

VIRTUAL MACHINE/SYSTEM PRODUCT (VM/SP) HIGH PERFORMANCE OPTION (HPO) RELEASES 3.6 AND 4.2 SUPPORT THE IBM 3090 MODEL 200 PROCESSOR COMPLEX

Contents

[Announcement Letter Number 285-046 dated February 12, 1985](#)

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Brief Description of Announcement, Charges, and Availability

VM/SP HPO Releases 3.6 and 4.2 support the IBM 3090 Model 200 in System/370 Architecture, its expanded storage, and as many as 48 channels. The 3090 Model 200 and VM/SP HPO form a growth system from the IBM 303x and 308x processors, offering improved levels of price/performance in the VM environment.

Customer Letter Section

DESCRIPTION

VM/SP HPO Release 3.6 contains all of the functions currently available in VM/SP HPO Release 3.4 and supports the IBM 3090 Model 200 in System/370 Architecture, its expanded storage, and as many as 48 channels.

VM/SP HPO Release 4.2 contains all of the functions in VM/SP HPO Releases 3.6 and 4.0, incorporating support for the 3090 Model 200 into Release 4.0.

The 3090 Model 200 provides a new processor storage hierarchy including optional expanded storage. Preferred paging or swapping or both may be directed to expanded storage. This additional high-speed storage is fully supported by VM/SP HPO.

VM/SP HPO supports the 32, 40, or 48 integrated channels provided by the IBM 3090 Model 200 Processor Complex.

VM/SP HPO will support the IBM 3090 Model 400 in partitioned

processing mode at its availability with the then current releases of VM/SP HPO.

VM/SP HPO Release 3.6 support is designed to work with VM/SP Release 3 (5664-167).

See the following related information:

- o IBM Programming Announcement VM/SP Release 3, dated February 1, 1983
- o IBM Programming Announcement VM/SP Release 3 Additional Functions, dated June 21, 1983
- o IBM Programming Announcement VM/SP HPO Release 3.4, dated February 23, 1984
- o IBM Programming Announcement VM/SP HPO Release 3.4, dated September 15, 1983
- o IBM Product Announcement IBM 3090 Processor Complex, dated February 12, 1985

VM/SP Release 4.2 support is designed to work with VM/SP Release 4.

For additional information, see IBM Programming Announcements 284-267, 284-268, 284-269, 284-270, 284-271, dated August 7, 1984, and 285-047, dated February 12, 1985.

EDUCATION

The VM/SP education offerings will be updated to reflect the facilities offered by VM/SP HPO Releases 3.6 and 4.2.

SCHEDULE

Planned availability for VM/SP HPO Release 3.6 is November 1985. Planned availability for VM/SP HPO Release 4.2 is first quarter 1986.

TECHNICAL INFORMATION

SPECIFIED OPERATING ENVIRONMENT

HARDWARE REQUIREMENTS: VM/SP HPO is supported on the IBM 4341, 3031, 3031AP, 3032, 3033U, 3033N, 3033S, 3033AP, 3033AP-2, and 3033MP processors, and in System/370 Architecture on the IBM 4381 Model Groups 1, 2 and 3, the IBM 3081, 3083, and 3084 (partitioned processing mode), and the 3090 Model 200 processor complexes.

SOFTWARE REQUIREMENTS: VM/SP Release 3 at the appropriate service level is a prerequisite for VM/SP HPO Release 3.6. VM/SP Release 3 and VM/SP HPO Release 3.6 must be installed at the same PUT level. The required PUT level and associated service-level update (SLU) will be provided at or prior to availability.

VM/SP Release 4 at the appropriate service level is a prerequisite for VM/SP HPO Release 4.2. VM/SP Release 4 and VM/SP HPO Release 4.2 must be installed at the same PUT level. The required

PUT level and associated SLU will be provided at or prior to availability.

The program products VMMAP, Directory Maintenance, IOCP, and IPCS/E will be updated to support VM/SP HPO Release 3.6 and the 3090 Model 200 at or prior to availability of Release 3.6.

Guest operating systems that currently operate on VM/SP HPO will be supported on VM/SP HPO Releases 3.6 and 4.2 operating on the 3090 Model 200. Preferred machine assist (PMA), single processor mode (SPMODE), and non-disruptive transition (NDT) in VM/SP HPO require a release of MVS that runs natively on the processor. When VM/SP HPO is executing on the 3090 Model 200, MVS/SP 1.3.5 is required for PMA, SPMODE, and NDT.

REAL STORAGE REQUIREMENTS: VM/SP HPO requires a minimum of 1M bytes of real storage. Note: VM/SP HPO does not support the small VM/370 Control Program (CP) option for VM/SP.

COMPATIBILITY: Application programs that currently execute under VM/SP and are not dependent on internal CP or CMS structure and/or control blocks should continue to run on VM/SP with VM/SP HPO.

RELIABILITY, AVAILABILITY, AND SERVICEABILITY (RAS): VM/SP HPO, in combination with the 3090 Model 200 processor, provides additional RAS enhancements.

A combination of 3090 Model 200 processor and VM/SP HPO functions permit continued processing when certain types of double-bit central storage errors occur. These errors are temporarily corrected by the hardware, allowing processing to continue instead of abnormally terminating the guest or system. VM/SP HPO logs these errors so they can be corrected.

