

File No. S370-34
Order No. GC20-1834-0

Systems

IBM Virtual Machine Facility/370: Release 6 Guide

| Release 6 PLC 1

This publication contains information about the scope and content of the IBM Virtual Machine Facility/370 (VM/370). It provides planning and implementation information for installation managers, system programmers, and IBM system hardware and software support personnel. This publication describes:

- New and changed VM/370 features, components, and requirements
- Module summary for CP, CMS, IPCS, and RSCS
- Changes to commands, macro instructions, and service programs
- Changes to VM/370 publications
- Ordering and distribution procedures
- Changes to VM/370 restrictions
- APARS integrated into this release
- Maintaining compatibility with supported hardware and software

The Release Guide does not contain detailed information on VM/370 Extensions, and related program products, or the devices that support them exclusively. However, these Extensions, program products, and devices may be available at the same time as the VM/370 release base. For information on VM/370 System Extensions and VM/370 Basic System Extensions, refer to the appropriate General Information Manual for this release.

Prerequisite Publications

IBM Virtual Machine Facility/370:

Introduction, Order No. GC20-1800

Planning and System Generation, Order

No. GC20-1801



First Edition (March 1979)

This edition, GC20-1834-0, corresponds to Release 6 PLC 1 (Program Level Change) of the IBM Virtual Machine Facility/370, and to all subsequent modifications unless otherwise indicated in new editions or Technical Newsletters.

Changes are periodically made to the information herein; before using this publication in connection with the operation of IBM systems, consult the latest IBM System/370 Bibliography, Order No. GC20-0001, for the editions that are applicable and current.

Publications are not stocked at the address given below; requests for copies of IBM publications should be made to your IBM representative or to the IBM branch office serving your locality.

A form for readers' comments is provided at the back of this publication. If the form has been removed, comments may be addressed to IBM Corporation, VM/370 Publications, Dept. D58, Bldg. 706-2, P.O. Box 390, Poughkeepsie, New York 12602. IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation whatever. You may, of course, continue to use the information you supply.

Preface

This publication reflects the content and status of the IBM Virtual Machine Facility/370 (VM/370) Release 6. It provides installation managers, system programmers, and IBM hardware and software support personnel with information useful for planning and implementing the release. In order to maintain a concurrent history of the VM/370 endeavor, retain all previous editions of the Release Guide.

This publication has eight sections:

- Section 1 is a summary of changes to the VM/370 system for this release.
- Section 2 contains a module directory and status lists of all modules in the system.
- Section 3 contains charts showing changes and additions to the VM/370 commands, macro instructions, and service programs as well as changes to ABEND codes and WAIT states.
- Section 4 lists the deletions and additions to the VM/370 library. It also contains a chart that lists the base publications and the corresponding TNLs and/or supplements to those publications. Another chart shows the deletion or addition of duplicate information within each publication. This chart shows the publications where this information is deleted and the publications where this information has been retained or added.
- Section 5 contains ordering and distribution procedures for the program material shipped with the release and for the available optional material.
- Section 6 contains modifications to the list of VM/370 restrictions. Only amendments and changes of major significance are included in this section.
- Section 7 lists the APARs (Authorized Program Analysis Reports) that this release corrects and integrates.
- Section 8 discusses changes that must be made to the system to maintain compatibility with hardware and software this release supports.

Information on the Directory Maintenance program product (Program No. 5748-XE4) is for planning purposes only until the availability of that product.

PREREQUISITE PUBLICATIONS

IBM Virtual Machine Facility/370:

Introduction, Order No. GC20-1800

Planning and System Generation Guide, Order No. GC20-1801

Contents

SECTION 1. SUMMARY OF CHANGES TO THE VM/370 SYSTEM1-1	
Highlights	. . . . .1-1
3031 Attached Processor Complex Support	.1-2
Program Logic Publications	. . . . .1-2
12 and 16 Megabyte Available Processor Storage Capability	. . . . .1-3
4331 and 4341 Processor Support	. . . . .1-4
SRL and Program Logic Publications	. .1-5
3203 Model 5 Printer Support	. . . . .1-6
SRL and Program Logic Publications	. .1-6
3800 Printing Subsystem Support	. . . . .1-7
Dedicated 3800 Printer Support	. . . . .1-7
Support of the 3800 as a Real VM/370 Spooling Device	. . . . .1-7
Additional VM/370 Support of the 3800 Printing Subsystem	. . . . .1-8
Creating Control Information for the 3800 Printer	. . . . .1-8
Named System Support	. . . . .1-8
Using the 3800 Printer With Standalone Utilities or With a VM/370 Starter System	. . . . .1-8
Reference Material	. . . . .1-9
SRL and Program Logic Publications	. .1-9
3850 Mass Storage System (MSS) Extended Support	. . . . .1-10
SRL and Program Logic Publications	. .1-11
VM/370 Measurement Facility (Monitor) Channel and Device Utilization	. . . . .1-12
Storage Utilization	. . . . .1-12
Alternate Path Statistics	. . . . .1-12
AP/UP Usage	. . . . .1-13
Selective Seeks	. . . . .1-13
Monitor-To-Disk Support for Real Time	. . . . .1-13
SRL and Program Logic Publications	. .1-13
Shared Segment Modifications	. . . . .1-14
Elimination of Automatic Unshare	. .1-14
Unprotected Shared Segments	. . . . .1-14
SRL and Program Logic Publications	. .1-15
Trace Table Size Change	. . . . .1-16
SRL and Program Logic Publications	. .1-16
Multiple Alternate Consoles Support	. .1-17
SRL and Program Logic Publications	. .1-17
LOGON/AUTOLOG/LINK Journaling Option	. .1-18
SRL and Program Logic Publications	. .1-19
Password-On-The-Command-Line Suppression Option	. . . . .1-20
SRL and Program Logic Publications	. .1-20
Remote Spooling Communications Subsystem Networking Program Product	. .1-21
SRL Publications	. . . . .1-21
Special Message Facility	. . . . .1-22
SRL and Program Logic Publications	. .1-22
Modification to the Diagnose X'8' Interface	. . . . .1-23
SRL and Program Logic Publications	. .1-23
Directory Update-In-Place Support	. . . . .1-24
SRL and Program Logic Publications	. .1-24
Directory Program Fast I/O Support	. .1-25
SRL and Program Logic Publications	. .1-25
Support for the MSGNCH (Message No Header) Command	. . . . .1-26
SRL and Program Logic Publications	. .1-26
Read Inhibit Support	. . . . .1-27
SRL and Program Logic Publications	. .1-27
Automatic Reinitialization Support	. .1-28
SRL and Program Logic Publications	. .1-28
DL/1 in a CMS/DOS Environment	. . . . .1-29
Publications	. . . . .1-29
SECTION 2. CP, CMS, RSCS, AND IPCS MODULE SUMMARY2-1	
Resequenced Modules -- Release 6	. . . . .2-1
CP	. . . . .2-1
CMS	. . . . .2-1
IPCS	. . . . .2-1
RSCS	. . . . .2-1
Split Modules -- Release 6	. . . . .2-2
CP	. . . . .2-2
CMS	. . . . .2-2
IPCS	. . . . .2-2
RSCS	. . . . .2-2
Attached Processor (AP) Only Modules -- Release 6	. . . . .2-2
CP	. . . . .2-2
CMS	. . . . .2-2
IPCS	. . . . .2-2
RSCS	. . . . .2-2
Changed Modules -- Release 6	. . . . .2-3
CP	. . . . .2-3
CMS	. . . . .2-3
IPCS	. . . . .2-3
RSCS	. . . . .2-3
New Modules -- Release 6	. . . . .2-4
CP	. . . . .2-4
CMS	. . . . .2-4
IPCS	. . . . .2-4
RSCS	. . . . .2-4
Deleted Modules -- Release 6	. . . . .2-4
CP	. . . . .2-4
CMS	. . . . .2-4
IPCS	. . . . .2-4
RSCS	. . . . .2-4
SECTION 3. COMMAND, MACRO INSTRUCTION, AND SERVICE PROGRAM SUMMARY3-1	
New CP Commands	. . . . .3-1
Changes to CP Commands	. . . . .3-2
New VM/370 System Generation Macro Instructions	. . . . .3-5
Changes to VM/370 System Generation Macro Instructions	. . . . .3-7
New and Changed VM/370 Service Programs	.3-8
Changes to System ABEND Codes and WAIT States	. . . . .3-9

SECTION 4. VM/370 PUBLICATIONS . . . . .	.4-1	Minidisk Restrictions. . . . .	.6-1
The VM/370 Library . . . . .	.4-1	Timing Dependencies. . . . .	.6-1
Deleted Publications . . . . .	.4-1	Processor Model Dependent Functions. . . . .	.6-1
New Publications . . . . .	.4-1	Channel Model Dependent Functions. . . . .	.6-1
Current Status of VM/370 Publications and TNLS. . . . .	.4-1	Virtual Machine Characteristics. . . . .	.6-1
EREP Publications. . . . .	.4-2	CMS Restrictions . . . . .	.6-1
Changes to VM/370 Publications . . . . .	.4-3	MSS Restrictions . . . . .	.6-2
Minor Additions to Other Publications Since their Publication . . . . .	.4-4	Miscellaneous Restrictions . . . . .	.6-2
SECTION 5. ORDERING AND DISTRIBUTION		SECTION 7. APAR LIST. . . . .	.7-1
PROCEDURES. . . . .	.5-1	APARs Affecting CP . . . . .	.7-1
Basic Program Material . . . . .	.5-1	APARs Affecting CMS. . . . .	.7-2
Optional Program Material. . . . .	.5-2	APARs Affecting RSCS . . . . .	.7-3
Program Materials List . . . . .	.5-4	APARs Affecting IPCS . . . . .	.7-3
Basic System Tapes . . . . .	.5-4	SECTION 8. MAINTAINING COMPATIBILITY WITH SUPPORTED HARDWARE AND SOFTWARE. .8-1	
Optional Tapes	5-10	VM/370 ECPS Compatibility. . . . .	.8-1
SECTION 6. CHANGES TO VM/370		Programs Utilizing Protected Shared Segments. . . . .	.8-1
RESTRICTIONS. . . . .	.6-1	Spool File Incompatibility . . . . .	.8-1
Dynamically Modified Channel Programs. .6-1			

Section 1. Summary of Changes to the VM/370 System

This section discusses the changes made to the VM/370 system for this release. It also contains information on programs and devices that can use the VM/370 environment or a restricted VM/370 environment without incompatibilities to existing program or device support.

Highlights

The following is a list of new function and new device support for VM/370 Release 6:

- 3031 Attached Processor Complex Support
- 12 and 16 Megabyte Available Processor Storage Capability
- 4331 and 4341 Processor Support
- 3203 Model 5 Printer Support
- 3800 Printing Subsystem Support
- 3850 Mass Storage System (MSS) Extended Support
- VM/370 Measurement Facility (Monitor)
- Trace Table Size Change
- Shared Segment Modifications
- Multiple Alternate Consoles Support
- LOGON/AUTOLOG/LINK Journaling Option
- Password-On-The-Command-Line Suppression Option
- Remote Spooling Communications Subsystem (RSCS) Networking Program Product
- Special Message Facility
- Modification to DIAGNOSE X'8' Interface
- Directory Update-In-Place Support
- Directory Program Fast I/O Support
- Support for Message No Header (MSGNOH) Command
- Read Inhibit Support
- Automatic Reinitialization Support
- DL/1 in a CMS/DOS Environment

3031 Attached Processor Complex Support

VM/370 Release 6 supports the 3031 Attached Processor Complex which consists of a 3031 processor, a 3041 attached processor, a 3036 console with dual displays, and two 3017 power units.

Main storage as well as channel and I/O functions are provided by the 3031 processor. The 3041 attached processor contains an instruction execution function and a buffer control function. This enhances the total system's ability to handle machine language instructions, reduces the effective data storage access time, and speeds processing. The support of this processor requires no code changes to VM/370.

PROGRAM LOGIC PUBLICATIONS

The following publication contains information on VM/370 support of the 3031 Attached Processor Complex:

SY20-0884 Data Areas and Control Block Logic

12 and 16 Megabyte Available Processor Storage Capability

VM/370 supports the 3033 processor whose available processor storage capability is 12 and 16 megabytes. The support of this increased available processor storage capacity requires no code changes to VM/370.

4331 and 4341 Processor Support

The IBM 4300 processors, supported by this release, combine System/370 compatibility with large scale integration (LSI) technology.

The 4331 processor offers processor storage and high speed control storage to accommodate standard functions as well as optional features requiring control storage capability. Current System/370 users and new customers can now use interactive and data base/data communications applications. One half megabyte of processor storage is standard on the 4331 with the option of expanding to one megabyte. A wide variety of current I/O devices can be attached to the 4331 processor in addition to new I/O devices that are supported when the VM/370 Basic System Extensions Program Product is installed.

The 4341 processor also offers virtual storage and SCP support with System/370 compatibility. This processor has versatility in applications usage as a commercial, scientific, data acquisition, teleprocessing, or general purpose system. As with the 4331, the 4341 can also use a wide variety of currently available I/O devices, tape units, and display units in addition to the new devices that function only when the installation is running with the VM/370 Basic System Extensions Program Product. Two megabytes of processor storage are standard on the 4341 with the option of expanding to four megabytes.

Release 6 of VM/370 is compatible with ECPS:VM/370 Level 19 on the 4331 and 4341 processors. This support is included in the initial shipment of these processors.

No fixed or I/O extended machine check logout area and no fixed or I/O extended channel check logout area exist for the 4331 and 4341 and no region code (model dependent information) is available. Independent machine checks and channel checks are recorded as they are now. If any dependent machine or channel check occurs, it is recorded on diskette which only customer authorized service personnel can access using a standalone program.

The 3278 Model 2A display station is used as the system console for the 4331 and 4341 processors. The 3278 Model 2A is supported the same as a 3277 with the following differences for the new display station:

- Screen layout differences. 20 lines (80 characters per line) of the 25-line display are used for operator communication. CP and CMS recognize the smaller screen size.

- The addition of six national usage characters in input and output data streams.

<u>National Usage Designation</u>	<u>Graphic</u>	<u>EBCDIC (Hex)</u>
NU3	|	broken vertical line 6A
NU4	\	grave accent 79
NU9	~	tilde A1
NU10	{	open brace C0
NU11	}	close brace D0
NU12	\	reverse slant E0

Since the 3277 logical tab value X'6A' is now a displayed character on the 3278 Model 2A, the tab function is changed to allow the operator to specify another character as the logical tab. This is done through the use of a new operand of the TERMINAL command. The new operand and its parameters are TABCHAR {ON|OFF|char}. The operator may also query the setting of the logical tab via the QUERY TERMINAL command. CP returns as part of its response to the command, TABCHAR {ON|OFF|char}.

- Keyboard changes. The REQ and CNCL keys on the 3278 Model 2A perform the same functions as the PA1 and PA2 keys on the 3277. No PA3 and CLEAR keys exist on the 3278 Model 2A.

When generating the device type for the 3278 Model 2A, specify DEVTYPE=3278 and MODEL=2A in the RDEVICE macro instruction and the CUTYPE=3272 in the RCTLUNIT macro instruction.

The 3287 Model 1 or 2 printer is used with the 4331 and 4341 processors as the system hardcopy device. When generating the device type for the 3287 Model 1 or 2, specify DEVTYPE=3287 in the RDEVICE macro instruction.

SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on VM/370 support of the 4331 and 4341 processors including the 3278 Model 2A and the 3287 Model 1 or 2:

- GC20-1801 Planning and System Generation Guide
- GC20-1807 System Programmer's Guide
- GC20-1809 OLTSEP and Error Recording Guide
- GC20-1818 CMS User's Guide
- GC20-1819 CMS Command and Macro Reference
- GC20-1820 CP Command Reference for General Users
- SY20-0884 Data Areas and Control Block Logic
- SY20-0886 System Logic and Problem Determination Guide, Vol. 1

3203 Model 5 Printer Support

The 3203 Model 5 printer is a channel attached version of the 3203 Model 4 printer. VM/370 supports the new model in the same way that it supports the Model 4 version. Note that the DEVIYPE=3203 and MODEL=5 operands of the RDEVICE macro instruction must be specified to generate support of the device.

SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on VM/370 support of the 3203 Model 5 printer (wherever Model 4 appears, Model 5 is added):

GC20-1801 Planning and System Generation Guide

GC20-1807 System Programmer's Guide

SY20-0886 System Logic and Problem Determination Guide, Vol. 1

SY20-0884 Data Areas and Control Block Logic

3800 Printing Subsystem Support

VM/370 Release 6 supports the 3800 printing subsystem which is a high speed, non-impact, general purpose printer that uses electrophotographic and laser technology to achieve printing speeds up to 20,040 lines of copy per minute.

The following features highlight the 3800 printer:

- FORMS CONTROL permits the user to select the amount of vertical space between printed lines. Lines can be vertically spaced 6, 8, or 12 lines per inch. Different spacings can be mixed on the same page except in the case when the 3800 printer is used as a spooling device.
- FORMS OVERLAY permits photographing of predefined data (forms) on one or more pages. The 3800 printer supports the creation of a form on a page and the immediate printing of data on that form.
- PREDEFINED CHARACTER SETS permit the user to select predefined character sets that contain up to 64 characters each. Different character sets can provide different character types and sizes, and horizontal spacings between characters. The 3800 printer supports the simultaneous use of two character sets and optionally supports the use of two additional character sets. The user can mix characters from different character sets on a single page. These characters are referenced within the 3800 printer through the use of translate tables. Up to four translate tables may be loaded at any one time.
- CHARACTER SET MODIFICATION permits the user to modify and/or extend character sets.
- COPY MODIFICATION permits the printing of predefined data (for example, printing the same header on each page) or the suppression of printing of selected data.
- PRINTING MULTIPLE COPIES permits multiple copies of files and datasets to be printed and/or collated without the use of multiple-ply paper. Multiple copies of a single 3800 buffer load can also be printed.

DEDICATED 3800 PRINTER SUPPORT

VM/370 allows virtual machines, including virtual VM/370, to attach the 3800 printer as a dedicated I/O device. When attached, the full capability of the 3800 is available to the virtual machine. All the functions previously described are available when the 3800 is used as a dedicated device. Support for the 3800 printer is generated by the RDEVICE macro instruction which defines the 3800 device at system generation time.

SUPPORT OF THE 3800 AS A REAL VM/370 SPOOLING DEVICE

Virtual machines can print spool files on the 3800 printer. With two exceptions, all previously mentioned features are supported. These two exceptions are the use of more than one translate table for printing a

given file, and the mixing of different vertical spacings on the same page or file. With regard to translate tables and character sets, once the user starts to print a spool file with particular character sets, he must print the entire file with those character sets. The RDEVBLK, SFBLOK, SPLINK, and VSPXBLOK copy blocks allow storage of information necessary for the operation of the 3800 printer. In addition, the BACKSPAC, CHANGE, QUERY, SPOOL, and START commands for CP now support the features of the 3800 printer.

ADDITIONAL VM/370 SUPPORT OF THE 3800 PRINTING SUBSYSTEM

The values that control feature selection and printing on the 3800 printer are stored in tables and modules. VM/370 provides a capability, via CP commands, to display the symbolic name of the library where they are stored.

Before printing a spool file, VM/370 initializes the 3800 printer by loading it with the tables that control feature selection and printing. VM/370 provides a capability to purge spool files that cause errors when they are loaded into the 3800 printer.

CREATING CONTROL INFORMATION FOR THE 3800 PRINTER

Two new service programs, GENIMAGE and IMAGELIB, construct or modify the tables and modules that control feature selections and printing on the 3800 printer. These service programs save the control tables and control modules as a named system.

NAMED SYSTEM SUPPORT

A new DIAGNOSE X'74' instruction provides a capability to save or to load a named system that contains the control tables and control modules for the 3800 printer. The new NAME3800 macro instruction allows named systems to be specified in the same manner as the NAMENCP macro instruction, except that the CPTYPE operand is not used. A new copy file, NPRTBL copy, supports the NAME3800 macro instruction.

USING THE 3800 PRINTER WITH STANDALONE UTILITIES OR WITH A VM/370 STARTER SYSTEM

Release 6 supports the use of the 3800 printer with either standalone utilities or with a VM/370 starter system.

REFERENCE MATERIAL

The following publications detail information on the 3800 printing subsystem:

- GA26-1635 Reference Manual for the IBM 3800 Printing Subsystem
- GC20-1775 Concepts of the IBM 3800 Printing Subsystem
- GC20-3829 Introducing the IBM 3800 Printing Subsystem and Its Programming
- GC20-3846 IBM 3800 Printing Subsystem Programmer's Guide, OS/VS1, OS/VS2

SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on VM/370 support of the 3800 printing subsystem:

- GC20-1800 Introduction
- GC20-1801 Planning and System Generation Guide
- GC20-1806 Operator's Guide
- GC20-1808 System Messages
- GC20-1807 System Programmer's Guide
- GC20-1820 CP Command Reference for General Users
- GC20-1821 Operating Systems in a Virtual Machine
- SY20-0882 Service Routines Program Logic Manual
- SY20-0884 Data Areas and Control Block Logic
- SY20-0886 System Logic and Problem Determination Guide, Vol. 1

3850 Mass Storage System (MSS) Extended Support

VM/370 Release 6 extends the initial dedicated support available for the 3850 Mass Storage System (MSS). The 3850 MSS allows system control of very large data capacities (from 35 billion bytes to 472 billion bytes).

MSS enhances operational efficiency by:

- Eliminating the time to manually pick DASD packs or tape reels from a data library
- Reducing pack change/tape change time
- Shortening the cycle time of a volume through a library system since all volumes are mounted and demounted under the control of the system
- Increasing data security by automatic volume mounting, storing and retrieving via system control
- Reducing space considerations for data libraries and computer rooms
- Reducing operational costs since the installation can place large amounts of present tape and DASD shelf data under direct control of the system.

Under Release 5, VM/370 provided dedicated MSS 3330V volumes. For Release 6, MSS minidisk support has been added. Under Release 6 an installation may now:

- Define virtual machine minidisks on MSS 3330V volumes allowing the VM/370 control program to dynamically mount and demount the volumes as needed. The term 3330V refers to a DASD device address on which an MSS volume may be mounted and whose address is known to either the VM/370 control program or to a guest virtual machine.
- Dedicate or attach an MSS 3330V device address to a 3330-1 virtual device such that the virtual machine needs no MSS support. If the 3330V is specified as a 3330-1, the VM/370 control program intercepts and processes all I/O operations to that device. The virtual machine accesses the 3330V as if it were a 3330-1. The control program handles all error recovery procedures unique to 3330V's.
- Specify that the VM/370 control program is to select any available 3330V device address and mount the required MSS volume as part of the VM/370 dedicate or attach processing.
- Dedicate or attach a 3330V device to a virtual machine as a virtual 3330V device. The virtual machine then handles all error recovery procedures directly.
- Utilize the modified cylinder fault processing available in the most recent MSS machine implemented levels. With this processing, an MSS 3330V device address is not in a busy state while data is being staged from an MSS cartridge to DASD to resolve a cylinder fault condition.

An MSS communicator program that runs in a virtual machine under OS/VS1 or MVS forms the interface between VM/370 and the mass storage control (MSC). This program mounts the requested volume and returns information to CP that the volume has been mounted.

