



Virtual Machine

Between-Release Support Information

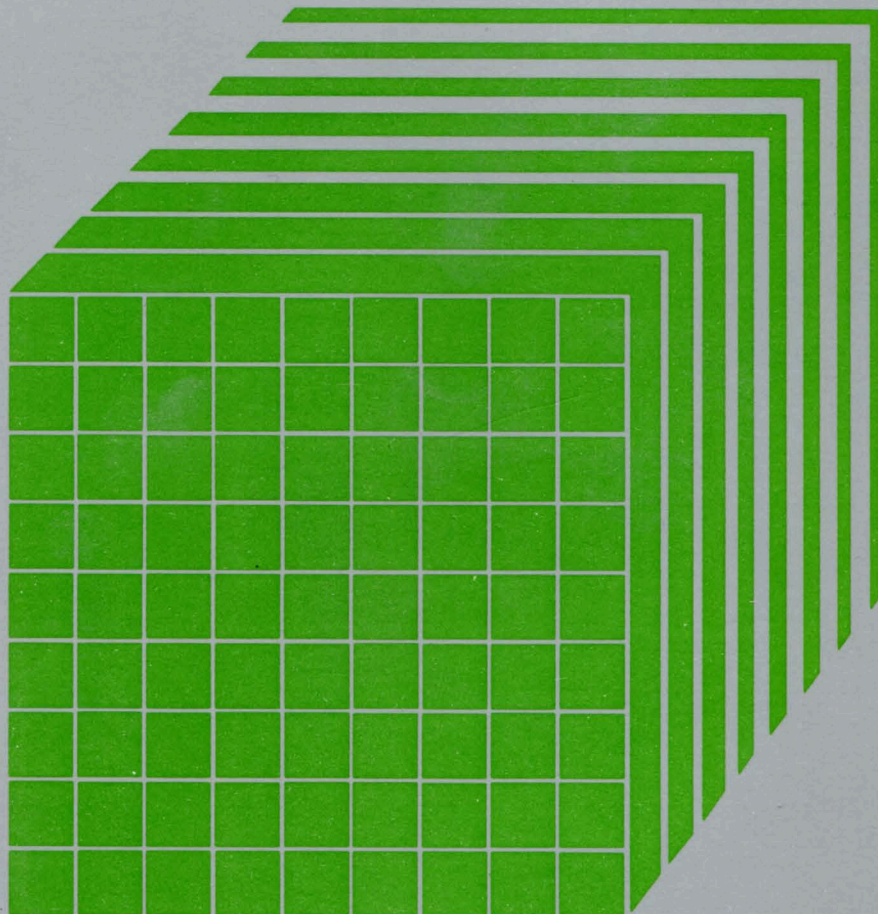
IBM 3990 Storage Controls Models 1 and 2 and IBM 3380 Direct Access Storage Direct Channel Attach Model CJ2

VM/SP Releases 4 and 5

APAR VM29507

VM/SP HPO Releases 4.2 and 5

GC24-5372-00





Virtual Machine

Between-Release Support Information

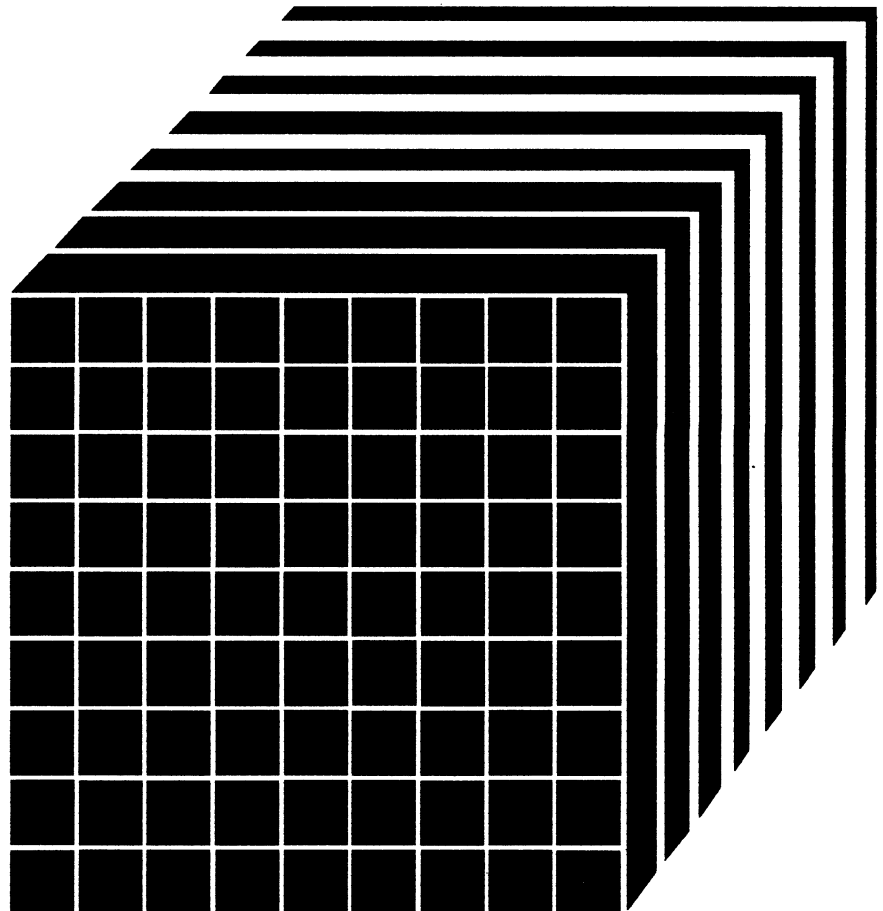
IBM 3990 Storage Controls Models 1 and 2 and IBM 3380 Direct Access Storage Direct Channel Attach Model CJ2

VM/SP Releases 4 and 5

APAR VM29507

VM/SP HPO Releases 4.2 and 5

GC24-5372-00



First Edition (November 1987)

This edition GC24-5372-00, applies to Release 4 and Release 5 of Virtual Machine/System Product (VM/SP), program number 5664-167, and to Release 4.2 and 5 of Virtual Machine/System Product High Performance Option (VM/SP HPO), program number 5664-173, and to subsequent releases and modifications until otherwise indicated in new editions or Technical Newsletters. Changes are periodically made to the information contained herein; before using this publication in connection with the operation of IBM systems, consult the latest *IBM System/370, 30xx, and 4300 Processors Bibliography*, GC20-0001, for the editions that are applicable and current.

References in this publication to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM licensed program in this publication is not intended to state or imply that only IBM's licensed program may be used. Any functionally equivalent program may be used instead.

