360 Macro Assembler Language. The minimum O/S/360 control program that will execute ASP includes the Primary Control Program, a link editing, and the O/S/360 utility programs. The O/S/360 Macro Assembler program (6-level) must be available if program modifications are anticipated.

These programs are ordered separately: O/S/360, the 709X Emulator program C360-EU-7291, if used, and the Synchronous Transmit-Rx Access Method for O/S/360 (C360-SE-33X), if STR terminals are to be used.

Minimum System Requirements: The configuration requirements for the Main Processor are identical with those of a standalone processor operating under O/S/360, except that the channel-to-channel adapter replaces the normal system input and output devices. If the 709X Emulator is to be used, the Main Processor must have at least
Support Processor with O/S360 Primary Control Program: The minimum Support Processor for executing under the Primary Control Program is a Model 40G with two selector channels (one dedicated to the channel-to-channel adapter), one 1052 Printer-Keybaord, Model 7 (Console Typewriter), one 2540 Card Read Punch, one 1403 Printer, Model 2 or N1, and three 2311 Disk Storage Drives. This configuration permits processing of up to 30 jobs. (A job is considered equal to a combined input and output stream of 5,000 100-byte records.) System capability can be expanded by attaching 1403 Printers Model 2 or N1... 2540 Card Read Punches... 2311 Disk Storage Drives... 2401 Magnetic Tape Units (at least one nine-track or seven-track tape unit with Data Conversion feature is recommended for system maintenance); the ASP system supports 2401 Magnetic Tape Units for use by background programs.

In addition, a 2701 Data Adapter Unit with the Synchronous Data Adapter Type 1 may be attached for remote job processing. When the number of functions required or the workload capacity needed exceeds the capabilities of this configuration, larger core storage or a faster processor should be considered. An IBM 2314 Direct Access Storage Facility may be substituted for 2311 Disk Storage Drives as the ASP work queue device. The number and type of direct access storage devices, the type of processor, and the size of core depends upon the individual installation's workload. The user should refer to the ASP System Programmer's Manual (H20-0323-3), which contains an algorithm for estimating core storage needs.

The following devices are supported as auxiliary operator consoles in the ASP system:

- IBM 2740 Communication Terminal attached on a dedicated line through an IBM 2701 Data Adapter Unit
- IBM 2260 Model 1 Display Station attached through a directly attached IBM 2848 Display Control Model 3 (with the Line Addressing feature)
- IBM 1443 Model N1 Printer (output only)
- IBM 1053 Model 4 Printer attached through an IBM 2848 Display Control (output only)
- IBM 1403 Model 2 or N1 Printer (output only)

Support Processor with O/S360 MFT or MVT Control Program: The minimum Support Processor for use of O/S360 Multiprogramming with Fixed Number of Tasks (MFT) Control Program in the Support Processor is the same as for the Primary Control Program except for the following additions:

- The minimum processor for MFT is a Model 40H. For MFT operation, the minimum partition size for ASP is 100,000 bytes. This system permits independent scheduling of other partitions by O/S360.
- At least one IBM 2740 Communication Terminal, attached through the 2701, or an equivalent set of console devices, must be added as the ASP operator terminal. Since the IBM 1052 Printer-Keybaord must be reserved for O/S360 system operations in an MFT environment, it is unavailable to the ASP system for operator communications.
- Under MVT (future modification) if application programs are to run in the support processor, a Model 501 Processor is required. If support of a separate Main Processor is required in this mode of operation, the region size for ASP should be expanded to approximately 150,000 bytes. Consideration should be given to larger region sizes, commensurate with planned system facilities.
- At least one IBM 2401 Magnetic Tape Unit (9-track or 7-track with Data Conversion feature) should be available for system maintenance.

Support Processor -- Dual Main Processors: The minimum Support Processor in a Dual Main Processor configuration is the same as the Support Processor with O/S360 Primary Control Program with the following exceptions:

- The minimum Support Processor is a Model 50H. For reasons of system performance, the Model 40 is not recommended except under controlled conditions. For Dual Main Processor support, the minimum partition or region size is 200,000 bytes.
- A minimum of four operator terminals, at least one of which must be an input terminal, must be available to ASP (for example, a 1052 and three 2740s attached through a 2701).
- A 2314 Direct Access Storage Facility for Support Processor work queue or the equivalent 2311 Disk Storage Drive capacity.
- At least one IBM 2401 Magnetic Tape Unit (nine-track or seven-track with Data Conversion feature) should be available for system maintenance.

Note: These are complex configurations and must be system assured.

Engineering Change Levels: In addition to the required engineering changes to run the supported levels of O/S350 and the 709X Emulator, the EC levels required for proper functioning of the ASP system are EC 705754 and EC 2554902 on the Channel-to-Channel Adapter (W18/50).

Basic Program Material:

OS/360 RELEASE 14 REQUIRES EXTRA REEL OF TAPE OR DISK PACK

Effective today, distribution of the complete OS/360 machine readable material for Release 14 requires an additional reel of tape or 1316 Disk Pack.

This additional tape or disk pack, which is used to contain Release 14 Compiler Maintenance Release as announced in P68-71, must be forwarded with all orders for OS/360 Release 14.

Change the Machine Readable paragraph on Page P360S.11 of the sales manual to the following:

Machine Readable -- The complete OS/360 is distributed:

For the three Drive 2311 User -- On four 2400 foot reels of magnetic tape, either 9-track (800 or 1600 bpi), or 7-track (800 cpi, Data Conversion feature required), or four 1316 Disk Packs.

For the 2314 User -- On 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 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.

Altered words are underlined.

DOS/360 RELEASE 17 MAINTENANCE REQUIRES TWO REELS OF TAPE OR TWO DISK PACKS

When ordering the DOS/360 Release 17 maintenance package submit:

For 2311 -- two 2400 foot reels of magnetic tape or two 1316 Disk Packs.

For 2314 -- two 2400 foot reels of magnetic tape. Maintenance for 2314 is not available on disk.

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Release Date: June 3, 1968
Distribution: All Areas

John Fahey
Director of DP Marketing
Commercial Subroutine Package, Version 3: Provides the scientific user with added capabilities for handling functions and techniques applicable to commercial programming. All twenty-eight subroutines are callable by the FORTRAN programmer in a similar manner to such standard functions as sine, cosine, square root, etc.

(1130-SE-25X)

Description: These subroutines will provide the scientific 1130 user with flexibility to add commercial applications such as payroll, cost accounting, and others.

Features: Variable length alphameric move, compare, edit and fill ... variable length conversion from EBCDIC to real, and from real to EBCDIC ... zone manipulation ... stacker select ... variable length decimal add, subtract, multiply, divide and compare ... sign manipulation ... overlapped printing and carriage control on the 1403 and 1132 Printers ... overlapped reading of cards with conversion of card codes on the 1442 and 2501 Card Readers ... punching of cards on the 1442 Model 5, 6, or 7 ... overlapped printing on the Console printer ... conversion from one character per word to two characters per word ... conversion from one character per word to three characters per word ... conversion from one digit per word to four digits per word.

Programming Systems: All subroutines are written in the 1130 Assembler Language. The internal format of data is one character per word.

Minimum System Requirements: An 8K 1130 card system will be required to execute a mainline program using the Commercial Subroutines. All I/O devices must use either FORTRAN I/O exclusively or Commercial Subroutine Package I/O exclusively.

Basic Program Material:

Publications* -- Program Reference Manual, including operating instructions, listings, flowcharts and narrative, (H20-0241-3) ... Application Directory.

Machine Readable -- Object Decks and Sample Problem Decks available in card form.

Optional Program Material:

Machine Readable** -- Source decks and sample problems as card images on a 9-track DTR (800 or 1600 bpi).


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

**DTRs supplied by PID; no tape submittal required.

Reference Material: Application Description (H20-0520) ... IBM 1130/1800 Basic FORTRAN IV Language (C26-3715).

For further information contact your Field Systems Center.
IBM PROVIDES NEW DOS/360 FORTRAN IV COMPILER

The new DOS/360 FORTRAN IV compiler will be available January 31, 1969. The full System/360 FORTRAN IV language is supported.

Highlights

Language Beyond Basic -- The language level is the same as that of the OS/360 FORTRAN IV (G) compiler. Some of the features which it offers beyond Basic FORTRAN IV are:

- Data initialization statements
- COMPLEX and LOGICAL data types
- Logical IF statement
- END and ERR parameters to allow testing for end-of-file and error conditions on input
- Seven dimensions for arrays
- Labeled COMMON

Language Beyond USASI -- The language is fully compatible with USA Standard FORTRAN IV and includes these extensions:

- Support of direct access operations on 2311 and 2314
- Debugging language statements
- IMPLICIT statement allowing extended implicit classification by first character of a name
- NAMELIST statement permitting input/output and conversion without an explicit I/O list and FORMAT statement
- PAUSE statement option allowing output of messages
- Generalized subscripts

Features

DOS/360 FORTRAN IV has:

- The ability to combine object modules with those produced by Basic FORTRAN IV
- Compilation of approximately 250 source statements in the minimum 40K bytes of main storage
- Automatic expansion to use additional core, as available, to compile larger programs
- Batched compilation
- Phase load overlay routines for object programs
- An optional pseudo-assembly listing of compiler output
- Input/output functions equivalent to those of Basic FORTRAN IV under DOS/360
- Independent selection of LINK and DECK options

Publications


The availability of a Programmer's Guide will be announced in the Publication Release Letter.
IBM SYSTEM/360 1287 INPUT CONVERSION PROGRAM IS AVAILABLE

The IBM Input Conversion Program for System/360 is available (360A-DR-07X). It translates cut-form document information from the IBM 1287 Optical Reader into computer-processable data. It requires no programming to implement, is general in nature, and can be applied by a majority of IBM 1287 users.

The scanning, editing, and posting of data are directed by user specified control statements. Intermixed document types, recorded with a variety of fonts including handprinting, can be processed by the program. The program will verify algebraic sums and self-check digit protected fields. Optionally, character reconstruction techniques are used when applicable. This will minimize document rejections and increase effective throughput.

The IBM Input Conversion Program, in conjunction with the 1287, facilitates an economical systems solution for the expeditious and accurate data collection required by an advanced data processing system.

For the new sales manual write-up, see the reverse side. Forms used must be approved through Document Evaluation Program/Input Quality Analysis Program (see the Machines section of the sales manual, pages 1285 and 1287).
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 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 PDQ Departments or requests for source of information or for manuals, etc., should be understood to mean the appropriate 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 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.

This announcement cancels Item B in P67-22 and should be read in its entirety.

The release plan for PALIS is:

- PALIS I program and documentation is now scheduled for release from the Program Library February 28, 1969.
- Certain items in PALIS II have been withdrawn. These are listed below.
- Three items (Master Record Reconstruction, Texas Auto, and Homeowners) have been deferred from PALIS I and will be included in PALIS II which is rescheduled for delivery September 30, 1969. PALIS II then becomes an integral part of the total PALIS program.

Requests for early release of PALIS I documentation or code will require normal Regional, DPD HQ and DP Group approval. (See Memorandum to DP Branch Managers B68-99.)

Remote Inquiry and Process Other Lines Multilocation Records are withdrawn for 65K systems. The following items are withdrawn (details on back):

- Create Dummy Policy Records on 2321.
- Claims Arising Transactions via 1050 Remote Terminal.
- Process Agency Records.
- Confirm Coverage on Claim (Auto and Homeowners).

Because of pending legislative action in Massachusetts, we are unable to schedule a release date for Massachusetts Automobile Processing. Within 90 days of the date there is a final disposition on current legislative proposals, we will announce our support position on this phase of PALIS II.

All customers affected by these changes should be notified immediately.