The extended Mass Storage System support is packaged as two items although both must be present for full MSS support. Both are packaged and distributed along with the Release 6 base package for 3850 MSS support:

- Modification to the control program component of VM/370 such that VM/370 recognizes and utilizes the MSS for online DASD allocation.
- The MSS communicator program which runs in a virtual machine under OS/VS1 or MVS and communicates with both the VM/370 control program and the mass storage control (MSC) of the MSS, so that orders are passed from the control program to the MSC.

SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on VM/370 support of the 3850 Mass Storage System (MSS):

- GC20-1800 Introduction
- GC20-1801 Planning and System Generation Guide
- GC20-1806 Operator's Guide
- GC20-1807 System Programmer's Guide
- GC20-1808 System Messages
- GC20-1821 Operating Systems in a Virtual Machine
- SY20-0882 Service Routines Program Logic Manual
- SY20-0884 Data Areas and Control Block Logic
- SY20-0886 System Logic and Problem Determination Guide, Vol. 1

VM/370 Measurement Facility (Monitor)

The VM/370 measurement facility (monitor) extends the data collection and recording capabilities of the monitor. These capabilities include:

- The gathering of additional data related to the utilization of channels, devices, storage, alternate I/O paths, and AP/UP processing.
- The capability for the system programmer to select devices for which seek information is to be collected
- Extensions to the capability of the system programmer to specify when the VM/370 monitor is to close the monitor spool file

The following modifications have been made to the VM/370 measurement facility:

CHANNEL AND DEVICE UTILIZATION

The VM/370 monitor gathers additional data related to the utilization of channels, control units, and devices. A high frequency sampler gathers utilization data which itself is sampled by the LASTAP class of data collection.

STORAGE UTILIZATION

During CP initialization, VM/370 informs the system operator of the partitioning of storage used by VM/370. The message sent to the operator specifies the size of the nucleus, the size of the initial dynamic area, the size of the trace table, and the amount of available free storage. The VM/370 monitor also records this information in the header record of the VM/370 monitor spool file.

ALTERNATE PATH STATISTICS

The VM/370 monitor now gathers data that provides information about the use of alternate I/O paths. The monitor collects and records:

- The number of times an SIO instruction was issued on an alternate path
- The number of times a related I/O block was queued or dequeued
- The number of times a related I/O block stack was depleted

AP/UP USAGE

During initialization on the VM/370 monitor, VM/370 stores the logical address of the processor and the logical address of the attached processor into the VM/370 monitor spool file header record. When sampling the USER class of data, the VM/370 monitor now records the logical address of the last processor to service the user. The VM/370 monitor also records this information in the monitor record for the SCHEDULE class at queue drop time.

SELECTIVE SEEKS

An installation that uses the VM/370 monitor can now specify the DASD device for which seek related information is to be collected, or the DASD devices for which no seek information is desired. Two new options, INCLUDE and EXCLUDE, have been added to the CP MONITOR SEEKS command to reflect this enhancement.

MONITOR-TO-DISK SUPPORT FOR REAL TIME

The system programmer can now request that the VM/370 monitor close the monitor spool file after a specified number of monitor samples has been made; he does this via the LIMIT operand of the SYSMON macro instruction which has been updated. Similarly changed is the LIMIT option of the CP MONITOR command. In addition, the minimum sample interval for the PERFORM, USER, and DASTAP monitor classes is reduced from 30 seconds to 5 seconds. This new support enables more frequent and regular real time data reduction of the monitor spool file.

SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on the VM/370 measurement facility (monitor):

- GC20-1801 Planning and System Generation Guide
- GC20-1806 Operator's Guide
- GC20-1807 System Programmer's Guide
- GC20-1808 System Messages
- SY20-0884 Data Areas and Control Block Logic
- SY20-0886 System Logic and Problem Determination Guide, Vol. 1

Shared Segment Modifications

The following modifications have been made to shared segments:

ELIMINATION OF AUTOMATIC UNSHARE

A shared segment is defined as reentrant, read-only code. Prior to Release 6, a user who modified a shared segment was unshared from the shared copy of that segment and given a private copy of the segment with his change intact. VM/370 gave other users of that segment access to a fresh copy of that segment.

Under Release 6, if a user modifies a shared segment, except by means of the CP ADSTOP, TRACE, or STORE commands, VM/370 places the user in console function mode and returns the modified page(s) to free storage. The next reference to that page causes a fresh copy to be paged in from backing storage.

When a user of a shared segment causes a page of that segment to be altered by issuing an ADSTOP, TRACE, or STORE command, the user is unshared from that shared segment and given his own copy of that segment. Other users of the segment continue to operate with an unchanged copy of that segment.

UNPROTECTED SHARED SEGMENTS

Installations that use shared segments have the option, under Release 6, of running without protection against changes to these segments. If a shared segment is specified to be unprotected, a change made by the user of that shared segment is seen by all other users of that shared segment.

This option, when selected, eliminates the need for VM/370 to scan for changed shared pages in both AP and UP modes. In AP mode, a gain in pageable storage is achieved because VM/370 need not switch page table pointers and need not maintain duplicate copies of shared segments. The NAMESYS system generation macro instruction has been modified to support this option. Note that shared segment protection is the default specification. Installations that choose to employ the unprotected shared segments option should do so with caution and discretion.

SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on modifications to shared segments:

GC20-1800 Introduction

GC20-1801 Planning and System Generation Guide

GC20-1806 Operator's Guide

GC20-1807 System Programmer's Guide

GC20-1808 System Messages

GC20-1820 CP Command Reference for General Users

SY20-0884 Data Areas and Control Block Logic

SY20-0886 System Logic and Problem Determination Guide

Trace Table Size Change

This support allows an installation to specify during system generation time the size of the VM/370 trace table. The size is specified in 4K increments in the SYSCOR macro instruction which has been updated to reflect this support. If the size is not specified, or if the specified size is less than the default value, the default trace table size is used.

SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on VM/370 support of the trace table size change:

GC20-1801 Planning and System Generation Guide

GC20-1807 System Programmer's Guide

SY20-0884 Data Areas and Control Block Logic

Multiple Alternate Consoles Support

This support provides an installation with the capability to specify multiple alternate consoles to be searched for availability during VM/370 system initialization in an attempt to find an operational system console when the primary console is unavailable.

This support can improve availability. Prior to Release 6, only one console could be specified as an alternate system console. If both the primary and alternate consoles were unavailable at system initialization, VM/370 entered a disabled wait state. With more than one alternate console available for use as a system console, the ability of VM/370 to find a ready and available console that can be used as a system console is improved. The ALTCONS= operand of the RIOPEN macro instruction now accepts the list of alternate console device addresses.

SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on multiple alternate consoles support:

GC20-1801 Planning and System Generation Guide

GC20-1806 Operator's Guide

GC20-1807 System Programmer's Guide

SY20-0884 Data Areas and Control Block Logic

LOGON/AUTOLOG/LINK Journaling Option

LOGON/AUTOLOG/LINK journaling is a system generation option that records all unsuccessful LOGON attempts and all LINK attempts using different possible passwords. LINK journaling records all linking (successful and unsuccessful) including directory links to protected minidisks -- those whose password for the type link being attempted is anything except ALL.

LOGON/AUTOLOG/LINK journaling is provided by generation of new types of accounting records (types 04, 05, and 06). These record types are generated whenever a user reaches an installation defined threshold of invalid passwords in attempting to issue LOGON/AUTOLOG and LINK commands. Additionally, an installation defined userid is notified when a second threshold is reached. Accounting routines that expect only previously defined record types and fail if they encounter any other type, will also fail if the journaling option is chosen since the accounting records generated are new.

This option modifies the current mechanism that limits invalid LOGON/AUTOLOG and LINK commands to a fixed value before disabling those commands. LOGON/AUTOLOG and LINK commands are disabled when an installation defined threshold now specified via the new SYSJRL macro instruction is reached and journaling is set on.

Messages generated when the threshold for consecutive incorrect LOGON/AUTOLOG and LINK passwords has been reached or exceeded are sent to the userid specified in the SYSJRL macro instruction. The system administrator is also notified of unsuccessful uses of the LOGON and LINK commands.

The new JOURNAL operand has been added to the CP QUERY and SET commands to reflect support of LOGON/AUTOLOG/LINK journaling. The QUERY JOURNAL command is used to question the status of the journaling option while the SET JOURNAL command turns LOGON/AUTOLOG/LINK journaling on or off.

To support the LOGON/AUTOLOG/LINK journaling option, two additional control blocks are added:

PWDIBLOK (Password Invalid Block)

JPSCBLOK (Journaling and Password Suppression Control Block)

SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on the LOGCN/AUTOLOG/LINK journaling option:

- GC20-1800 Introduction
- GC20-1801 Planning and System Generation Guide
- GC20-1806 Operator's Guide
- GC20-1807 System Programmer's Guide
- GC20-1808 System Messages
- GC20-1813 Glossary and Master Index
- GC20-1819 CMS User's Guide
- GC20-1820 CP Command Reference for General Users
- GX20-1926 Quick Guide Pocket Reference
- SY20-0884 Data Areas and Control Block Logic
- SY20-0886 System Logic and Problem Determination Guide, Vol. 1

Password-On-The-Command-Line Suppression Option

VM/370 supports the password-on-the-command-line suppression system generation option through which an installation may now prevent disclosure of virtual machine and minidisk passwords to unauthorized personnel. This is accomplished by disallowing passwords entered on the same line as LOGON/AUTOLOG and LINK commands. When this option is selected, passwords must be entered so that they are not displayed (as is the case with the 3270 display family) or so that they are typed upon a mask (as is the case with the 2741 terminal). If this option is chosen, installation users are not able to include passwords on the same line as their LOGON/AUTOLOG and LINK commands.

A virtual machine may also request CP to perform this same service for LINK and AUTOLOG commands passed to CP from a virtual machine via the DIAGNOSE X'8' instruction by turning on the high order bit in R_y (the length register). CMS has also been modified to request suppression of passwords for LINK and AUTOLOG commands entered at the terminal. Password suppression is not required by CMS for LINK or AUTOLOG commands entered from a module or EXEC.

The password-on-the-command-line suppression option is specified at system generation time by the new SYSJRL macro instruction. No facility exists to allow the operator to query, set, or alter the system generated value.

Messages generated when the password is entered on the same line as a LOGON or LINK command are sent to the issuer of that command.

VMBLOK COPY has been modified to reflect support of the password-on-the-command-line suppression option. A new control block, JPSCBLOK, is used to control this option.

SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on the password-on-the-command-line suppression option:

- GC20-1800 Introduction
- GC20-1801 Planning and System Generation Guide
- GC20-1806 Operator's Guide
- GC20-1807 System Programmer's Guide
- GC20-1808 System Messages
- GC20-1813 Glossary and Master Index
- GC20-1819 CMS User's Guide
- GC20-1820 CP Command Reference for General Users
- GX20-1926 Quick Guide Pocket Reference
- SY20-0884 Data Areas and Control Block Logic
- SY20-0886 System Logic and Problem Determination Guide, Vol. 1

Remote Spooling Communications Subsystem (RSCS) Networking Program Product

The Remote Spooling Communications Subsystem Networking program product (Program Number 5748-XP1) is the successor to the current RSCS component of VM/370 and the VM/370 Networking (VNET) Programming PRPQ P09007 (Program Number 5799-ATA). The RSCS Networking program product provides Remote Job Entry into a VM/370 system and allows a VM/370 system to participate in a network of computer systems that use the Network Job Interface/Network Job Entry (NJI/NJE) protocol.

Phased migration to the RSCS Networking program product is possible because RSCS Networking is a superset of either the RSCS component of VM/370 or the VNET PRPQ. RSCS Networking is compatible with both of these facilities, except that the RSCS operator will see minor parameter incompatibilities in the TRACE, QUERY, and CMD commands. The RSCS Networking program product can coexist on the same processor with the RSCS component of VM/370 Release 6 provided that each has its own separate DASD space.

For more detailed information on the RSCS Networking program product, refer to the following list of publications:

GH24-5004 General Information Manual
SH24-5005 Program Reference and Operations Manual
LY24-5203 Logic Manual
SX24-5119 Reference Summary Card

SRL PUBLICATIONS

The following publications contain information on the RSCS Networking program product:

GC20-1800 Introduction
GC20-1801 Planning and System Generation Guide
GC20-1807 System Programmer's Guide

Special Message Facility

The special message facility is a method of transferring special messages from a user to a specially programmed receiving virtual machine for processing. The sender of the message need only issue the new CP command, SMSG, rather than having to establish authorization with the receiving virtual machine.

CP, through its message and Virtual Machine Communication Facility (VMCF) modules, acts as a virtual machine on behalf of the issuer of the SMSG command. The receiving virtual machine must issue an AUTHORIZE and set on the SMSG flag if it wishes to receive special messages. The SMSG flag is set on by issuing the SET SMSG command or by setting the flag in the VMCF parameter list when issuing the AUTHORIZE control subfunction (DIAGNOSE X'68').

The receiving virtual machine is also responsible for accepting and processing the special message that is defined in form and content by the installation. For example, the receiving virtual machine might be programmed to accept only messages containing commands to process user files being sent to remote locations. Existing means and paths of communication and data transfer remain intact. The user still has the CP command, MESSAGE, available to him and he can still exchange data with other virtual machines via mutual authorization.

In addition to the SMSG command, two other CP commands have been modified to reflect support of this facility. The SMSG operand has been added to the SET command to indicate if the receiving virtual machine is to receive special messages. The QUERY SET command is now modified to include a response indicating the special message status, either ON or OFF.

SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on the special message facility:

- GC20-1800 Introduction
- GC20-1801 Planning and System Generation Guide
- GC20-1807 System Programmer's Guide
- GC20-1808 System Messages
- GC20-1818 CMS Command and Macro Reference
- GC20-1819 CMS User's Guide
- GC20-1820 CP Command Reference for General Users
- SY20-0884 Data Areas and Control Block Logic
- SY20-0886 System Logic and Problem Determination Guide, Vol. 1

Modification to the DIAGNOSE X'8' Interface

The CP DIAGNOSE X'8' instruction has been modified to allow any user to receive his DIAGNOSE X'8' response in a user specified virtual storage location. The response to any CP command is now available in machine readable form in the user's virtual storage at the completion of the command. The interface which allows a user to receive DIAGNOSE X'8' responses at his console remains intact.

SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on the modification to the DIAGNOSE X'8' interface:

GC20-1807 System Programmer's Guide

SY20-0886 System Logic and Problem Determination Guide, Vol. 1

Directory Update-In-Place Support

This facility supports the Directory Maintenance program product (Program No. 5748-XE4). It provides the capability for virtual machines with privilege class B to update the CP object directory without running the directory (DMKDIR) program. The CP directory exists in two forms:

- a. Source directory - consists of the set of entries that defines all virtual machines in a VM/370 system. Each virtual machine is defined by a set of statements known as an entry that varies according to the machine specifications desired.
- b. Object directory - consists of the same information as contained in the source directory but in a condensed control block, machine readable format.

Prior to Release 6, the directory program was invoked to translate the entire source directory to the object directory and write the object directory to a system DASD device for each directory change. Given the large number of directory entries consisting of vast numbers of statements, this manner of directory updating was neither time nor resource efficient. By the introduction of the new DIAGNOSE X'84' instruction selected data fields in an online object directory are updated without a full directory program compile run, thereby providing an efficient alternative to running of the directory program. The selected data fields are among those that do not require a change in the object directory size when they are updated. The directory program must still be run, however, when updating requires either an expansion or a contraction of the object directory entries.

Two new copy control blocks, UCNTL and UIPARMS, are used in the new module DMKUDU to perform directory updating.

For more detailed information on the Directory Maintenance program product (Program No. 5748-XE4), refer to the following publications:

GC20-1835 Licensed Program Design Objectives
GC20-1836 General Information Manual
GC20-1837 Licensed Program Specifications
SC20-1839 VM/370 Directory Maintenance Program Product Guide for General Users
SC20-1840 VM/370 Directory Maintenance Program Product Installation and System Administrator's Guide
LY20-0889 VM/370 Directory Maintenance Program Product Program Logic Manual

SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on directory update-in-place support:

GC20-1807 System Programmer's Guide
GC20-1821 Operating Systems in a Virtual Machine
SY20-0884 Data Areas and Control Block Logic
SY20-0886 System Logic and Problem Determination Guide, Vol. 1

Directory Program Fast I/O Support

This support enhances the performance of the directory program (DMKDIR) when run under CMS by using blocking factors during reading and writing of the directory source copy. Without blocking, one 80-byte source record is read at a time resulting in time and resource inefficiency. Through blocking, the amount of I/O required to process the complete file has been reduced, thereby yielding both processor and elapsed time savings.

SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on the directory program fast I/O support:

GC20-1807 System Programmer's Guide

SY20-0884 Data Areas and Control Block Logic

Support for the MSGNOH (Message No Header) Command (CP)

VM/370 now allows a service virtual machine with privilege class B to send unformatted messages to other users of the system. CP neither prefixes these unformatted messages with the standard messenger header (time stamp plus source identifier) nor inserts blank lines between consecutive lines of output. The result is a more efficient method of communication between a VM/370 user and a VM/370 service virtual machine.

SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on VM/370 support of the MSGNOH command:

GC20-1806 Operator's Guide

GC20-1807 System Programmer's Guide

SY20-0884 Data Areas and Control Block Logic

SY20-0886 System Logic and Problem Determination Guide, Vol. 1

Real Inhibit Support

This support adds to CP the capability of handling a read inhibit from a virtual machine when entering passwords and other security data. The read inhibit facility provides the capability for entering data so that it is not displayed or so that it is typed upon a mask. The CCW command code 0E in a virtual channel program is used to communicate a request for a read inhibit from a virtual machine to CP. The determination of terminal device type and the way in which to inhibit a read is now handled by CP. A virtual machine may now prompt a user to input his password during some transaction processing without revealing the password on the display screen or on a spooled printer output copy, thereby enhancing security.

SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on the read inhibit facility:

GC20-1807 System Programmer's Guide

SY20-0884 Data Areas and Control Block Logic

Automatic Reinitialization Support

This support allows a CMS virtual machine to specify that control be given to a reinitialization program as an alternative to entering a disabled wait state after an abend. This support enables the virtual machine to check in the CMS nucleus for a new field, AUSERRST, which is the address of the restart routine. If a valid address is present, control is passed to it. This routine could issue an abend dump and then issue the CP IPL PARM command with the new AUTOOCR option. This would enable a CMS virtual machine to automatically execute its PROFILE EXEC after an IPL command is issued.

SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on automatic reinitialization support:

GC20-1807 System Programmer's Guide

GC20-1820 CP Command Reference for General Users

SY20-0884 Data Areas and Control Block Logic

SY20-0887 System Logic and Problem Determination Guide, Vol. 2

DL/I in a CMS/DOS Environment

DL/1 batch application programs can be written and tested in the CMS/DOS environment.

PUBLICATIONS

The following publication contains information about DL/1:

GH20-1246 DL/1, DOS/VS General Information Manual

Section 2. CP, CMS, RSCS, and IPCS Module Summary

This section lists the modules that have been resequenced, split, changed, deleted, or added during the preparation of this release. It also lists those modules that are used only in attached processor mode.

Resequenced Modules--Release 6

CP

DMKAPI	DMKCQY	DMKFMT	DMKPRG
DMKCCW	DMKCSO	DMKFRE	DMKPRV
DMKCFS	DMKCSQ	DMKHVD	DMKSCN
DMKCKP	DMKCSU	DMKIOE	DMKVDA
DMKCPI	DMKCSV	DMKIOS	DNJVVC
DMKCP5	DMKDDR	DMKLOG	DMKVMA
DMKCPU	DMKDEF	DMKMCD	DMKVSI
DMKCQH	DMKDIR	DMKPAG	DMKV5Q

CMS

DMSARE	DMSDLK	DMSIFC	DMSUPD
DMSBOP	DMSERR	DMSNCP	CMSXCP
DMSBWR	DMSGIO	DMSSCR	DMSZAP

IPCS

DMMDIR
DMMDSC
DMMEDM
DMMFED
DMMMAP
DMMREG
DMMVMB

RSCS

DMTSHL

Split Modules--Release 6

CP

DMKATS (Function now in DMKVMA and DMKATS)
DMKCQH (Function now in DMKCQG and DMKCQH)
DMKCSQ (Function now in DMKCSP and DMKCSQ)
DMKCSV (Function now in DMKCSU and DMKCSV)
DMKVSQ (Function now in DMKVSP and DMKVSQ)

CMS

none

IPCS

none

RSCS

none

Attached Processor (AP) Only Modules--Release 6

CP

DMKAPI
DMKCLK
DMKCPU
DMKEXT
DMKLOK
DMKMCT

CMS

none

IPCS

none

RSCS

none

Changed Modules--Release 6

CP

DMKACO	DMKCQY	DMKIOF	DMKRG
DMKALG	DMKCSB	DMKIOG	DMKRSE
DMKAPI	DMKCSO	DMKIOS	DMKRSE
DMKBLD	DMKCSP	DMKLD00E	DMKSAV
DMKCCH	DMKCST	DMKLNK	DMKSEP
DMKCCW	DMKCSU	DMKLOG	DMKSPL
DMKCDM	DMKDDR	DMKMCC	DMKSSP
DMKCDS	DMKDEF	DMKMCD	DMKSVC
DMKCFC	DMKDGD	DMKMCH	DMKSYM
DMKCFD	DMKDIA	DMKMCT	DMKTMR
DMKCFG	DMKDIR	DMKMIA	DMKTRC
DMKCFH	DMKDMP	DMKMNI	DMKTRD
DMKCFP	DMKDRD	DMKMON	DMKTRM
DMKCFS	DMKDSB	DMKMSG	DMKUSC
DMKCFT	DMKDSP	DMKMSW	DMKVAT
DMKCKP	DMKEMA	DMKNES	DMKVCN
DMKCKS	DMKEMB	DMKNLD	DMKVCA
DMKCNS	DMKEMC	DMKNLE	DMKVDC
DMKCPB	DMKENT	DMKOPR	DMKVDR
DMKCPI	DMKFMT	DMKPAG	DMKVDS
DMKCPS	DMKFRE	DMKPGS	DMKVMA
DMKCPU	DMKGRF	DMKPRG	DMKVMC
DMKCPV	DMKHVC	DMKPRV	DMKVSI
DMKCQG	DMKHVD	DMKPSA	DMKVSP
DMKCQP	DMKIOC	DMKPTR	DMKWRM
DMKCQR	DMKIOE	DMKQCN	VRSIZE

CMS

DMSASM	DMSERR	DMSMOD	DMSSEB
DMSAUD	DMSEXT	DMSNUC	DMSTIO
DMSCPF	DMSINA	DMSOLD	DMSUPC
DMSEDI	DMSINS	DMSSCR	DMSZAP
DMSIDX	DMSLDR		

IPCS

DMMCPA
DMMEDM

RSCS

DMTAXS

New Modules--Release 6

CP

DMKGRT
DMKGRW
DMKIMG

DMKJRL
DMKMSS
DMKNMT

DMKSSS
DMKTCS

DMKULU

CMS

none

IPCS

none

RSCS

none

Deleted Modules--Release 6

CP

none

CMS

none

IPCS

none

RSCS

none

Section 3. Command, Macro Instruction and Service Program Summary

This section presents the names of commands, macro instructions, and service programs that have been added or changed for this release. Each chart identifies the command, macro instruction, or service program that has been changed or added, and the line item support causing the change or addition. Also included in this section are changes and additions to system ABEND codes and WAIT states.