Ordering Publications

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

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 Information Development, Dept. G60, P.O. Box 6, Endicott, New York, U.S.A. 13760. IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Preface

Who is this Book for?

This book is written for the system programmer, system operator, or IBM Customer Engineer and others interested in an overview of the IBM 3990 Storage Controls Models 1 and 2 and the IBM 3380 Direct Access Storage Direct Channel Attach Model CJ2. It is not a permanent addition to your library. Use it along with your current VM/SP or VM/SP HPO manuals until otherwise indicated in new editions.

This book supplements the information in the following VM/SP Release 4 manuals:

- *VM/SP Data Areas and Control Block Logic Volume 1 (CP)*
- *VM/SP System Logic and Problem Determination Guide Volume 1 (CP)*
- *VM/SP Operator's Guide*
- *VM/SP Planning Guide and Reference*
- *VM/SP System Messages and Codes*
- *VM/SP System Messages Cross Reference*

This book supplements the information in the following VM/SP Release 5 manuals:

- *VM/SP Data Areas and Control Block Logic Volume 1 (CP)*
- *VM/SP CP for System Programming*
- *VM/SP System Logic and Problem Determination Guide Volume 1 (CP)*
- *VM/SP Planning Guide and Reference*
- *VM/SP System Messages and Codes*
- *VM/SP System Messages Cross Reference*

This book supplements the information in the following VM/SP HPO Release 4.2 manuals:

- *VM/SP HPO Data Areas and Control Block Logic-CP*
- *VM/SP HPO System Logic and Problem Determination Guide-CP*
- *VM/SP HPO Operator's Guide*
- *VM/SP HPO Planning Guide and Reference*
- *VM/SP HPO System Messages and Codes*
- *VM/SP HPO System Messages Cross Reference*

This book supplements the information in the following VM/SP HPO Release 5 manuals:

- *VM/SP HPO Data Areas and Control Block Logic-CP*
- *VM/SP HPO CP for System Programming*
- *VM/SP HPO System Logic and Problem Determination Guide-CP*

- *VM/SP HPO Planning Guide and Reference*
- *VM/SP HPO System Messages and Codes*

How Do I Get this Support?

The APAR number for this support (VM29507) is associated with the following Program Temporary Fixes (PTFs):

- UV90266 (VM/SP Release 4)
- UV90265 (VM/SP Release 5)
- UV90264 (VM/SP HPO Release 4.2)
- UV90263 (VM/SP HPO Release 5)

These PTFs are available on a Program Update Tape (PUT). The APAR Abstracts in the PUT memo-to-users list the PTFs on the tape. Refer to the memo to see if this PTF is on the PUT. If not, contact your support center and ask them to send it to you.

What is this Book For?

IBM is issuing this book to support a between-release enhancement. We recommend that you file it along with your VM library in the binder provided for these books. If you do not have this binder, you can order it using order number SX24-5129.

IBM issues books such as this one for software enhancements or software support for hardware enhancements that are released on a PUT. The books vary in size depending on the enhancement. The book typically describes the support, explains how to use it, and lists new messages, codes, and internal design changes.

To automatically receive these books, include the following on your System Library Subscription Service (SLSS) form:

- Your profile (Include number 34 for planning information.)
- The VM/SP Program Number, 5664-167, or VM/SP HPO Program Number, 5664-173.

you have to be profiled for that device to automatically receive the documentation.

To get extra copies of this book, use the order number on the cover.

For VM/SP HPO Release 5, you will automatically receive between-release books from IBM Software Distribution (ISD) without having to update your SLSS form.

What Other Books Should I Have?

The following table lists the between-release books that have been issued since PUT 8506. Refer to the column of the product your installation is running to make sure you have the appropriate books. If you do not, you can order them through SLSS.

Title	Order Number	VM/SP	VM/SP HPO	PUT
Support of IX/370 Enhancements	SC24-5280-0	X		8506
3380 Direct Access Storage Device Models AE4/BE4	SC24-5281-0	X		8506
Security Enhancements	SC24-5317-0	X		8508
Directory Maintenance Enhancements	SC23-0339-0		X	8604
CMS Vector Processing Support and TXTLIB Enhancement	SC24-5332-0	X	X	8604
PROFS Spool File Enhancement PRPQ (Program Number 5799-CJJ)	SC23-0343-0		X	8604
Logical Device Host Limit Relief	SC24-5327-0	X	X	8605
Programmer's Guide to the Server-Requester Programming Interface for VM/SP	SC24-5291-0	X		8606
3480 Volume Serial Error Recording	SC24-5329-0	X	X	8606
CMS Console Facility	SC24-5333-0	X		8606
Support of Auto-Deactivation of Restricted Passwords	SC24-5335-0	X		8606
OS Simulation Standard Label Tape Processing Exits	GC24-5334-0	X		8607
Enhancements to Paging Storage	GC23-0382-0		X	8607
Support of ASCII	GC24-5328-0	X	X	8701
Support of IBM 3422 Magnetic Tape Subsystem	GC24-5336-0	X	X	8701
Error Recording Enhancements	GC23-0395-0		X	8701
IBM 9370 Processors, 9332 and 9335 Direct Access Storage Devices, and 9347 Tape Drive	GC24-5315-0	X X		8701 8703
DASD DUMP/Restore Streaming Support Improvements	GC24-5359-0	X		8703
GCS/VSAM Support for Local Shared Resources/Deferred Write	GC24-5360-0	X		8703
CP Extended Data Stream Support for PVM Release 3	GC24-5354-0	X		8703
SPOOL Enhancement Accommodation	GC24-5361-0	X		8704
Enhancements to the IBM Enhanced Connectivity Facilities for VM/System Product	GC24-5295-0	X		8706
IBM 3380 Direct Access Storage Models AJ4/BJ4 and AK4/BK4	GC24-5371-0	X	X	8708
Transparent Services Access Facilities 9370 Local Area Network Subsystems	GC24-5363-0	X		8708

Contents

Overview	1
Modifying the Real I/O Configuration File (DMKRIO)	3
3990 Models 1 and 2	3
3380 Model CJ2	3
Tracing Sense Data	5
Migration Considerations	7
Formatting DASD	7
Intervention-Required Error Recovery	7
Error Recovery and Recording	9
Initialization/Restart	9
Error Recovery Procedure	9
Service Information Messages (SIMs)	9
Alert Record Generation	9
I/O Support Modifications	11
Modifications to the I/O Supervisor	11
Modifications to Virtual I/O Support	11
New Messages	13
Deleted Messages For VM/SP HPO Release 5	14
ALRTREC: Alert Record Format	15
VESPARMS	17
Service Application	19
VM/SP and VM/SP HPO Installation	21
VM/SP Release 4 and VM/SP HPO Release 4.2	21
VM/SP Release 5 Installation	22
VM/SP HPO Release 5 Installation	28
Design Changes	33
Changed CP Modules for VM/SP Release 4 and VM/SP HPO Release 4.2.	33
Changed CP Modules for VM/SP Release 5 and VM/SP HPO Release 5	33
New CP Modules	33
New Control Blocks	33
Changed Macros and Copy Files	33
New and Changed HELP Files	33
Appendix. Component Description Manuals	35

Overview

This document describes the required changes and additions to VM/SP Release 4 and 5 and VM/SP HPO Release 4.2 and 5 to support the IBM 3990 Storage Controls Models 1 and 2 (3990 models 1 and 2) and the IBM 3380 Direct Access Storage Direct Channel Attach Model CJ2 (3380 Model CJ2).