For the new sales manual write-up, see page 3 of this announcement.
Items Withdrawn from PALIS II ... The following four items are withdrawn from PALIS II: Create Dummy Records on 2321 - Invalid transactions will not be maintained as dummy master records on the policy file. The following alternate method has been implemented and is part of Release I -- copies of the incorrect transaction, master record, and an advice on the type of error will be written out when a transaction fails the edit against the master record. Claims Arising Transactions via 1050 Remote Terminal - The entry of a claim through a remote 1050 and indication of a pending claims transaction in a master record will not be supported. Claims transactions may be entered by a batch processing. Process Agency Records - Agency header and trailer records will not be supported by PALIS. Release I of PALIS supports the file organization of policy number within company within agency number sequence and also straight policy number sequence. Confirm Coverage on Claim (Auto and Homeowners) - The automatic claims coverage confirmation will not be supported as the transaction.

Clarification ... Editing - The Edit Program provided checks validity of transactions only to insure their acceptance by the file maintenance run.

Board and Bureau Standards - The PALIS Author Team has consulted manuals of all boards and bureaus mentioned in the PALIS Application Manual. In our opinion PALIS conforms to most bureau standards and practices in effect on December 1, 1967. Changes in boards and bureaus rating rules, reporting standards, etc., after December 1, 1967, that may require program modification are the responsibility of the user.
Minimum System Requirements: System/360 Model F30 with Decima1 Arithmetic, Serial Channel 1, and 1051 Control Unit, Model 1, with CPU Attachments, Systems Console Attachment, First Punch, First Reader, and First Printer Attachments. The configuration of 2311 file requirements: (The formulae are expressed in number of tracks required). 

- Alaska, Arizona, California (1-5), Connecticut, Georgia, Maine, Maryland, Massachusetts, Montana, North Carolina, Nevada, Rhode Island, South Carolina, Utah, Vermont and Washington: 7.5 tracks + (1.5 x number of premium groups)
- Alabama, Arkansas, Arizona, California (5-10), Colorado, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Mexico, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, Wisconsin, Wyoming: 8 tracks + (1.8 x number of premium groups)
- Florida, New Jersey: 7.5 tracks + (1.7 x number of premium groups)
- Alaska: 8 tracks + (1.6 x number of premium groups)
- Hawaii, Nevada: 26.5 tracks + (1.2 x number of premium groups)
- New Hampshire: 6 tracks + (1.6 x number of premium groups)
- All other states: 5.5 tracks + (1.5 x number of premium groups)

Program Support Material: The Application Description Manual (H20-0288) is available from IBM. However, this manual is currently being revised and a future edition Release Letter will list the availability of the revised manual.

For further information contact your insurance industry marketing representative.

When inquiry via the 1050 remote terminal is available, the following items are required:

- 2701 Data Adapter Unit with Line Adapter (4436) and Terminal Adapter (4464)
- 1051 Control Unit with Line Adapter (4470), Keyboard Request (44770), and First Printer Attachment (4440B)
- 1052 Printer-Keyboard

**Two or three 2311s will be required if the user rates auto and homeowners in all fifty states. The auto rate tables are relatively small. The homeowners rate tables are much larger. 2311 file requirements are dependent on the number of states in which the customer will write automobile and homeowners. 900 tracks are available for the storage of rate tables. The following formulae will assist in the configuration of 2311 file requirements. (The formulae are expressed in number of tracks required).**

Private Passenger Automobile

Two tracks for each state rated. (Each rate change within the state will require an additional track for that state.)

Homeowners

Homeowners are rated on a premium group basis.

- Alabama, Arizona, Arkansas, California (1-5), Connecticut, Georgia, Maine, Maryland, Massachusetts, Montana, North Carolina, Nevada, Rhode Island, South Carolina, Utah, Vermont and Washington: 7.5 tracks + (1.5 x number of premium groups)
- Alaska: 8 tracks + (1.6 x number of premium groups)
- Hawaii, Tennessee, Wyoming: 26.5 tracks + (1.2 x number of premium groups)
- Florida, New Jersey: 7.5 tracks + (1.7 x number of premium groups)
- Alaska: 8 tracks + (1.6 x number of premium groups)
- Hawaii: 26.5 tracks + (1.2 x number of premium groups)
- New Hampshire: 6 tracks + (1.6 x number of premium groups)
- All other states: 26.5 tracks + (1.5 x number of premium groups)

**TSO** aids in the full understanding of the package systems design throughout the industry. The insurace-oriented documentation provides the customer with the ability to build and update user tables for automobile and homeowners rates. The configuration of 2311 file requirements: (The formulae are expressed in number of tracks required). 

- California: 5.6 tracks + (1.2 x number of premium groups)
- New Hampshire: 6 tracks + (1.6 x number of premium groups)
- Virginia: 13 tracks + (1.5 x number of premium groups)

For further information contact your insurance industry marketing representative.
IBM SYSTEM/360 MODEL 20 REQUIREMENTS PLANNING AND INVENTORY CONTROL SYSTEM

This program will be available March 31, 1969.

Description... The 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 announced in P Letter P67-119.

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

This program is designed for execution 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 attached sales manual page.

An Application Description Manual, Form H19-0007 will be available. Consult the Weekly Publications Release Letter for actual availability date.

Attachments: P9021
Release Date: June 12, 1968
Distribution: All Areas

John Fahey
Director of DP Marketing

P68-82-A
DOS/360 BTAM & QTAM TELEGRAPH SUPPORT

The Basic and Queued Telecommunications Access Methods under DOS/360 are being expanded to provide programming support for World Trade telegraph terminals. (See Product Announcement Letter 68-244).

This support will enable the IBM 2701, 2702, and 2703 to control the transfer of data between IBM System/360 and certain European 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 same programming support will operate with either the existing 2701/2702 World Trade telegraph features, or with the new 2701/2702/2703 World Trade telegraph features being announced at this time.

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 the keyboard, printer, paper tape reader and paper tape punch.

Availability

This programming support will be released on November 15, 1968.

Publications

The following publications will be updated by Technical Newsletters to reflect this new support:

- TNL N30-5023 to IBM System/360 Disk Operating System
- SRL C30-5001-4 Basic Telecommunications Access Method
- TNL N30-5025 to IBM System/360 Disk Operating System
- SRL C30-5004-1 Queued Telecommunications Access Method Message Control Program


Minimum System Configuration

Main storage: 32K bytes - BTAM
- 64K bytes - QTAM

Standard instruction set
Storage protection (QTAM)
One selector channel for system residence
One multiplexer channel for communication control units
One card reader*
One printer*
One 1052 Printer-Keyboard
One 2311 or 2314 Disk Storage Device
Communication equipment necessary to interface to the communication line


Release Date: June 12, 1968
Distribution: All Areas
SYSTEM/360 MODEL 20 DPS INCLUDES MODIFICATION AND 1259 SUPPORT

System/360 Model 20 Disk Programming System (DPS) is available with:

. An expanded program to support the 1259

and

. Modification to various current DPS programs

For details of these additional improvements, and ordering procedures, see 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 applicable, 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 present 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 packets, etc., may be included.

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 DPSO (Department of Programming Services) for records, as sources of information or for manuals, etc., should be understood to mean the comparable WT Department (or the comparable 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 EC requirements are identical for WT and IBM, availability and shipping dates will differ. NO PRODUCTION COMMITMENTS FOR PROGRAMS WITH EC LEVEL REQUIREMENTS SHOULD BE MADE TO CUSTOMERS PRIOR TO VERIFICATION WITH THE LOCAL CE MANAGER OF EC AVAILABILITY.

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Release Date: June 12, 1968
Distribution: All Areas
ADDITIONAL DEVICES SUPPORTED: The DPS MCR-10 routines optimize throughout by providing the best balance between the MCR and
A printer (1403 Model 2, 7, or NL, or 2203 Model A1). The 1419 Model MCR-10 features supported are:

- Batch numbering...
- Dash symbol transmission
- Endorse...
- Program control for pocket lights...
- Sort Mode 2...
- Column sorting.

The 1403 special features supported are:

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

The 2203 printer Model A1 special feature supported:

- 24 additional print positions

MODIFICATIONS TO DPS PROGRAMS

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

<table>
<thead>
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<th>Version</th>
<th>Modification</th>
</tr>
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<td>1 3</td>
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<tr>
<td>360W-UT-193</td>
<td>2 0</td>
</tr>
</tbody>
</table>

ENGINEERING CHANGE

For proper use of current Model 20 DPS programs, at least the following Engineering Change Levels are required:

- 2020 Central Processing Unit (microprogram)
- 12103 ECA 163
- 12448 ECA 316
- 12107 ECA 188
- 12116 ECA 273
- 2111 Disk Storage Drive Model 11 or 12
- 411283
- 2145 Magnetic Tape Unit Model 4
- 730339 ECA 026
- 730346 ECA 031
- 1419 Magnetic Character Reader
- 127244 CEM 167

ADDITIONAL PROGRAM SUPPORT MATERIAL

The availability of TNL Y33-9028 to the PLM System/360 Model 20 Disk and Tape Programming System for 1259 and 1419, Y33-9009-1, will be announced in a Publications Release Letter.
TOS/360 Release 11 is now available.

It includes significant new functions, improved object code performance in RPG, and incremental improvements to existing components.

**New Functions**

- Sequence checking of source statements will be performed and warning diagnostics produced for out-of-sequence statements.

- Programmer control of data tape positioning at OPEN, CLOSE, EOF. An additional entry on the File Description Specification permits the options of REWIND, NO REWIND, REWIND-UNLOAD.

**Object Code Performance Improvements**

- Printer speed has been improved by overlapping processing with the printer output cycles.

- Two input/output areas will be assigned to sequential files on card or tape if enough main storage is available. An additional entry on the File Description Specification identifies the relative priority of multiple files when a second area is to be assigned. An entry in the RPG control card specifies the amount of main storage available at object execution.

- Extraneous logic pertaining to the LO indicator has been removed.

The following programs have been modified and are at the version and modification level indicated:

<table>
<thead>
<tr>
<th>Program</th>
<th>Version</th>
<th>Modification Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Control</td>
<td>360M-CL-405</td>
<td>2-5</td>
</tr>
<tr>
<td>ICS</td>
<td>IO-404</td>
<td>2-5</td>
</tr>
<tr>
<td>OCR ICS</td>
<td>IO-417</td>
<td>2-3</td>
</tr>
<tr>
<td>OLTEP</td>
<td>DN-418</td>
<td>2-1</td>
</tr>
<tr>
<td>Sort/Merge</td>
<td>SM-400</td>
<td>2-3</td>
</tr>
<tr>
<td>RPG</td>
<td>RG-408</td>
<td>2-2</td>
</tr>
<tr>
<td>MPS Utilities</td>
<td>UT-411</td>
<td>2-1</td>
</tr>
<tr>
<td>FORTRAN</td>
<td>FO-409</td>
<td>2-1</td>
</tr>
<tr>
<td>COBOL</td>
<td>CB-402</td>
<td>2-3</td>
</tr>
<tr>
<td>Assembler</td>
<td>AS-465</td>
<td>2-3</td>
</tr>
<tr>
<td>Compiler I/O Modules</td>
<td>AS-412</td>
<td>2-5</td>
</tr>
</tbody>
</table>

For complete ordering procedure and program material see the reverse side.

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Release Date: June 18, 1968
Distribution: All Areas
Basic Program Material:
The following SRL publications and documentation appropriate to the components ordered are shipped by PID with each initial TOS/360 order. Machine readable material is distributed as indicated below.