New CP Commands

Priv. Class	Command	Operand	Description	Line Item Support
B	MSGNOH	userid msgtxt	Allows a service virtual machine to send unformatted messages to other users of the system	MSGNOH
G	SMSG	userid|* msgtxt	Used for sending special messages to a virtual machine programmed to accept and process special messages. The userid of the receiving virtual machine is specified.	Special Message Facility

Changes to CP Commands

Priv. Class.	Command	Operand	Description	Line Item Support
A	ATTACH	volid	rdev SYSTEM volser - If the rdev is a 3330V, the MSS volume (volser) is mounted before the rdev is attached as a system device.	3850 MSS
		3330V	rdev userid cuu volser 3330V - MSS volume (volser) is mounted at a real address (rdev) and the rdev is attached to the userid virtual machine as a virtual device (cuu). If 3330V is specified, the virtual device is a 3330V rather than a 3330-1.	3850 MSS
D	BACKSPAC	[file] [pages] [1]	The EOF option in new. If EOF is specified, page counting is started from the end of the last DASD buffer of the spool file instead of from the end of the current buffer.	3800 Printing Subsystem
G,D	CHANGE	PRT	The FLASH option with the name of the overlay is used to generate forms flashing and the flash count. If specified as nn, the first nn copies are flashed and the rest are not.	3800 Printing Subsystem
			MODIFY option used with copy modification name is used to specify the name of the module used for printing a file.	3800 Printing Subsystem
			CHARS option with translate table name is used to specify the name of the character arrangement table used for printing a file.	3800 Printing Subsystem
			FCB option with appropriate FCB name is used to specify the number of lines per inch to print. The proper FCB to load is calculated by VM/370.	3800 Printing Subsystem
			COPY option - if the number of copies is preceded by an asterisk, a file is transmitted to the 3800 only once with the 3800 doing the replication internally one page at a time. Otherwise, the file is transmitted once for each copy desired with VM/370 indicating the copy number to the 3800.	3800 Printing Subsystem

Priv. Class.	Command	Operand	Description	Line Item Support
B	DEFINE	SYSVIRT	Alters the use of the 3330V and reserves it for CP. It cannot be dedicated or attached to a virtual machine.	3850 MSS
		VIRTUAL	Alters the use of the 3330V device so that the device can be dedicated or attached to a virtual machine. It cannot be used as a system volume.	3850 MSS
G	IPL	PARM	The AUTOOCR option enables a carriage return simulation after the CP IPL command is complete. The option also causes a PROFILE EXEC execution.	Auto- matic Reinitia- lization
A,E	MONITOR	LIMIT n,	The SAMPLE option enables the user to specify that a spool file be closed after n samples of data are taken.	VM/370 Measure- ment Facility
		SEEKS	INclude raddr...defines a list of real device addresses for which the SEEKS class of data collection is activated.	VM/370 Measure- ment Facility
			EXclude raddr...defines a list of real device addresses for which data is not collected when the SEEKS class of data collection is activated.	VM/370 Measure- ment Facility
			DElete option specifies that the most recent EXclude or INclude option is deleted. This deletes the list of real device addresses.	VM/370 Measure- ment Facility
			DISplay option displays the current device list.	VM/370 Measure- ment Facility
A	QUERY	JOURNAL LOGON JOURNAL LINK	Allows the status of the journaling option to be interrogated for LINK and LOGON commands.	LOGON/ AUTOLOG/ LINK Journal- ing
G,D	QUERY	PRT	The TBL option gives new information for the spool file.	3800 Printing Subsystem
B	QUERY	PRT raddr	Gives the forms name and image library name.	3800 Printing Subsystem

Priv. Class.	Command	Operand	Description	Line Item Support
G	QUERY	PRT vaddr	Gives the tables name on a virtual printing device.	3800 Printing Subsystem
B	QUERY	DASD	The SYSVIRT option displays the address of the system 3330V volume. The VIRTUAL option displays the address of a virtual machine 3330V device.	3850 MSS
G	QUERY	TERMINAL	Displays current settings of functions controlled by the terminal command. A new (added) response is for the logical tab character.	4331, 4341 Processors
G	QUERY	SET	No change in the command itself. Response now includes status of SMSG (ON or OFF).	Special Message Facility
G	SET	SMSG	Controls whether or not a virtual machine is to receive special messages via the ON or OFF options.	Special Message Facility
G	SPOOL	PRT	The same new options listed for the CHANGE command are applicable for the SPOOL command.	3800 Printing Subsystem
D	START	PRT	The FLASH option gives the flash overlay loaded into the 3800.	3800 Printing Subsystem
			The CHARS option gives the character arrangement table to use for the separator pages.	3800 Printing Subsystem
			The FCB option generates the FCB used for separator pages (6, 8, or 12).	3800 Printing Subsystem
			The IMAGE option generates the named system image library used for tables.	3800 Printing Subsystem
			The PURGE option purges all files with load errors. Default is to HOLD.	3800 Printing Subsystem
G	TERMINAL	TABCHAR	Allows the user to specify his own logical tab character.	4331, 4341 Processors

New VM/370 System Generation Macro Instructions

Macro Instruction	Operand	Description	Line Item Support
SYSJRL	, <u>JOURNAL=NO</u> ,JOURNAL=YES	Specifies whether or not the journaling function is to be operative in the system being system generated.	LOGON/ AUTOLOG/ LINK Journaling
	, <u>STQUERY=NO</u> ,STQUERY=YES	Specifies whether or not the user wishes to SET or QUERY the journaling function.	LOGON/ AUTOLOG/ LINK Journaling
	, <u>LOGUID=OPERATOR</u> ,LOGUID=userid	Specifies the userid to which a message is sent indicating that the user has reached or exceeded an invalid logon password count.	LOGON/ AUTOLOG/ LINK Journaling
	, <u>LOGLMT=(2,3,4)</u> ,LOGLMT=(m,n,o)	Specifies the invalid LOGON/AUTOLOG password thresholds. The m specifies the value after which a type 04 accounting record is generated for each succeeding LOGON/AUTOLOG command containing an invalid password. The n specifies a value after which a message is sent to the user specified for each succeeding LOGON/AUTOLOG command with an invalid password. The o specifies a value after which the LOGON/AUTOLOG command is disabled for the current logon session.	LOGON/ AUTOLOG/ LINK Journaling
	, <u>LNKUID=OPERATOR</u> ,LNKUID=userid	Specifies the userid to which a message is sent indicating that the user has reached or exceeded an invalid link password count.	LOGON/ AUTOLOG/ LINK Journaling
	, <u>LNKLMT=(2,5,10)</u> ,LNKLMT=(m,n,o)	Specifies the invalid LINK password thresholds. The m specifies a value after which a type 06 accounting record is generated for each succeeding LINK containing an invalid password. The n specifies a value after which a message is sent to the userid specified in LNKUID for each succeeding link being attempted. The o specifies a value after which the LINK command is disabled for the current logon session.	LOGON/ AUTOLOG/ LINK Journaling

Macro Instruc- tion	Operand	Description	Line Item Support
SYSJRL	, <u>PSUPRS=NO</u> ,PSUPRS=YES	Specifies whether or not the password-on-the-command-line suppression option should be enabled.	Password- On-The- Command- Line Suppression Option
NAME3800		Allows a 3800 named system to be specified at system generation time. Its format is identical to the NAMENCP macro instruction except the CPTYPE= operand is not used and the chain of named systems is contained in the DMKONTBL csect.	3800 Printing Subsystem

Changes to VM/370 System Generation Macro Instructions

Macro Instruction	Option	Function Type of Action and Description	Line Item Support
NAMESYS	PROTECT= OFF ON	Specified for the named system; when specified, this option sets an indicator in SHRTABLE. If PROTECT=OFF, only one set of page and swap tables is built for this shared segment and no scanning is done for changed shared pages. If PROTECT=ON, (or no protect keyword is specified), scanning is done for changed shared pages. Any changes are disallowed.	Shared Segments
RCTLUNIT	CUTYPE= 3272	Must be specified when a 3278 Model 2A is specified in the RDEVICE macro instruction.	4331, 4341 Processors
RDEVICE	DEVTYPE= 3278	New device type and model number permits generation of the 3278 Model 2A as a system console for the 4331 and 4341 processors.	4331, 4341 Processors
	DEVTYPE= 3278	Permits specification of a 3278 as a real printer (to be supported the same way as a 3284/3286).	4331, 4341 Processors
	DEVTYPE= 3203	Permits specification of a 3203 Model 5 printer as a real printer. If MODEL is not specified, the default is MODEL=4.	3203 Model 5 Processors
	DEVTYPE= 3800 Feature= 4WCGMS	Generates support of a dedicated 3800 printer as a unit record output device.	3800 Printing Subsystem
	FEATURE= SYSVIRT VIRTUAL	Used to specify the allowed usage of a 3330V device address.	3850 MSS
RIOGEN	ALTCONS= (cuu... cuu)	Option now accepts a list of alternate console device addresses.	Multiple Alternate Consoles
SYSOR	TRACE=nnn	Specifies the number of 4K pages used to set up the trace table.	Trace Table Size Change
SYSMON	,LIMIT=	50000, NOSTOP limit, STOP|NOSTOP limit, SAMPLE Specifies that the spool file be closed after a specified number of data samples is taken.	VM/370 Measurement Facility

New and Changed VM/370 Service Programs

Service Program	Control Statement	Description	Line Item Support
DEDICATE	ccu rdev	The real device (rdev) is dedicated to a virtual machine as the virtual device (ccu). CP assumes that the virtual machine is accessing address ccu as a 3330-1.	3850 MSS
	ccu rdev 3330V	The real device (rdev) is dedicated to the virtual machine as a virtual device (ccu). CP assumes that the virtual machine has MSS 3330V support. All cylinder faults and associated attention interruptions on the real device are passed to the virtual machine.	3850 MSS
	ccu volser	CP selects an available 3330V device and causes volume (volser) to be mounted by MSS. The real device is dedicated to the virtual machine as its virtual 3330-1 device ccu.	3850 MSS
	ccu rdev volser	CP mounts the MSS volume (volser) on the real 3330V address (rdev). The real device is dedicated to the virtual machine as a 3330-1 device address (ccu).	3850 MSS
	ccu rdev volser 3330V	Processed the same as ccu rdev volser except that the virtual device becomes a 3330V.	3850 MSS
DMKMSS		A new program that runs under OS/VS1 and MVS in a virtual machine. It is a communications interface between VM/370 CP and mass storage control (MSC).	3850 MSS
GENIMAGE	[fn] [ft] [fm] ([sfn] [sft] [sfm])	Accepts IEBIMAGE control cards and creates a load module suitable for loading into a 3800. This module is saved as a TEXT file on the user's disk.	3800 Printing Subsystem

Service Program	Control Statement	Description	Line Item Support
IMAGELIB	namedsys	This program creates or changes the named system 'namedsys' which contains a series of load modules suitable for loading into a 3800. The list of load modules is contained in a file called namedsys CNTRL.	3800 Printing Subsystem

Changes to System ABEND Codes and WAIT States

Changes to System Abend Codes

The following new abend codes have been added to support VM/370 elimination of automatic unshare:

ATS001
ATS002
ATS003
ATS004
ATS005
ATS006
ATS007

These abend codes replace VMA001 through VMA007 and VMA009. For more detailed explanation of abend codes, refer to VM/370 System Messages, Order No. GC20-1808.

Changes to System Wait States

None

Section 4. VM/370 Publications

This section describes the publications that have been deleted or added to the VM/370 library, and includes the current status of, and any changes to, VM/370 publications.

The VM/370 Library

Figure 0-1, following the preface, shows the structure of the VM/370 library. Essentially, the content and structure of the VM/370 library are unchanged from the previous release with the following exceptions listed in this section.

DELETED PUBLICATIONS

GC20-1831-0 Release 5 Guide

NEW PUBLICATIONS

GC20-1834-0 Release 6 Guide

CURRENT STATUS OF VM/370 PUBLICATIONS AND TNLS

Use the following list to guarantee that all VM/370 publications are current for this release.

<u>TNL Number</u>	<u>Order Number</u>	<u>Abbreviated Title</u>
	GC20-1800-9	Introduction
	GC20-1801-9	Planning and System Generation Guide
	GC20-1806-9	Operator's Guide
	GC20-1807-7	System Programmer's Guide
	GC20-1808-9	System Messages
	GC20-1809-7	OLTSEP and Error Recording Guide
	GC20-1810-8	Terminal User's Guide
	GC20-1813-5	Glossary and Master Index
	GC20-1816-2	RSCS User's Guide
	GC20-1818-2	CMS Command and Macro Reference
	GC20-1819-2	CMS User's Guide
	GC20-1820-3	CP Command Reference for General Users
	GC20-1821-3	Operating Systems in a Virtual Machine
	GC20-1823-3	IPCS User's Guide
	GC20-1834-0	Release 6 Guide
	GBOF-3573	Use this number to order the following three publications as a group:
	GX20-1926-6	Quick Guide for Users
	GX20-1961-4	Commands (General Users)
	GX20-1995-1	Commands (Other than General Users)

<u>TNL Number</u>	<u>Order Number</u>	<u>Abbreviated Title</u>
	SY20-0882-4	Service Routines Program Logic
	SY20-0884-3	Data Areas and Control Block Logic
	SBOF-3802	Use this number to order the following three publications as a group:
	SY20-0886-1	System Logic and Problem Determination Guide Vol. 1 (CP)
	SY20-0887-1	System Logic and Problem Determination Guide Vol. 2 (CMS)
	SY20-0888-0	System Logic and Problem Determination Guide Vol. 3 (RSCS)

EREP PUBLICATIONS

These publications are needed to install and use EREP with VM/370:

<u>TNL Number</u>	<u>Order Number</u>	<u>Abbreviated Title</u>
	GC28-0772-2	OS/VS, DOS/VSE, VM/370 Environmental Recording, Editing, and Printing (EREP) Program
	SY28-0773-2	OS/VS, DOS/VSE, VM/370 Environmental Recording, Editing, and Printing (EREP) Program Logic
	GC38-1045-1	OS/VS, DOS/VSE, VM/370 EREP Messages

Changes to VM/370 Publications

Changes to the content of VM/370 publications are shown in the following chart. The changes reflect the elimination of duplicate information. The chart shows the publications that no longer contain this information and the publications where this information is either retained or added. Also shown are enhancements to material presently in the publications.

Content	Publication	Status
Logon Procedure	Introduction	Enhanced
Shared Segments		Enhanced
3850 MSS		Enhanced
Terminal Model Numbers	Terminal User's Guide	Deleted
Journaling Modules	Data Areas & Cntrl Elk	Enhanced
Directory Service Program	Op Guide Plan and Sys Gen	Deleted Added
CMS Batch	Op Guide CMS User's Guide	Deleted Added
General Information for a VM/370 Virtual Machine	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged
VM/370 Performance Considerations	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged
Virtual Machine Assist	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged
Extended Control Program Support	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged
Virtual=Real Option	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged
Locked Pages Option	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged
Reserved Pages Option	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged
Priority	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged
Favored Execution Option	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged
INDICATE Command for General Users	Op Sys in a Virt Mach Sys Prog Guide CP Com Ref for Gen Users	Deleted Unchanged Unchanged
INDICATE Command for System Analysts	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged
MONITOR Command for System Analysts	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged

Content	Publication	Status
System Operator's Virtual Machine (OPERATOR)	Op Sys in a Virt Mach Plan and Sys Gen	Deleted Added
Virtual Machine to Receive System Dumps (OPERATNS)	Op Sys in a Virt Mach Plan and Sys Gen	Deleted Added
Virtual Machines for Updating and Supporting VM/370 (VMSYS)	Op Sys in a Virt Mach Plan and Sys Gen	Deleted Added
A Hardware Virtual Machine (SERV)	Op Sys in a Virt Mach Plan and Sys Gen	Deleted Added
Controlling a Terminal Session	Op Sys in a Virt Mach CP Com Ref for Gen Users	Deleted Added
Controlling Input/Output Function	Op Sys in a Virt Mach CP Com Ref for Gen Users	Deleted Added
Controlling the Virtual Machine	Op Sys in a Virt Mach CP Com Ref for Gen Users	Deleted Added
Testing/Debugging of Programs	Op Sys in a Virt Mach CP Com Ref for Gen Users	Deleted Added
Processor Model and Channel Model Dependencies	Op Sys in a Virt Mach |	Enhanced|
3850 MSS	Op Sys in a Virt Mach	Enhanced
IEBIMAGE Interface Program MSS Communicator	Service Routines PLM |	Added Added
CP ABEND Codes	Sys Logic and Prob. Det Guide, Volume 1 System Messages	Deleted | Unchanged

Minor Additions to Other Publications Since Their Publication

A release guide is the last publication to be printed in support of a release. As such, information for other publications that is worthy of note but was released too late for inclusion in other publications is documented in this section.

System Logic and Problem Determination Guide, Vol. 1 (CP), SY20-0886-1.

The CP abend codes which were previously documented in this publication are now included only in VM/370 System Messages, GC20-1808-9. This change eliminates duplication of the information within the VM/370 library.

Section 5. Ordering And Distribution Procedures

This section tells the user how to order the VM/370 System Control Program and contains information on the material distributed. To order VM/370, the user should contact his IBM salesman or his local IBM branch office. An initial order includes the base program and available features.

VM/370 is distributed on
1600 and 6250 bpi magnetic tapes.

Basic Program Material

The VM/370 program number is 5749-010. The basic program material consists of:

- A starter system
- VM/370 source files
- The current Release 6 PLC tape. (The Memo to Users file is the second file on the PLC tape).

Machine Readable Material

The feature numbers that should be specified when ordering the basic program machine readable material are given in Figure 5-1.

Restore Unit	1600 bpi		6250 bpi	
	Feature Number	Tapes	Feature Number	Tapes
2314	#5014	3	#5018	3
3330	#5015	3	#5019	3
3340	#5016	3	#5020	3
3350	#5017	3	#5021	3

Figure 5-1. Machine Readable Material for VM/370

Documentation

Beginning with Release 6, no documentation is shipped with the basic program material. However, the following publications contain information pertinent to the basic program material. Copies can be obtained through the user's IBM representative or local IBM branch office, or they can be ordered directly from SLSS (Mechanicsburg).

<u>Order Number</u>	<u>Title</u>
	IBM Virtual Machine Facility/370:
GC20-1834	Release 6 Guide
GC20-1801	Planning and System Generation Guide
GC20-1806	Operator's Guide
GC20-1807	System Programmer's Guide
GC20-1808	System Messages
CG20-1818	CMS Command and Macro Reference
GC20-1819	CMS User's Guide
GC20-1820	CP Command Reference for General Users
GC28-0772	OS/VS, DOS/VSE, VM/370 Environmental Recording, Editing, and Printing (EREP) Program
GC38-1045	OS/VS, DOS/VSE, VM/370 EREP Messages

Optional Program Material

The optional program material associated with VM/370 consists of machine readable material and documentation.

Optional Machine Readable Material

The feature numbers that should be specified when ordering the optional machine readable material are given in Figure 5-2.

Option	1600 bpi		6250 bpi	
	Feature Number	Tapes	Feature Number	Tapes
CP Assembly Listings	#7700	3	#7701	3
CMS Assembly Listings	#7702	2	#7703	2
Assembler Source and Listings	#7704	1	#7705	1
RSCS and IPCS Assembly Listings	#7706	1	#7707	1
CP (AP) Assembly Listings	#7708	2	#7709	2

Figure 5-2. Optional Machine Readable Material for VM/370

Documentation

No documentation is provided with the optional program material. For other related documentation, see "Additional Publications."

Additional Publications

The VM/370 user can obtain the following manuals through his IBM representative or local IBM branch office, or order them directly from SLSS (Mechanicsburg).

<u>Order Number</u>	<u>Title</u>
	IBM Virtual Machine Facility/370:
GC20-1800	Introduction
GC20-1809	OLTSEP and Error Recording Guide
GC20-1810	Terminal User's Guide
GC20-1813	Glossary and Master Index
GC20-1816	Remote Spooling Communication Subsystem (RSCS) User's Guide
GC20-1821	Operating Systems in a Virtual Machine
GC20-1823	Interactive Problem Control System (IPCS) User's Guide
GBOF-3573	Use to order the following group
GX20-1926	Quick Guide for Users
GX20-1961	Commands (General Users)
GX20-1995	Commands (Other than General Users)
SY20-0882	Service Routines Program Logic
SY20-0884	Data Areas and Control Block Logic
SBOF-3802	Use to order the following group
SY20-0886	System Logic and Problem Determination Vol. 1 Control Program (CP)
SY20-0887	System Logic and Problem Determination Vol. 2 Conversational Monitor System (CMS)
SY20-0888	System Logic and Problem Determination Vol. 3 Remote Spool. Comm. Subsys. (RSCS)
GC28-0772	OS/VS Environmental Recording, Editing, and Printing (EREP) Program
GC33-4010	OS/VS, DOS/VS, and VM/370 Assembler Language Manual
GC33-4021	OS/VS, DOS/VS, and VM/370 CMS Assembler Programmer's Guide
GC38-1000	OS/VS Message Library: Mass Storage System (MSS) Messages
SY28-0773	OS/VS, DOS/VSE, VM/370 Environmental Recording, Editing, and Printing (EREP) Program Logic
SY33-8041	OS/VS and VM/370 CMS Assembler Logic Manual

Note: A program logic manual is not available for VM/370 IPCS; refer to VM/370 Service Routines Program Logic.

Microfiche

VM/370 program listings are available on microfiche. The listings are the equivalent of output listings produced by assembling each of the source programs. CP listings reflect macro expansion for the uniprocessor mode of operation (AP=0 or not attached processor) attached processor where applicable. In addition, the attached processor listings (AP=1) are also available.