The 3990 model 1 is a new storage control providing two internal storage paths. The 3990 model 2 storage control provides four storage paths. Both 3990 models 1 and 2 storage controls provide for attachment of all models of 3380 direct access storage (except A04). Both models attach to block multiplexer channels capable of data transfer rates of 3.0 megabytes or greater. Both support the extended count key data architecture and provide other enhancements to surpass the capabilities of the 3880 family of storage controls.

The 3380 Model CJ2 provides both the storage functions of a 3380 direct access storage and the storage control functions of a 3990 model 1 (the two storage path model) in a single unit. The DASD in the 3380 Model CJ2 is equivalent to a 3380 model AJ4 except that it provides a single Head Disk Assembly (HDA). Up to three 3380 'B' units (models BJ4 or BK4 only) can be attached to the 3380 Model CJ2. The 3380 Model CJ2 attaches directly to a block multiplexer channel capable of data transfer rates of 3.0 megabytes or greater and provides the head-of-storage-facility function for up to 14 devices. The 3380 Model CJ2 combines the improved seek characteristics of the 3380 enhanced subsystem models with the improved storage control capabilities of the 3990 family.

Note: The full support of all new functions of the 3990 models 1 and 2 and the 3380 Model CJ2 are provided for by VM/SP and VM/SP HPO with the exception of Quiesce/Resume and Reset Notification.



Modifying the Real I/O Configuration File (DMKRIO)

When you configure DMKRIO, specify the 3990 models 1 and 2 and the 3380 Model CJ2 in the following way.

3990 Models 1 and 2

RCTLUNIT ADDRESS = cuu (ccuu for HPO), CUTYPE = 3990
 [, ALTCH = (n,n,n)] [, FEATURE = xxx-DEVICE]
 where the maximum number of devices (xxx) is 32 for the model 1
 and 64 for the model 2.

3380 Model CJ2

RDEVICE ADDRESS = xx2 (xxx2 for HPO), nn (nnn for HPO),
 DEVTYPE = 3380, CLASS = DASD [, ALTCU = cuu]
 [, FEATURE = xxx-DEVICE]

where:

xx2 is the first device in the string
 nn is the number of devices in the string in the range 2
 through 14.

RCTLUNIT ADDRESS = cuu (ccuu for HPO), CUTYPE = 3380
 [, FEATURE = xxx-DEVICE]

where the maximum number of devices (xxx) is 16.

Note: The ALTCH option is not valid.

Tracing Sense Data

The CP Trace command now supports an option, SNS, for I/O tracing and displaying of virtual sense data. The SNS option of CP Trace returns the following:

```
SNS V vdev xxx...xxx
```

where:

vdev is the virtual address of the device
xxx...xxx are the sense bytes.

Tracing Sense Data

Migration Considerations

Formatting DASD

You can now request or decline write-verification (read-back checking). When you format count key data (CKD) DASD with the CP Format/Allocate stand-alone utility (DMKFMT), you are prompted after entering the DASD label with the following:

```
WRITE VERIFICATION NOT PERFORMED UNLESS REQUESTED.  
ENTER "YES" FOR WRITE VERIFICATION:
```

If you enter all or part of the word yes ("y," "ye" or "yes") in upper or lower case, write verification is done during formatting. If you accept the default, write verification is **not** done, and formatting time is reduced. Explicit write verification is usually **not** necessary for direct access storage. We do, however, recommend write verification for newly installed DASD or after DASD maintenance has been done.

Note: For the 2305, 2311 or 2314 DASD write verification is always done.

Intervention-Required Error Recovery

For the 3375 and 3380 DASD, when handling an intervention-required situation, the error recovery procedure sends a message to the operator but does not wait for device end signal to arrive. System operation continues because the interrupt pending flag is not set to on.

Migration Considerations

Error Recovery and Recording

Initialization/Restart

Initialization/restart routines have been modified to send a Read Device Characteristic CCW (X'64') to all 3380s. The routines handle a command reject if the 3380 is attached to a storage control that does not support this command.

Error Recovery Procedure

Unit checks with the environmental data present (EDP) bit set to on in the sense data are retried up to 255 times. All EDP sense data is logged in the error recording data set (ERDS).

Service Information Messages (SIMs)

New Service Information Messages are displayed at the system operator's console. They are sent if abnormal conditions arise in the direct access storage subsystem that might require service attention.

Alert Record Generation

If the sense data indicates a SIM, the IOERBLOK is passed to the I/O Error Recorder to generate an Alert Record in the ERDS. This record provides detailed information to assist in servicing in a more timely manner.



I/O Support Modifications

Modifications to the I/O Supervisor

The I/O Supervisor now supports device contingent connection which keeps the storage paths and all other devices attached to that storage control available for use via any attached path during a unit check. In previous storage controls, a unit check condition for an attached device made that storage control unavailable for all other attached devices until the sense command was completely processed.

Modifications to Virtual I/O Support

A guest virtual machine can now execute the channel commands supported by the 3990 models 1 and 2 and 3380 Model CJ2 on the resident virtual machine. Refer to the component description manuals listed in the Appendix for details on these commands.

New Messages

For the new messages below, the meanings for the abbreviations contained in the messages can be found in the *VM/SP System Messages and Codes* manual with the following exceptions.

Abbreviation	Meaning
MT	Machine Type
SCU	Storage Control Unit

DMKDAD099I DEVICE rdev ENVIRONMENTAL DATA RETRY COUNT EXCEEDED

Explanation: More than 255 retries of CP or Diagnose I/O resulted in the generation of sense data with environmental data present.

System Action: System operation continues.

DMKVER297I rdev {CONTROLLER|SCU|CHANNEL} SOFTWARE WRITE INHIBIT REQUESTED

Explanation: The storage control requests that a Diagnostic Control be issued that prevents any write on the specified interfaces. The function is supported only by MVS. The message is generated as a result of scanning a guest outboard logging request.