SRL Publications --

System/360 Disk and Tape Operating Systems - Concepts and Facilities
   TNL N24-5358
System/360 Tape Operating System - System Generation and Maintenance
   TNL N24-5362
System/360 Tape Operating System - Performance Estimates
   TNL N24-5361
System/360 Tape Operating System - Operating Guide
   TNL N24-5360
System/360 Tape Operating System - System Control and Service Programs
   TNLs N24-5219, N24-5290, N24-5348
System/360 Tape Operating System - Supervisor and Input/Output Macros
System/360 Tape Operating System - Data Management Concepts
   TNL N28-0241
System/360 Disk and Tape Operating Systems - Assembler Specifications
   TNL N26-0582
System/360 Disk and Tape Operating Systems - Tape Sort/Merge Program Specifications
   C24-3438-3
   Note 1
System/360 Tape Operating Systems - Autotest Specifications
   TNLs N21-5054, N21-5074, N21-5080
System/360 Disk and Tape Operating Systems - Utility Program Specifications
   C24-3465-4
System/360 Disk and Tape Operating Systems - COBOL Language Specifications
   C24-3433-4
System/360 Disk and Tape Operating Systems - COBOL Programmers Guide
   C24-5025-4
System/360 Basic FORTRAN IV Language
   C28-6629-1
System/360 Disk and Tape Operating Systems - FORTRAN IV Programmers Guide
   C24-5038-2
System/360 Disk and Tape Operating Systems - Report Program Generator Specifications
   TNLs N24-5195, N21-5055, N21-5077, N21-5086, N21-5090
System/360 Disk and Tape Operating Systems - Utility Macro Specifications
   C24-5042-2
System/360 Disk and Tape Operating Systems PL/I Programmers Guide
   TNL N33-9015
   C24-9005-2
   TNL N33-9015
   C28-8202-0
System/360 Disk and Tape Operating Systems, On Line Test Executive Program Specifications and Operating Guide
   C24-5066-2
   Note 1: SRL C24-3438-1 plus TNLs N21-5021, N21-5036, N21-5042, N21-5050, N24-5064 and N24-5131, 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.
   Note 2: 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 TNL N28-0241.

Documentation -- Program Material List; Attachment I - Temporary Restrictions; Attachment II - Retention of Supporting Documentation.

Machine Readable -- TOS/360 is distributed on one 2400 foot reel of magnetic tape, either 9-track (800 bpi or 1600 bpi), or 7-track (800 bpi). Data Conversion feature required.

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

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

Each TOS/360 order includes the entire collection of machine readable program components in both Core Image and Relocatable Libraries, listed below.

The System Control component and one of the two Supervisor components are required. To order these components, specify on the IBM Program Order form IBM System/360 Operating Systems (120-1411) -- System Control and Basic I/OCS, 360M-CL-405 and Supervisor (6K), 360M-SV-413 or Supervisor (8K), 360M-SV-414, and any other components you may select from the list below. Each component for which program documentation and maintenance material is required must appear on the order form.

If a supervisor component is not specified, the 6K Supervisor will be shipped.

Supervisor (6K)
360M-SV-413 or 360M-SV-414
System Control
360M-CL-405 *
360M-CL-404 *
I/OCS
360M-CL-403 *
MPS Utility Macros
360M-CL-402 *
Utilities
360M-CL-401 *
Assembler
360M-CL-400 *
COBOL
360M-SV-413
FORTRAN IV
360M-SV-414
RPG
360M-SV-415
+ Compiler I/O Modules
360M-SV-416
Autotest
360M-SV-417 *
Optical Character Reader
360M-SV-418 *
PLA
360M-SV-419 *
OLTEP
360M-SV-420 *

* Change from previous release

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

Form numbers which have changed since previous release are underlined.

If the distribution media is not specified on the IBM Program Order, 9-track tape at 300 bpi will be charged. 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 prepunched Program Order Card and a letter announcing the availability of System Release 11 and its Maintenance Package. This card, following IBM Branch Office approval, must be used to order either the Maintenance Package or a replacement TOS/360 from PID.

The maintenance package for TOS/360 system release 11 is available on one 2400 foot reel of magnetic tape, either 9-track (800 bpi or 1600 bpi), or 7-track (800 bpi). Data Conversion feature 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 11.

IBM Tape Operating System/360
SYSTEM/360 MODEL 20
PROGRAMMING EXTENSIONS
INCLUDE SUPPORT OF SUBMODEL 5

Extension of the programming systems for the Model 20 to support Submodel 5 will be available April 15, 1969.

These extensions include support of the expanded capabilities of the newly announced Submodel 5 under new versions of the Tape and Disk Programming Systems (TPS, DPS).

The modified versions of TPS and DPS allow user-written programs to take advantage of the faster CPU speed, additional core storage, additional Disk Storage Drives and the overlap capability. The 2152 Printer Keyboard is supported under DPS RPG and Assembler/IOCS. Additionally, the existing BSCA IOCS and 1259/1419 IOCS programs will be available for use with the new CPU models on April 30, 1969.

Reference Publications... The following SRLs and TNLs to the Model 20 Systems with the new 2020 Processing Units are available from the IBM Distribution Center, Mechanicsburg.

IBM S/360 Model 25, 20 Mode Feature, A24-3524 ...
IBM S/360 Model 20 DPS TPS IOCS for the 1419/1259, C33-6001-3 ...
IBM S/360 Model 20 Extension to DPS, C33-6006 1 ...
TNL N33-9036 to IBM S/360 Model 20 DPS Utility, C26-3310-1 ...
TNL N33-9036 to IBM S/360 Model 20 DPS Sort/Merge, C26-3806-2 ...
TNL N33-9037 to IBM S/360 Model 20 DPS IOCS, C24-9001-3 ...
TNL N33-9038 to IBM S/360 Model 20 DPS/TPS RPG, C24-9001-3 ...

The remainder of this letter contains descriptions, minimum system requirements and various tables of core storage and timing estimates.

Published by DP Sales Publishing Services, WTHQ.

FOR IBM INTERNAL USE ONLY

Release Date: June 17, 1968
Distribution: All Areas
Programming Description ... With the exception of the TPS and DPS Monitor Programs, the system programs do not use the overlap capability. The Assembler, RPG and Sort/Merge programs use the 24K and 32K core storage capacities. Object programs generated by the TPS/DPS Assembler/I'OCS and RPG fully support overlap and the 24K and 32K core storage sizes. Model 20 Card Programming Support (CPS) does not use or support the 24K and 32K core sizes. The 1259/1419 I'OCS programs do not support the overlap feature.

To enable the TPS or DPS user to make optimum use of the overlap capability, a double buffering technique is available in I'OCS and RPG, whereby a second I/O area may be specified, on a per-file basis, for tape and sequential disk files. (See appropriate SRL publication for details of new macro instructions and RPG control card and specification sheet entries supporting this option.)

New CSERV and MSERV library functions will be included in the revised versions of the TPS programs. These new functions are available to Model 20 Tape System users operating under the tape resident version of TPS. The CSERV or MSERV programs require a Model 20 with at least the following features and units:

- 2020 Processing Unit with 8,192 bytes of core... a card reader... a card punch, if punching is specified... a printer, if listing is specified... a 2415 Magnetic Tape Unit, Model 1 or 4 with at least one 9-track drive. Both drives are used.

The revised version of TPS RPG allows the user to specify up to 9 matching fields (M1 - M9 in columns 61-62 of the Input Specifications). The number of input fields that can be matched will remain 3.

In addition to the support for 24K - 32K core storage and the overlap capability outlined above, DPS provides support for up to four 2311 Disk Storage Drives, Models 11 or 12. Changes to Job Control and IPL allow user programs to address four 2311s. The DPS Sort/Merge program allows input/output on up to four different drives. Additionally, the DPS Disk Utility Programs support up to four disk drives as input/output devices.

Monitor Description

Tape Programming System (TPS) - The TPS Monitor supports the 24K or 32K core storage sizes. Two new codes for 24 and 32 are used in the // CONFIG card to enter the appropriate core size into the communication region.

The scheduler and the part of the Start I/O routine which support overlap are generated as part of the Monitor by the Job Control Program at execution time. The user specifies in a // EXEC RWC statement that his program is to be executed in the overlap mode. The overlap monitor requires approximately 2400 bytes of core storage.

Disk Programming System (DPS) - The generative Monitor concept, announced as part of the 2152 Printer-Keyboard support (See P68-1 and SRL C33-6005), is extended to support the new features available with the 2020 Processing Unit, Model 5. Three Monitor generation macros and a set of 16 inner macros are included in the DPS macro library. By means of these macros, the user can generate a Monitor "tailored" to his requirements, and the features and devices comprising his Model 20 System.

Page 3 contains the table of core estimates for various monitor routines and areas to calculate approximate monitor sizes.

System Design Considerations ... Due to increased core storage requirements for the overlap monitors, and additional I/O areas to support the overlap capability, the system design for 8K Tape Systems, 12K Disk Systems and 16K Tape/Disk Systems should be examined closely. Careful attention should be given to block lengths, the number of files to be supported and in disk or tape/disk systems, the type of file organization and method of file processing to be used.

The monitor core estimates given on page 3 plus the information in SRL publications IBM System/360 Model 20, Tape Programming System Performance Estimates: (C24-9010) and IBM System/360 Model 20, Disk Programming System, Performance Estimates (C33-6003) may be used to estimate core storage requirements.

Performance Estimates ... See pages 3 and 4 for the tables that show examples of core storage estimates and timing estimates relating to TPS and DPS program usage on the Submodel 5.

Minimum System Requirements ... The minimum system requirements are the same as for the existing Model 20 programs, except for those programs designed to operate on a CPU with 4,096 bytes of core storage. Since a 2020 CPU Model 5 with 4,096 bytes of core storage is not available, these programs will run on a system with 8,192 bytes of core storage.
TPS RPG CORE STORAGE REQUIREMENTS (IN BYTES)

<table>
<thead>
<tr>
<th>File Type</th>
<th>BASIC</th>
<th>ADDITED</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Files with 1 I/O area</td>
<td>160</td>
<td>20</td>
<td>180</td>
</tr>
<tr>
<td>Input Files with 1 or 2 I/O areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input Files using 1 I/O area</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Input Files using 2 I/O areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output Files with 1 I/O area</td>
<td>270</td>
<td>66</td>
<td>336</td>
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<tr>
<td>Output Files with 1 or 2 I/O areas</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Output Files using 1 I/O area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output Files using 2 I/O areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Update Files with 1 I/O area</td>
<td>220</td>
<td>60</td>
<td>280</td>
</tr>
<tr>
<td>Update Files with 2 I/O areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Update Files for each file</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For Input and Output Files:
* Basic = 70 bytes Control = YES; 8 Bytes.
* Macros added. e.g., RECSIZE < 256, RECSIZE > 256, and so on.

TPS RPG CORE STORAGE REQUIREMENTS (IN BYTES)

<table>
<thead>
<tr>
<th>File Type</th>
<th>BASIC</th>
<th>ADDED</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Files with 1 I/O area</td>
<td>160</td>
<td>20</td>
<td>180</td>
</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Input Files using 1 I/O area</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Input Files using 2 I/O areas</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Output Files with 1 I/O area</td>
<td>270</td>
<td>66</td>
<td>336</td>
</tr>
<tr>
<td>Output Files with 1 or 2 I/O areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output Files using 2 I/O areas</td>
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<td></td>
</tr>
<tr>
<td>Update Files with 1 I/O area</td>
<td>220</td>
<td>60</td>
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</tr>
<tr>
<td>Update Files with 2 I/O areas</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Update Files for each file</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For Input and Output Files:
* Basic = 70 bytes Control = YES; 8 Bytes.
* Macros added. e.g., RECSIZE < 256, RECSIZE > 256, and so on.