<u>Order No.</u>	<u>Title</u>
SYB0-0900	CP Listings and CP Label Cross-References Microfiche
SYB0-0901	CMS Listings and CMS Label Cross-Reference Microfiche
SYC0-9000	RSCS Listing and RSCS Label Cross-Reference Microfiche
SYC0-9001	IPCS Listing and IPCS Label Cross-Reference Microfiche
SYC0-9002	CP (AP) Listings and CP label Cross-Reference Microfiche

Note: Microfiche for linkage editor and EREP support under Release 6 is not provided under the VM/370 Microfiche order number but can be ordered using the following number:

Linkage Editor Component ID 5741-SC1-04
Microfiche Order SJD2-2068

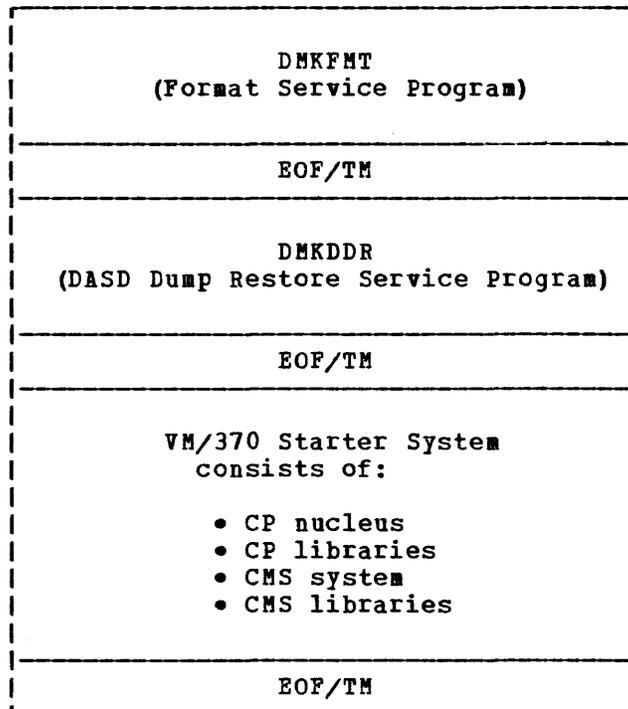
OS/VS2 EREP Listings Component Level 3.8
Microfiche Order SJD2-2156-00 INL No. SNC8-0007

Program Materials List

BASIC SYSTEM TAPES

VM/370 CP Starter System Tape

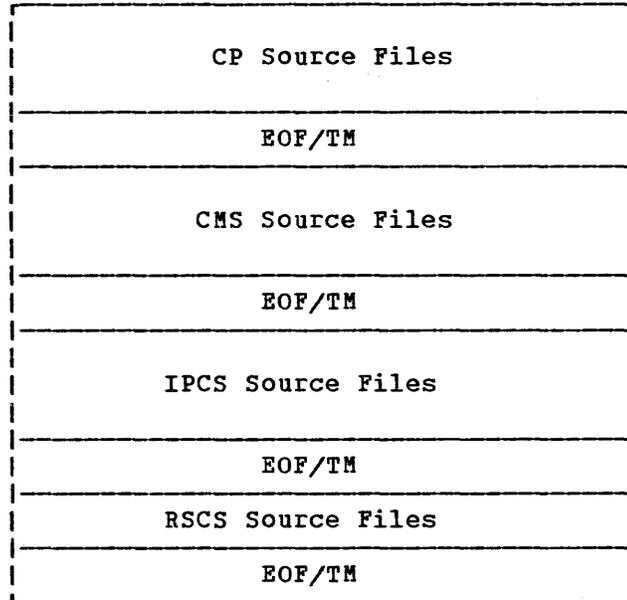
The starter system tape format is:



VM/370 Source Tape

The VM/370 source tape consists of source files and macro instructions. It contains four files. These files are created by the VMFPLC2 module, which exists as a service tool on the CMS system disk (MAINT 190) on the starter system. The operands of the VMFPLC2 command are the same as the CMS TAPE command. This command is also used to create all VM/370 service tapes.

The format of the VM/370 source tape is:



The following four files should be read left to right across columns.

The first file contained on the tape:

ACCOUNT COPY	ACCTOFF COPY	ACCTON COPY
ALLOC COPY	BSCBLOKS COPY	BTUCMD COPY
CCHREC COPY	CCPARM COPY	CONBUF COPY
CORE COPY	CPEXBLOK COPY	DDRREC COPY
DEVTYPE COPY	DMPBLOKS COPY	EQU COPY
ERRBLOK COPY	IOBLOKS COPY	IOER COPY
LOCAL COPY	MCHAREA COPY	MCRECORD COPY
MDRREC COPY	MICBLOK COPY	MIHREC COPY
MONBLOKS COPY	MONCOM COPY	MSSCOM COPY
NCPTBL COPY	NETWORK COPY	NPRTBL COPY
OBRREC COPY	OPTIONS COPY	PGBLOK COPY
PWDIBLOK COPY	RBLOKS COPY	RECPAG COPY
SAVE COPY	SAVTABLE COPY	SDRBLOK COPY
SHRTABLE COPY	SPOOL COPY	SYSTBL COPY
TIMER COPY	TNSREC COPY	TREXT COPY
UCNTRL COPY	UDIRECT COPY	UIPARMS COPY
VBLOKS COPY	VCTCA COPY	VMBLOK COPY
VMCBLOKS COPY	XINTBLOK COPY	ABEND MACRO
CALL MACRO	CHARGE MACRO	CLRIO MACRO
CLUSTER MACRO	COUNT MACRO	CPF MACRO
DECHEX MACRO	ENTER MACRO	EXIT MACRO
GOTO MACRO	GRTBLOK MACRO	HEXDEC MACRO
JPSCBLOK MACRO	LOCK MACRO	MAXDV MACRO
MSG MACRO	NAMENCP MACRO	NAMESYS MACRO
NAME3800 MACRO	PAGTBL MACRO	PSA MACRO
RCHANNEL MACRO	RCTLUNIT MACRO	RDEVICE MACRO

RDVTBL	MACRO	RELOC	MACRO	RIOGEN	MACRO
SIGNAL	MACRO	SWITCH	MACRO	SWTCHVM	MACRO
SYM	MACRO	SYSOR	MACRO	SYSJRL	MACRO
SYSLOCS	MACRO	SYSMON	MACRO	SYSOPR	MACRO
SYSOWN	MACRO	SYSRES	MACRO	SYSTEM	MACRO
SYSTIME	MACRO	TERMINAL	MACRO	TRACE	MACRO
TRANS	MACRO	VMBLK	MACRO	DMKACO	ASSEMBLE
DMKALG	ASSEMBLE	DMKAPI	ASSEMBLE	DMKATS	ASSEMBLE
DMKBLD	ASSEMBLE	DMKBOX	ASSEMBLE	DMKBSC	ASSEMBLE
DMKCCCH	ASSEMBLE	DMKCCW	ASSEMBLE	DMKCDB	ASSEMBLE
DMKCDM	ASSEMBLE	DMKCD	ASSEMBLE	DMKCFC	ASSEMBLE
DMKCFD	ASSEMBLE	DMKCFG	ASSEMBLE	DMKCFH	ASSEMBLE
DMKCFM	ASSEMBLE	DMKCFO	ASSEMBLE	DMKCFP	ASSEMBLE
DMKCF	ASSEMBLE	DMKCF	ASSEMBLE	DMKCKP	ASSEMBLE
DMKCKS	ASSEMBLE	DMKCLK	ASSEMBLE	DMKCNS	ASSEMBLE
DMKCPB	ASSEMBLE	DMKCP	ASSEMBLE	DMKCP	ASSEMBLE
DMKCP	ASSEMBLE	DMKCP	ASSEMBLE	DMKCPV	ASSEMBLE
DMKCG	ASSEMBLE	DMKQH	ASSEMBLE	DMKQ	ASSEMBLE
DMKQR	ASSEMBLE	DMKQY	ASSEMBLE	DMKCSB	ASSEMBLE
DMKCSO	ASSEMBLE	DMKCS	ASSEMBLE	DMKCSQ	ASSEMBLE
DMKCS	ASSEMBLE	DMKCSU	ASSEMBLE	DMKCSV	ASSEMBLE
DMKCVT	ASSEMBLE	DMKDS	ASSEMBLE	DMKDDR	ASSEMBLE
DMKDEF	ASSEMBLE	DMKDG	ASSEMBLE	DMKDIA	ASSEMBLE
DMKDIB	ASSEMBLE	DMKDIR	ASSEMBLE	DMKDMP	ASSEMBLE
DMKDRD	ASSEMBLE	DMKDSB	ASSEMBLE	DMKDSP	ASSEMBLE
DMKEIG	ASSEMBLE	DMKEMA	ASSEMBLE	DMKEMB	ASSEMBLE
DMKEMC	ASSEMBLE	DMKENT	ASSEMBLE	DMKERM	ASSEMBLE
DMKEXT	ASSEMBLE	DMKFCB	ASSEMBLE	DMKFMT	ASSEMBLE
DMKPRE	ASSEMBLE	DMKGIO	ASSEMBLE	DMKGRF	ASSEMBLE
DMKGR	ASSEMBLE	DMKGRW	ASSEMBLE	DMKHVC	ASSEMBLE
DMKHVD	ASSEMBLE	DMKING	ASSEMBLE	DMKIOC	ASSEMBLE
DMKIOE	ASSEMBLE	DMKIOF	ASSEMBLE	DMKIOG	ASSEMBLE
DMKIOS	ASSEMBLE	DMKISM	ASSEMBLE	DMKJRL	ASSEMBLE
DMKLD00E	ASSEMBLE	DMKLNK	ASSEMBLE	DMKLOC	ASSEMBLE
DMKLOG	ASSEMBLE	DMKLOH	ASSEMBLE	DMKLOK	ASSEMBLE
DMKMCC	ASSEMBLE	DMKMCD	ASSEMBLE	DMKMCH	ASSEMBLE
DMKMCT	ASSEMBLE	DMKMIA	ASSEMBLE	DMKMID	ASSEMBLE
DMKMNI	ASSEMBLE	DMKMON	ASSEMBLE	DMKMSG	ASSEMBLE
DMKMSW	ASSEMBLE	DMKNEM	ASSEMBLE	DMKNES	ASSEMBLE
DMKNET	ASSEMBLE	DMKNLD	ASSEMBLE	DMKNLE	ASSEMBLE
DMKNMT	ASSEMBLE	DMKOPR	ASSEMBLE	DMKPAG	ASSEMBLE
DMKPER	ASSEMBLE	DMKPGS	ASSEMBLE	DMKPGT	ASSEMBLE
DMKPRG	ASSEMBLE	DMKPRV	ASSEMBLE	DMKPSA	ASSEMBLE
DMKPTR	ASSEMBLE	DMKQCN	ASSEMBLE	DMKRG	ASSEMBLE
DMKRGB	ASSEMBLE	DMKRND	ASSEMBLE	DMKRNH	ASSEMBLE
DMKRPA	ASSEMBLE	DMKRSE	ASSEMBLE	DMKRSP	ASSEMBLE
DMKSAV	ASSEMBLE	DMKSCH	ASSEMBLE	DMKSCN	ASSEMBLE
DMKSEP	ASSEMBLE	DMKSEV	ASSEMBLE	DMKSIX	ASSEMBLE
DMKSNC	ASSEMBLE	DMKSPL	ASSEMBLE	DMKSSP	ASSEMBLE
DMKSSS	ASSEMBLE	DMKSTK	ASSEMBLE	DMKSVC	ASSEMBLE
DMKSYM	ASSEMBLE	DMKTAP	ASSEMBLE	DMKTBL	ASSEMBLE
DMKTBM	ASSEMBLE	DMKTCS	ASSEMBLE	DMKTDK	ASSEMBLE
DMKTHI	ASSEMBLE	DMKTMR	ASSEMBLE	DMKTRA	ASSEMBLE
DMKTRC	ASSEMBLE	DMKTRD	ASSEMBLE	DMKTRK	ASSEMBLE
DMKTRM	ASSEMBLE	DMKUCB	ASSEMBLE	DMKUCC	ASSEMBLE
DMKUCS	ASSEMBLE	DMKUDR	ASSEMBLE	DMKUDU	ASSEMBLE
DMKUNT	ASSEMBLE	DMKUSO	ASSEMBLE	DMKVAT	ASSEMBLE
DMKVCA	ASSEMBLE	DMKVCH	ASSEMBLE	DMKVCN	ASSEMBLE
DMKVDA	ASSEMBLE	DMKVDC	ASSEMBLE	DMKVDD	ASSEMBLE
DMKVDE	ASSEMBLE	DMKVDR	ASSEMBLE	DMKVDS	ASSEMBLE
DMKVER	ASSEMBLE	DMKVIO	ASSEMBLE	DMKVMA	ASSEMBLE
DMKVMC	ASSEMBLE	DMKVM	ASSEMBLE	DMKVIS	ASSEMBLE
DMKVSP	ASSEMBLE	DMKVSQ	ASSEMBLE	DMKWRM	ASSEMBLE
VRSIZE	ASSEMBLE				

The second file contained on the tape:

ADT	MACRO	ADTGEN	MACRO	ADTSECT	MACRO
AFT	MACRO	AFTSECT	MACRO	BATLIMIT	MACRO
CMSAVE	MACRO	CMSCB	MACRO	CMSCVT	MACRO
COMPSWT	MACRO	CORG	MACRO	DBGSECT	MACRO
DEVTAB	MACRO	DEVSECT	MACRO	DEVTAB	MACRO
DIOSECT	MACRO	DISPW	MACRO	DMSABN	MACRO
DMSABW	MACRO	DMSCCB	MACRO	DMSDM	MACRO
DMSERR	MACRO	DMSERT	MACRO	DMSEXS	MACRO
DMSFREE	MACRO	DMSFRES	MACRO	DMSFRET	MACRO
DMSFREFX	MACRO	DMSFRY	MACRO	DMSFRY	MACRO
DMSFST	MACRO	DMSKEY	MACRO	DMSLN	MACRO
DMSLNC	MACRO	DMSLND	MACRO	DMSLNP	MACRO
DMSLNU	MACRO	DMSLNY	MACRO	DMSLNZ	MACRO
DMSPID	MACRO	DMSTMS	MACRO	EDCB	MACRO
EQUATES	MACRO	EXTSECT	MACRO	FCB	MACRO
FSCB	MACRO	FSCBD	MACRO	FSCLOSE	MACRO
FSINTR	MACRO	FSErase	MACRO	FSOPEN	MACRO
FSPOINT	MACRO	FSREAD	MACRO	FSSTATE	MACRO
FSTB	MACRO	FSTD	MACRO	FSWRITE	MACRO
FVS	MACRO	GETADT	MACRO	GETFST	MACRO
HNDEXT	MACRO	HNDINT	MACRO	HNDSVC	MACRO
IO	MACRO	IOSECT	MACRO	KEYSECT	MACRO
KXCHK	MACRO	LDM	MACRO	LDRST	MACRO
LINEDIT	MACRO	NUCON	MACRO	OSFST	MACRO
OVSECT	MACRO	PDSSECT	MACRO	PGMSECT	MACRO
PRINTL	MACRO	PUNCHC	MACRO	RDCARD	MACRO
RDTAPE	MACRO	RDTERM	MACRO	REGEQU	MACRO
RELPGES	MACRO	STDM	MACRO	STRINIT	MACRO
SUBSECT	MACRO	SVCENT	MACRO	SVCSAVE	MACRO
SVCSECT	MACRO	SYSLOAD	MACRO	SYSNAMES	MACRO
TAPECTL	MACRO	TSOBLKS	MACRO	TSGET	MACRO
USE	MACRO	USERSECT	MACRO	WAITD	MACRO
WAITT	MACRO	WRTAPE	MACRO	WRTERM	MACRO
ABTAB	MACRO	ANCHTAB	MACRO	BBOX	MACRO
BGCOM	MACRO	CCB	MACRO	COMRG	MACRO
CPMOD	MACRO	DOSAVE	MACRO	DOSCB	MACRO
DOSCON	MACRO	DTFCP	MACRO	EOJ	MACRO
EXCP	MACRO	EXCPW	MACRO	FCHTAB	MACRO
FIQI	MACRO	IKQACB	MACRO	IKQEXLST	MACRO
IKQRPL	MACRO	LUBTAB	MACRO	MAPPUB	MACRO
NICL	MACRO	OPENR	MACRO	PCTAB	MACRO
PIBTAB	MACRO	PIB2TAB	MACRO	PUBOWNER	MACRO
PUBTAB	MACRO	STXIT	MACRO	SYSCOM	MACRO
SYSIR	MACRO	DMSABN	ASSEMBLE	DMSACC	ASSEMBLE
DMSACF	ASSEMBLE	DMSACM	ASSEMBLE	DMSALU	ASSEMBLE
DMSAMS	ASSEMBLE	DMSARD	ASSEMBLE	DMSARE	ASSEMBLE
DMSARN	ASSEMBLE	DMSARX	ASSEMBLE	DMSASD	ASSEMBLE
DMSASM	ASSEMBLE	DMSASN	ASSEMBLE	DMSAUD	ASSEMBLE
DMSBAB	ASSEMBLE	DMSBOP	ASSEMBLE	DMSBRD	ASSEMBLE
DMSBTB	ASSEMBLE	DMSBTP	ASSEMBLE	DMSBWR	ASSEMBLE
DMSCAT	ASSEMBLE	DMSCIO	ASSEMBLE	DMSCIT	ASSEMBLE
DMSCLS	ASSEMBLE	DMSCMP	ASSEMBLE	DMSCPF	ASSEMBLE
DMSCPY	ASSEMBLE	DMSCRD	ASSEMBLE	DMSCWR	ASSEMBLE
DMSCWT	ASSEMBLE	DMSDBD	ASSEMBLE	DMSDBG	ASSEMBLE
DMSDIO	ASSEMBLE	DMSDLB	ASSEMBLE	DMSDLK	ASSEMBLE
DMSDMP	ASSEMBLE	DMSDOS	ASSEMBLE	DMSDSK	ASSEMBLE
DMSDSL	ASSEMBLE	DMSDSV	ASSEMBLE	DMSEDC	ASSEMBLE
DMSEDF	ASSEMBLE	DMSEDI	ASSEMBLE	DMSEDX	ASSEMBLE
DMSERR	ASSEMBLE	DMSERS	ASSEMBLE	DMSEXC	ASSEMBLE
DMSEXT	ASSEMBLE	DMSFCH	ASSEMBLE	DMSFET	ASSEMBLE
DMSFLD	ASSEMBLE	DMSFNC	ASSEMBLE	DMSFNS	ASSEMBLE
DMSFOR	ASSEMBLE	DMSFRE	ASSEMBLE	DMSGIO	ASSEMBLE

DMSGLB	ASSEMBLE	DMSGND	ASSEMBLE	DMSGRN	ASSEMBLE
DMSHDI	ASSEMBLE	DMSHDS	ASSEMBLE	DMSIFC	ASSEMBLE
DMSINA	ASSEMBLE	DMSINI	ASSEMBLE	DMSINM	ASSEMBLE
DMSINS	ASSEMBLE	DMSINT	ASSEMBLE	DMSIOW	ASSEMBLE
DMSITE	ASSEMBLE	DMSITI	ASSEMBLE	DMSITP	ASSEMBLE
DMSITS	ASSEMBLE	DMSLAD	ASSEMBLE	DMSLAF	ASSEMBLE
DMSLBM	ASSEMBLE	DMSLBT	ASSEMBLE	DMSLDR	ASSEMBLE
DMSLDS	ASSEMBLE	DMSLFS	ASSEMBLE	DMSLGT	ASSEMBLE
DMSLIB	ASSEMBLE	DMSLIO	ASSEMBLE	DMSLKD	ASSEMBLE
DMSLLU	ASSEMBLE	DMSLOA	ASSEMBLE	DMSLSE	ASSEMBLE
DMSLST	ASSEMBLE	DMSLSY	ASSEMBLE	DMSMDP	ASSEMBLE
DMSMOD	ASSEMBLE	DMSMVE	ASSEMBLE	DMSNCP	ASSEMBLE
DMSNUC	ASSEMBLE	DMSN33	ASSEMBLE	DMSOLD	ASSEMBLE
DMSOPL	ASSEMBLE	DMSOPT	ASSEMBLE	DMSOR1	ASSEMBLE
DMSOR2	ASSEMBLE	DMSOR3	ASSEMBLE	DMSOVR	ASSEMBLE
DMSOVS	ASSEMBLE	DMSPIO	ASSEMBLE	DMSPNT	ASSEMBLE
DMSPRT	ASSEMBLE	DMSPRV	ASSEMBLE	DMSPUN	ASSEMBLE
DMSQRY	ASSEMBLE	DMSRDC	ASSEMBLE	DMSREA	ASSEMBLE
DMSRNE	ASSEMBLE	DMSRNM	ASSEMBLE	DMSROS	ASSEMBLE
DMSRRV	ASSEMBLE	DMSSAB	ASSEMBLE	DMSSBD	ASSEMBLE
DMSSBS	ASSEMBLE	DMSSCN	ASSEMBLE	DMSSCR	ASSEMBLE
DMSSCT	ASSEMBLE	DMSSEB	ASSEMBLE	DMSSCG	ASSEMBLE
DMSSET	ASSEMBLE	DMSSLN	ASSEMBLE	DMSSMN	ASSEMBLE
DMSSOP	ASSEMBLE	DMSSQS	ASSEMBLE	DMSSRT	ASSEMBLE
DMSSRV	ASSEMBLE	DMSSSK	ASSEMBLE	DMSSSTG	ASSEMBLE
DMSSST	ASSEMBLE	DMSSVN	ASSEMBLE	DMSSVT	ASSEMBLE
DMSSYN	ASSEMBLE	DMSS33	ASSEMBLE	DMSTIO	ASSEMBLE
DMSTMA	ASSEMBLE	DMSTPD	ASSEMBLE	DMSTPE	ASSEMBLE
DMSTQQ	ASSEMBLE	DMSTRK	ASSEMBLE	DMSTYP	ASSEMBLE
DMSUPD	ASSEMBLE	DMSVAN	ASSEMBLE	DMSVAS	ASSEMBLE
DMSVIB	ASSEMBLE	DMSVIP	ASSEMBLE	DMSVPD	ASSEMBLE
DMSVSR	ASSEMBLE	DMSVVN	ASSEMBLE	DMSVVS	ASSEMBLE
DMSV33	ASSEMBLE	DMSXCP	ASSEMBLE	DMSZAP	ASSEMBLE
DMSZAT	ASSEMBLE	DMSZIT	ASSEMBLE	DMSZNR	ASSEMBLE
DMSZUS	ASSEMBLE	VMFDATE	ASSEMBLE	VMFLOAD	ASSEMBLE

The third file contained on the tape:

DMMSAVE	COPY	EXCONST	COPY	INTSECT	COPY
MSGCNTRL	COPY	SYMSECT	COPY	MSGP	MACRO
DMMCPA	ASSEMBLE	DMMDIR	ASSEMBLE	DMMDSC	ASSEMBLE
DMMEDM	ASSEMBLE	DMMFED	ASSEMBLE	DMMFEX	ASSEMBLE
DMMGET	ASSEMBLE	DMMGRC	ASSEMBLE	DMMHEX	ASSEMBLE
DMMIDM	ASSEMBLE	DMMINI	ASSEMBLE	DMMINT	ASSEMBLE
DMMIOB	ASSEMBLE	DMMLOC	ASSEMBLE	DMMMAP	ASSEMBLE
DMMMOD	ASSEMBLE	DMMPRG	ASSEMBLE	DMMPRM	ASSEMBLE
DMMPRO	ASSEMBLE	DMMREG	ASSEMBLE	DMMRMV	ASSEMBLE
DMMSCR	ASSEMBLE	DMMSEA	ASSEMBLE	DMMSTA	ASSEMBLE
DMMSUM	ASSEMBLE	DMMTRC	ASSEMBLE	DMMTRN	ASSEMBLE
DMMVMB	ASSEMBLE	DMMWRT	ASSEMBLE		

The fourth file contained on the tape:

ASYNE	COPY	AXSRROUTE	COPY	FREEE	COPY
GIVEE	COPY	IOE	COPY	IOTABLE	COPY
LINKTABL	COPY	RSSEQU	COPY	SVECTORS	COPY
TAG	COPY	TAREA	COPY	TASKE	COPY
ROUTE	COPY	DIAG	MACRO	FREEZE	MACRO
GENLINE	MACRO	GENLINK	MACRO	GENQ	MACRO
GENROUTE	MACRO	GENTAGQ	MACRO	RSCSMMSG	MACRO
DMTAKA	ASSEMBLE	DMTASK	ASSEMBLE	DMTASY	ASSEMBLE
DMTAXS	ASSEMBLE	DMTCMX	ASSEMBLE	DMTCOM	ASSEMBLE
DMTCRE	ASSEMBLE	DMTDSP	ASSEMBLE	DMTEXT	ASSEMBLE
DMTGIV	ASSEMBLE	DMTINI	ASSEMBLE	DMTIOM	ASSEMBLE
DMTLAX	ASSEMBLE	DMTMAP	ASSEMBLE	DMTMGX	ASSEMBLE
DMTMSG	ASSEMBLE	DMTNPT	ASSEMBLE	DMTPST	ASSEMBLE
DMTQRQ	ASSEMBLE	DMTREX	ASSEMBLE	DMTSIG	ASSEMBLE
DMTSML	ASSEMBLE	DMTSTO	ASSEMBLE	DMTSVC	ASSEMBLE
DMTSYS	ASSEMBLE	DMTVEC	ASSEMBLE	DMTWAT	ASSEMBLE

VM/370 PLC Tape

The PLC tape contains all source updates, text decks, modules, macro instructions, and macro instruction libraries, as well as procedures required to build the latest level of CP, CMS, RSCS, and IPCS. The "Memo to Users" file, the second file on the PLC tape, describes the layout of the PLC tape and contains the installation instructions.