System Action: System operation continues.

DMKmod402I rdev SENSE DATA LOGGED FOR {DEVICE|CONTROLLER}

Explanation: If issued by DMKDAD, sense data has been received indicating soft error logging exit in response to CP-initiated or Diagnose I/O.

If issued by DMKVER, a guest has requested logging of sense data indicating soft error logging exit.

mod module issuing the message, specifically DAD or VER.

System Action: System operation continues.

DMKmod403I rdev SCU {SERVICE|MODERATE|SERIOUS|ACUTE} ALERT, MT = {3990-1|3990-2|3380-CJ} SER = mmaa-dddddd REFICODE = symp-mod1-mod2

Explanation: If issued by DMKDAD, SIM has been received in response to CP or Diagnose I/O. If issued by DMKVER, a guest system requested CP to log an Alert Record to the error recording data set. Where:

mod	module issuing the message, specifically DAD or VER.
mmaa-dddddd	serial number of the failing component. Where:
mm	the manufacturer, 2 alphanumeric digits
aa	the plant of manufacture, 2 alphanumeric digits
dddddd	the device serial number can be either a 7-digit binary number, or
aannn	the device serial number can be a 5 digit alphanumeric.
symp	the exception code, sense bytes 22-23, 4 hex digits
mod1-mod2	hex data from sense bytes 11-14, 8 hex digits

System Action: System operation continues.

DMKVER564I rdev PERMANENT PATH ERROR, RECOVERED ON ALTERNATE PATH

Explanation: The device has been accessed via an alternate path due to a permanent path error.

System Action: System operation continues.

DMKmod565I DASD rdev VOLUME valid IS FENCED FROM A STORAGE PATH - ssid.p-cc-dd

Explanation: A path to a device has become non-operational.

mod module issuing the message, specifically DAD or VER.

ssid.p-c-dd path and device identifier

ssid subsystem

p path

cc controller id

dd device number

System Action: System operation continues.

DMKmod566I DASD rdev A CONTROLLER OF A STORAGE PATH IS NOT OPERATIONAL - ssid.p-cc-dd

Explanation: A controller has become non-operational.

mod module issuing the message, specifically DAD or VER.

ssid.p-c-dd path and device identifier

ssid subsystem

p path

cc controller id

dd device number

System Action: System operation continues.

Deleted Messages For VM/SP HPO Release 5

The following messages are deleted for VM/SP HPO Release 5:

DMKDAD333

DMKDAD334

DMKDAD335

ALRTREC: Alert Record Format

The Alert Record format is defined in the ALRTREC COPY file. The first 24 bytes are the record header, which is identical to an outboard recorder record header in usage. The balance of the record is unique for Alert Records. Maximum record length is 100 bytes. The record format is defined as follows:

HEX	NAME	LENGTH	DESCRIPTION
0	ALRTKEY	2	Record Type
2	ALRTSWI	1	Record-independent switches
3	ALRTSWD	3	Record-dependent switches
6	ALRTCNT	1	Record count
7	-	1	Reserved for IBM Use
8	ALRTDAT	4	Date
C	ALRTIME	4	Time
10	ALRTCPID	8	CPU Id and serial number
18	ALRTTYPE	7	Reporting unit type
1F	ALRTCUTY	7	Control unit type
26	ALRTMFID	1	Manufacturer Id
27	ALRTUID	9	Reporting device plant of manufacturer and serial number
30	ALRTLSSI	1	Length of device information
31	ALRTCHID	1	Not used for 370, CHPID in XA
32	ALRTSCUA	2	Secondary cuu address
34	ALRTDTYP	4	Device type and class codes
38	ALRTLSI	1	Length of system information
39	-	1	Reserved for IBM Use
3A	ALRTPCUA	2	Primary cuu address
3C	ALRTSYSD	8	System information (6 volser, 2 unused)
44	ALRTDEVD	32	Device information (32 sense data)

VESPARMS

VESPARMS describes the parameter list built by DMKDAD and DMKVER. It is used to pass sense data and message parameter information to DMKVES. The record format is defined as follows:

HEX DISP	NAME	LENGTH	DESCRIPTION
0	VESMSG	4	Message Code or 0
4	VESDEV	4	Device address
8	VESMOD	4	Name of calling module
C	VESSNS	0	Copy of sense data
C	VESSNS0	1	Sense byte 0
D	VESSNS1	1	Sense byte 1
E	VESSNS2	1	Sense byte 2
F	VESSNS3	1	Sense byte 3
10	VESSNS4	1	Sense byte 4
11	VESSNS5	1	Sense byte 5
12	VESSNS6	1	Sense byte 6
13	VESSNS7	1	Sense byte 7
14	VESSNS8	1	Sense byte 8
15	VESSNS9	1	Sense byte 9
16	VESSNS10	1	Sense byte 10
17	VESSNS11	1	Sense byte 11
18	VESSNS12	1	Sense byte 12
19	VESSNS13	1	Sense byte 13
1A	VESSNS14	1	Sense byte 14
1B	VESSNS15	1	Sense byte 15
1C	VESSNS16	1	Sense byte 16
1D	VESSNS17	1	Sense byte 17
1E	VESSNS18	1	Sense byte 18
1F	VESSNS19	1	Sense byte 19
20	VESSNS20	1	Sense byte 20
21	VESSNS21	1	Sense byte 21
22	VESSNS22	1	Sense byte 22
23	VESSNS23	1	Sense byte 23
24	VESSNS24	1	Sense byte 24
25	VESSNS25	1	Sense byte 25
26	VESSNS26	1	Sense byte 26
27	VESSNS27	1	Sense byte 27
28	VESSNS28	1	Sense byte 28
29	VESSNS29	1	Sense byte 29
2A	VESSNS30	1	Sense byte 30
2B	VESSNS31	1	Sense byte 31
2C	VESPARML	2C	Parameter length in bytes



Service Application

Warning: If you are using an FBA Direct Access Storage Device as your system residence volume (VMSRES) in a VM/SP Release 4 or VM/SP HPO Release 4.2 installation, you **must** apply PTF UV17679 (resulting from APAR VM22450) to your system **and** do a WARM or COLD reIPL **before** you install the 3990 models 1 and 2 and the 3380 Model CJ2 code. This PTF is available on PUT 8505.