TPS RPG CORE STORAGE REQUIREMENTS (IN BYTES)

<table>
<thead>
<tr>
<th>File Type</th>
<th>BASIC</th>
<th>ADDED</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Files with 1 I/O area</td>
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</tr>
<tr>
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<tr>
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<td>336</td>
</tr>
<tr>
<td>Output Files with 1 or 2 I/O areas</td>
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<tr>
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<tr>
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</tr>
<tr>
<td>Update Files with 1 I/O area</td>
<td>220</td>
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<td>280</td>
</tr>
<tr>
<td>Update Files with 2 I/O areas</td>
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</tr>
<tr>
<td>Update Files for each file</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For Input and Output Files:
* Basic = 70 bytes Control = YES; 8 Bytes.
* Macros added. e.g., RECSIZE < 256, RECSIZE > 256, and so on.
### TPS IOCS Core Storage Requirements (in bytes)

#### INPUT FILES

**DTFMT**
- **BASIC**: 1 2
- **I/O**: I/O

**WLR**
- **ERR**
  - **NAME**: **WLRERR=NAME**
  - **ERROPT**: **ERR0PT=** NAME **SKIP IGN**

**ORE**
- **NAME**: **WLRERR**
- **ERR0PT**: **NAME SKIP**

**-b**
- **IGNORE**

---

**Work Area (WORKA)**

**RECSIZE**: 256

**Finally, the core-storage requirements for remaining IOCS disk routines**

- **Addition in DTFDA to support 4 disks on line**: 50 bytes
- **Addition in ISFMS for Retrieve-, Add-or Add retrieve-files**: 30 bytes
- **Addition in DTFEN to support 4 disks on line for DTFDA**: 30 bytes

---

### DPS Core-Storage Requirements for Sequential Disk Files (or DTFSD) (in bytes)

<table>
<thead>
<tr>
<th>Type of File</th>
<th>Single File Routine</th>
<th>COMBOUT YES</th>
<th>DTFblk</th>
<th>FIXUNB WORKA</th>
<th>FIXBLK WORKA</th>
<th>FIXBLK WORKA</th>
<th>Max.</th>
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</thead>
<tbody>
<tr>
<td>INPUT, 1 I/O area</td>
<td>FIXUNB</td>
<td>170</td>
<td>50</td>
<td>170</td>
<td>150</td>
<td>200</td>
<td>230</td>
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<tr>
<td></td>
<td>FIXUNB, WORKA</td>
<td>210</td>
<td>140</td>
<td>250</td>
<td>230</td>
<td>300</td>
<td>320</td>
</tr>
<tr>
<td></td>
<td>FIXBLK</td>
<td>230</td>
<td>130</td>
<td>300</td>
<td>280</td>
<td>300</td>
<td>320</td>
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<tr>
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<td>FIXBLK, WORKA</td>
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<td>300</td>
<td>400</td>
<td></td>
</tr>
<tr>
<td>INPUT, 2 I/O area</td>
<td>FIXUNB</td>
<td>230</td>
<td>150</td>
<td>250</td>
<td>230</td>
<td>300</td>
<td>320</td>
</tr>
<tr>
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<td>FIXUNB, WORKA</td>
<td>270</td>
<td>140</td>
<td>300</td>
<td>280</td>
<td>300</td>
<td>320</td>
</tr>
<tr>
<td></td>
<td>FIXUNB, WORKA</td>
<td>270</td>
<td>140</td>
<td>300</td>
<td>280</td>
<td>300</td>
<td>320</td>
</tr>
<tr>
<td></td>
<td>FIXUNB, WORKA</td>
<td>270</td>
<td>140</td>
<td>300</td>
<td>280</td>
<td>300</td>
<td>320</td>
</tr>
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<td>360</td>
<td>300</td>
<td>400</td>
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<tr>
<td></td>
<td>FIXBLK, WORKA</td>
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<td>360</td>
<td>300</td>
<td>400</td>
<td></td>
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<tr>
<td>UPDATE, 1 I/O area</td>
<td>FIXUNB</td>
<td>320</td>
<td>220</td>
<td>290</td>
<td>300</td>
<td>360</td>
<td>390</td>
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<tr>
<td></td>
<td>FIXUNB, WORKA</td>
<td>350</td>
<td>210</td>
<td>360</td>
<td>390</td>
<td>400</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FIXBLK</td>
<td>350</td>
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<td>360</td>
<td>390</td>
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</tr>
<tr>
<td></td>
<td>FIXBLK, WORKA</td>
<td>350</td>
<td>210</td>
<td>360</td>
<td>390</td>
<td>400</td>
<td></td>
</tr>
<tr>
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<td>220</td>
<td>430</td>
<td>440</td>
<td>500</td>
<td>520</td>
</tr>
<tr>
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<td>FIXUNB, WORKA</td>
<td>450</td>
<td>210</td>
<td>460</td>
<td>470</td>
<td>500</td>
<td>520</td>
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<td>460</td>
<td>470</td>
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<td>520</td>
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<tr>
<td></td>
<td>FIXBLK, WORKA</td>
<td>450</td>
<td>210</td>
<td>460</td>
<td>470</td>
<td>500</td>
<td>520</td>
</tr>
<tr>
<td>OUTPUT, 1 I/O area</td>
<td>FIXUNB</td>
<td>190</td>
<td>150</td>
<td>190</td>
<td>180</td>
<td>210</td>
<td>240</td>
</tr>
<tr>
<td></td>
<td>FIXUNB, WORKA</td>
<td>210</td>
<td>150</td>
<td>200</td>
<td>230</td>
<td>260</td>
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</tr>
<tr>
<td></td>
<td>FIXBLK</td>
<td>230</td>
<td>150</td>
<td>210</td>
<td>240</td>
<td>270</td>
<td>300</td>
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<tr>
<td></td>
<td>FIXBLK, WORKA</td>
<td>280</td>
<td>150</td>
<td>230</td>
<td>260</td>
<td>290</td>
<td>320</td>
</tr>
<tr>
<td>OUTPUT, 2 I/O area</td>
<td>FIXUNB</td>
<td>250</td>
<td>150</td>
<td>270</td>
<td>260</td>
<td>290</td>
<td>310</td>
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<tr>
<td></td>
<td>FIXUNB, WORKA</td>
<td>270</td>
<td>150</td>
<td>290</td>
<td>310</td>
<td>340</td>
<td>360</td>
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<tr>
<td></td>
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<td>290</td>
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<td>330</td>
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<td>390</td>
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<tr>
<td></td>
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<td>310</td>
<td>150</td>
<td>330</td>
<td>350</td>
<td>380</td>
<td>410</td>
</tr>
</tbody>
</table>

For options: add
- **CONTROL**: 60
- **Verification**: 6

1) 120 bytes if input files and output files. 90 bytes if either input files or output files. 70 bytes if update file.

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Page 4 of 4
SYSTEM/360 AUTOMATED CHEMISTRY IS AVAILABLE

System/360 Automated Chemistry Program (CARE-360 ACP), 360A-UH-12X, is now available. This program supports the 1080 Data Acquisition System in the Clinical Laboratory.

System/360 ACP processes the punched card output of the 1080 ... establishes the calibration function from control standards ... checks quality of control standards used ... computes the test result ... adjusts the result for instrument drift and specimen interaction ... compares the result with the mean and standard deviation for all results for that test ... associates each result with the proper specimen identification number.

System/360 ACP prepares a quality control report which includes test result calibration control information, dilution factor (if any), abnormal indication for 1 or 2 standard deviations, and specimen number.

System/360 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.

See the attached sales manual page (P 360A.43) for details.

John Fahey
Director of DP Marketing

FOR IBM INTERNAL USE ONLY

Attachments [9]: P 360A.13, P 360A.15, P 360A.21, P 360A.41, P 360A.43, P 360A.45, P 360N.1, P 1130.15, and P 1130.17
Release Date: June 20, 1968
Distribution: All Areas

P68-86
The Queued Telecommunication Access Method (QTAM) under DOS/360 requires the Interval Timer to support 2740 Communication Terminal Model 2 with the Buffer Receive feature (1499). This requirement applies to the additional support for DOS/360 QTAM announced in P67-127.

Availability for the support is August 15, 1968.

Customers affected by this announcement should be notified.

Minimum System Configuration DOS/360 QTAM ...
Main storage -- 64K bytes** ... Standard Instruction Set ... Storage Protection ... Interval Timer ... One selector channel for system residence ... One multiplexer channel for communication control units ... One card reader* ... One printer* ... One 1052 Printer-Keyboard ... One 2311 or 2314 Disk Storage Device ... Communication equipment necessary to interface to the communication line.

- See Page P 360N,8, “Minimum System Requirements,” for acceptable units and possible substitutions.

** Present releases of DOS/QTAM can allow proposal of minimal, dedicated, or message switching configurations within the 48K limitation of the Model 25. Additional functional improvements to QTAM, in subsequent releases, may increase core requirements beyond 48K. Therefore, a growth plan to a Model 30 or a Model 40 should be included in these proposals.

Publication... System/360 Disk Operating System - Queued Telecommunications Access Method - Message Control Program, C30-5004-2 will be updated. Availability of the TNL will be announced in a future Publication Release Letter.

John Fahey
Director of DP Marketing
TIME-SHARED REMOTE SYSTEM (RAX) 
TO BE AVAILABLE FOR MODEL 44 CUSTOMERS

Remote Access Computing System (RAX), to be available September 27, 1968, is a time-shared, remote computing system for the IBM System/360 Model 44. RAX users can submit Model 44 Programming System (44 PS) FORTRAN 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.

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.

This system will provide its users the capabilities of a United States of America Standards Institute (USASI) full FORTRAN language as well as an assembly language capability. The languages available to the terminal user will be subsets of the language available under the 44 PS.

The modularity and compatibility capabilities of the System/360 Models 30, 40, and 50 RAX Program (360A-CX-17X) are continued with the System/360 Model 44 RAX system.

This means, for the 44 RAX user:

. 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.

Sales manual writeup is attached to P68-86.

In addition to normal maintenance, the modification includes:

. Accommodation of the DOS/360 Release 16 change requiring CATALR cards to be read from SYSIPT instead of SYSRDR. (Note: The pseudo device independence functions removed in DOS Release 14 have been reinstated in DOS Release 17, once again allowing tape to be used as intermediate storage in the BMP SYSGEN procedure.)
. 2314 support for user data files. This support is operational only under DOS/360.

Special Sales Information

. For simplification of documentation and distribution procedures, the BMP system (General Source File, etc.) is to be resident on 2314 in 2311 mode. The GSF utility programs (Customizer, etc.) will operate only against 2311-mode files. The 2311-mode disk pack need be on line only during BMP-SYSGEN procedures.
. Object program modules resulting from BMP SYSGEN procedures are cataloged in DOS libraries, which may be in native-mode residence.
. Customer data files are maintained in native mode. This point, together with the point above, provide for the 2314 customer day-to-day operations in native mode.
. 2311 to 2314 reorganization of user data files is a standard feature of the revised program.
. If the user has application programs which reference Bill of Material Processor files, he is not required to modify or reassemble as a result of BMP revisions for 2314 support. He may, however, be required to modify and/or reassemble for the following reasons:
  a. device-type dependencies in his own code.
  b. changes he desires to implement at conversion time.
  c. incorporation of correction to existing errors in IBM-supplied BMP-macros.
. The FILEORG, REORG, and I/O modules of the Bill of Material Processor require cus-
tomizing and assembly for conversion to 2314. This preparatory work may be accomplished with 2311's prior to 2314 delivery. MAINLINE modules will function properly in their present form.

Registered program users will automatically receive a package of program changes, rather than a completely new program. The facility to incorporate the changes is a standard part of the BMP package. The user converting from 2311 to 2314 may transfer the contents of his present BMP residence pack from 2311 to 2314 in 2311-mode using the standard DOS Disk-Copy utility included in 360N-UT-461. The BMP modification package may be processed either before or afterward.

Other than to incorporate program error corrections, the customer continuing on 2311 need not regenerate his BMP program modules except under one condition. When the user desires to change options of one module, companion modules may require regeneration for compatibility of internal code. This condition is fully described in the recipients letter that accompanies the modification.

At a minimum, DOS release 17 is required for use with this modification. BOS users must be at release 11 or above.

New orders for initial distribution will include all revisions of Modification Level 3. The distribution media may be 7-track or 9-track magnetic tape or 1316 disk pack. Distribution will not be made on 2316 disk pack.

A memo to users, application directory, TNLs N20-1870 and N20-1865, and patch cards or DTR as originally requested in your initial order will be forwarded to current users.