OPTIONAL TAPES

Assembler Tapes

The optional XF assembler tape contains three files. This tape is created with the VMFPLC2 command.

The format of the assembler tapes is:

Assembler Source Files
EOF/TM
Assembler Copy Files
EOF/TM
Assembler Listings
EOF/TM

Files contained on the first tape:

IFNX1A	ASSEMBLE	IFNX4S	ASSEMBLE	IFNX6B	ASSEMBLE
IFNX1J	ASSEMBLE	IFNX4T	ASSEMBLE	IFNX6C	ASSEMBLE
IFNX1K	ASSEMBLE	IFNX4V	ASSEMBLE	IFOX0A	ASSEMBLE
IFNX1S	ASSEMBLE	IFNX5A	ASSEMBLE	IFOX0B	ASSEMBLE
IFNX2A	ASSEMBLE	IFNX5C	ASSEMBLE	IFOX0C	ASSEMBLE
IFNX3A	ASSEMBLE	IFNX5D	ASSEMBLE	IFOX0D	ASSEMBLE
IFNX3B	ASSEMBLE	IFNX5F	ASSEMBLE	IFOX0E	ASSEMBLE
IFNX3K	ASSEMBLE	IFNX5L	ASSEMBLE	IFOX0F	ASSEMBLE
IFNX3N	ASSEMBLE	IFNX5M	ASSEMBLE	IFOX0G	ASSEMBLE
IFNX4D	ASSEMBLE	IFNX5P	ASSEMBLE	IFOX0H	ASSEMBLE
IFNX4E	ASSEMBLE	IFNX5V	ASSEMBLE	IFOX0I	ASSEMBLE
IFNX4M	ASSEMBLE	IFNX6A	ASSEMBLE	IFOX0J	ASSEMBLE
IFNX4N	ASSEMBLE				

Files contained on the second tape:

XFMACS	MACLIB	GENERR	COPY	JCSECT	COPY
XFMACS	EXEC	GENOP	COPY	JDUMP	COPY
ASM	COPY	GENTAB	COPY	JENTRY	COPY
BMDSECTS	COPY	GOIF	COPY	JERMSGCD	COPY
CONTAINS	COPY	GOIF1	COPY	JERRCD	COPY
CONTENTS	COPY	GOIF3	COPY	JEXTRN	COPY
DBV	COPY	GOTO	COPY	JFIND	COPY
DCDSWORK	COPY	ICOMMON	COPY	JFLEBLK	COPY
DSW	COPY	IEZBITS	COPY	JFRECORE	COPY
EDSECT	COPY	IEZIOB	COPY	JGEN	COPY
ERMS	COPY	JCALL	COPY	JGENERR	COPY
EVALWORK	COPY	JCHECK	COPY	JGENIN	COPY
GENCOM	COPY	JCOMMON	COPY	JGETCORE	COPY

JGETL	COPY	JPRINT	COPY	OP	COPY
JHEAD	COPY	JPUNCH	COPY	RSYMRCD	COPY
JINCOM	COPY	JPUTL	COPY	RXLFMTS	COPY
JINPUT	COPY	JPUTM	COPY	SPT	COPY
JINST	COPY	JREAD	COPY	TBLGEN	COPY
JMODID	COPY	JRELSE	COPY	XDCDS	COPY
JNOTE	COPY	JRETURN	COPY	XDICT	COPY
JNOTELB	COPY	JSAVE	COPY	XEVAL	COPY
JOUTCOM	COPY	JTEXT	COPY	XFOUR	COPY
JPARM	COPY	JTMTXT	COPY	XSTBL	COPY
JPATCH	COPY	JTPRINT	COPY	X5COM	COPY
JPOINT	COPY	JTRUNC	COPY	X5ERRL	COPY
JPOINTLB	COPY	JWRITE	COPY		

Files contained on the third tape:

IFNX1A	LISTING	IFNX4S	LISTING	IFNX6B	LISTING
IFNX1J	LISTING	IFNX4T	LISTING	IFNX6C	LISTING
IFNX1K	LISTING	IFNX4V	LISTING	IFNX0A	LISTING
IFNX1S	LISTING	IFNX5A	LISTING	IFNX0B	LISTING
IFNX2A	LISTING	IFNX5C	LISTING	IFNX0C	LISTING
IFNX3A	LISTING	IFNX5D	LISTING	IFNX0D	LISTING
IFNX3B	LISTING	IFNX5F	LISTING	IFNX0E	LISTING
IFNX3K	LISTING	IFNX5L	LISTING	IFNX0F	LISTING
IFNX3N	LISTING	IFNX5M	LISTING	IFNX0G	LISTING
IFNX4D	LISTING	IFNX5P	LISTING	IFNX0H	LISTING
IFNX4E	LISTING	IFNX5V	LISTING	IFNX0I	LISTING
IFNX4M	LISTING	IFNX6A	LISTING	IFNX0J	LISTING
IFNX4N	LISTING				

CP, CMS, RSCS and IPCS Tapes

To selectively print a given listing, use the CMS TAPE command to forward space the tape to the given file. Then use the following CMS commands to print the listing:

```
FILEDEF INMOVE TAP1 (BLOCK 8107 LRECL 121 DEN 16001 RECFM FB PERM
FILEDEF OUTMOVE PRINTER (BLOCK 121 LRECL 121 RECFM FA PERM
MOVEFILE
```

Note: The tape to be printed must be attached as 181.

The CP and CMS assembly listing tapes contain 121-character records with a blocksize of 8107.

¹If 6250 bpi tapes are being used, change the density to 6250.

CP Listings Without the Attached Processor Option

Files contained on the first tape:

DMKACO	LISTING	DMKCFP	LISTING	DMKCSO	LISTING
DMKALG	LISTING	DMKCFS	LISTING	DMKCSP	LISTING
DMKATS	LISTING	DMKCFT	LISTING	DMKCSQ	LISTING
DMKBLD	LISTING	DMKCKP	LISTING	DMKCSU	LISTING
DMKBOX	LISTING	DMKCKS	LISTING	DMKCSV	LISTING
DMKBSC	LISTING	DMKCNS	LISTING	DMKCVT	LISTING
DMKCCB	LISTING	DMKCPB	LISTING	DMKCVT	LISTING
DMKCCW	LISTING	DMKCPE	LISTING	DMKCVT	LISTING
DMKCCD	LISTING	DMKCPI	LISTING	DMKCVT	LISTING
DMKCDM	LISTING	DMKCPS	LISTING	DMKCVT	LISTING
DMKCDL	LISTING	DMKCPV	LISTING	DMKCVT	LISTING
DMKCFB	LISTING	DMKCQD	LISTING	DMKCVT	LISTING
DMKCFD	LISTING	DMKCQH	LISTING	DMKCVT	LISTING
DMKCFG	LISTING	DMKCQP	LISTING	DMKCVT	LISTING
DMKCFH	LISTING	DMKCQR	LISTING	DMKCVT	LISTING
DMKCFM	LISTING	DMKCQY	LISTING	DMKCVT	LISTING
DMKCFO	LISTING	DMKCSB	LISTING	DMKCVT	LISTING

Files contained on the second tape:

DMKDSB	LISTING	DMKIOF	LISTING	DMKNES	LISTING
DMKDSP	LISTING	DMKIOG	LISTING	DMKNET	LISTING
DMKEIG	LISTING	DMKIOS	LISTING	DMKNLD	LISTING
DMKEMA	LISTING	DMKISM	LISTING	DMKNLE	LISTING
DMKEMB	LISTING	DMKJRL	LISTING	DMKNMT	LISTING
DMKEMC	LISTING	DMKLD00E	LISTING	DMKOPR	LISTING
DMKENT	LISTING	DMKLNK	LISTING	DMKPAG	LISTING
DMKERM	LISTING	DMKLOC	LISTING	DMKPER	LISTING
DMKFCB	LISTING	DMKLOG	LISTING	DMKPGS	LISTING
DMKFMT	LISTING	DMKLOH	LISTING	DMKPGT	LISTING
DMKPRE	LISTING	DMKMCC	LISTING	DMKPRG	LISTING
DMKGIO	LISTING	DMKMCD	LISTING	DMKPRV	LISTING
DMKGRF	LISTING	DMKMCH	LISTING	DMKPSA	LISTING
DMKGRT	LISTING	DMKMIA	LISTING	DMKPTR	LISTING
DMKGRW	LISTING	DMKMID	LISTING	DMKQCN	LISTING
DMKHVC	LISTING	DMKMNI	LISTING	DMKRGA	LISTING
DMKHVD	LISTING	DMKMON	LISTING	DMKRGE	LISTING
DMKIMG	LISTING	DMKMSG	LISTING	DMKRND	LISTING
DMKIOC	LISTING	DMKMSW	LISTING	DMKRNH	LISTING
DMKIOE	LISTING	DMKNEM	LISTING		

Files contained on the third tape:

DMKRPA	LISTING	DMKTCS	LISTING	DMKVCH	LISTING
DMKRSE	LISTING	DMKTDK	LISTING	DMKVCN	LISTING
DMKRSP	LISTING	DMKTHI	LISTING	DMKVDA	LISTING
DMKSAV	LISTING	DMKTMR	LISTING	DMKVDC	LISTING
DMKSCH	LISTING	DMKTRA	LISTING	DMKVDD	LISTING
DMKSCN	LISTING	DMKTRC	LISTING	DMKVDE	LISTING
DMKSEP	LISTING	DMKTRD	LISTING	DMKVDR	LISTING
DMKSEV	LISTING	DMKTRK	LISTING	DMKVDS	LISTING
DMKSIX	LISTING	DMKTRM	LISTING	DMKVER	LISTING
DMKSNC	LISTING	DMKUCB	LISTING	DMKVIO	LISTING
DMKSPL	LISTING	DMKUCC	LISTING	DMKVMA	LISTING
DMKSSS	LISTING	DMKUCS	LISTING	DMKVMC	LISTING
DMKSSP	LISTING	DMKUDR	LISTING	DMKVMI	LISTING
DMKSTK	LISTING	DMKUDU	LISTING	DMKVSI	LISTING
DMKSVC	LISTING	DMKUNT	LISTING	DMKVSP	LISTING
DMKSYM	LISTING	DMKUSO	LISTING	DMKVSQ	LISTING
DMKTAP	LISTING	DMKVAT	LISTING	DMKWRM	LISTING
DMKTBL	LISTING	DMKVCA	LISTING	VRSIZE	LISTING
DMKTBM	LISTING				

CP Listings With the Attached Processor Option

The following are the module listings only for those modules that differ as a result of implementing the attached processor option. For other CP modules, use the listings under "CP Listings Without the Attached Processor Option."

Files contained on the first tape:

DMKACO	LISTING	DMKCPV	LISTING	DMKLOG	LISTING
DMKALG	LISTING	DMKCSO	LISTING	DMKLOH	LISTING
DMKAPI	LISTING	DMKCSU	LISTING	DMKLOK	LISTING
DMKATS	LISTING	DMKCSV	LISTING	DMKMCH	LISTING
DMKBLD	LISTING	DMKDAS	LISTING	DMKMCT	LISTING
DMKBSC	LISTING	DMKDIA	LISTING	DMKMIA	LISTING
DMKCCH	LISTING	DMKDSB	LISTING	DMKMID	LISTING
DMKCFO	LISTING	DMKDSP	LISTING	DMKMON	LISTING
DMKCFP	LISTING	DMKENT	LISTING	DMKMSG	LISTING
DMKCFT	LISTING	DMKEXT	LISTING	DMKMSW	LISTING
DMKCKS	LISTING	DMKFRE	LISTING	DMKNES	LISTING
DMKCLK	LISTING	DMKGRF	LISTING	DMKNET	LISTING
DMKCNS	LISTING	DMKIOE	LISTING	DMKNLD	LISTING
DMKCPI	LISTING	DMKIOG	LISTING	DMKNLE	LISTING
DMKCPS	LISTING	DMKIOS	LISTING	DMKPAG	LISTING
DMKCPU	LISTING	DMKJRL	LISTING	DMKPRG	LISTING

Files contained on the second tape:

DMKPRV	LISTING	DMKSPL	LISTING	DMKVCA	LISTING
DMKPSA	LISTING	DMKSTK	LISTING	DMKVCH	LISTING
DMKPTR	LISTING	DMKSVC	LISTING	DMKVDA	LISTING
DMKQCN	LISTING	DMKSYM	LISTING	DMKVDD	LISTING
DMKRGA	LISTING	DMKTAP	LISTING	DMKVDE	LISTING
DMKRGB	LISTING	DMKTCS	LISTING	DMKVDR	LISTING
DMKRNH	LISTING	DMKTMR	LISTING	DMKVDS	LISTING
DMKRSE	LISTING	DMKTRK	LISTING	DMKVMA	LISTING
DMKRSP	LISTING	DMKTRM	LISTING	DMKVMC	LISTING
DMKSCH	LISTING	DMKUSO	LISTING	DMKVSI	LISTING
DMKSEP	LISTING	DMKVAT	LISTING		

CMS Listings

Files contained on the first tape:

DMSABN	LISTING	DMSDOS	LISTING	DMSLAD	LISTING
DMSACC	LISTING	DMSDSK	LISTING	DMSLAF	LISTING
DMSACF	LISTING	DMSDSL	LISTING	DMSLBM	LISTING
DMSACM	LISTING	DMSDSV	LISTING	DMSLET	LISTING
DMSALU	LISTING	DMSEDC	LISTING	DMSLDR	LISTING
DMSAMS	LISTING	DMSEDF	LISTING	DMSLDS	LISTING
DMSARD	LISTING	DMSEDI	LISTING	DMSLFS	LISTING
DMSARE	LISTING	DMSEDX	LISTING	DMSLGT	LISTING
DMSARN	LISTING	DMSERR	LISTING	DMSLIB	LISTING
DMSARX	LISTING	DMSERS	LISTING	DMSLIO	LISTING
DMSASD	LISTING	DMSEXC	LISTING	DMSLKD	LISTING
DMSASM	LISTING	DMSEXT	LISTING	DMSLLU	LISTING
DMSASN	LISTING	DMSFCH	LISTING	DMSLOA	LISTING
DMSAUD	LISTING	DMSFET	LISTING	DMSLSE	LISTING
DMSBAB	LISTING	DMSFLD	LISTING	DMSLST	LISTING
DMSBOP	LISTING	DMSFNC	LISTING	DMSLSY	LISTING
DMSBRD	LISTING	DMSFNS	LISTING	DMSMDP	LISTING
DMSBTB	LISTING	DMSFOR	LISTING	DMSMOD	LISTING
DMSBTP	LISTING	DMSFRE	LISTING	DMSHVE	LISTING
DMSBWR	LISTING	DMSGIO	LISTING	DMSNCP	LISTING
DMSCAT	LISTING	DMSGLB	LISTING	DMSNUC	LISTING
DMSCIO	LISTING	DMSGND	LISTING	DMSN33	LISTING
DMSCIT	LISTING	DMSGRN	LISTING	DMSOLD	LISTING
DMSCLS	LISTING	DMSHDI	LISTING	DMSOPL	LISTING
DMSCMP	LISTING	DMSHDS	LISTING	DMSOPT	LISTING
DMSCPF	LISTING	DMSIFC	LISTING	DMSOR1	LISTING
DMSCPY	LISTING	DMSINA	LISTING	DMSOR2	LISTING
DMSCRD	LISTING	DMSINI	LISTING	DMSOR3	LISTING
DMSCWR	LISTING	DMSINM	LISTING	DMSOVR	LISTING
DMSCWT	LISTING	DMSINS	LISTING	DMSOVS	LISTING
DMSDBD	LISTING	DMSINT	LISTING	DMSPIO	LISTING
DMSDBG	LISTING	DMSIOW	LISTING	DMSPNT	LISTING
DMSDIO	LISTING	DMSITE	LISTING	DMSPRT	LISTING
DMSDLB	LISTING	DMSITI	LISTING	DMSPRV	LISTING
DMSDLK	LISTING	DMSITP	LISTING	DMSPUN	LISTING
DMSDMP	LISTING	DMSITS	LISTING	DMSQRY	LISTING

Files contained on the second tape:

DMSRDC	LISTING	DMSSQS	LISTING	DMSVAN	LISTING
DMSREA	LISTING	DMSSRT	LISTING	DMSVAS	LISTING
DMSRNE	LISTING	DMSSRV	LISTING	DMSVIB	LISTING
DMSRNM	LISTING	DMSSSK	LISTING	DMSVIP	LISTING
DMSROS	LISTING	DMSSTG	LISTING	DMSVPD	LISTING
DMSRRV	LISTING	DMSSTT	LISTING	DMSVSR	LISTING
DMSSAB	LISTING	DMSSVN	LISTING	DMSVVN	LISTING
DMSSBD	LISTING	DMSSVT	LISTING	DMSVVS	LISTING
DMSSBS	LISTING	DMSSYN	LISTING	DMSV33	LISTING
DMSSCN	LISTING	DMSS33	LISTING	DMSXCP	LISTING
DMSSCR	LISTING	DMSTIO	LISTING	DMSZAP	LISTING
DMSSCT	LISTING	DMSTMA	LISTING	DMSZAT	LISTING
DMSSEB	LISTING	DMSTPD	LISTING	DMSZIT	LISTING
DMSSSEG	LISTING	DMSTPE	LISTING	DMSZNR	LISTING
DMSSSET	LISTING	DMSTQQ	LISTING	DMSZUS	LISTING
DMSSLN	LISTING	DMSTRK	LISTING	VMFDATE	LISTING
DMSSMN	LISTING	DMSTYP	LISTING	VMFLOAD	LISTING
DMSSOP	LISTING	DMSUPD	LISTING		

IPCS and RSCS Listings

Files contained on this tape:

DMMCPA	LISTING	DMMREG	LISTING	DMTEXT	LISTING
DMMDIR	LISTING	DMMRMV	LISTING	DMTGIV	LISTING
DMMDSC	LISTING	DMMSCR	LISTING	DMTINI	LISTING
DMMEDM	LISTING	DMMSEA	LISTING	DMTION	LISTING
DMMFED	LISTING	DMMSTA	LISTING	DMTLAX	LISTING
DMMFEX	LISTING	DMMSUM	LISTING	DMTHAP	LISTING
DMMGET	LISTING	DMMTRC	LISTING	DMTHGX	LISTING
DMMGRC	LISTING	DMMTRN	LISTING	DMTMSG	LISTING
DMMHEX	LISTING	DMMVMB	LISTING	DMTNPT	LISTING
DMMIDM	LISTING	DMMWRT	LISTING	DMTPST	LISTING
DMMINI	LISTING	DMTAKE	LISTING	DMTQRQ	LISTING
DMMINT	LISTING	DMTASK	LISTING	DMTRES	LISTING
DMMIOB	LISTING	DMTASY	LISTING	DMTSIG	LISTING
DMMLOC	LISTING	DMTAXS	LISTING	DMTSMI	LISTING
DMMMAM	LISTING	DMTCMX	LISTING	DMTSTO	LISTING
DMMMAM	LISTING	DMTCOM	LISTING	DMTSVC	LISTING
DMMPRG	LISTING	DMTCRE	LISTING	DMTVEC	LISTING
DMMPRM	LISTING	DMTDSP	LISTING	DMTWAT	LISTING
DMMPRO	LISTING				

Section 6. Changes to VM/370 Restrictions

A virtual machine created by VM/370 is capable of running in an IBM System/360 or System/370 operating system with certain VM/370 restrictions. The complete list of virtual machine restrictions and certain execution characteristics are contained in VM/370 System Messages, GC20-1808, and in VM/370 Planning and System Generation Guide, GC20-1801.

Significant changes to the VM/370 restrictions are defined in this section.

Dynamically Modified Channel Programs

No changes from the previous release.

Minidisk Restrictions

No changes from the previous release.

Timing Dependencies

No changes from the previous release.

Processor Model Dependent Functions

No changes from the previous release.

Channel Model Dependent Functions

No changes from the previous release.

Virtual Machine Characteristics

No changes from the previous release.

CMS Restrictions

No changes from the previous release.

MSS Restrictions

1. There are two OS/VS system data sets associated with the 3850 Mass Storage System:
 - a. The mass storage volume inventory
 - b. The mass storage volume control journal

There is only one copy of each data set per Mass Storage System, not necessarily one per operating system. If more than one OS/VS system (running in either native mode or in a virtual machine) is connected to a common Mass Storage System, then the OS/VS systems must share a common inventory and journal.

2. When a real 3330V device is dedicated to a virtual machine as a virtual 3330V, the programming support in the virtual machine must recognize and access the virtual device as a 3330V.
3. The following must be compatible:
 - a. The definition of 3330V addresses in the MSC table
 - b. The DMKRIO module
 - c. The IOGEN for any OS/VS system running in a virtual machine with a dedicated MSC port.

The reason for maintaining compatibility and the way to ensure it is explained in VM/370 System Programmer's Guide, GC20-1807.

4. Each active volume in the MSS must have a unique volume number. If the user wishes to have two or more user volumes having the same volume serial (such as different versions of an OS/VS2 system residence volume both having a volume serial of VS2037), then he must create two MSS volumes having different volume serials and allocate the user volumes as minidisks.
5. Mass Storage System volumes may not be used for VM/370 residence, paging, spooling, or temporary disk space.
6. The user must not change the volume of a real 3330V volume (the volume serial as known by the MSC) except by using the OS/VS access method services utilities. If, for example, cylinder 0 of a 3330V is dedicated to a virtual machine, and that virtual machine alters the volume serial using DDR, then the volume cannot be mounted.

Miscellaneous Restrictions

The following new restrictions have been added:

1. VM/370 System Extensions Program Product Release 1 Modification Level 0 and Release 1 Modification Level 1 as well as VM/370 Basic System Extensions Program Product Release 1 applicable to Release 5 do not function on Release 6.