If one of these double-bit errors occurs in storage belonging to an MVS PMA guest, the processor reflects these directly to the MVS guest for correction.

All single- and double-bit expanded storage errors are automatically corrected by the 3090 Model 200 processor without generating a machine check for VM/SP HPO.

SECURITY, AUDITABILITY, AND CONTROL

VM/SP HPO Releases 3.6 and 4.2 utilize the security and auditability features of VM/SP.

User management is responsible for evaluation, selection, and implementation of these features, for administrative procedures, and for appropriate controls in application systems.

If sensitive data is sent over external communication facilities, user management may wish to pursue the application of cryptography.

PLANNING INFORMATION

PERFORMANCE: Measurements were made in a laboratory environment comparing an IBM 3081KX with the 3090 Model 200 using VM/SP HPO Release 3.6 with a Conversational Monitor System (CMS) workload. The 3081KX was configured at the maximum size of 64M bytes of processor storage and 24 channels. IBM 3380 direct access storage devices (DASD) were used for paging on the 3081KX. The 3090 Model 200 was configured with 64M bytes of processor storage, 128M bytes of expanded storage, and 48 channels. The expanded storage was used for paging on the 3090 Model 200. For both processors, 3380 DASD was used for swapping and application input/output (I/O). The comparison showed that the 3090 Model 200 with expanded storage supported:

- o 1.8 times more users than the 3081KX at less than an average 0.3-second trivial response time with equivalent throughput per user and approximately equivalent processor utilization.

With the same workload, the 3090 Model 200 was measured without expanded storage, with 48 channels, and using 3380 DASD for swapping, paging, and application I/O processing. These measurements, compared with those of the 3090 Model 200 with expanded storage, showed that the 3090 Model 200 with expanded storage provided:

- o 21% improvement in average response time above the 3090 Model 200 without expanded storage at an equivalent number of users and approximately equal processor utilization.
- o 52% improvement in trivial response time above the 3090 Model 200 without expanded storage at an equivalent number of users and approximately equal processor utilization.

For this laboratory workload, the processor power of the 3090 Model 200 required 15 more 3380 actuators in order to balance the system without expanded storage.

Although expanded storage reduces the need for high-speed paging devices, VM/SP HPO Release 3.6 and the 3090 Model 200 also allow for increased throughput and user load. Therefore, installations should review the adequacy of their entire I/O configuration to support this additional load.

The performance improvements discussed here are based on laboratory measurements. They are provided only as an example of the potential of VM/SP HPO Release 3.6 and the 3090 Model 200. Other environments and configurations may have different characteristics that result in different levels of performance.

Measurements were made using a CMS workload composed of COBOL and BASIC compilations and executions, APL commands, and CMS

commands. VM/SP HPO Release 3.4 and VM/SP HPO Release 3.6 were measured on 3081 Model KX using 3380 DASD for paging and swapping and found to result in equivalent performance characteristics. The I/O

configuration was chosen so that it was not a limiting factor.

Data was collected by the standard VM Monitor. Trivial response time and processor utilization were reported by a version of the VM/370 Performance/Monitor Analysis Program modified by IBM to support VM/SP HPO Release 3.6. An internal IBM tool was used to simulate users.

For each system a range of user loads was measured. All comparisons were made at a point that approached saturation of the processor to ensure that there were no adverse large systems effects. Trivial response time was less than or equal to 0.3 seconds for all comparisons.

The Washington Systems Center will have additional information on performance in other environments with the availability of VM/SP HPO Release 3.6.

SYSTEM INTEGRITY: IBM will accept APARs describing situations in which the installation of this program introduces an exposure to the system integrity of VM. For information on VM system integrity refer to IBM Programming Announcement, dated June 21, 1983.

ORDERING INFORMATION

VM/SP HPO Releases 3.6 and 4.2 will be distributed to license holders of record by the same procedures as previous releases. At availability, IBM Software Distribution will send a letter to licensees describing the release and enclosing an order form to be returned to the local branch office.

Ordering information for Releases 3.6 and 4.2 will be provided at or before program availability.

CHARGES, TERMS, AND CONDITIONS

CHARGES

INITIAL LICENSE CHARGE:

Basic License \$4,980

DSLO 3,740

MONTHLY CHARGE:

Basic License \$1,660

DSLO 1,240

TERMS AND CONDITIONS

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This licensed program will be available with some licensed materials designated as RESTRICTED MATERIALS OF IBM.

TESTING PERIOD:

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DSLO - None.

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PROGRAM CURRENCY: Program services previously announced for the following VM/SP HPO releases will be available until the listed dates. These dates are consistent with the currency for the base VM/SP releases.

- o VM/SP Release 3.0, December 31, 1985
- o VM/SP Release 3.2, June 30, 1986
- o VM/SP Release 3.4, December 31, 1986
- o VM/SP Release 3.6, June 30, 1987

MONTHLY LICENSED PROGRAM SUPPORT CHARGE: \$128

MONTHLY MULTIPLE LICENSED PROGRAM SUPPORT CHARGE: \$205

INSTALLATION LICENSE OR LOCATION LICENSE APPLIES: No. A separate license is required for each machine on which the licensed program materials will be used, except as provided by IBM.