For details, see sales manual page (P 360A.43) attached to P68-86.

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 doubts 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.
MODIFICATION TO CNDP/360
HAS FOUR MAJOR IMPROVEMENTS

Modification Level 2 to Version 1 of the Communication Network Design Program/360 (360A-SE-28R) is available. It includes four major improvements:

1. Multiple Centers ... With the addition of the multiple center feature, the network configuration capability of CNDP/360 has been extended. This feature allows the user to identify more than one location as a possible center into which the remote points may be multipointed. With this new capability, CNDP/360 has become a more versatile tool, especially where remote multiplexing, wide band and microwave are involved.

2. Response Time Analysis Models ... The formulas used to evaluate line loading based on a response time criterion have been revised. In the case of half-duplex, a new method has been incorporated which will better reflect the impact on line loading due to additional terminals on the line. For the full-duplex, the routine has been upgraded to handle data that it was unable to evaluate.

3. City Data Card Processing ... The routine for processing city data cards has been improved so that scanning of a card does not stop with the first error encountered.

4. Error Message Statements ... A more complete error detection procedure has been incorporated. To facilitate the correction of input data card errors, a new error message format has been implemented. Complete error statements with implied corrective actions will be printed.

Current Users ... The following material, which is necessary for using the new features incorporated into Modification Level 2 of Version 1, is being forwarded to all current users.

- Memorandum to Users.
- Revised Application Directory.
- Revised Program Description and Operations Manual (Y20-0207).
- One 9-track (800 or 1600 bpi) or one 7-track DTR (800 cpi - Data Conversion feature required), containing a complete program replacement.

Because of these improvements, minimum system requirements have been raised from a 2030 Model E to a 2030 Model F.

Change in Classification of Manuals ... The classification of the Application Description Manual and the Program Description and Operations Manual was formerly IBM Confidential. With this modification level, the manual numbers have been changed from Z20-1811 to Y20-0206 and Z20-0833 to Y20-0207. With local Branch Management approval, these manuals may be made available to customers on a restricted distribution basis.

A new sales manual writeup is attached to P68-86.
SYSTEM/360 POWER SYSTEM PLANNING (PSP) PROVIDES A NEW TYPE II PROGRAM FOR THE ELECTRIC UTILITY INDUSTRY

The System/360 Power System Planning Program will be available September 15, 1969. It provides the electric utility planning engineer with a means of obtaining an accurate and rapid solution to electric network problems. PSP allows the engineer to study the steady state and transient operational characteristics of present and projected power networks, including interconnections. The use of direct access on-line storage of data considerably reduces the time needed for gathering and validating input data for each simulation run. Simulation program results can be stored on-line for easy retrieval and reuse.

COMPONENTS OF PSP:

. POWER FLOW - Using the most modern accepted techniques (e.g., Newton-Raphson, sparse matrix manipulation), simulates the steady state operating conditions of the actual or proposed power system.

. SHORT CIRCUIT - Using the Z matrix approach, simulates the performance of a specified portion of the total system under various abnormal short circuit conditions.

. TRANSIENT STABILITY - Simulates the operation of specified generating facilities during periods of possible unstable operation.

. ENGINEERING DATA MANAGEMENT SERVICE - Provides data validation, cataloging, storage and retrieval services to assist the engineer in organizing and maintaining the data required by the PSP simulation programs.

HIGHLIGHTS:

. Eliminates the need for the manual preparation of data for each simulation.

. Automatically checks and validates electric network data.

. Prepares the desired network, runs the simulation and produces results in one continuous run.

. Has the capacity to simulate an electric network of up to 1000 buses.

. Written in PL/I under Operating System/360.

. Offers various output options to match user’s needs.

PROGRAM SUPPORT MATERIAL:

Application Description Manual (H20-0532).

Details are on sales manual page P 360A.46 attached to P68-86.
NEW VERSION OF I/O MACRO DEFINITIONS FOR MODEL 20 INCLUDES 1259

Version 3 of Model 20 TPS I/O Macro Definitions expands the 1419 I/O routines to include support for the 1259. It is now available as Model 20 TPS Input/Output Macro Definitions for the 1419 and 1259 Magnetic Character Readers under 360U-IO-152. Current users will receive the new version automatically.

The program (which is integrated in the Input/Output and Basic Monitor Macro Definitions Program, 360U-IO-151) consists of four macros DSENG, DTFPA, DTFPC and DTFPD.

These macros operate in conjunction with the I/O and Basic Monitor Macro Definitions, which must be at Version 2, Modification Level 2.

The TPS Assembler will generate routines for the IBM 1419 and 1259 as well as for card and tape devices when encountering macro instructions in the user’s source program.

Basic Program Material ... Current users will receive the following:

Documentation -- Memo to Users.

SRL Publications --

- TNL N33-8535 to Disk and Tape Programming Systems Tape Sort/Merge Program, C26-3804-2
- TNL N33-8536 to Disk and Tape Programming Systems Tape Utility Programs, C26-3808-2
- TNL N33-9038 to Disk and Tape Programming Systems Report Program Generator, C24-9001-3
- TNL N33-9039 to Disk and Tape Programming Systems Assembler Language, C24-9002-3
- Tape Programming System Control and Service Programs, C24-9000-3
- Tape Programming System Input/Output Control System, C24-9003-3
- Disk and Tape Programming Systems Input/Output Control System for the IBM 1419 and 1259 Magnetic Character Readers, C33-6001-3
- Machine Readable Material -- The updated version on a 9-track DTR (800 or 1600 bpi) or a 7-track DTR (800 cpi Data Conversion feature required), according to their original order.

New users will receive this version incorporated in the Model 20 Tape Programming System distributed from PID.

Released Date: June 27, 1968

FOR IBM INTERNAL USE ONLY
TELEPROCESSING ANALYSIS AND DESIGN
PROGRAM/360 (TPAD) IS AVAILABLE ON AN IBM CONFIDENTIAL BASIS

Teleprocessing Analysis and Design (TPAD) is a Type II program that is available on an IBM Confidential basis (360A-SE-27R). TPAD provides the account team with an easy and quick method of designing and analyzing a Teleprocessing system. The program is a general purpose design tool with specific support for:

- System/360 hardware - including disks, data cell, tapes, terminals, channels, communication control units, and CPUs.
- OS/360 MFT logic and timings for Models 30, 40, and 50 - including the supervisor with multiprogramming, data management, and telecommunication access methods (QTAM BTAM).

The account team may use TPAD to get the customer involved early in the design phase. The input required by this program can be expressed in simple or detailed terms depending on what information is currently available. The output is in terms of averages and will provide key statistics needed to determine if a configuration is feasible and identify the critical design areas.

Special Sales Information ... In no case may the program be given to a customer. However, its output and input may be shown and discussed with him.

The logic and timings included in TPAD reflect MFT-I. However, because of the similarities in program execution parameters, it is reasonable to use this data to plan for MFT-II system design and installation.

The program is not to be modified by the IBM user due to the sensitivity of the algorithms used.

Special Ordering Information ... To order TPAD, the user must submit a Program Order Card and a Letter of Authorization from the Field System Center Manager to PID. The letter from the Field System Center must state that there is a need for the IBM Confidential program and that the Branch Systems Engineers know how to use the program. (One Program Order Card must be submitted with each request.)

Send a copy of the Letter of Authorization to the Manager of Department H04, Building 850, DPD Technical Center, P.O. Box 390, Poughkeepsie, New York.

A new sales manual write-up is attached to P68-94.

John Fahey
Director of DP Marketing

Note to World Trade Readers

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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.

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

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Release Date: June 28, 1968
Distribution: All Areas
TYPE II PROGRAMS NOW AVAILABLE IN DISTRIBUTION, PUBLISHING INDUSTRIES

This letter announces the availability of two Type II programs. They are:

- Retail IMPACT Fashion System under DOS/360 (360A-DR-08X)
- Text Processor - HYPHENATION/360 (360A-DP-07X)

RETAIL IMPACT FASHION SYSTEM UNDER DOS/360

The Retail IMPACT Fashion System provides for effective highlighting of items requiring action to maximize the profit potential in fashion departments.

The Fashion System uses probability analysis to help the buyer respond quickly to styles performing significantly above or below other competing styles, based on profitability. Automatic Recommendations are made for reorder, return, markdown, and transfer based on sophisticated statistical techniques which accurately analyze the potential of a style early in its life. The basic yardsticks used for making recommendations are dynamic class (or group) standards that respond to seasonal and style-mix changes and are based on profitability (the interaction of turnover and markup).

The maintenance of complete records at the style level eliminates tedious and sometimes inaccurate updating of manual records. Appropriate documentation and interfaces are provided for the user who wishes to maintain size and color detail. Status Inquiry at buyer request (vendor status, etc.) is available; also various merchandise management reports can be created from the style master records (aging, stock status, etc.). This combination of exception reporting and automatic maintenance of style records reduces the amount of clerical effort on the part of the buyer and his staff and enables them to achieve optimum results by concentrating on the creative aspects of fashion merchandising.

Availability of the various Retail IMPACT Systems (as announced in P67-149) is listed on page 2 of this announcement.

TEXT PROCESSOR - HYPHENATION/360

The HYPHENATION/360 module of the System/360 Text Processor consists of control and functional routines that provide for division of words in text-processing applications. This permits the addition of word syllables to meet justification requirements rather than forcing the line to end with the complete word. It can be implemented under control of DOS/360, and linked with a user's System/360 text composition program to form the basis for a comprehensive text processing system.

Newspapers, book publishers, technical manual publishers, and in-house publishers involved in the transcription of textual information are potential users of this program.

Additional details are in the new sales manual write-up attached to P68-94.

FOR IBM INTERNAL USE ONLY
Retail IMPACT System: Retail IMPACT is a total inventory management system designed specifically for the Retail Industry. Two independent systems are provided: one applies to staple merchandise and the other, to fashion. These two systems enable retail management to increase the opportunity for sales by increasing the availability of merchandise and at the same time to maintain a balanced inventory for merchandising, costing, and ordering. They also provide for automatic highlighting of items requiring action to maximize the profit potential in a department.

Availability of the Retail IMPACT Systems:

- **OS/360 Version: Retail IMPACT Fashion System (1504-DR-04X)**
- **OS/360 Version: Retail IMPACT Staple System (Costing, Forecasting, & Simulation Subsystems)**
  - **January 1, 1969**

**DOS/360 Version:**
- **Retail IMPACT Fashion System (1504-DR-08X)**
- **Retail IMPACT Staple System**
  - **Version 1 - Control Subsystem (TESTKEY)**
  - **Version 2 - Control Subsystem (TESTPEA Forecasting (35K) and Simulation (153K) Subsystems)**
  - **January 15, 1969**
  - **April 30, 1969**

Staple System:
Description — This system uses an advanced forecasting subsystem which employs adaptive forecasting, probability and statistical science with appropriate decision rules to forecast demand, determine order points, and order up to levels. An advanced control subsystem is provided tailored to the needs of the retail industry which creates purchase orders, controls merchandise on order, and monitors the performance of the system in terms of inventory and level of service.

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

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

Appropriate documentation and interfaces are provided so that the Retail IMPACT Staple System can be used in conjunction with the user's own stock counting procedures. Certain types of output, such as daily service measurement, cannot be provided if stock counting is employed.

Features — Automatic recommendations for re-order, return, markdowns and transfers based on sophistication statistical techniques which accurately analyze the potential of a style's early in its life, the basic yardsticks used for making recommendations are dynamic class (or group) standards, based on profitability which reflects the interaction of turnover and mark-up to respond to the over- and seasonal changes in demand, automatic maintenance of policy files with classical and statistical methods, customer order status inquiry at buyer request (vendor status, etc.) ... various merchandising management reports can be created from the style master records (aging, stock status, etc.)

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

Additionally the user may wish to employ the Forecasting Subsystem to aid in developing seasonal forecasts as inputs to the planning process at the department and class level. Appropriate documentation and interfaces to the Forecasting Subsystem are provided.