However, VM/370 System Extensions Program Product Release 2 and VM/370 Basic System Extensions Program Product Release 2 function on Release 6 but not on Release 5. These release levels contain all the function of VM/370 Extensions applicable to Release 5 as well as new function for Release 6.

2. When using the SPOOL, DEDICATE, and SPECIAL directory control statements to define virtual devices, the user must specify virtual addresses that do not conflict or contend with the virtual control unit interface. This conflict or contention occurs because devices can require special I/O interface protocol from control units such as shared and nonshared subchannel operations. Putting devices that require different read control units on the same virtual control unit can result in a hung or busy condition. To avoid this problem, the user must define (and separate) devices within their own control unit range. For example, if the directory entries specify:

SPOOL 102 3211

SPECIAL 103 3270

the control unit 0 on channel 1 controls both a nonshared device (the 3211 printer) and a shared device (the 3270 display unit). Processing of channel programs involving these two devices can result in a hung or busy condition.

Section 7. APAR List

The following APARs have been incorporated into this release.

APARs Affecting CP

Z7166DMK	Z7705DMK	Z7846DMK	Z7984DMK
Z7438DMK	Z7735DMK	Z7862DMK	Z8015DMK
Z7575DMK	Z7777DMK	Z7880DMK	Z8038DMK
Z7652DMK	Z7807DMK	Z7902DMK	Z8059DMK
Z7665DMK	Z7834DMK	Z7936DMK	Z8077DMK
Z7702DMK	Z7843DMK	Z7979DMK	Z8104DMK
Z7728DMK	Z7861DMK	Z8012DMK	Z8135DMK
Z7775DMK	Z7875DMK	Z8037DMK	Z8167DMK
Z7801DMK	Z7899DMK	Z8055DMK	Z8187DMK
Z7832DMK	Z7933DMK	Z8075DMK	Z8223DMK
Z7842DMK	Z7972DMK	Z8102DMK	Z8241DMK
Z7860DMK	Z8010DMK	Z8129DMK	Z8275DMK
Z7866DMK	Z8031DMK	Z8161DMK	Z8305DMK
Z7888DMK	Z8054DMK	Z8186DMK	Z8346DMK
Z7932DMK	Z8073DMK	Z8222DMK	Z8365DMK
Z7963DMK	Z8101DMK	Z8237DMK	Z8381DMK
Z8002DMK	Z8126DMK	Z8267DMK	Z8398DMK
Z8030DMK	Z8156DMK	Z8299DMK	Z8415DMK
Z8051DMK	Z8184DMK	Z8336DMK	Z8434DMK
Z8072DMK	Z8218DMK	Z8361DMK	Z8494DMK
Z8098DMK	Z8236DMK	Z8380DMK	Z8521DMK
Z8121DMK	Z8266DMK	Z8394DMK	Z8547DMK
Z8143DMK	Z8291DMK	Z8413DMK	Z8590DMK
Z8180DMK	Z8317DMK	Z8433DMK	Z8614DMK
Z8204DMK	Z8356DMK	Z8481DMK	Z8676DMK
Z8235DMK	Z8379DMK	Z8517DMK	Z8683DMK
Z8263DMK	Z8392DMK	Z8544DMK	Z8698DMK
Z8286DMK	Z8412DMK	Z8576DMK	Z8732DMK
Z8311DMK	Z8431DMK	Z8613DMK	Z8753DMK
Z8355DMK	Z8462DMK	Z8670DMK	Z8805DMK
Z8376DMK	Z8513DMK	Z8682DMK	Z8851DMK
Z8387DMK	Z8540DMK	Z8697DMK	Z8899DMK
Z8405DMK	Z8573DMK	Z8730DMK	Z7271DMK
Z8425DMK	Z8605DMK	Z8747DMK	Z7534DMK
Z8454DMK	Z8667DMK	Z8800DMK	Z7635DMK
Z8511DMK	Z8681DMK	Z8841DMK	Z7662DMK
Z8528DMK	Z8695DMK	Z8890DMK	Z7699DMK
Z8568DMK	Z8728DMK	Z7264DMK	Z7711DMK
Z8602DMK	Z8745DMK	Z7519DMK	Z7763DMK
Z8643DMK	Z8787DMK	Z7613DMK	Z7798DMK
Z8680DMK	Z8840DMK	Z7661DMK	Z7822DMK
Z8691DMK	Z8872DMK	Z7690DMK	Z7837DMK
Z8721DMK	Z7221DMK	Z7710DMK	Z7851DMK
Z8735DMK	Z7505DMK	Z7752DMK	Z7864DMK
Z8777DMK	Z7600DMK	Z7788DMK	Z7885DMK
Z8830DMK	Z7655DMK	Z7816DMK	Z7922DMK
Z8858DMK	Z7684DMK	Z7836DMK	Z7951DMK
Z7171DMK	Z7708DMK	Z7849DMK	Z7988DMK
Z7447DMK	Z7751DMK	Z7863DMK	Z8017DMK
Z7585DMK	Z7779DMK	Z7884DMK	Z8042DMK
Z7653DMK	Z7810DMK	Z7906DMK	Z8060DMK
Z7681DMK	Z7835DMK	Z7949DMK	Z8085DMK

Z8113DMK	Z8677DMK	Z7859DMK	Z8351DMK
Z8139DMK	Z8687DMK	Z7865DMK	Z8375DMK
Z8169DMK	Z8708DMK	Z7887DMK	Z8385DMK
Z8188DMK	Z8733DMK	Z7931DMK	Z8404DMK
Z8228DMK	Z8754DMK	Z7955DMK	Z8419DMK
Z8245DMK	Z8817DMK	Z7990DMK	Z8439DMK
Z8276DMK	Z8853DMK	Z8029DMK	Z8508DMK
Z8306DMK	Z8903DMK	Z8043DMK	Z8527DMK
Z8350DMK	Z7437DMK	Z8064DMK	Z8567DMK
Z8367DMK	Z7568DMK	Z8088DMK	Z8600DMK
Z8384DMK	Z7645DMK	Z8119DMK	Z8639DMK
Z8402DMK	Z7663DMK	Z8140DMK	Z8679DMK
Z8417DMK	Z7700DMK	Z8177DMK	Z8689DMK
Z8438DMK	Z7715DMK	Z8189DMK	Z8717DMK
Z8496DMK	Z7769DMK	Z8229DMK	Z8734DMK
Z8525DMK	Z7800DMK	Z8261DMK	Z8768DMK
Z8555DMK	Z7831DMK	Z8278DMK	Z8818DMK
Z8599DMK	Z7840DMK	Z8310DMK	Z8855DMK
Z8623DMK			

APARs Affecting CMS

Z7040DMS	Z7978DMS	Z7442DMS	Z8020DMS
Z7458DMS	Z8045DMS	Z7488DMS	Z8061DMS
Z7507DMS	Z8082DMS	Z7538DMS	Z8117DMS
Z7569DMS	Z8136DMS	Z7605DMS	Z8149DMS
Z7625DMS	Z8182DMS	Z7636DMS	Z8246DMS
Z7654DMS	Z8280DMS	Z7692DMS	Z8328DMS
Z7754DMS	Z8343DMS	Z7762DMS	Z8357DMS
Z7783DMS	Z8383DMS	Z7792DMS	Z8400DMS
Z7852DMS	Z8493DMS	Z7861DMS	Z8626DMS
Z7903DMS	Z8663DMS	Z7910DMS	Z8756DMS
Z7942DMS	Z8806DMS	Z7964DMS	Z8832DMS
Z7970DMS	Z7429DMS	Z8061DMS	Z7457DMS
Z8044DMS	Z7463DMS	Z8053DMS	Z7501DMS
Z8068DMS	Z7537DMS	Z8112DMS	Z7551DMS
Z8132DMS	Z7597DMS	Z8142DMS	Z7612DMS
Z8168DMS	Z7632DMS	Z8226DMS	Z7647DMS
Z8259DMS	Z7669DMS	Z8298DMS	Z7737DMS
Z8342DMS	Z7758DMS	Z8353DMS	Z7771DMS
Z8378DMS	Z7787DMS	Z8391DMS	Z7824DMS
Z8492DMS	Z7854DMS	Z8542DMS	Z7900DMS
Z8662DMS	Z7909DMS	Z8706DMS	Z7921DMS
Z8798DMS	Z7950DMS	Z8831DMS	Z7968DMS
Z8934DMS	Z7981DMS	Z7444DMS	Z8024DMS
Z7374DMS	Z8048DMS	Z7500DMS	Z8062DMS
Z7460DMS	Z8107DMS	Z7550DMS	Z8125DMS
Z7510DMS	Z8141DMS	Z7610DMS	Z8152DMS
Z7588DMS	Z8214DMS	Z7638DMS	Z8248DMS
Z7631DMS	Z8294DMS	Z7707DMS	Z8338DMS
Z7660DMS	Z8352DMS	Z7764DMS	Z8371DMS
Z7755DMS	Z8388DMS	Z7793DMS	Z8407DMS
Z7785DMS	Z8538DMS	Z7886DMS	Z8655DMS
Z7853DMS	Z8704DMS	Z7914DMS	Z8758DMS
Z7908DMS	Z8808DMS	Z7966DMS	Z8901DMS
Z7944DMS			

APARs Affecting RSCS

Z7451DMT	Z8633DMT	Z8219DMT	Z8751DMT
Z8171DMT	Z7697DMT	Z8725DMT	Z8094DMT
Z8578DMT	Z8193DMT	Z7773DMT	Z8288DMT
Z7621DMT	Z8636DMT	Z8251DMT	Z8779DMT
Z8191DMT	Z7770DMT		

APARs Affecting IPCS

Z8003DMM	Z8707DMM	Z8111DMM	Z8369DMM
Z8574DMM	Z8089DMM	Z8869DMM	Z8569DMM
Z8047DMM	Z8731DMM		

Section 8. Maintaining Compatibility with Supported Hardware and Software

This section defines updates that must be made to hardware products and to programs to ensure that these hardware products and programs remain compatible with this release of VM/370.

VM/370 ECPS Compatibility

1. The Extended Control Program Support (ECPS) installed in the 4331 and 4341 processors must be VM/370 Release 6 level. The ECPS:VM/370 on the 4331 is a subset of that provided on the 4341. The ECPS:VM/370 and the ECPS:VS1 are mutually exclusive on the 4341. The ECPS:VS1 is not available on the 4331.
2. Release 6 of VM/370 is compatible with ECPS:VM/370 Level 18 on the 135-3, 138, 145-3, and 148 processors. The appropriate ECPS:VM/370 support is provided by the following ECs:
 - EC# 149136 and later for the 135-3 processor
 - EC# 149136 and later for the 138 processor
 - EC# 356901 and later for the 145-3 processor
 - EC# 147710 and later for the 148 processor

VM/370 Release 6 executes on these System/370 processors at other earlier EC levels, but the hardware assist is not used.

Programs Utilizing Protected Shared Segments

Programs utilizing protected shared segments must not make changes to these segments and expect the changes to be preserved. If the VM/370 control program encounters a change in a protected shared segment, the changed page is returned to free storage and the violator is placed in console function mode.

Spool File Incompatibility

A Release 6 VM/370 system containing spool files created by VM/370 Release 5 cannot be WARM started. The new Release VM/370 system must be COLD started.

There are no other known compatibility problems between VM/370 Release 6 and other supported programs and hardware products.
--

File No. S370-34
Order No. GC20-1834-0

Systems

IBM Virtual Machine Facility/370: Release 6 Guide

| Release 6 PLC 4

This publication contains information about the scope and content of the IBM Virtual Machine Facility/370 (VM/370). It provides planning and implementation information for installation managers, system programmers, and IBM system hardware and software support personnel. This publication describes:

- New and changed VM/370 features, components, and requirements
- Module summary for CP, CMS, IPCS, and RSCS
- Changes to commands, macro instructions, and service programs
- Changes to VM/370 publications
- Ordering and distribution procedures
- Changes to VM/370 restrictions
- APARS integrated into this release
- Maintaining compatibility with supported hardware and software

The Release Guide does not contain detailed information on VM/370 Extensions, and related program products, or the devices that support them exclusively. However, these Extensions, program products, and devices may be available at the same time as the VM/370 release base. For information on VM/370 System Extensions and VM/370 Basic System Extensions, refer to the appropriate General Information Manual for this release.

Prerequisite Publications

IBM Virtual Machine Facility/370:

Introduction, Order No. GC20-1800

Planning and System Generation, Order
No. GC20-1801



First Edition (March 1979)

This edition (GC20-1834-0), together with Technical Newsletter GN25-0486, dated August 1, 1979, applies to Release 6 PLC 4 (Program Level Change) of the IBM Virtual Machine Facility/370, and to all subsequent releases unless otherwise indicated in new editions or Technical Newsletters. Technical changes and additions to text and illustrations are indicated by a vertical bar to the left of the change.

Changes are periodically made to the information herein; before using this publication in connection with the operation of IBM systems, consult the latest IBM System/370 Bibliography, Order No. GC20-0001, for the editions that are applicable and current.

It is possible that this material may contain references to, or information about, IBM products (machines and programs), programming, or services that are not announced in your country. Such references or information must not be construed to mean that IBM intends to announce such IBM products, programming, or services in your country.

Publications are not stocked at the address given below; requests for copies of IBM publications should be made to your IBM representative or to the IBM branch office serving your locality.

A form for readers' comments is provided at the back of this publication. If the form has been removed, comments may be addressed to IBM Corporation, VM/370 Publications, Dept. D58, Bldg. 706-2, P.O. Box 390, Poughkeepsie, New York 12602. IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation whatever. You may, of course, continue to use the information you supply.

Contents

SECTION 1. SUMMARY OF CHANGES TO THE	Directory Update-In-Place Support . . .	1-24
VM/370 SYSTEM	SRL and Program Logic Publications . .	1-24
Highlights	Directory Program Fast I/O Support . .	1-25
3031 Attached Processor Complex	SRL and Program Logic Publications . .	1-25
Support	Support for the MSGNOH (Message No	
Program Logic Publications	Header) Command	1-26
12 and 16 Megabyte Available Processor	SRL and Program Logic Publications . .	1-26
Storage Capability.	Read Inhibit Support	1-27
4331 and 4341 Processor Support.	SRL and Program Logic Publications . .	1-27
SRL and Program Logic Publications . .	Automatic Reinitialization Support . .	1-28
3203 Model 5 Printer Support	SRL and Program Logic Publications . .	1-28
SRL and Program Logic Publications . .	DL/1 in a CMS/DOS Environment.	1-29
3800 Printing Subsystem Support.	Publications	1-29
Dedicated 3800 Printer Support	Channel-set Switching.	1-30
Support of the 3800 as a Real VM/370	SRL and Program Logic Publications . .	1-30
Spooling Device	Multiple Service Record File	1-30.2
Additional VM/370 Support of the 3800	SRL and Program Logic Publications . .	1-30.2
Printing Subsystem.	3031 AP Extended Control Program	
Creating Control Information for the	Support	1-30.3
3800 Printer.	SRL and Program Logic Publications . .	1-30.3
Named System Support	The 4331 Communications Adapter	
Using the 3800 Printer With	Synchronous Data Link Control	
Standalone Utilities or With a	Support	1-30.4
VM/370 Starter System	SRL and Program Logic Publications . .	1-30.4
Reference Material	CP Dump Services for Virtual	
SRL and Program Logic Publications . .	Machines.	1-30.5
3850 Mass Storage System (MSS)	SRL and Program Logic Publications . .	1-30.5
Extended Support.	3880 Storage Control, Model 1.	1-30.6
SRL and Program Logic Publications . .	SRL and Program Logic Publications . .	1-30.6
VM/370 Measurement Facility (Monitor).	CMS Support for IPCS	1-30.7
Channel and Device Utilization	SRL and Program Logic Publications . .	1-30.7
Storage Utilization.		
Alternate Path Statistics.	SECTION 2. CP, CMS, RSCS, AND IPCS	
AP/UP Usage.	MODULE SUMMARY. . . . .	.2-1
Selective Seeks.	Resequenced Modules -- Release 6 . . . .	.2-1
Monitor-To-Disk Support for Real	CP . . . . .	.2-1
Time.	CMS. . . . .	.2-1
SRL and Program Logic Publications . .	IPCS . . . . .	.2-1
Shared Segment Modifications	RSCS . . . . .	.2-1
Elimination of Automatic Unshare . . .	Split Modules -- Release 6 . . . . .	.2-2
Unprotected Shared Segments.	CP . . . . .	.2-2
SRL and Program Logic Publications . .	CMS. . . . .	.2-2
Trace Table Size Change.	IPCS . . . . .	.2-2
SRL and Program Logic Publications . .	RSCS . . . . .	.2-2
Multiple Alternate Consoles Support. . .	Attached Processor (AP) Only Modules --	
SRL and Program Logic Publications . .	Release 6 . . . . .	.2-2
LOGON/AUTOLOG/LINK Journaling Option .	CP . . . . .	.2-2
SRL and Program Logic Publications . .	CMS. . . . .	.2-2
1-19	IPCS . . . . .	.2-2
Password-On-The-Command-Line	RSCS . . . . .	.2-2
Suppression Option.	Changed Modules -- Release 6 . . . . .	.2-3
SRL and Program Logic Publications . .	CP . . . . .	.2-3
1-20	CMS. . . . .	.2-3
Remote Spooling Communications	IPCS . . . . .	.2-3
Subsystem Networking Program Product.	RSCS . . . . .	.2-3
SRL Publications	New Modules -- Release 6 . . . . .	.2-4
1-21	CP . . . . .	.2-4
Special Message Facility	CMS. . . . .	.2-4
SRL and Program Logic Publications . .	IPCS . . . . .	.2-4
1-22		
Modification to the Diagnose X'8'		
Interface		
1-23		
SRL and Program Logic Publications . .		
1-23		

Deleted Modules -- Release 6 . . . . .	.2-4	PROCEDURES. . . . .	.5-1
CP . . . . .	.2-4	Basic Program Material . . . . .	.5-1
CMS. . . . .	.2-4	Optional Program Material. . . . .	.5-2
IPCS . . . . .	.2-4	Program Materials List . . . . .	.5-4
RSCS . . . . .	.2-4	Basic System Tapes . . . . .	.5-4
		Optional Tapes	5-10
SECTION 3. COMMAND, MACRO INSTRUCTION, AND SERVICE PROGRAM SUMMARY . . . . .	.3-1	SECTION 6. CHANGES TO VM/370	
New CP Commands. . . . .	.3-1	RESTRICTIONS. . . . .	.6-1
Changes to CP Commands . . . . .	.3-2	Dynamically Modified Channel Programs. .6-1	
New VM/370 System Generation Macro Instructions. . . . .	.3-5	Minidisk Restrictions. . . . .	.6-1
Changes to VM/370 System Generation Macro Instructions. . . . .	.3-7	Timing Dependencies. . . . .	.6-1
New and Changed VM/370 Service Programs. . . . .	.3-8.1	Processor Model Dependent Functions. . .6-1	
Changes to System ABEND Codes and Wait STATE Codes . . . . .	.3-9	Channel Model Dependent Functions. . . .6-1	
		Virtual Machine Characteristics.6-1	
SECTION 4. VM/370 PUBLICATIONS . . . . .	.4-1	CMS Restrictions . . . . .	.6-1
The VM/370 Library . . . . .	.4-1	MSS Restrictions . . . . .	.6-2
Deleted Publications . . . . .	.4-1	Miscellaneous Restrictions . . . . .	.6-2
New Publications . . . . .	.4-1	SECTION 7. APAR LIST. . . . .	.7-1
Current Status of VM/370 Publications and TNLs. . . . .	.4-1	APARs Affecting CP . . . . .	.7-1
EREP Publications. . . . .	.4-2	APARs Affecting CMS. . . . .	.7-2
Changes to VM/370 Publications . . . . .	.4-3	APARs Affecting RSCS . . . . .	.7-3
Minor Additions to Other Publications Since their Publication . . . . .	.4-4	APARs Affecting IPCS . . . . .	.7-3
SECTION 5. ORDERING AND DISTRIBUTION		SECTION 8. MAINTAINING COMPATIBILITY WITH SUPPORTED HARDWARE AND SOFTWARE. .8-1	
		VM/370 ECPS Compatibility. . . . .	.8-1
		Programs Utilizing Protected Shared Segments. . . . .	.8-1
		Spool File Incompatibility . . . . .	.8-1

Summary of Amendments
for GC20-1834-0
updated by GN25-0486
VM/370 Release 6 PLC 4

CP DUMP SERVICES FOR VIRTUAL MACHINES

New: Program and Documentation

VM/370 Release 6 PLC 4 supports the VMDUMP command to dump the virtual machine storage. The dump must be processed by the VM/IPCS Extension Program Product, or by a user written routine.

CHANNEL-SET SWITCHING

New: Program and Documentation

The use of Channel-set Switching by VM/370 to increases processor recoverability and availability. Channel-set Switching permits a set of channels to be switched from one processor to another.

MULTIPLE SERVICE RECORDS FILES (SRFS)

New: Program and Documentation

New support is provided to allow VM/370 initialization processing to read frames from multiple SRF devices.

3031 AP EXTENDED CONTROL PROGRAM SUPPORT

Changed: Program and Documentation

The Extended Control-Program Support for VM/370 (ECPS:VM/370) now supports a 3031 processor in an attached processor environment.

THE 4331 COMMUNICATIONS ADAPTER SYNCHRONOUS DATA LINK CONTROL PRODUCT

New: Program and Documentation

VM/370 supports the Synchronous Data Link Control (SDLC) feature of the communications adapter on the 4331 system. It provides the 4331 Communications Adapter with the capability to operate its TP lines in SDLC mode.

3880 STORAGE CONTROL, MODEL 1

New: Program and Documentation

VM/370 supports 333X/3350 attachment via a 3880 Storage Control Model 1 for the 4341, System 370, or 303X Processors.

MISCELLANEOUS

Changed: Documentation only

Several minor literary and editorial changes have been made to this document.

Aug. 1, 1979



Technical Newsletter

This Newsletter No. GN25-0800
Date April 11, 1980

Base Publication No. GC20-1834-0
File No. S370-34 (VM/370
Release 6 PLC 4)

Prerequisite Newsletter GN25-0486

IBM Virtual Machine Facility/370: Release 6 Guide

© Copyright IBM Corp. 1978

This Technical Newsletter contains replacement pages for VM/370 Release 6 Guide to support Service Level 604 of IBM Virtual Machine Facility/370.

Before inserting any of the attached pages into the VM/370 Release 6 Guide, read carefully the instructions on this cover. They indicate when and how you should insert pages.

Pages to
be Removed
None

Attached Pages
to be Inserted*
3-4.1 - 3-4.2

*If you are inserting pages from different Newsletters/Supplements and identical page numbers are involved, always use the pages with the latest date (shown in the slug at the top of the page). The page with the latest date contains the most complete information.

Changes or additions to the text and illustrations are indicated by a vertical line to the left of the change.

Summary of Amendments

This Technical Newsletter incorporates changes reflecting missing pages inadvertently omitted from the previous TNL.

Note: Please file this cover letter at the back of the base publication to provide a record of changes.