To add 3990 models 1 and 2 and the 3380 Model CJ2 support to your existing system:

1. Define all 3990 and 3380 Model CJ2 devices in DMKRIO.

For the 3990 models 1 and 2 in the macro:

RCTLUNIT, CUTYPE = 3990

For the 3380 Model CJ2 in the macro:

RCTLUNIT, CUTYPE = 3380

RDEVICE, DEVTYPE = 3380

2. Apply the service tape containing the 3990 models 1 and 2 and the 3380 Model CJ2 support code.
3. Use the 3990 models 1 and 2 and the 3380 Model CJ2 code to rebuild your system.
4. ReIPL and specify CKPT start to verify that your updated system comes up.

Note: After you rebuild the CP nucleus with the new code, the SHUTDOWN command may not complete successfully the first time you enter it. For this reason, CKPT reIPL is recommended. After the CKPT reIPL, SHUTDOWN and WARM IPLs can be done.

5. Use the stand-alone Device Support Facility program to initialize each 3380 CJ2 volume. It is available on the CMS system disk as fileid IPL DSF S2.
6. Use the stand-alone FORMAT/ALLOCATE program (DMKFMT) to format each entire 3380 CJ2 volume. An updated DMKFMT is supplied as part of the 3990 models 1 and 2 and the 3380 Model CJ2 support. It is loaded to the CMS system disk as fileid IPL FMT S2.



VM/SP and VM/SP HPO Installation

VM/SP Release 4 and VM/SP HPO Release 4.2

The 3380 Starter System has been modified to include support for the 3990 models 1 and 2 and the 3380 Model CJ2.

To install your system using the 3990 models 1 and 2 and the 3380 Model CJ2 use the procedure in Chapter 2, "Installation When Using the Starter System Tape," in the *VM/SP Installation Guide* or the *VM/SP HPO Installation Guide*, with the following exceptions or additions:

- In Step 1, when you format count key data DASD, after you enter the DASD label, you are prompted with the following:

WRITE VERIFICATION NOT PERFORMED UNLESS REQUESTED.
ENTER "YES" FOR WRITE VERIFICATION:

If you enter all or part of the word yes ("y," "ye" or "yes") in upper or lower case, write verification is done during formatting. If you accept the default, write verification is **not** done, and formatting time is reduced.

Note: For the 2305, 2311, or 2314 DASD write verification is always done.

- In Step 6 (HPO Step 6A), when you issue the PREP CPFMT command, if you are using 3380 DASD, you are prompted with the following:

DOES DEVICE 'cuu' HAVE 885, 1770, OR 2655 CYLS?

Enter the number of cylinders per volume in the 3380 model that you are using, as shown in the following table:

3380 Model	Cylinders
A04, B04	885
AA4	885
AD4, BD4	885
AE4, BE4	1770
AJ4, BJ4	885
AK4, BK4	2655
CJ2	885

- Support for the 3990 models 1 and 2 and the 3380 Model CJ2 is supplied as preventive service on a Program Update Tape (PUT). VM/SP and VM/SP HPO do not work using 3990 models 1 and 2 and the 3380 Model CJ2 without this support. You **must** apply this service **before** Step 7, “Perform Other PREP EXEC Tasks.” Use the procedure shown in Step 8, “Apply Service Updates.”

Note: DO NOT apply service for GCS at this time. If you plan to install GCS, apply the GCS service after you load the GCS code in Step 11 (HPO Step 14).

Read the PUT memo-to-users at the beginning of the PUT for additional information about applying service.

VM/SP Release 5 Installation

The 3380 Starter System has been modified to include support for the 3990 models 1 and 2 and the 3380 Model CJ2

Support for the 3990 models 1 and 2 and the 3380 Model CJ2 is supplied as preventive service on a Program Update Tape (PUT). VM/SP does not work using the 3990 models 1 and 2 and the 3380 Model CJ2 without this support.

To install your system with the 3990 models 1 and 2 and the 3380 Model CJ2 use the procedure in Chapter 3, “Installing VM/SP Using the Starter System,” in the *VM/SP Installation Guide*, with the exceptions or additions listed below.

If you are installing VM/SP using the 3990 models 1 and 2 and the 3380 Model CJ2 you must load the service from the PUT during the installation procedure and use it to build your CP, CMS, and GCS nuclei, because these models have greater diagnostic capabilities than any previously supported storage controls. The additional operations required to load and apply this service are indicated below.

- In Step 1, when you format your DASD, you are prompted after entering the DASD label with the following:

WRITE VERIFICATION NOT PERFORMED UNLESS REQUESTED.
ENTER “YES” FOR WRITE VERIFICATION:

If you enter all or part of the word yes (“y,” “ye” or “yes”) in upper or lower case, write verification is done during formatting. If you accept the default, write verification is **not** done, and formatting time is reduced.

Note: For the 2305, 2311, or 2314 DASD write verification is always done.

- In Step 6 (**second level only**), note the console addresses defined in the DMKRIO file. You might have to redefine your first level virtual console in Step 8 to one of these addresses before you can IPL your production system.

- In Step 6, tailor SPGEN PROFILE and modify the SETUP sections for CP and CMS to access the CP and CMS service minidisks (MAINT 294 and 293).

Note: ACCESS commands for these minidisks are already in the sample SPGEN PROFILE, but are commented out. Just remove the comment symbols (/ * and */) before and after the commands.

If you plan to install GCS, also modify the SETUP section for GCS to access the GCS service disk (MAINT 596). Insert the following command as the first line in GCS_setup:

```
ACCESS 596 P/A
```

- After Step 6, but **before Step 7**, complete the following operations:
 1. Format the CP and CMS service minidisks:

```
det 294
```

```
link maint 293 293
```

```
link maint 294 294
```

```
format 293 fm
```

fm is any available filemode.

```
FORMAT will erase all files on disk fm(293)
Do you wish to continue? Enter 1 (YES) or 0 (NO).
```

```
1
```

```
Enter disk label:
```

```
MNT293
```

```
Formatting disk fm
nnnnn cylinders|FB-512 blocks formatted on disk fm(293)
```

```
format 294 fm
```

fm is any available filemode.

```
FORMAT will erase all files on disk fm(294)
Do you wish to continue? Enter 1 (YES) or 0 (NO).
```

```
1
```

```
Enter disk label:
```

```
MNT294
```

```
Formatting disk fm
nnnnn cylinders|FB-512 blocks formatted on disk fm(294)
```

2. Mount the PUT on 181 and load the CP service code:

```
access 191 c
```

```
vmfplc2 load * * c
```

This command loads the VMSERV EXEC and the PUT document.

VM/SP Release 5 Installation

vmserv

This command creates the SERVICE DISKMAP file. (For more information about the VMSERV EXEC, see the *VM/SP Installation Guide*. The complete service application procedure is described in the PUT document.)

vmserv restart 5664167d cp

This command begins the CP service load sequence.