Customer Responsibilities:

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

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

   Additional merchandise management reports — the user may wish to produce merchandise management reports beyond the basic reports provided by the Staple and Fashion Systems. The use of report generation techniques makes the production of many additional reports feasible.

   **Any modification to the standard Retail IMPACT programs — as an example, any transaction unique to a particular user — would require a user-written modification.** Users of the Fashion System who desire complete Black Book replacement or maintenance of summary records, users of the Staple System who desire stock count inputs, and users who wish to employ the Forecasting Subsystem to aid in developing planning forecasts will need to write required I/O and file maintenance programs. Appropriate flowcharts and interfaces to the Staple Control Subsystem, the Forecasting Subsystem and the Fashion System are provided.

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

   The description of their qualifications and duties is detailed in the Application Description Manual (E20-018B).

3. **Education** — Knowledge of the Retail IMPACT System, its implementation requirements, and its operation is achieved by user personnel through attendance in the following schools — 2 1/2-day Executive Retail IMPACT System ... 5-day Retail IMPACT System Implementation - Fashion ... 10-day Retail IMPACT System Implementation - Staple.

4. **Evaluation** — A very important responsibility of the customer is to establish a base for comparison of Retail IMPACT System results with those of the system replaced. Sales, inventory, and level of service represent minimum parameters for comparison. Further information regarding the need to evaluate and techniques for evaluation is detailed in the Application Description Manual (E20-018B).

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

- Minimum System/360 Configuration for Fashion under OS/360 or OS/360, PL/I and Staple Control Subsystem under OS/360, PL/I. System/360 Model 530 (65K) with Decimal Arithmetic (8237), Floating Point Arithmetic (#4427), 1051 Attachment (79715)... 3130 CPU Attachment (69310) ... 1052 Printer-Keyboard Model 8 ... 1442 Card Read Punch Model N1 ... 1443 Printer Model N1 with Selective Character Set (#6402) and the 63 Character Set Type Bar (#6408) ... 24 Additional Print Positions (#5550) ... 2843 Storage Control ... 2311 Disk Units (4 required) ... 2415 Tape Unit Model 1. *m

- Minimum System/360 Configuration for Staple under OS/360, PL/I and Staple Forecasting and Simulation Subsystems under OS/360, PL/I. System/360 Model G40 (133K) with Decimal Arithmetic (95237), Floating Point Arithmetic (1052 Attachment, 1052 Adupted #920) ... 1052 Disk Control Model 7 ... 1442 Card Read Punch Model N1 ... 1443 Printer Model N1 with Selective Character Set (#6402) and the 63 Character Set Type Bar (#6408) ... 24 Additional Print Positions (#5550) ... 2843 Storage Control ... 2311 Disk Units (4 required) ... 2415 Tape Unit Model 1.

*Users operating a 1403 printer will require a Q26 or PN2 print train.

*Users operating the Fashion System who do not intend to implement "Black Book" replacement, summary files, or the Staple System will require one less disk or tape.
Basic Program Material for Retail Impact Fashion System/OS (360A-DR-00X):
Publications* — Application Directory...Program Description Manual H20-0480
...Operations Manual H20-0481.
Machine Readable** — Source programs with narrative and sample problem decks
are available on one 9-track DTR (800 or 1600 bpi) or on one 7-track DTR
(800 cpi — Data Conversion Feature required).
Optional Program Material for 360A-DR-04X:
Machine Readable** — Flowcharts in print line images are available on one 9-
track DTR (800 or 1600 bpi) or one 7-track DTR (800 cpi — Data Conver-
sion Feature required).
Basic Program Material for Retail Impact Fashion System/DOS (360A-DR-08X);
Publications* — Application Directory...Program Description Manual H20-0540
...Operations Manual H20-0541.
Machine Readable** — Source programs with narrative and sample problem decks
are available on one 9-track DTR (800 or 1600 bpi) or on one 7-track DTR
(800 cpi — Data Conversion Feature required).
Optional Program Material for 360A-DR-08X:
Machine Readable** — Flowcharts in print line images are available on one 9-
track DTR (800 or 1600 bpi) or one 7-track DTR (800 cpi — Data Conver-
sion Feature required).
Ordering Procedure: See*the DP Sales Activity section of the Branch Office Manual.
*If only the publications, or if additional copies of the publications are required,
order from the IBM Distribution Center, Mechanicsburg — not from PID.
**DTRs will be supplied by PID; no tape submittal is required. If the track den-
sity requirements are not specified on the back of the Program Order Card, 9-
track at 800 bpi will be supplied.
For further information contact your Industry Marketing — Distribution Representative.
DP SALES MANUAL -- PROGRAMMING SECTION CHECK LIST

STATUS AS OF P68-94

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Cancels:
P68-57

Attachments [25]:

Release Date: July 1, 1968

Distribution: All Areas

P68-94
PHASE 1 OF SHAS (TYPE II) INCLUDES MONITOR AND ACCOUNTS RECEIVABLE PROGRAMS

You can now order Phase 1 of the Shared Hospital Accounting System (SHAS); shipments will begin the week ending July 12. The order number is 360A-UH-11X.

SHAS provides hospital accounting for the multiple hospital environment. 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 pro rata which makes easy the preparation of the Medicare Inpatient and Outpatient billing or administrative user written programs. SHAS programs provide better administrative and operational control and reduce the ever increasing clerical load associated with hospital administration.

The SHAS applications operate in two modes. They are:

- On-line entry of data and receipt of reports by means of Teleprocessing terminals.
- Off-line data entry and reporting at the central data processing location.

The SHAS programs provide the on-line facility for applications when 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.

This announcement is for availability of the accounts receivable application in a non-teleprocessing environment. Availability of other phases is:

- Phase 2 - September 16, 1968
  - Foreground Monitor System (SHAS Teleprocessing)
  - Accounts Receivable Inquiry

- Phase 3 - October 30, 1968
  - Patient Billing System
  - Billing Inquiry
  - General Ledger System
  - Cost Allocation Programs
  - Job Accounting Programs

Write or call your Regional Medical Industry Representative if you want preliminary copies of the System Manual, as the manual will not be available from Mechanicsburg until July 31.

See the reverse side for the new sales manual write-up.
Shared Hospital Accounting System (SHAS): SHAS provides hospital accounting for the multiple hospitals. The member hospitals are tied 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 calculation, SHAS determines Medicare insurance-prorating facilitating the preparation of the Medicare Inpatient and Outpatient billing forms. The design of SHAS facilitates the addition of clinical or administrative user-written programs. SHAS programs are designed to provide better administrative and operational control and reduce the ever-increasing clerical load associated with hospital administration.

Description: The SHAS programs and the System/360 using remote terminals encompass the applications 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, receive 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 operations. 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 identification to limit access of data. Each hospital is permitted to inquire into or modify its data only.

- **Executive**
  - Manage 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 receivables which have passed the due date — listing of accounts which fail to meet installment payments — consolidated statement for family billing — bad debt reports.

- **General Ledger**

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 intended to be installed with both inpatients and outpatients by 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, and a very logical entry and exit 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. 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.
1800 MPX, REAL-TIME MULTIPROGRAMMING OPERATING SYSTEM, IS NOW AVAILABLE

The 1800 Multiprogramming Executive System (MPX), 1800-OS-010, is now available. MPX is a real-time multiprogramming operating system capable of increasing the efficiency and throughput of the IBM 1800 Data Acquisition and Control System computer.

It is designed to asynchronously time-share several independent processes with concurrent background batch processing functions. The increased throughput provided by MPX is accomplished through sophisticated input/output handling techniques making the central processing unit available during all I/O operations. The capability exists for the MPX system to be configured into a maximum of 26 unique multiprogramming areas.

Features ... To increase throughput, the MPX enables programs, core storage space, input-output facilities and control of the processor-controller to be allocated and concurrently shared among several process functions. These facilities permit multiprogramming, that is, they permit several process functions to be performed concurrently and to share the basic resources of the computing system.

The MPX operating system helps to ensure that more of the total system is kept busy performing productive work more of the time. This is accomplished by efficiently allocating the available resources of the system to more than one function, and switching control from one function to another as a delay is encountered while awaiting an event, such as the completion of an input-output operation, or the end of a timing interval.

Among the services provided by MPX to allow concurrent operation are:

- Loading programs and routines into main storage
- Scheduling the use of programs and routines in main storage
- Switching control of the processor-controller from one function to another, based on I/O and timer operation
- Controlling the execution of the various functions in accordance with a user defined hierarchy of priority

Advantages
- High throughput
- Fast response
- Efficient use of processor-controller time
- Ease in time-scheduling program execution
- Ability to modify in-core user written routines on-line
- Ability to modify IBM processors on-line
- Ability for the IBM Field Engineer to run on-line diagnostics for the 1442, 1443, 2310, 1053, and analog input (Direct Program Control)
- Time-sharing of foreground and background (batch processing monitor) operations

For complete details see the sales manual text printed on the inside pages.

Published by DP Sales Publishing Services, WTHQ

Release Date: June 28, 1968
Distribution: All Areas
Multiprogramming Executive System (MPX): MPX is a real-time multiprogramming operating system capable of maximizing the efficiency and throughput of the IBM 1800 Data Acquisition and Control System computer. It is designed to asymptotically time-share several independent processes with concurrent background batch processing functions. (1800-05-010)

Among the services provided by MPX to allow concurrent operation are: loading programs and routines into main storage; scheduling the use of programs and routines in main storage; switching control of the processor-controller from one function to another, based on I/O operation; controlling the execution of the various functions in accordance with a flexible hierarchy of priorities.

Advantages
High throughput . . . Fast response . . . Efficient use of Processor-Controller time . . . Ease in time-sharing program execution . . . Ability to modify in-core user written routines online . . . Ability to modify IBM system programs online . . . Ability for the IBM Field Engineer to run on-line diagnostics for the 1442 Card Read Punch, 2310 Disk Storage Drive, 1053 Printer, and analog input (Direct Program Control) . . . Time-sharing of multiple foreground (Process) and background processing monitor operations.

The IBM 1800 MPX is a "n" area multiprogramming system. (Where "n" is determined as 27 minus the number of levels used by I/O devices.) Multiprogramming is regulated on the basis of I/O operation; when an I/O operation is initiated in one area, that area is put in a suspended state until the I/O operation is completed and during this time, a program in a lower priority area is executed. The programmed interrupt feature is used by the system to regulate level of operation, and thus to determine which area is in execution at any given time. In this way, the 1800 hardware is utilized to achieve multiprogramming.

The system also provides for queuing of I/O operations and allows the user to achieve maximum overlap of I/O and computing. On the lowest level of operation, a batch processing monitor is provided. With the batch processing monitor, programs may be assembled or compiled or user core loads may be executed.

The IBM 1800 MPX consists of a System Executive by which data acquisition and process control applications are served in a real-time mode and a Batch Processing Monitor by which non-data processing is performed in a batch processing mode.

MPX operates in a batch processing mode under control of BOM (Basic Operating Monitor) and in a real-time mode under control of the System Executive. To assist the user in making efficient use of the system, a Subroutine Library is also included in MPX.

1. System Executive - that portion of the system that resides in core during the execution of various disk resident programs. It includes such functions as handling of interrupts, controlling user-specified sequence of process control programs, and controlling the time-sharing of batched data processing programs.

   a. System Executive is the Executive Director Program. The Executive Director has as its subcomponents:

      a. Master Interrupt Control routine (MIC)
      b. Program Sequence Control routine (PSC)
      c. Interval Timer Control routine (ITC)
      d. Time-Sharing Control routine (TSC)

2. Batch Processing Monitor - provides various batch processing functions, and operates under the control of BOM when control of the system is not held by the System Executive. The Batch Processing Monitor subcomponents are:

   a. Batch Processing Supervisor - The Batch Processing Supervisor recognizes certain system control cards and transfers to the system program specified. It also initializes the data processing system when a job control card is recognized.

   b. Disk Management Program (DMP) - The Disk Management Program is a group of generalized on-line utility and maintenance routines that are necessary in the day to day operation of the MPX system. These routines store user programs on disk, delete programs from disk, dump programs from disk and perform numerous other functions of a utility nature.

   c. Assambling Program - A one-for-one symbolic assembly program that produces object programs that can be used with the 1800 MPX from symbolic card input or 2310 disk input.

   d. FORTRAN Compiler Program - Accepts 1800 FORTRAN language input in card form and produces object programs that can be used with the 1800 MPX system.