Priv. Class.	Command	Operand	Description	Line Item Support
D	START	PRT	The FLASH option gives the flash overlay loaded into the 3800.	3800 Printing Subsystem
			The CHARS option gives the character arrangement table to use for the separator pages.	3800 Printing Subsystem
			The FCB option generates the FCB used for separator pages (6, 8, or 12).	3800 Printing Subsystem
			The IMAGE option generates the named system image library used for tables.	3800 Printing Subsystem
			The PURGE option purges all files with load errors. Default is to HOLD.	3800 Printing Subsystem
G	TERMINAL	TABCHAR	Allows the user to specify his own logical tab character.	4331, 4341 Processors

April 11, 1980



Technical Newsletter

This Newsletter No. GN25-0486
Date August 1, 1979

Base Publication No. GC20-1834-0
File No. S370-34 (VM/370
Release 6 PLC 4)

Prerequisite Newsletters/
Supplements None

IBM Virtual Machine Facility/370: Release 6 Guide

© Copyright IBM Corp. 1978

This Technical Newsletter contains replacement pages for VM/370 Release 6 Guide to support Release 6 PLC 4 of IBM Virtual Machine Facility/370.

Before inserting any of the attached pages into the VM/370 Release 6 Guide, read carefully the instructions on this cover. They indicate when and how you should insert pages.

Pages to <u>be Removed</u> Title, Edition Notice	Attached Pages <u>to be Inserted*</u> Title, Edition Notice
Contents v-vi	Contents v-vi
Summary of Amendments vii-viii	Summary of Amendments vii-viii
1-1 - 1-4	1-1 - 1-4
1-29 - 1-30	1-29 - 1-30.8
3-1 - 3-4	3-1 - 3-4.2
3-7 - 3-10	3-7 - 3-10
4-1 - 4-4	4-1 - 4-4
5-3 - 5-4	5-3 - 5-4
7-1 - 7-2	7-1 - 7-2

*If you are inserting pages from different Newsletters/Supplements and identical page numbers are involved, always use the pages with the latest date (shown in the slug at the top of the page). The page with the latest date contains the most complete information.

Changes or additions to the text and illustrations are indicated by a vertical line to the left of the change.

SUMMARY OF AMENDMENTS

This Technical Newsletter incorporates changes reflecting the following support:

- The 4331 Communications Adapter Synchronous Data Link Control support
- CP Dump Services for Virtual Machines
- CMS Support for IPCS
- Channel-set Switching
- Multiple Service Record Files
- 3031 AP Extended Control Program Support
- 3880 Storage Control, Model 1

Note: Please file this cover letter at the back of the base publication to provide a record of changes.



Section 1. Summary of Changes to the VM/370 System

This section discusses the changes made to the VM/370 system for this release. It also contains information on programs and devices that can use the VM/370 environment or a restricted VM/370 environment without incompatibilities to existing program or device support.

HIGHLIGHTS

The following is a list of new function and new device support for VM/370 Release 6:

- 3031 Attached Processor Complex Support
- 12 and 16 Megabyte Available Processor Storage Capability
- 4331 and 4341 Processor Support
- 3203 Model 5 Printer Support
- 3800 Printing Subsystem Support
- 3850 Mass Storage System (MSS) Extended Support
- VM/370 Measurement Facility (Monitor)
- Trace Table Size Change
- Shared Segment Modifications
- Multiple Alternate Consoles Support
- LOGON/AUTOLOG/LINK Journaling Option
- Password-On-The-Command-Line Suppression Option
- Remote Spooling Communications Subsystem (RSCS) Networking Program Product
- Special Message Facility
- Modification to DIAGNOSE X'8' Interface
- Directory Update-In-Place Support
- Directory Program Fast I/O Support
- Support for Message No Header (MSGNOH) Command
- Read Inhibit Support
- Automatic Reinitialization Support
- DL/1 in a CMS/DOS Environment

3031 Attached Processor Complex Support

VM/370 Release 6 supports the 3031 Attached Processor Complex which consists of a 3031 processor, a 3041 attached processor, a 3036 console with dual displays, and two 3017 power units.

Main storage as well as channel and I/O functions are provided by the 3031 processor. The 3041 attached processor contains an instruction execution function and a buffer control function. This enhances the total system's ability to handle machine language instructions, reduces the effective data storage access time, and speeds processing. The support of this processor requires no code changes to VM/370.

PROGRAM LOGIC PUBLICATIONS

The following publication contains information on VM/370 support of the 3031 Attached Processor Complex:

SY20-0884 Data Areas and Control Block Logic

Aug. 1, 1979

- | • CP Dump Services for Virtual Machines
- | • The 4331 Communications Adapter Synchronous Data Link Control Support
- | • 3031 AP Extended Control Program Support
- | • Channel-set Switching
- | • Multiple Service Record Files
- | • CMS Support for IPCS

- | • 3880 Storage Control, Model 1

Aug. 1, 1979

12 and 16 Megabyte Real Storage Capability

VM/370 supports the 3033 processor whose available processor storage capability is 12 and 16 megabytes. The support of this increased available processor storage capacity requires no code changes to VM/370.

4331 and 4341 Processor Support

The IBM 4300 processors, supported by this release, combine System/370 compatibility with large scale integration (LSI) technology.

The 4331 processor offers processor storage and high speed control storage to accommodate standard functions as well as control storage capability required by optional features. Current System/370 users and new customers can now use interactive and data base/data communications applications. One half megabyte of processor storage is standard on the 4331 with the option of expanding to one megabyte. A wide variety of current I/O devices can be attached to the 4331 processor in addition to new I/O devices that are supported when the VM/370 Basic System Extensions Program Product is installed.

The 4341 processor also offers virtual storage and SCP support with System/370 compatibility. This processor has versatility in applications usage as a commercial, scientific, data acquisition, teleprocessing, or general purpose system. As with the 4331, the 4341 can also use a wide variety of currently available I/O devices, tape units, and display units in addition to the new devices that function only when the installation is running with the VM/370 Basic System Extensions Program Product. Two megabytes of processor storage are standard on the 4341 with the option of expanding to four megabytes.

Release 6 of VM/370 is compatible with ECPS:VM/370 Level 19 on the 4331 and 4341 processors. This support is included in the initial shipment of these processors.

No fixed or I/O extended machine check logout area and no fixed or I/O extended channel check logout area exist for the 4331 and 4341 and no region code (model dependent information) is available. Independent machine checks and channel checks are recorded as they are now. If any dependent machine or channel check occurs, it is recorded on diskette which only customer authorized service personnel can access using a standalone program.

The 3278 Model 2A display station is used as the system console for the 4331 and 4341 processors. The 3278 Model 2A is supported the same as a 3277 with the following differences for the new display station:

- Screen layout differences. 20 lines (80 characters per line) of the 25-line display are used for operator communication. CP and CMS recognize the smaller screen size.

Aug. 1, 1979

DL/I in a CMS/DOS Environment

DL/I batch application programs can be written and tested in the CMS/DOS environment.

PUBLICATIONS

The following publication contains information about DL/I:

GH20-1246 DL/I, DOS/VS General Information Manual

| Channel-set Switching

| The VM/370 support of the Channel-set Switching feature of the 3033 Attached Processor provides increased processor availability and recoverability on this system.

| The Channel-set Switching feature allows the main (I/O) processor to be taken offline (via the VARY command). The system continues to run in uniprocessor mode with the I/O capability switched to the attached processor, thus increasing system availability during main processor preventive maintenance.

| Also, the Channel-set Switching feature allows CP to perform Automatic Processor Recovery in the case of a Time-of-Day clock error on the main processor (provided the main processor was in problem state at the time of the failure). The system converts to uniprocessor mode and continues to run with the Channel-set connected to the attached processor. This increases system recoverability and availability over a main processor failure and servicing.

| For a more detailed discussion, refer to VM/370 Planning and System Generation Guide.

| There are two new instructions provided to support Channel-set Switching. They are:

- | • Disconnect Channel-set
- | • Connect Channel-set

| On a 3033 Attached Processor system, all online channels comprise the Channel-set.

| At initialization time, CP determines whether or not the Channel-set Switching feature is available by executing a connect Channel-set instruction. If the instruction executes successfully the feature is available. CP then records this in the PSAs (a bit is set on) along with the address of the Channel-set of the initiated device. CP tests this bit before attempting to VARY the main processor offline and before attempting to recover from a hardware failure on the main processor. CP uses the Channel-set address in the disconnect and connect Channel-set instructions.

| Note: An '016' disabled wait state will be loaded when the disconnect or connect Channel-set instruction does not work. If this wait state occurs, contact your IBM support personnel.

| SRL AND PROGRAM LOGIC PUBLICATIONS

| The following publications contain information on VM/370 support for Channel Set Switching:

| GC20-1800 Introduction

| GC20-1801 Planning and System Generation Guide

| GC20-1806 Operator's Guide

| GC20-1808 System Messages

- | GC20-1809 OLTSEP and Error Recording Guide
- | SY20-1884 Data Areas and Control Block Logic
- | SY20-1886 System Logic and Problem Determination Guide -- Volume 1

| Multiple Service Record File

| The Service Record File (SRF) device (7443 diskette) supported by VM/370
| allows the enhanced CPEREPE program to be independent of processor model
| and EC level for the 3031, 3032, and 3033 processors. Each 303X
| processor has a 3036 console. The 3036 console has two operating
| stations, designated as the operator's console and the service support
| console. Each operating station contains an SRF device. The SRF
| contains "frames" that consist of format and conversion information used
| to display machine or channel dependent logout data on the service
| support console or on the EREP Edit output. CPEREPE uses the frames to
| format MCH and CCH records for the 3031, 3032, and 3033 Processors. The
| frames are read from the SRF device by VM/370, formatted as records, and
| placed at the beginning of VM's error recording cylinders.

| For a detailed description of CPEREPE's use of SRF frames, refer to
| the VM/370 OLTSEP and Error Recording Guide.

| A 3033 Attached Processor configuration has two 3036 consoles. Each
| of the four operating stations contains an SRF device. VM/370 will
| support the specification of multiple SRF devices at system generation
| on the RIOGEN macro. Each time the VM/370 error recording cylinders are
| formatted, an attempt will be made to access each SRF in the list, and
| to read frames from the device and place them on the error recording
| cylinders. CPEREPE processing will match the error records generated on
| the main or attached processor with the frame records from that
| processor's SRF device. It is recommended that the SRF addresses
| specified be those of the SRFs in the service support consoles. All SRF
| devices may be specified. However, CP processing will ignore
| inaccessible SRF devices.

| For a detailed description of the system generation definition of SRF
| devices, refer to VM/370 Planning and System Generation Guide.

| SRL AND PROGRAM LOGIC PUBLICATIONS

| The following publications contain information on VM/370 support of
| Multiple SRFs:

| GC20-1801 Planning and System Generation Guide

| GC20-1808 System Messages

| GC20-1809 OLTSEP and Error Recording Guide

| GC20-1821 Operating Systems in a Virtual Machine

| SY20-1884 Data Areas and Control Block Logic

| SY20-1886 System Logic and Problem Determination Guide -- Volume 1

| 3031 AP Extended Control Program Support

| The Extended Control-Program Support for VM/370 (ECPS:VM/370) supports
| the 3031 main processor and the 3031 attached processor environment.
| This function is a subset of the same as the previous ECPS: VM/370
| currently available on the processors.

| At initialization, the machine implemented instruction level of the
| two processors in a 3031 attached processor system is tested. If the
| levels of these two processors are different, the CP Assist and Extended
| Virtual Machine Assist portions of the ECPS subset for the 3031 is
| disabled on both the main and attached processor. Otherwise, the
| special 3031 ECPS package is activated.

| The specific subset of functions supported are:

| • Control Program Assist

| FREE	RETURN
| FRET	SHAREDPAGE
| LINK	STECPSVM
| PTRLK	TRANBRNG
| PTRUL	TRANLOCK

| • Extended Virtual Machine Assist

| STPT	TCH
------	-----

| • Virtual Interval Timer

| There are changes to the SET CPASSIST command and the QUERY CPASSIST
| command for attached processor support. The SET command now allows
| processor distinction in the 3031 attached processor environment. The
| QUERY response indicates which processor (main or attached) has the
| function enabled. Trace table entries are also modified to reflect
| instructions assisted by ECPS (bit 0) and whether the assist occurred on
| the main or attached processor (bit 1).

| SRL AND PROGRAM LOGIC PUBLICATIONS

| The following publications contain information on VM/370 support for
| 3031 AP Extended Control Program.

| GC20-1801 Planning and System Generation Guide

| GC20-1806 Operator's Guide

| GC20-1807 System Programmer's Guide

| GC20-1821 Operating Systems in a Virtual Machine

| SY20-1884 Data Areas and Control Block Logic

| SY20-1886 System Logic and Problem Determination Guide -- Volume 1

| The 4331 Communications Adapter Synchronous Data Link Control Support

| VM/370 supports the Synchronous Data Link Control (SDLC) feature of the
| communications adapter on the 4331 system. It provides the 4331
| Communications Adapter with the capability to operate its TP lines in
| SDLC mode.

| SRL AND PROGRAM LOGIC PUBLICATIONS

| The following publications contain information on the SDLC feature of
| the 4331 Communications Adapter:

| GC20-1801 Planning and System Generation Guide

| SY20-1884 Data Areas and Control Block Logic

| CP Dump Services for Virtual Machines

| VM/370 Release 6 PLC 4 supports a new Class G command, VMDUMP, to dump
| virtual machine storage. This new command can be invoked by the
| following methods:

| • A virtual machine issues (via the DIAGNOSE X'08' instruction) A
| VMDUMP command. CP then processes the command, picks up the
| parameter list, and passes control to the Dump Services for
| processing.

| • A user can invoke the Dump Services on a virtual machine failure by
| issuing the VMDUMP command from his terminal.

| The dump that results from using the VMDUMP command must be processed by
| the VM/IPCS Extension program product or by a user written routine.

| SRL AND PROGRAM LOGIC PUBLICATIONS

| The following publications contain information on the VMDUMP command:

| GC20-1801 Planning and System Generation Guide

| GC20-1807 System Programmer's Guide

| GC20-1808 System Messages

| GC20-1820 CP Command Reference for General Users

| SY20-1884 Data Areas and Control Block Logic

| SY20-1886 System Logic and Problem Determination Guide -- Volume 1

| 3880 Storage Control, Model 1

| VM/370 Release 6 PLC 4 supports 333X/3350 attachment via a 3880 Storage
| Control Model 1 for the following:

- | • 4341 Processor
- | • System 370
- | • 303X Processors

| A 3880 is generated as if it were a 3830.

| SRL AND PROGRAM LOGIC PUBLICATIONS

| The following publication contains information on the 3880 attachment of
| 333X/3350:

| GC20-1801 Planning and System Generation

| SY20-1884 Data Areas and Control Block Logic

| CMS Support for IPCS

| The CMS extensions allow guest machines to utilize functions that have
| previously been limited to CP. Problem determination capability is
| improved. CMS will provide the following support:

- | • During abend processing the last message issued prior to the abend
| message is saved.
- | • The NUCON is modified.

| SRL AND PROGRAM LOGIC PUBLICATIONS

| The following publication contains information on CMS support for IPCS:

- | GC20-1806 Operator's Guide
- | SY20-1883 Service Routines
- | SY20-1884 Data Areas and Control Block Logic

Aug. 1, 1979

Section 3. Command, Macro Instruction, and Service Program Summary

This section presents the names of commands, macro instructions, and service programs that have been added or changed for this release. Each chart identifies the command, macro instruction, or service program that has been changed or added, and the line item support causing the change or addition. Also included in this section are changes and additions to system ABEND codes and WAIT states.

NewCPCommands

Priv. Class	Command	Operand	Description	Line Item Support
B	MSGNOH	userid msgtxt	Allows a service virtual machine to send unformatted messages to other users of the system	MSGNOH
G	SMSG	userid|* msgtxt	Used for sending special messages to a virtual machine programmed to accept and process special messages. The userid of the receiving virtual machine is specified.	Special Message Facility
G	VMDUMP	hexloc1 hexloc2 bytecount END TO * TO userid SYSTEM FORMAT vmtype DSS *dumpid	Used to create a dump on a guest virtual machine that can be processed by VM/IPCS Extension program product or a user written routine.	VMDUMP

Changes to CP Commands

Priv. Class.	Command	Operand	Description	Line Item Support
A	ATTACH	volid	rdev SYSTEM volser - If the rdev is a 3330V, the MSS volume (volser) is mounted before the rdev is attached as a system device.	3850 MSS
		3330V	rdev userid cuu volser 3330V - MSS volume (volser) is mounted at a real address (rdev) and the rdev is attached to the userid virtual machine as a virtual device (cuu). If 3330V is specified, the virtual device is a 3330V rather than a 3330-1.	3850 MSS
D	BACKSPAC	[file] [pages] [1]	The EOF option in new. If EOF is specified, page counting is started from the end of the last DASD buffer of the spool file instead of from the end of the current buffer.	3800 Printing Subsystem
G,D	CHANGE	PRT	The FLASH option with the name of the overlay is used to generate forms flashing and the flash count. If specified as nn, the first nn copies are flashed and the rest are not.	3800 Printing Subsystem
			MODIFY option used with copy modification name is used to specify the name of the module used for printing a file.	3800 Printing Subsystem
			CHARS option with translate table name is used to specify the name of the character arrangement table used for printing a file.	3800 Printing Subsystem
			FCB option with appropriate FCB name is used to specify the number of lines per inch to print. The proper FCB to load is calculated by VM/370.	3800 Printing Subsystem
			COPY option - if the number of copies is preceded by an asterisk, a file is transmitted to the 3800 only once with the 3800 doing the replication internally one page at a time. Otherwise, the file is transmitted once for each copy desired with VM/370 indicating the copy number to the 3800.	3800 Printing Subsystem

Priv. Class.	Command	Operand	Description	Line Item Support
B	DEFINE	SYSVIRT	Alters the use of the 3330V and reserves it for CP. It cannot be dedicated or attached to a virtual machine.	3850 MSS
		VIRTUAL	Alters the use of the 3330V device so that the device can be dedicated or attached to a virtual machine. It cannot be used as a system volume.	3850 MSS
G	IPL	PARM	The AUTOOCR option enables a carriage return simulation after the CMS IPL command is complete. The option also causes a PROFILE EXEC execution.	Auto- matic Reinit- ializa- tion
A,E	MONITOR	LIMIT n,	The SAMPLE option enables the user to specify that a spool file be closed after n samples of data are taken.	VM/370 Measure- ment Facility
		SEEKS	INCLUDE raddr...defines a list of real device addresses for which the SEEKS class of data collection is activated.	VM/370 Measure- ment Facility
			EXCLUDE raddr...defines a list of real device addresses for which data is not collected when the SEEKS class of data collection is activated.	VM/370 Measure- ment Facility
			DELETE option specifies that the most recent EXCLUDE or INCLUDE option is deleted. This deletes the list of real device addresses.	VM/370 Measure- ment Facility
			DISPLAY option displays the current device list.	VM/370 Measure- ment Facility
A,B,C, D,F	QUERY	CPASSIST	Indicates the CP Assist and EVMA portions of ECPS: VM/370 is either active or inactive for both processors in a 3031 AP environment.	VM/370: ECPS Extension
A	QUERY	JOURNAL LOGON JOURNAL LINK	Allows the status of the journal- ing option to be interrogated for LINK and LOGON commands.	LOGON/ AUTOLOG/ LINK Journal- ing

Priv. Class.	Command	Operand	Description	Line Item Support
G,D	QUERY	PRT	The TBL option gives new information for the spool file.	3800 Printing Subsystem
B	QUERY	PRT raddr	Gives the forms name and image library name.	3800 Printing Subsystem
G	QUERY	PRT vaddr	Gives the tables name on a virtual printing device.	3800 Printing Subsystem
B	QUERY	DASD	The SYSVIRT option displays the address of the system 3330V volume. The VIRTUAL option displays the address of a virtual machine 3330V device.	3850 MSS
G	QUERY	TERMINAL	Displays current settings of functions controlled by the terminal command. A new (added) response is for the logical tab character.	4331, 4341 Processors
G	QUERY	SET	No change in the command itself. Response now includes status of MSG (ON or OFF).	Special Message Facility
G	SET	SMSG	Controls whether or not a virtual machine is to receive special messages via the ON or OFF options.	Special Message Facility
A	SET	JOURNAL LOGON {ON } {OFF} JOURNAL LINK {ON } {OFF}	The SET command sets LOGON or LINK journaling via the ON or OFF options.	AUTOLOG, LOGON, LINK Journaling
A,B,C	SET	CPASSIST {ON } {OFF} [[PROC]nn]	Controls the use of CP Assist and Extended Virtual Machine Assist by processor in a 3031 AP environment.	VM/370: ECPS Extension
G	SPOOL	PRT	The same new options listed for the CHANGE command are applicable for the SPOOL command.	3800 Printing Subsystem

Changes to VM/370 System Generation Macro Instructions

Macro Instruction	Option	Function Type of Action and Description	Line Item Support
NAMESYS	PROTECT= OFF ON	Specified for the named system; when specified, this option sets an indicator in SHRTABLE. If PROTECT=OFF, only one set of page and swap tables is built for this shared segment and no scanning is done for changed shared pages. If PROTECT=ON, (or no protect keyword is specified), scanning is done for changed shared pages. Any changes are disallowed.	Shared Segments
RCTLUNIT	CUTYPE= 3272	Must be specified when a 3278 Model 2A is specified in the RDEVICE macro instruction.	4331, 4341 Processors
RDEVICE	DEVTYPE= 3278	New device type and model number permits generation of the 3278 Model 2A as a system console for the 4331 and 4341 processors.	4331, 4341 Processors
	DEVTYPE= 3287	Permits specification of a 3287 as a real printer (to be supported the same way as a 3284/3286).	4331, 4341 Processors
	DEVTYPE= 3203	Permits specification of a 3203 Model 5 printer as a real printer. If MODEL is not specified, the default is MODEL=4.	3203 Model 5 Printer
	DEVTYPE= 3800 Feature= 4WCGMS	Generates support of a dedicated 3800 printer as a unit record output device.	3800 Printing Subsystem
	FEATURE= SYSVIRT VIRTUAL	Used to specify the allowed usage of a 3330V device address.	3850 MSS
	CLASS=	This option is not valid when specifying the 7443 diskette as an SRF device in a 303X attached processor environment.	Multiple SRF
RIOGEN	ALTCONS= (cuu,..., cuu)	Option now accepts a list of alternate console device addresses.	Multiple Alternate Consoles
	SRF= (cuu,..., cuu)	Option now accepts a list of service record file device addresses.	Multiple SRF

Macro Instruc- tion	Option	Function Type of Action and Description	Line Item Support
SYSCOR	TRACE=nnn	Specifies the number of 4K pages used to set up the trace table.	Trace Table Size Change
SYSMON	,LIMIT=	50000, NOSTOP limit, STOP|NOSTOP limit, SAMPLE Specifies that the spool file be closed after a specified number of data samples is taken.	VM/370 Measurement Facility

New and Changed VM/370 Service Programs

Service Program	Control Statement	Description	Line Item Support
DEDICATE	ccu rdev	The real device (rdev) is dedicated to a virtual machine as the virtual device (cuu). CP assumes that the virtual machine is accessing address cuu as a 3330-1.	3850 MSS
	ccu rdev 3330V	The real device (rdev) is dedicated to the virtual machine as a virtual device (cuu). CP assumes that the virtual machine has MSS 3330V support. All cylinder faults and associated attention interruptions on the real device are passed to the virtual machine.	3850 MSS
	ccu volser	CP selects an available 3330V device and causes volume (volser) to be mounted by MSS. The real device is dedicated to the virtual machine as its virtual 3330-1 device cuu.	3850 MSS
	ccu rdev volser	CP mounts the MSS volume (volser) on the real 3330V address (rdev). The real device is dedicated to the virtual machine as a 3330-1 device address (cuu).	3850 MSS
	ccu rdev volser 3330V	Processed the same as cuu rdev volser except that the virtual device becomes a 3330V.	3850 MSS
DMKMSS		A new program that runs under OS/VS1 and MVS in a virtual machine. It is a communications interface between VM/370 CP and mass storage control (MSC).	3850 MSS
GENIMAGE	[fn] [ft].[fm] ([sfn] [sft] [sfm])	Accepts IEBIMAGE control cards and creates a load module suitable for loading into a 3800. This module is saved as a TEXT file on the user's disk.	3800 Printing Subsystem

Aug. 1, 1979

Service Program	Control Statement	Description	Line Item Support
IMAGELIB	namedsys	This program creates or changes the named system 'namedsys' which contains a series of load modules suitable for loading into a 3800. The list of load modules is contained in a file called namedsys CNTRL.	3800 Printing Subsystem

Changes to System Abend Codes and Wait State Codes

Changes to System Abend Codes

The following new abend codes have been added to support VM/370 elimination of automatic unshare:

ATS001
 ATS002
 ATS003
 ATS004
 ATS005
 ATS006
 ATS007

These abend codes replace VMA001 through VMA007 and VMA009. For more detailed explanation of abend codes, refer to VM/370 System Messages, Order No. GC20-1808.