:

VSP113R: ENTER CP SOURCE SERVICE DISK ADDRESS (-294- | CUU)
....(CP SOURCE, MACRO, COPY, AUX, UPDATE FILES)

pass

You do not need to load CP source service at this time.

VSP112R: ENTER CP SERVICE DISK ADDRESS (-294- | CUU)
....(CP TEXT, MACLIB, EXEC FILES)

ENTER

294 is the default.

VSP111R: ENTER CP BASE DISK ADDRESS (-194- | CUU)
....(NEEDED TO VERIFY IF AP TEXT FILES WILL BE LOADED)

ENTER

194 is the default.

VSP312I: NOW LOADING CP MACLIBS TO 294
VSP313I: NOW LOADING CP TEXT TO 294
VSP315I: NOW LOADING CP CNTRL AND EXEC FILES TO 294
VSP350I: STATUS OF VM/SP REL5 CP SERVICE: LOADED

PUT013R: DO YOU WISH TO CONTINUE APPLYING SERVICE (-YES- | NO)

no

:

#cp ipl 190 clear

sngen setup cp

This command runs the instructions in the CP_setup section of SPGEN PROFILE to make sure that the required minidisks are accessed in the proper order.

3. Mount the product tape on 181 and proceed with Step 7.

- In Step 8 (**second level only**), after you shut down the second level Starter System, enter a **query cons** command to determine the address of your first level virtual console. If this address does not match one of the addresses you noted from the second level DMKRIO file, redefine the console by entering the following command,

define cons vdev

where *vdev* is a console address defined in DMKRIO.

- In Step 11, after you re-attach the tape drive, **do not** invoke ITASK EXEC. Instead, complete the following operations:
 1. Load the CMS system and base code from the product tape:

spload cms system

DMSWSL409I Loading CMS SYSTEM to MAINT 190

spload cms base

DMSWSL409I Loading CMS BASE to MAINT 193

2. Mount the PUT on 181 and load the CMS service code:

ipl 190

access 191 c

vmserve restart 5664167d cms

This command begins the CMS service load sequence.

:

VSP121R: ENTER CMS BASE DISK ADDRESS (-193- | CUU)
(CMS BASE REQUIRED TO REGENERATE ASSEMBLE MODULE)

ENTER

193 is the default.

VSP122R: ENTER CMS SERVICE DISK ADDRESS (-293- | CUU)
(CMS TEXT, MODULE, EXEC, XEDIT FILES)

ENTER

293 is the default.

VSP124R: ENTER CMS SYSTEM DISK ADDRESS (-190- | CUU)
(SYSTEM DISK TEXT, MODULE, EXEC, MACLIB FILES)

ENTER

190 is the default.

VSP125R: ENTER CMS-IPCS SERVICE DISK ADDRESS (-496- | CUU)
(CP-CMS / IPCS INTERFACE FILES)

pass

You do not need to load IPCS service at this time.

VSP123R: ENTER CMS SOURCE SERVICE DISK ADDRESS (-293- | CUU)
(CMS SOURCE, MACRO, COPY, AUX, UPDATE FILES)

VM/SP Release 5 Installation

pass

You do not need to load CMS source service at this time.

VSP128R: ENTER INSTALL SAMPLES SERVICE DISK ADDRESS (-PASS- | CUU)
....(SAMPLE DMKRIO, DMKSNT, DMKSYS FILES)

ENTER

PASS is the default.

VSP126R: ENTER HELP DISK ADDRESS (-19D- | CUU)
....(SERVICE FOR HELP FILES)

pass

You do not need to load HELP service at this time.

VSP127R: ENTER IOCP SERVICE DISK ADDRESS (-PASS- | CUU)
....(IOCP TEXT FILES)

ENTER

PASS is the default.

VSP323I: NOW LOADING CMS-RELATED CP FILES TO 293
VSP324I: NOW LOADING CMS TEXT FILES TO 293
VSP325I: NOW LOADING CMS EXECs AND CNTRL FILES TO 293
VSP326I: NOW LOADING CMS XEDIT FILES TO 293
VSP381I: NOW LOADING CMS MACLIBS TO 190
VSP382I: NOW LOADING CMS TEXT FILES TO 190
VSP383I: NOW LOADING IPL'ABLE UTILITY FILES TO 190
VSP384I: NOW LOADING CMS EXECs AND CNTRL FILES TO 190
VSP385I: NOW LOADING CMS MODULES, DDR, IOCP, AND XEDIT FILES TO 190
VSP051R: PUNCH NEWLY LOADED STANDALONE SERVICE PROGRAMS? (-YES- | NO)

no

You do not need to punch new service programs at this time.

VSP053R: REGENERATE A NEW ASSEMBLE MODULE? (-YES- | NO)

This message and the following group of messages may not appear, depending on the service that you loaded.

ENTER

YES is the default.

VSP050I: THE 'ASSEMBLE' MODULE IS BEING RE-GENERATED

:

VSP350I: STATUS OF VM/SP REL5 CMS SERVICE: LOADED

POT013R: DO YOU WISH TO CONTINUE APPLYING SERVICE (-YES- | NO)

no

:

#cp ipl 190 clear

3. Build the CMS nucleus with the CMS service code:

access 190 a

access 193 b/a

asmgend

This command builds the system assembler.

ASSEMBLE XF GEND PROC

Enter target disk mode for assemble modules.
Defaults to S-disk if none entered.

ENTER

ASSEMBLE XF GEND COMPLETE

#cp ipl 190

spgen setup cms

This command runs the instructions in the CMS_setup section of SPGEN PROFILE to make sure that the required minidisks are accessed in the proper order.

access 191 a

itask build cms

:

4. Continue with Step 11 at the point where the DMSNGP file is assembled (first level is at the bottom of page 3-79; second level is at the bottom of page 3-85).

- In Step 12 before you can load the IPCS code, you must mount the product tape on 181.
- In Step 13, "Formatting the Remaining Base CP Minidisks." the CP and CMS service minidisks are reformatted, and the service that you just loaded is lost. However, this support is restored when you apply the entire service after you complete the installation.
- In Step 15, if you are installing GCS, immediately after the completion of **itask load ges**, do the following:
 1. Mount the PUT on 181 and load the GCS service code:

access 191 c

vm serv restart 5664167d gcs

This command begins the GCS service load sequence.

:

VSP145R: ENTER GCS-IPCS SERVICE DISK ADDRESS (-496- | CUU)
....(GCS / IPCS INTERFACE FILES)

VM/SP HPO Release 5 Installation

ENTER

496 is the default.

VSP142R: ENTER GCS SERVICE DISK ADDRESS (-596- | CUU)
....(GCS TEXT, EXEC, XEDIT FILES)

ENTER

596 is the default.