   Both the FORTRAN written and Assembler written programs call on subroutines to perform various arithmetic and input-output functions.

   e. Builder - Builds core loads and the System Executive.

3. BOM (Basic Operating Monitor) - controls the system generation process, provides for the definition of the system to the System Generation process, and controls the Batch Processing operations when MPX is operating in a batch processing mode.

4. Subroutine Library - consists of input/output, data conversion, arithmetic, functional, selective dump, various machine function and real time system subroutines.

Efficiency
The efficiencies listed in the following sections vary depending on the machine configuration, disk and core layout, and the user program size and type. Execution times are based on large programs and a 2 usec memory.

Approximate core storage and execution times:

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<td>38 statements/min</td>
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</table>

Sales Manual Text
Program Number

Basic Program Material: 1800-QS-Q10 with a minimum of 24K words of core storage. The machine configuration should be at least: an 1801/1802 Processor-Controller with a minimum of 24K words of core storage, 1053 Printer or IBM 1015 Printer, Keyboard, 1442 Card Read Punch, 2310 Disk Storage Unit, Model A2 or C2.

The system can support an 1801 or 1802 Processor-Controller with 16K of core storage, one 2310 Disk Storage Drive, a 1053 Printer and a 1442 Card Read Punch for very limited MPX functions.

Machine Features Supported

In addition to the above, the optional machine units and features supported by the MPX system are: Process-Controller with 32K words of core storage, up to three 1053 Printers, up to two 2401 Magnetic Tape Units, 1627 Plotters, 1054 Paper Tape Punch, Analog Input, Digital Input, Analog Output, a second 1442 Card Read Punch.

Reference Material

MPX System Introduction C26-3718-0.

Basic Program Material - 1800-05-010


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

Machine Readable -- The MPX system is available on one reel of magnetic tape for 1800 Time-Sharing Executive System - Phase 2 and TSX System Non-Reentrant 3070 for 1800 Multiprogramming Executive System (MPX).

Optional Program Material (Symbolic Module) -- The optional program components are pre-packaged on magnetic tape (2400). One reel of tape is required for each program group from the program group as indicated below.

Distribution will be made on S/360 9-track magnetic tape (800 bpi or 1600 bpi). The request must be made for a reel of magnetic tape following the current ordering procedures in the Branch Office Manual, DP Sales Activity. The external tape label must show any one of the program numbers listed above as well as the information required under the current procedures.

If either 9-track 800 bpi or 1600 bpi is not specified on the order form, 9-track 800 bpi will be supplied.

Program Component Name

1800 Card Utilities
Power Tape Utilities
Card Subroutines
Paper Tape Subroutines
Card Assembler
Paper Tape Assembler
Card FORTRAN
Paper Tape FORTRAN
Time-Sharing Executive System - Phase 2 (Version 3)

Program Listing

Additional Program Support Material

Program Logic Manuals
1120/1800 Programming Systems, Card/Paper Tape Y26-3620
1800 Time-Sharing Executive System Y26-3702
1800 Multiprogramming Executive Operating System Y26-3726

Program Listings: Listings are available on microfiche from -- IBM Corporation, Department 9606, Mailway 52 and Northwest 37th Street, Rochester, Minnesota 55901.

When ordering specify:

Group Code
3010 for 1800 Card/Paper Tape System
3030 for 1800 Time-Sharing Executive System - Phase 2 and TSX System Non-Reentrant
3070 for 1800 Multiprogramming Executive System (MPX)

Ordering Procedures

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

If the only form numbered copies of the publications are required, order them from the IBM Distribution Center, Mechanicsburg, Pennsylvania, not from PID.

If MPX is to be obtained on a disk cartridge, a 2315 Disk Cartridge must be forwarded to PID with the Program Order Card.

Note to World Trade Readers

This letter is a reprint of an IBM Programming Announcement and was mailed simultaneously to USA and W/T readers. The following changes, when appropriate, should be made to the text for W/T use:

1. All program numbers of available have been shipped to the appropriate W/T Program Libraries. Programs and associated materials may be ordered as indicated in the 1013 through 1017, Programming Section, W/T DP Sales Manual.

2. Additional copies of the above publications are available from the IBM Distribution Center, Mechanicsburg, Pennsylvania, and will be shipped when available.

3. When a new version of a program is announced, current users must order it; they will not receive it automatically nor will they necessarily receive a pre-punched request card in their Area.

4. Program distribution may be different in this area based on local conditions although DMR, disk packs, etc., can be indicated.

5. All references to the Program Information Department [IPID] should be understood to mean the appropriate W/T Program Library.

6. Any reference made to DPD Departments are requests as sources of information or for assistance, etc., should be understood to mean the comparable W/T Department or corresponding organization level.

7. Communications facilities or services required which are not offered in all W/T countries. In case of any doubt as to the availability of similar 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 W/T and IBM, availability and schedules 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.
A NEW VERSION IMPROVES ACCAP

Version 2 of the 1400 Autocoder to COBOL Conversion Aid Program (ACCAP) (360A-SE-19X) is available. This System/360 conversion aid program assists customers planning to convert their 1400 series Autocoder or SPS programs to System/360 COBOL.

Significant changes reflected by this version are:

1. Improved ACCAP execution time through the use of split cylinder concept for master file.
2. An option for recognizing and generating the record mark position when specified as part of the DA statement.
3. Correction to generate proper field sizes for DA subfields where only the low-order position is specified and to properly process DA subfields regardless of input sequence.
4. Elimination of optional additional devices for added capacity. Up to 10,000 input statements can be processed.
5. Incorporation of a control program to call in successive phases (reducing Job Control requirements by 80%).
6. Correction to recognize X04 to X15 in 1401, 1440, 1460 programs as a label.
7. Correction to generate labels, when used, for all OPEN and CLOSE statements.
8. Correction to cause program to go to End of Job if control card is invalid or missing or if system capacity (10,000 input statements) is exceeded.
9. Inclusion of support for the following I/O devices: 1442, 1443, 2501 and 2400 series tape units on selector channel 3.
10. Correction to previously reported program problems.

Current users will receive a letter announcing the availability of Version 2 and a prepunched program order card that they must use to order Version 2.

See the sales manual page (P 360A.27) attached to P68-94 and the Application Description Manual (H20-0352) for additional information.

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Release Date: June 28, 1968
Distribution: All Areas
TSS/360 IMPROVED WITH AVAILABILITY OF VERSION 2

Version 2 of the Time Sharing System/360 is now available. It provides incremental improvements in the area of:

Performance
Reliability
Human Factors
Maintenance

These new features are summarized below.

Performance

TSS now supports 32 bit mode addressing. In addition to being extended to provide full 32 bit addressing, the dynamic address translation support routines have been rewritten to minimize fragmentation of real core.

The minimum allocation of Virtual Memory is now eight bytes instead of 4096 bytes (1 page).

The improved performance of the task monitor permits sharing of certain tables, eliminates certain save area pages, and simplifies the program logic which eliminates the requirement for multiple calls when processing privileged programs.

A new dispatcher added to the system provides a significant improvement in batch throughput and a smaller deviation in (terminal) response time.

In addition to the changes noted above, other modifications to the Supervisor VAM and TAM routines further reduce core requirements, paging activity and concomitant systems overhead.

Reliability

ABEND -- rewritten to enhance systems reliability.

MSAM -- error handling routines tested.

I/O Supervisor and DASD modified to increase the number of retry attempts when drum and disk errors are encountered.

Human Factors

Hex option added to the MODIFY command.

New command TIME added to TSS. This command permits the user to set the maximum amount of CPU time his task may run before the system prompts him in the foreground or ABENDs him in the background mode.

To support the floating point hardware change, the FORTRAN library floating point underflow and overflow routines have been modified to work on both modified and unmodified machines. This change is transparent to FORTRAN programs.

Maintenance

Version 2 contains solutions to 160 APARs.

Additional Program Support Material

All of the optional program components are now available on three source tapes instead of sixteen. Each group of components, identified below by a Distribution Volume Number, is distributed as volume restore tapes for either the 2311 or the 2314. See sales manual page P360G.5 for additional information before ordering.

<table>
<thead>
<tr>
<th>Distribution Volume Number</th>
<th>Program Component Name</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>CEA - Supervisor</td>
</tr>
<tr>
<td></td>
<td>CEI - Auxiliary Programs</td>
</tr>
<tr>
<td></td>
<td>CGC - Service Routines</td>
</tr>
<tr>
<td></td>
<td>CHB - System Tables</td>
</tr>
<tr>
<td></td>
<td>CSF - Support for Time Sharing</td>
</tr>
<tr>
<td>2</td>
<td>CEC - Access Methods</td>
</tr>
<tr>
<td></td>
<td>CEY - Linkage Editor</td>
</tr>
<tr>
<td></td>
<td>CFA - Command System</td>
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<tr>
<td>3</td>
<td>CEB - Independent</td>
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<tr>
<td></td>
<td>CEK - Fortran Compiler</td>
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<tr>
<td></td>
<td>CEV - Assembler</td>
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<tr>
<td></td>
<td>CHC - Fortran Library Sub-routines</td>
</tr>
<tr>
<td></td>
<td>CMA - Diagnostics</td>
</tr>
</tbody>
</table>

The reverse side of this letter contains minimum system configuration, requisite EC levels, basic program material and ordering instructions.

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Release Date: July 1, 1968
Distribution: All Areas
Minimum System Configuration

The minimum system configuration is: One 2067 mdl 1; two 2365 mdl 2s; one 2860 mdl 2 or two 2860 mdl 1s; one 2070 mdl 1; one 2821 mdl 1 or 5; one 1403 mdl 2 or (3 or N1 with one 1416 Mdl 1); one 2540 mdl 1; one 2820 mdl 1; one 2301 mdl 1; one 2314 mdl 1 or one 2841 mdl 1 and five 2311s; one 2803 mdl 1 and two 2401 mdl 1, 2 or 3s or one 2402 mdl 1, 2, or 3 or one 2403 mdl 1, 2, or 3 and one 2401 mdl 1, 2 or 3; one 2702 mdl 1; one 1052 mdl 7; one 2741 mdl 1 or one 1051 mdl 1 or 2 and one 1052 mdl 1 or 2; five 1316 or 2316s.

See "P 360/67 Programming Pages" in the Sales Manual for additional hardware features and RPQs required.

Engineering Changes

The following engineering change levels are a requisite for correct operation of the Time Sharing System.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Level</th>
</tr>
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<tbody>
<tr>
<td>2067-1,2*</td>
<td>EC 705321 ECA 41</td>
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<tr>
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<td>(In addition to these EC Levels customer engineering retain messages 2067-02 (CEM 2067 - Service Aid 34) and 2067-14 must be employed.)</td>
</tr>
<tr>
<td>2365-12</td>
<td>EC 705306 ECA 37</td>
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<tr>
<td>2365-2</td>
<td>EC 257197 ECA 28</td>
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<tr>
<td>2846-1</td>
<td>EC 705292 ECA 1</td>
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<td>(EC 705319 ECA 2 only if 2314 with two-channel switch is on system)</td>
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<tr>
<td>2860</td>
<td>EC 708892 ECA 34</td>
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<td>(+REA 93960 and REA 21910 if 2314 with two-channel switch is on system)</td>
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<tr>
<td>2870</td>
<td>EC 705770 ECA 16</td>
</tr>
<tr>
<td>2167</td>
<td>EC 705202 ECA not applicable</td>
</tr>
</tbody>
</table>

*If 32 Bit feature is used, customer engineering retain message 2067-6 (CEM 2067 - Service Aid 41) must be employed.