A new abend code VMD001 has been added to support CP Dump Services.

Changes to System Wait State Codes

Wait State X'016' has been added for Channel-set Switching support.

Aug. 1, 1979

Section 4. VM/370 Publications

This section describes the publications that have been deleted or added to the VM/370 library, and includes the current status of, and any changes to, VM/370 publications.

The VM/370 Library

Figure 0-1, following the preface, shows the structure of the VM/370 library. Essentially, the content and structure of the VM/370 library are unchanged from the previous release with the following exceptions listed in this section.

DELETED PUBLICATIONS

GC20-1831-0 Release 5 Guide

NEW PUBLICATIONS

GC20-1834-0 Release 6 Guide

CURRENT STATUS OF VM/370 PUBLICATIONS AND TNLS

Use the following list to guarantee that all VM/370 publications are current for this release.

TNL Number	Order Number	Abbreviated Title
| GN25-0489	GC20-1800-9	Introduction
| GN25-0490	GC20-1801-9	Planning and System Generation Guide
| GN25-0491	GC20-1806-9	Operator's Guide
| GN25-0492	GC20-1807-7	System Programmer's Guide
| GN25-0485	GC20-1808-10	System Messages
| GN25-0493	GC20-1809-7	OLTSEP and Error Recording Guide
	GC20-1810-8	Terminal User's Guide
	GC20-1813-5	Glossary and Master Index
	GC20-1816-2	RSCS User's Guide
	GC20-1818-2	CMS Command and Macro Reference
	GC20-1819-2	CMS User's Guide
| GN25-0494	GC20-1820-3	CP Command Reference for General Users
| GN25-0495	GC20-1821-3	Operating Systems in a Virtual Machine
	GC20-1823-3	IPCS User's Guide
| GN25-0486	GC20-1834-0	Release 6 Guide
	GBOF-3573	Use this number to order the following three publications as a group:
	GX20-1926-6	Quick Guide for Users
	GX20-1961-4	Commands (General Users)
	GX20-1995-1	Commands (Other than General Users)

TNL Number	Order Number	Abbreviated Title
| SN25-0496	SY20-0882-4	Service Routines Program Logic
| SN25-0497	SY20-0884-3	Data Areas and Control Block Logic
	SBOF-3802	Use this number to order the following three publications as a group:
| SN25-0488	SY20-0886-1	System Logic and Problem Determination Guide Vol. 1 (CP)
	SY20-0887-1	System Logic and Problem Determination Guide Vol. 2 (CMS)
	SY20-0888-0	System Logic and Problem Determination Guide Vol. 3 (RSCS)

EREP PUBLICATIONS

These publications are needed to install and use EREP with VM/370:

TNL Number	Order Number	Abbreviated Title
	GC28-0772-2	OS/VS, DOS/VSE, VM/370 Environmental Recording, Editing, and Printing (EREP) Program
	SY28-0773-2	OS/VS, DOS/VSE, VM/370 Environmental Recording, Editing, and Printing (EREP) Program Logic
	GC38-1045-1	OS/VS, DOS/VSE, VM/370 EREP Messages

Changes to VM/370 Publications

Changes to the content of VM/370 publications are shown in the following chart. The changes reflect the elimination of duplicate information. The chart shows the publications that no longer contain this information and the publications where this information is either retained or added. Also shown are enhancements to material presently in the publications.

Content	Publication	Status
Logon Procedure	Introduction	Enhanced
Shared Segments		Enhanced
3850 MSS		Enhanced
Terminal Model Numbers	Terminal User's Guide	Deleted
Journaling Modules	Data Areas & Cntrl Blk	Enhanced
Directory Service Program	Op Guide Plan and Sys Gen	Deleted Added
CMS Batch	Op Guide CMS User's Guide	Deleted Added
General Information for a VM/370 Virtual Machine	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged
VM/370 Performance Considerations	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged
Virtual Machine Assist	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged
Extended Control Program Support	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged
Virtual=Real Option	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged
Locked Pages Option	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged
Reserved Pages Option	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged
Priority	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged
Favored Execution Option	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged
INDICATE Command for General Users	Op Sys in a Virt Mach Sys Prog Guide CP Com Ref for Gen Users	Deleted Unchanged Unchanged
INDICATE Command for System Analysts	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged
MONITOR Command for System Analysts	Op Sys in a Virt Mach Sys Prog Guide	Deleted Unchanged

Aug. 1, 1979

Content	Publication	Status
System Operator's Virtual Machine (OPERATOR)	Op Sys in a Virt Mach Plan and Sys Gen	Deleted Added
Virtual Machine to Receive System Dumps (OPERATNS)	Op Sys in a Virt Mach Plan and Sys Gen	Deleted Added
Virtual Machines for Updating and Supporting VM/370 (VMSYS)	Op Sys in a Virt Mach Plan and Sys Gen	Deleted Added
A Hardware Virtual Machine (SERV)	Op Sys in a Virt Mach Plan and Sys Gen	Deleted Added
Controlling a Terminal Session	Op Sys in a Virt Mach CP Com Ref for Gen Users	Deleted Added
Controlling Input/Output Function	Op Sys in a Virt Mach CP Com Ref for Gen Users	Deleted Added
Controlling the Virtual Machine	Op Sys in a Virt Mach CP Com Ref for Gen Users	Deleted Added
Testing/Debugging of Programs	Op Sys in a Virt Mach CP Com Ref for Gen Users	Deleted Added
Processor Model and Channel Model Dependencies	Op Sys in a Virt Mach |	Enhanced|
3850 MSS	Op Sys in a Virt Mach	Enhanced
IEBIMAGE Interface Program MSS Communicator	Service Routines PLM |	Added Added
CP ABEND Codes	Sys Logic and Prob. Det Guide, Volume 1 System Messages	Deleted | Unchanged

Minor Additions to Other Publications Since Their Publication

A release guide is the last publication to be printed in support of a release. As such, information for other publications that is worthy of note but was released too late for inclusion in other publications is documented in this section.

System Logic and Problem Determination Guide, Vol. 1 (CP), SY20-0886-1.

The CP abend codes which were previously documented in this publication are now included only in VM/370 System Messages, GC20-1808-9. This change eliminates duplication of the information within the VM/370 library.

Documentation

No documentation is provided with the optional program material. For other related documentation, see "Additional Publications."

Additional Publications

The VM/370 user can obtain the following manuals through his IBM representative or local IBM branch office, or order them directly from SLSS (Mechanicsburg).

<u>Order Number</u>	<u>Title</u>
	IBM Virtual Machine Facility/370:
GC20-1800	Introduction
GC20-1809	OLTSEP and Error Recording Guide
GC20-1810	Terminal User's Guide
GC20-1813	Glossary and Master Index
GC20-1816	Remote Spooling Communication Subsystem (RSCS) User's Guide
GC20-1821	Operating Systems in a Virtual Machine
GC20-1823	Interactive Problem Control System (IPCS) User's Guide
GBOF-3573	Use to order the following group
GX20-1926	Quick Guide for Users
GX20-1961	Commands (General Users)
GX20-1995	Commands (Other than General Users)
SY20-0882	Service Routines Program Logic
SY20-0884	Data Areas and Control Block Logic
SBOF-3802	Use to order the following group
SY20-0886	System Logic and Problem Determination Vol. 1 Control Program (CP)
SY20-0887	System Logic and Problem Determination Vol. 2 Conversational Monitor System (CMS)
SY20-0888	System Logic and Problem Determination Vol. 3 Remote Spool. Comm. Subsys. (RSCS)
GC33-4010	OS/VS, DOS/VS, and VM/370 Assembler Language Manual
GC33-4021	OS/VS, DOS/VS, and VM/370 CMS Assembler Programmer's Guide
GC38-1000	OS/VS Message Library: Mass Storage System (MSS) Messages
SY28-0773	OS/VS, DOS/VSE, VM/370 Environmental Recording, Editing, and Printing (EREP) Program Logic
SY33-8041	OS/VS and VM/370 CMS Assembler Logic Manual

Note: A program logic manual is not available for VM/370 IPCS; refer to VM/370 Service Routines Program Logic.

Microfiche

VM/370 program listings are available on microfiche. The listings are the equivalent of output listings produced by assembling each of the source programs. CP listings reflect macro expansion for the uniprocessor mode of operation (AP=0 or not attached processor) attached processor where applicable. In addition, the attached processor listings (AP=1) are also available.

Aug. 1, 1979

<u>Order No.</u>	<u>Title</u>
SYB0-0900	CP Listings and CP Label Cross-References Microfiche
SYB0-0901	CMS Listings and CMS Label Cross-Reference Microfiche
SYC0-9000	RSCS Listing and RSCS Label Cross-Reference Microfiche
SYC0-9001	IPCS Listing and IPCS Label Cross-Reference Microfiche
SYC0-9002	CP (AP) Listings and CP label Cross-Reference Microfiche

Note: Microfiche for linkage editor and EREP support under Release 6 is not provided under the VM/370 Microfiche order number but can be ordered using the following number:

Linkage Editor Component ID 5741-SC1-04
Microfiche Order SJD2-2068

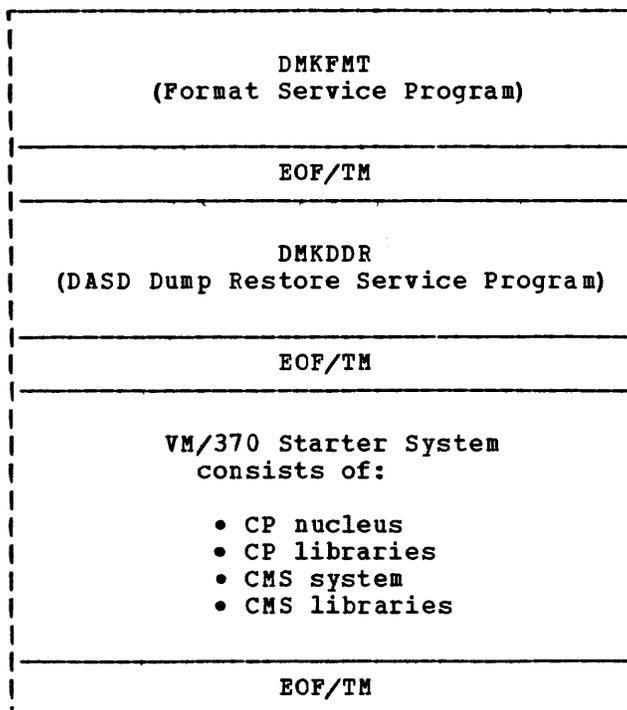
OS/VS2 EREP Listings Component Level 3.8
Microfiche Order SJD2-2156-00 TNL No. SNC8-0007

Program Materials List

BASIC SYSTEM TAPES

VM/370 CP Starter System Tape

The starter system tape format is:



Section 7. APAR LIST

The following APARs (listed in alphmeric order) have been incorporated into this release.

APARs Affecting CP

Z7166DMK	Z7816DMK	Z8030DMK	Z8241DMK
Z7171DMK	Z7822DMK	Z8031DMK	Z8245DMK
Z7221DMK	Z7831DMK	Z8037DMK	Z8261DMK
Z7264DMK	Z7832DMK	Z8038DMK	Z8263DMK
Z7271DMK	Z7834DMK	Z8042DMK	Z8266DMK
Z7437DMK	Z7835DMK	Z8043DMK	Z8267DMK
Z7438DMK	Z7836DMK	Z8051DMK	Z8275DMK
Z7447DMK	Z7837DMK	Z8054DMK	Z8276DMK
Z7505DMK	Z7840DMK	Z8055DMK	Z8278DMK
Z7519DMK	Z7842DMK	Z8059DMK	Z8286DMK
Z7534DMK	Z7843DMK	Z8060DMK	Z8291DMK
Z7568DMK	Z7846DMK	Z8064DMK	Z8299DMK
Z7575DMK	Z7849DMK	Z8072DMK	Z8305DMK
Z7585DMK	Z7851DMK	Z8073DMK	Z8306DMK
Z7600DMK	Z7859DMK	Z8075DMK	Z8310DMK
Z7613DMK	Z7860DMK	Z8077DMK	Z8311DMK
Z7635DMK	Z7861DMK	Z8085DMK	Z8317DMK
Z7645DMK	Z7862DMK	Z8088DMK	Z8336DMK
Z7652DMK	Z7863DMK	Z8098DMK	Z8346DMK
Z7653DMK	Z7864DMK	Z8101DMK	Z8350DMK
Z7655DMK	Z7865DMK	Z8102DMK	Z8351DMK
Z7661DMK	Z7866DMK	Z8104DMK	Z8355DMK
Z7662DMK	Z7875DMK	Z8113DMK	Z8356DMK
Z7663DMK	Z7880DMK	Z8119DMK	Z8361DMK
Z7665DMK	Z7884DMK	Z8121DMK	Z8365DMK
Z7681DMK	Z7885DMK	Z8126DMK	Z8367DMK
Z7684DMK	Z7887DMK	Z8129DMK	Z8375DMK
Z7690DMK	Z7888DMK	Z8135DMK	Z8376DMK
Z7699DMK	Z7899DMK	Z8139DMK	Z8379DMK
Z7700DMK	Z7902DMK	Z8140DMK	Z8380DMK
Z7702DMK	Z7906DMK	Z8143DMK	Z8381DMK
Z7705DMK	Z7922DMK	Z8156DMK	Z8384DMK
Z7708DMK	Z7931DMK	Z8161DMK	Z8385DMK
Z7710DMK	Z7932DMK	Z8167DMK	Z8387DMK
Z7711DMK	Z7933DMK	Z8169DMK	Z8392DMK
Z7715DMK	Z7936DMK	Z8177DMK	Z8394DMK
Z7728DMK	Z7949DMK	Z8180DMK	Z8398DMK
Z7735DMK	Z7951DMK	Z8184DMK	Z8402DMK
Z7751DMK	Z7955DMK	Z8186DMK	Z8404DMK
Z7752DMK	Z7963DMK	Z8187DMK	Z8405DMK
Z7763DMK	Z7972DMK	Z8188DMK	Z8412DMK
Z7769DMK	Z7979DMK	Z8189DMK	Z8413DMK
Z7775DMK	Z7984DMK	Z8204DMK	Z8415DMK
Z7777DMK	Z7988DMK	Z8218DMK	Z8417DMK
Z7779DMK	Z7990DMK	Z8222DMK	Z8419DMK
Z7788DMK	Z8002DMK	Z8223DMK	Z8425DMK
Z7798DMK	Z8010DMK	Z8228DMK	Z8431DMK
Z7800DMK	Z8012DMK	Z8229DMK	Z8433DMK
Z7801DMK	Z8015DMK	Z8235DMK	Z8434DMK
Z7807DMK	Z8017DMK	Z8236DMK	Z8438DMK
Z7810DMK	Z8029DMK	Z8237DMK	Z8439DMK

Z8454DMK	Z8576DMK	Z8683DMK	Z8754DMK
Z8462DMK	Z8590DMK	Z8687DMK	Z8768DMK
Z8481DMK	Z8599DMK	Z8689DMK	Z8777DMK
Z8494DMK	Z8600DMK	Z8691DMK	Z8787DMK
Z8496DMK	Z8602DMK	Z8695DMK	Z8800DMK
Z8508DMK	Z8605DMK	Z8697DMK	Z8805DMK
Z8511DMK	Z8613DMK	Z8698DMK	Z8817DMK
Z8513DMK	Z8614DMK	Z8708DMK	Z8818DMK
Z8517DMK	Z8623DMK	Z8717DMK	Z8830DMK
Z8521DMK	Z8639DMK	Z8721DMK	Z8840DMK
Z8525DMK	Z8643DMK	Z8728DMK	Z8841DMK
Z8527DMK	Z8667DMK	Z8730DMK	Z8851DMK
Z8528DMK	Z8670DMK	Z8732DMK	Z8853DMK
Z8540DMK	Z8676DMK	Z8733DMK	Z8855DMK
Z8544DMK	Z8677DMK	Z8734DMK	Z8858DMK
Z8547DMK	Z8679DMK	Z8735DMK	Z8872DMK
Z8555DMK	Z8680DMK	Z8745DMK	Z8890DMK
Z8567DMK	Z8681DMK	Z8747DMK	Z8899DMK
Z8568DMK	Z8682DMK	Z8753DMK	Z8903DMK
Z8573DMK			

APARs Affecting CMS

Z7040DMS	Z7707DMS	Z7978DMS	Z8328DMS
Z7374DMS	Z7737DMS	Z7981DMS	Z8338DMS
Z7429DMS	Z7754DMS	Z8020DMS	Z8342DMS
Z7442DMS	Z7755DMS	Z8024DMS	Z8343DMS
Z7444DMS	Z7758DMS	Z8044DMS	Z8352DMS
Z7457DMS	Z7762DMS	Z8045DMS	Z8353DMS
Z7458DMS	Z7764DMS	Z8048DMS	Z8357DMS
Z7460DMS	Z7771DMS	Z8053DMS	Z8371DMS
Z7463DMS	Z7783DMS	Z8061DMS	Z8378DMS
Z7488DMS	Z7785DMS	Z8061DMS	Z8383DMS
Z7500DMS	Z7787DMS	Z8062DMS	Z8388DMS
Z7501DMS	Z7792DMS	Z8068DMS	Z8391DMS
Z7507DMS	Z7793DMS	Z8082DMS	Z8400DMS
Z7510DMS	Z7824DMS	Z8107DMS	Z8407DMS
Z7537DMS	Z7852DMS	Z8112DMS	Z8492DMS
Z7538DMS	Z7853DMS	Z8117DMS	Z8493DMS
Z7550DMS	Z7854DMS	Z8125DMS	Z8538DMS
Z7551DMS	Z7861DMS	Z8132DMS	Z8542DMS
Z7569DMS	Z7886DMS	Z8136DMS	Z8626DMS
Z7588DMS	Z7900DMS	Z8141DMS	Z8655DMS
Z7597DMS	Z7903DMS	Z8142DMS	Z8662DMS
Z7605DMS	Z7908DMS	Z8149DMS	Z8663DMS
Z7610DMS	Z7909DMS	Z8152DMS	Z8704DMS
Z7612DMS	Z7910DMS	Z8168DMS	Z8706DMS
Z7625DMS	Z7914DMS	Z8182DMS	Z8756DMS
Z7631DMS	Z7921DMS	Z8214DMS	Z8758DMS
Z7632DMS	Z7942DMS	Z8226DMS	Z8798DMS
Z7636DMS	Z7944DMS	Z8246DMS	Z8806DMS
Z7638DMS	Z7950DMS	Z8248DMS	Z8808DMS
Z7647DMS	Z7964DMS	Z8259DMS	Z8831DMS
Z7654DMS	Z7966DMS	Z8280DMS	Z8832DMS
Z7660DMS	Z7968DMS	Z8294DMS	Z8901DMS
Z7669DMS	Z7970DMS	Z8298DMS	Z8934DMS
Z7692DMS			

READER'S
COMMENT
FORM

Title: IBM Virtual Machine
Facility/370:
Release 6 Guide

Order No. GC20-1834-0

Please check or fill in the items; adding explanations/comments in the space provided.

Which of the following terms best describes your job?

- | | | | |
|--|--|---|--|
| <input type="checkbox"/> Customer Engineer | <input type="checkbox"/> Manager | <input type="checkbox"/> Programmer | <input type="checkbox"/> Systems Analyst |
| <input type="checkbox"/> Engineer | <input type="checkbox"/> Mathematician | <input type="checkbox"/> Sales Representative | <input type="checkbox"/> Systems Engineer |
| <input type="checkbox"/> Instructor | <input type="checkbox"/> Operator | <input type="checkbox"/> Student/Trainee | <input type="checkbox"/> Other (explain below) |

How did you use this publication?

- | | | | |
|--|---|-----------------------------------|--|
| <input type="checkbox"/> Introductory text | <input type="checkbox"/> Reference manual | <input type="checkbox"/> Student/ | <input type="checkbox"/> Instructor text |
| <input type="checkbox"/> Other (explain) | _____ | | |

Did you find the material easy to read and understand? Yes No (explain below)

Did you find the material organized for convenient use? Yes No (explain below)

Specific criticisms (explain below)

Clarifications on pages _____

Additions on pages _____

Deletions on pages _____

Errors on pages _____

Explanations and other comments:

Trim Along This Line

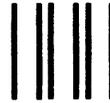
Reader's Comment Form

Cut or Fold Along Line

Fold and tape

Please Do Not Staple

Fold and tape



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS PERMIT 40 ARMONK, NEW YORK



POSTAGE WILL BE PAID BY ADDRESSEE:

International Business Machines Corporation
Department D58, Building 706-2
PO Box 390
Poughkeepsie, New York 12602

Attn: VM/370 Publications

Fold and tape

Please Do Not Staple

Fold and tape

IBM Virtual Machine Facility/370: Release 6 Guide

Printed in U.S.A.

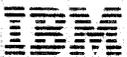
GC20-1834-0



International Business Machines Corporation
Data Processing Division
1133 Westchester Avenue, White Plains, N.Y. 10604

IBM World Trade Americas/Far East Corporation
Town of Mount Pleasant, Route 9, North Tarrytown, N.Y., U.S.A. 10591

IBM World Trade Europe/Middle East/Africa Corporation
360 Hamilton Avenue, White Plains, N.Y., U.S.A. 10601



International Business Machines Corporation
Data Processing Division
1133 Westchester Avenue, White Plains, N.Y. 10604

IBM World Trade Americas/Far East Corporation
Town of Mount Pleasant, Route 9, North Tarrytown, N.Y., U.S.A. 10591

IBM World Trade Europe/Middle East/Africa Corporation
360 Hamilton Avenue, White Plains, N.Y., U.S.A. 10601