VSP341I: NOW LOADING GCS TEXT, CNTRL, EXEC, MACLIBS TO 596
VSP346I: NOW LOADING GCS / IPCS INTERFACE FILES TO 496
VSP350I: STATUS OF VM/SP REL5 GCS SERVICE: LOADED

PUT013R: DO YOU WISH TO CONTINUE APPLYING SERVICE (-YES- | NO)

no

:

2. Mount the product tape on 181 and continue with Step 15.

- After you complete the installation procedure, you must apply the entire PUT service. This restores the previously applied service that was lost when the service minidisks were formatted in Step 13. You must apply the entire PUT service to have full VM/SP function for 3990 models 1 and 2 and the 3380 Model CJ2. For information about applying the entire PUT service, read the PUT memo-to-users and the beginning of the PUT.

VM/SP HPO Release 5 Installation

The 3380 Starter System has been modified to include support for the 3990 models 1 and 2 and the 3380 Model CJ2.

Support for the 3990 models 1 and 2 and the 3380 Model CJ2 is supplied as preventive service on a Program Update Tape (PUT). VM/SP HPO do not work using the 3990 models 1 and 2 and the 3380 Model CJ2 without this support.

To install your system with the 3990 models 1 and 2 and the 3380 Model CJ2 use the procedure in Chapter 3, "Installing VM/SP HPO Using the Starter System," in the *VM/SP HPO Installation Guide*, with the exceptions or additions listed below.

If you are installing VM/SP using the 3990 models 1 and 2 and the 3380 Model CJ2 because these models have greater diagnostic capabilities than any previously supported storage controls, you must load the service from the PUT during the installation procedure and use it to build your CP, CMS, and GCS nuclei. The additional operations required to load and apply this service are indicated below.

- In Step 1, when you format count key data DASD, you are prompted after entering the DASD label with the following:

WRITE VERIFICATION NOT PERFORMED UNLESS REQUESTED.
ENTER "YES" FOR WRITE VERIFICATION:

If you enter all or part of the word yes (“y,” “ye” or “yes”) in upper or lower case, write verification is done during formatting. If you accept the default, write verification is **not** done, and formatting time is reduced.

Note: For the 2305, 2311, or 2314 DASD write verification is always done.

- In Step 7, **after** you load CP service, do the following:

1. Format the CMS service minidisks:

format 293 *fm*

fm is any available filemode.

FORMAT will erase all files on disk *fm*(293)
Do you wish to continue? Enter 1 (YES) or 0 (NO).

1

Enter disk label:

MNT293

Formatting disk *fm*
nnnnn cylinders | FB-512 blocks formatted on disk *fm*(293)

2. Load the CMS service code:

vm serv restart 5664167d cms

This command begins the CMS service load sequence.

VSP121R: ENTER CMS BASE DISK ADDRESS (-193- | CUU)
....(CMS BASE REQUIRED TO REGENERATE ASSEMBLE MODULE)

ENTER

193 is the default.

VSP122R: ENTER CMS SERVICE DISK ADDRESS (-293- | CUU)
....(CMS TEXT, MODULE, EXEC, XEDIT FILES)

ENTER

293 is the default.

VSP124R: ENTER CMS SYSTEM DISK ADDRESS (-190- | CUU)
....(SYSTEM DISK TEXT, MODULE, EXEC, MACLIB FILES)

ENTER

190 is the default.

VSP125R: ENTER CMS-IPCS SERVICE DISK ADDRESS (-496- | CUU)
....(CP-CMS / IPCS INTERFACE FILES)

pass

You do not need to load IPCS service at this time.

VSP123R: ENTER CMS SOURCE SERVICE DISK ADDRESS (-293- | CUU)
....(CMS SOURCE, MACRO, COPY, AUX, UPDATE FILES)

VM/SP HPO Release 5 Installation

pass

You do not need to load CMS source service at this time.

VSP128R: ENTER INSTALL SAMPLES SERVICE DISK ADDRESS (-PASS- | CUU)
....(SAMPLE DMKRIO, DMKSNT, DMKSYS FILES)

ENTER

PASS is the default.

VSP126R: ENTER HELP DISK ADDRESS (-19D- | CUU)
....(SERVICE FOR HELP FILES)

pass

You do not need to load HELP service at this time.

VSP127R: ENTER IOCP SERVICE DISK ADDRESS (-PASS- | CUU)
....(IOCP TEXT FILES)

ENTER

PASS is the default.

VSP323I: NOW LOADING CMS-RELATED CP FILES TO 293
VSP324I: NOW LOADING CMS TEXT FILES TO 293
VSP325I: NOW LOADING CMS EXECs AND CNTRL FILES TO 293
VSP326I: NOW LOADING CMS XEDIT FILES TO 293
VSP381I: NOW LOADING CMS MACLIBS TO 190
VSP382I: NOW LOADING CMS TEXT FILES TO 190
VSP383I: NOW LOADING IPL'ABLE UTILITY FILES TO 190
VSP384I: NOW LOADING CMS EXECs AND CNTRL FILES TO 190
VSP385I: NOW LOADING CMS MODULES, DDR, IOCP, AND XEDIT FILES TO 190
VSP051R: PUNCH NEWLY LOADED STANDALONE SERVICE PROGRAMS? (-YES- | NO)

no

You do not need to punch new service programs at this time.

VSP053R: REGENERATE A NEW ASSEMBLE MODULE? (-YES- | NO)

ENTER

YES is the default.

VSP050I: THE 'ASSEMBLE' MODULE IS BEING RE-GENERATED
:

VSP350I: STATUS OF VM/SP REL5 CMS SERVICE: LOADED

3. In Step 10, tailor SPGEN PROFILE and modify the SETUP sections for CP and CMS to access the CP and CMS service minidisks (MAINT 294 and 293).

Note: ACCESS commands for these minidisks are already in the sample SPGEN PROFILE, but are commented out. Just remove the comment symbols (/ * and */) before and after the commands.

If you plan to install GCS, also modify the SETUP section for GCS to access the GCS service disk (MAINT 596). Insert the following command as the first line in GCS_setup:

ACCESS 596 P/A

4. Rebuild the CMS nucleus with the CMS service code:

spgen nucleus cms

:

- Continue the installation procedure with Step 8.
- In Step 16, "Formatting the Remaining Base CP Minidisks," the CP and CMS service minidisks are reformatted, and the service that you just loaded is lost. However, this support is restored when you apply the entire service after you complete the installation.
- In Step 18, if you are installing GCS, immediately after the completion of **itask load gcs**, do the following:
 1. Mount the PUT on 181 and load the GCS service code:

vm serv restart 5664167d gcs

This command begins the GCS service load sequence.