Reference Material


Basic Program Material


Documentation -- Program Material List ... Methods of Printing the TSS System Prose.

Machine Readable -- The complete TSS/360 is distributed:

For the five Drive 2311 User, 360G-CL-625 -- On two 2400 foot reels of magnetic tape (9-track, 800 or 1600 bpi).

For the 2314 User, 360G-CL-626 -- On four 2400 foot reels of magnetic tape (9-track, 800 or 1600 bpi).

Ordering Procedure

Controlled Marketing

Because of the unique characteristics of TSS, the TSS Controlled Marketing Policy remains in effect. Accordingly, Model 67 systems may not be proposed or sold without prior approval of the office of the Regional Vice President.

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

When ordering the Time Sharing System/360, the requester will receive all Program Components. There are none available separately.

There are two types of System Residence available for the Time Sharing System. The requester must indicate the type of System Residence by specifying the appropriate program number on the Program Order Card:

Use 360G-CL-625 when System Residence is the 2311.

Use 360G-CL-626 when System Residence is the 2314.

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

Magnetic Tapes (2400') may be forwarded to PID with the program order card or ordered.
1401/1440/1460 EMULATION UNDER DOS/360

. COMPATIBILITY SUPPORT/30
. COMPATIBILITY SUPPORT/40

Compatibility Support/30 and 40 (CS/30, CS/40) allow 1401/1440/1460 and System/360 programs to run in a single intermixed DOS/360 job stream with full multiprogramming capability.

CS/30 and CS/40 highlights are:

. INCREASED SYSTEM THROUGHPUT
. MULTIPROGRAMMING CAPABILITY
. INTERMIXED JOB STREAM
. FLEXIBLE CONFIGURATION SELECTION

... Advantages, Features, Minimum System Requirements, Publications, and Availability Dates are on the inside pages.

These programs will help you attain 1968 sales objectives as well as improve our customers' capability to upgrade:

. MODEL 30 TO MODEL 40
. ADD MORE CORE AND I/O
. REPLACE 1401/1440/1460

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 E/C AVAILABILITY.

Published by DP Sales Publishing Services, WTHQ

FOR IBM INTERNAL USE ONLY

Release Date: July 1, 1968
Distribution: All Areas
Advantages ... CS/30 and CS/40 are designed to run 1401/1440/1460 Model 30 and Model 40 Emulators under the Disk Operating System and thus provide all the features that accompany an operating-system environment. CS/30 and CS/40 offer the following advantages:

- Increased throughput, since 1400 I/O is performed in System/360 mode and overlapped with processing according to the channel configuration of the System/360.
- Multiprogramming capability: Teleprocessing, concurrent peripheral operations, or other user programs may be executed as foreground programs while executing a background 1400 program. In addition, the 1400 referenced card reader, card punch, and/or printer may be simulated on a magnetic-tape unit or a 2311 or 2314 disk unit.
- 100-percent stacked-job processing. 1400 and System/360 programs can be intermixed in the job stream.
- Up to five 1311 Disk Storage Drives or one module of 1301 Disk Storage may be simulated on 2311 Disk Storage Drives; alternately, up to five 1311 drives and/or one module of a 1301 drive may be simulated on 2314 Direct Access Storage Facilities.
- 1400 disks need not be on the multiplexer channel and 1400 tapes need not be on a single selector channel.
- Provides compatibility support for 1405 and 1301 disk drives on a 2311 or a 2314.
- Operator-service functions initiated from the console provide a wide variety of capabilities, including a 1400 storage dump or display, the ability to change sense-switch settings, tape-drive logical assignments, and disk-drive logical assignments, the alteration of 1400 registers and 1400 storage, and, when an error is detected, automatic end of 1400 processing upon operator request.
- Provides the ability to catalog and fetch 1400 programs in and from the System/360 Core-Image Library except for multiphase 1400 programs on Model 40. Programs cataloged by the Model 30 Emulator Program can not be fetched and executed by the Model 40 Emulator Program, and vice versa.
- Support for 1440 operations is provided.
- Provides compatibility support for the 1404 Printer.
- Provides exits that allow the user to add routines to simulate devices that are not supported by the Compatibility Features and/or the Emulator Programs.
- Full advantage of the read-while-write capabilities of the 2804 Tape Control Unit may be realized.
- Elimination of the Compatibility Initialization Deck (CID) for the Model 30 and the emulator program deck for the Model 40. Sense-switch settings and I/O assignments are accomplished through the standard DOS Job Control Language and through Emulator operator services.
- Offers, as an option, verification of volume serial numbers of disk packs.
- Provides automatic transition to DOS Job Control upon recognition of 1400 EOJ halts.

Features ... CS/30 and CS/40 are a means of incorporating standard 1400 emulation into the System/360 Disk Operating System. To accomplish this, 1400 I/O operations are executed by physical IOCS of the Disk Operating System. As a result, if the Emulator Program is used on a System/360 with two selector channels, 1400 tape operations can be performed on a read-while-write basis. This has the effect of improving 1400-program throughput.

There is no requirement that a 2311 disk drive be attached to the multiplexer on the Model 30 or on the selector channel on the Model 40. Instead, they may be attached to any channel on the system. This will provide added flexibility to both 1400 and System/360 direct-access operations. Initialization and clearing of disk packs is performed by options in the DOS Initialize Disk Utility program and in the DOS Clear Disk Utility program.

Another DOS/360 feature that the emulator programs support is stacked-job processing. To do this, all 1400 halts and error conditions are trapped by the Emulator. Subsequently, the Emulator Program will release to DOS/360 Job Control so that the next job may be brought in from the device assigned to SYSRDR.

The Emulator Program itself is called by DOS/360 Job Control and handles all initialization and loading without the use of a Compatibility Initialization Deck for the Model 30 or the emulator program deck for the Model 40. 1400 error conditions either cause an abnormal end of job or, if the program is being run in Test mode, 1400 program errors are trapped automatically to the operator (a control-card option).

Finally, the user may operate in a multiprogramming
mode with concurrent peripheral operations, or Tele-processing under DOS being executed in conjunction with emulation. Existing 1400 programs are run as background programs in a multiprogramming environment without alteration, if written consistent with 1400 SRL manuals published by IBM.

Use ...CS/30 and CS/40 are called from the DOS Core-Image Library using standard DOS conventions. If a User Program Switch Indicator (UPSI) card is included in the job control statements, it will be used to set 1400 sense switches. Any I/O device assignment can be changed from its assembled assignment with DOS ASSGN cards. Once loaded into storage, the Emulator Program reads a // 1400 control card. This card contains a number of optional parameters that describe Emulator options.

These options include: The name of the 1400 program, the initial load device for the 1400 program, the selection of the simulation support desired for 1400-program "process" errors and halts (other than standard end-of-job halts), and other options.

If 1400 magnetic-tape operations are being simulated, the Emulator Program will optionally read // TAPE control cards if the user elects to reallocate tape buffer areas. If 1400 disk operations are being simulated, the Emulator Program will optionally read a // DVOL control card(s) if the user elects to identify and verify a given volume serial number(s) for a disk pack(s). If 1400 printer operations are being simulated, the Emulator Program will optionally read a // CCTL control card of the user elects to provide a carriage-control-tape image at 1400 program execution time.

After analyzing the control cards and setting appropriate switches, the Emulator Program performs initialization. The next input record is read and then a console message giving the name of the program and, if available, the time of day is displayed. The Compatibility instructions are then enabled and the next phase (the main phase) of the Emulator Program is called. The base registers are then established and the tape-block-size allocations are made. The 1400 program load device then is determined. The Disk Operating System is then given the address of the Emulator Program operator communication routine. If the 1400 program is to load from cards, a 1400 Read Card instruction is passed to the Compatibility Feature. The card is read, simulating pressing of the LOAD button on the 1400. If the 1400 load device is tape, a similar simulated load function is performed by the Emulator Program.

Each time the 1400 executes an I/O instruction, the Compatibility Feature selects the proper routine. The Emulator Program then takes control, simulates the I/O, and then switches back into Compatibility mode.

End-of-job halts and error conditions are handled as explained previously, and the 1400 program ends with either a standard or operator-determined end of job and a subsequent release to DOS Job Control.

Performance ... Throughput under emulation is determined by the mix of CPU operations (executed by Ready Only Storage), I/O operations (executed by the emulator program), 1400 instructions, and the amount of interference from higher-priority partitions. Assuming a normal distribution of the above considerations, a minimum throughput of one to one with the original equipment can be expected. However, this will vary by application.

Minimum Systems Requirements ... The minimum requirements for the 1401/1440/1460 Emulator Programs under DOS are the same as for a 24K Model 30 or 32K Model 40 Disk Operating System and the 1400 Compatibility Features, except that 1400 disks need not be on the multiplexer channel and 1400 tapes need not be on a single selector channel. The Model 30 1400 I/O Compatibility Features for unit-record equipment are not required by the Model 30 Emulator Program. The 1401/1440/1460 DOS Compatibility Feature (4460) is required by CS/40.

Note 1: When the 1401/1440/1460 DOS Compatibility Feature 4460 is installed the operation of the Model 40 Emulator Program 360C-EU-074 is excluded on the system.

Note 2: COS-40 (Type III) will not run after Feature 4460 is installed.

The total storage requirements of the 1401/1440/1460 Emulator Programs under DOS are the sums of:

1. Size of the user's Disk Operating System supervisor for the Model 30 or the constant 16,384 (beginning of 1400 memory) for the Model 40.
2. Size of the 1400 system to be simulated.
3. Amount of storage reserved for tape and disk I/O buffers.
4. Size of the generated Emulator Program.

To calculate the total storage requirements of the DOS
system, add the amount of storage reserved for multi-
programming.

Requirements (1) through (3) can be determined from
the user's configuration. The size of the generated
Emulator Program, requirement (4), can be estimated
by using the list of storage estimates for the Model 30
or 40 Emulator Program in the publication System/360
Disk Operating System: 1401/1440/1460 Emulator
Programs for System/360 Models 30 and 40, C27-6940.

With the added features, improved performance and
FE Support of CS/30 and CS/40, PID will not dis-
tribute the Type III COS Programs following the
availability of these two new Type I programs.

Reference Publications ... Preliminary planning inform-
ation is contained in the following publication, which
is available now:

IBM System/360 Disk Operating System: 1401/
1440/1460 Emulator Programs for IBM System/
360 Models 30 and 40, C27-6940

Preliminary information also will be contained in a
Technical Newsletter to IBM System/360 Disk and Tape
Availability of this TNL will be announced in a future
Publication Release Letter.

A promotional brochure will also be published in
30 days.

Availability

CS/30 – January 30, 1969

CS/40 – April 30, 1969
Memorandum to DP Branch Managers B68-69 stated that certain 1130 Type I and II programs will be distributed on the 2315 Disk Cartridge, but that certain programs may also be obtained in card form if the customer’s configuration does not include a disk drive.

The following 1130 Type I and II programs are now distributed only on disk:

- Disk Monitor
- Statistical System
- LP-MOSS
- Project Control System
- Data Presentation System
- Type Composition, Card
- Route Accounting System
- Mechanism Design System
- Optical System Design
- Typewriter
- Printer
- Work Measurement Aids

When ordering these programs on disk, the user must provide PID with a 2315 Disk Cartridge for each program. The returned cartridge will contain the program along with a starter card to retrieve the program.

Action Required

This information has not been distributed to users. Affected customers should be notified.

Optional Material Available

The FORTRAN source code for the two Optical System Design programs is now available on magnetic tape. It must be ordered under 1130-EO-12X only.

FOR IBM INTERNAL USE ONLY

Published by DP Sales Publishing Services, WTHQ