VSP145R: ENTER GCS-IPCS SERVICE DISK ADDRESS (-496- | CUU)
(GCS / IPCS INTERFACE FILES)

ENTER

496 is the default.

VSP142R: ENTER GCS SERVICE DISK ADDRESS (-596- | CUU)
(GCS TEXT, EXEC, XEDIT FILES)

ENTER

596 is the default.

VSP341I: NOW LOADING GCS TEXT, CNTRL, EXECS, MACLIBS TO 596

VSP346I: NOW LOADING GCS / IPCS INTERFACE FILES TO 496

VSP350I: STATUS OF VM/SP REL5 GCS SERVICE: LOADED

2. Mount the product tape on 181 and continue with Step 16.

- After you complete the installation procedure, you must apply the entire PUT service. If you installed VM/SP HPO with the 3990 models 1 and 2 and the 3380 Model CJ2 this restores the previously applied service that was lost when the service minidisks were formatted in Step 16. You must apply the entire PUT service to have full VM/SP HPO function for the 3990 models 1 and 2 and the 3380 Model CJ2. For information about applying the entire PUT service, read the PUT memo-to-users at the beginning of the PUT.

Design Changes

Changed CP Modules for VM/SP Release 4 and VM/SP HPO Release 4.2.

DMKCCD	DMKCCO	DMKCCS	DMKCCW	DMKCPW
DMKDAD	DMKDDR	DMKDIR	DMKDSB	DMKEMA
DMKEMC	DMKEMD	DMKEME	DMKFMT	DMKIOC
DMKIOE	DMKIOF	DMKIOJ	DMKIOS	DMKMNT
DMKTRA	DMKTRC	DMKTRD	DMKUNT	DMKVER
DMKVIO	DMKVSC			

Changed CP Modules for VM/SP Release 5 and VM/SP HPO Release 5

DMKCCD	DMKCCO	DMKCCS	DMKCCW	DMKCPW
DMKDAD	DMKDDR	DMKDIR	DMKDSB	DMKFMT
DMKIOC	DMKIOE	DMKIOF	DMKIOJ	DMKIOS
DMKMES	DMKMNT	DMKTRA	DMKTRC	DMKTRD
DMKUNT	DMKVER	DMKVIO	DMKVSC	

New CP Modules

DMKVES

New Control Blocks

ALRTREC VESPARMS

Changed Macros and Copy Files

CCWSAVE	IOBLOKS	IOER	RBLOKS
RCTLUNIT	TREXT		

New and Changed HELP Files

DMK099I HELPMSG	DMK297I HELPMSG
DMK402I HELPMSG	DMK403I HELPMSG
DMK564I HELPMSG	DMK565I HELPMSG
DMK566I HELPMSG	TRACE HELPCP

Design Changes

Appendix. Component Description Manuals

IBM 3380 Direct Access Storage Introduction, GC26-4491

Using IBM 3380 Direct Access Storage in a VM Environment, GC26-4493

IBM 3380 Direct Access Storage Direct Channel Attach Model CJ2 Introduction and Reference, GC26-4497

IBM 3990 Storage Control Introduction, GA32-0098

IBM 3990 Storage Control Reference, GA32-0099

IBM 3990 Planning, Installation and Storage Administration Guide, GA32-0100

Maintaining IBM Storage Subsystem Media, GC26-4495

**International Business
Machines Corporation
P.O. Box 6
Endicott, New York 13760**

**File No. S370/4300-34
Printed in U.S.A.**

GC24-5372-00

IBM
®

VM IBM 3990 Storage Controls Models 1 and 2 and
IBM 3380 Direct Access Storage Direct Channel Attach Model CJ2
Order No. GC24-5372-00

**READER'S
COMMENT
FORM**

Is there anything you especially like or dislike about this book? Feel free to comment on specific errors or omissions, accuracy, organization, or completeness of this book.

IBM may use or distribute whatever information you supply in any way it believes appropriate without incurring any obligation to you, and all such information will be considered nonconfidential.

Note: Do not use this form to report system problems or to request copies of publications. Instead, contact your IBM representative or the IBM branch office serving you.

Would you like a reply? ___ YES ___ NO

Please print your name, company name, and address:

IBM Branch Office serving you: _____

Thank you for your cooperation. You can either mail this form directly to us or give this form to an IBM representative who will forward it to us.

GC24-5372-00

Reader's Comment Form

CUT
OR
FOLD
ALONG
LINE

Fold and tape

Please Do Not Staple

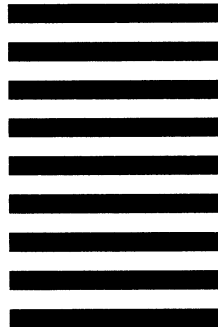
Fold and tape

BUSINESS REPLY MAIL
FIRST-CLASS MAIL PERMIT NO. 40 ARMONK, NY

POSTAGE WILL BE PAID BY ADDRESSEE:



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



INTERNATIONAL BUSINESS MACHINES CORPORATION
DEPARTMENT G60
PO BOX 6
ENDICOTT NY 13760-9987



Fold and tape

Please Do Not Staple

Fold and tape



VM IBM 3990 Storage Controls Models 1 and 2 and
IBM 3380 Direct Access Storage Direct Channel Attach Model CJ2
Order No. GC24-5372-00

**READER'S
COMMENT
FORM**

Is there anything you especially like or dislike about this book? Feel free to comment on specific errors or omissions, accuracy, organization, or completeness of this book.

IBM may use or distribute whatever information you supply in any way it believes appropriate without incurring any obligation to you, and all such information will be considered nonconfidential.

Note: Do not use this form to report system problems or to request copies of publications. Instead, contact your IBM representative or the IBM branch office serving you.

Would you like a reply? YES NO

Please print your name, company name, and address:

IBM Branch Office serving you: _____

Thank you for your cooperation. You can either mail this form directly to us or give this form to an IBM representative who will forward it to us.

GC24-5372-00

Reader's Comment Form

CUT
OR
FOLD
ALONG
LINE

Fold and tape

Please Do Not Staple

Fold and tape



BUSINESS REPLY MAIL
FIRST-CLASS MAIL PERMIT NO. 40 ARMONK, NY

POSTAGE WILL BE PAID BY ADDRESSEE:

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



INTERNATIONAL BUSINESS MACHINES CORPORATION
DEPARTMENT G60
PO BOX 6
ENDICOTT NY 13760-9987



Fold and tape

Please Do Not Staple

Fold and tape



®

International Business
Machines Corporation
P.O. Box 6
Endicott, New York 13760

File No. S370/4300-34
Printed in U.S.A.

GC24-5372-00

IBM
®

GC24-5372-00

