

IBM RISC System/6000 Model 39H

The RISC System/6000® Model 39H extends the performance range of the RISC System/6000 300 series desktop systems.

The RISC System/6000 Model 39H is a multiuser, multitasking numeric-intensive computing system that offers:

- A 67MHz POWER2* processor
- 64MB to 512MB of memory
- 2GB to 13.5GB of internal disk
- Four Micro Channel® slots
- 32KB instruction cache
- 128KB data cache
- Four word memory bus

Outstanding floating-point levels exceed the performance of previously announced 300 series models. The new model is a natural for numeric-intensive computer servers, technical servers and graphic simulation because it offers a four word memory subsystem. This memory bus is two times the width of the Model 390 and provides the capability of moving larger blocks of data, which is required for technical applications, through the processor complex. These enhancements in the Model 39H result in a significant improvement over the Model 390 in technical performance. The Model 39H establishes a new standard in performance for IBM's high-end desktop systems.

As with the Models 380 and 390, the Model 39H offers a CD-ROM-2 drive, a 1.44MB diskette drive, and one available 5.25-inch half-high media bay. The Model 39H standard features include an 80MB/sec Micro Channel with four expansion slots, one dual-ported integrated SCSI-2 fast/wide controller (one port for internal and one for external devices) and an integrated Ethernet interface to provide additional capabilities.

The wide variety of input/output devices and communication features offer customers powerful servers, which are configured to meet their needs.

Also available is an increase to the internal storage capacity of the 7012 Model 380 and 390. With the use of a disk drive mounting kit to install a third internal disk in the available media bay, storage for the Model 380 and 390 is increased up to 13.5MB.

Purchase Price: \$30,900 (Model 39H)

Planned Availability Date:

- February 17, 1995, for Model 39H
- March 7, 1995, for MES and Model Conversion

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* Performance Optimization With Enhanced RISC

IN BRIEF . . .

- ◆ Desktop model with vertical or horizontal orientation
- ◆ 67MHz POWER2 technology processor Model 39H
- ◆ Optional 1MB or 2MB L2 Cache
- ◆ Memory capacity of up to 512MB, 64MB standard
- ◆ One integrated SCSI-2 Fast/Wide Controller (dual-ported)
- ◆ Two 5.25-inch, half-high media bays (one available)
- ◆ Internal CD-ROM-2 drive standard (occupying one media bay)
- ◆ Integrated Ethernet interface
- ◆ Four Micro Channel expansion slots
- ◆ Internal disk capacity up to 13.5GB, 2GB (8-bit) standard
- ◆ LAN dependent IPL capability
- ◆ Model conversion capability
- ◆ 1.44MB, 3.5-inch diskette drive
- ◆ Optional non-locking switch

Description

Performance and Expandability

The Model 39H contains a 67MHz processor capable of higher levels of performance and expandability than previously available RISC System/6000 series systems.

The Model 39H is designed to grow with the customer's needs. The standard memory of 64MB on these models can be increased to 512MB, using 256MB CPU memory and one 256MB memory card. In addition, the optional L2 Cache provides additional performance. A 2GB, SCSI-2 8-bit internal disk drive is standard (two 1GB, 3.5-inch disk drives or one 2GB, 3.5-inch disk drive). Up to three disk drives may be installed internally for a total internal capacity of 13.5GB.

The Model 39H also contains an integrated SCSI-2 dual-ported fast/wide controller and one integrated Ethernet interface as standard features. These features are integrated into the I/O board and do not occupy any of the four Micro Channel expansion slots, which are available for additional features such as SCSI controllers, communication adapters, and graphics adapters. In addition, media devices such as CD-ROM-2, tape backup units, and disk drives may be installed in the two 5.25-inch, half-high media bays. The standard CD-ROM-2 drive occupies one of the media bays.

Customers can select from the standard 8-bit disk drive to 16-bit SCSI-2 fast/wide drive and from CD-ROM to tape.

Level 2 (L2) Cache

The optional L2 cache, in addition to the already resident L1 cache, provides significant performance improvements to many applications. L2 cache, being much larger than the L1 cache, accommodates large programs and increases the probability that the next instruction or data can be found in the cache, avoiding the access of main memory. The L2 cache, with the L1 cache and main memory, provides a three-level hierarchy of memory, which provides the best balance of cost and performance efficiency for most commercial and technical customers.

Standard Features

- 64MB of memory (32MB CPU memory; 32MB memory card)
- 32KB 2-way set associative instruction cache
- 128KB 4-way set associative data cache
- One 1.44MB, 3.5-inch diskette drive
- Two 5.25-inch, half-high media bays, one with a CD-ROM-2 drive
- Two 1GB, 3.5-inch, SCSI-2 8-bit disk drive or one 2GB, 3.5-inch, SCSI-2 8-bit disk drive
- One integrated SCSI-2, fast/wide controller supports up to eight devices, four internal and four external
- One integrated Ethernet interface
- Four Micro Channel expansion slots for expansion
- Standard device ports/connectors:
 - Keyboard/speaker
 - Mouse
 - Tablet
 - Two serial ports
 - Parallel printer port
- System unit (CPU) may be installed in either a horizontal or vertical position

Note: MB is 1,048,576 bytes (two to the twentieth power) when referring to memory; in all other cases it is 1,000,000 (ten to the sixth power).

GB is 1,073,741,824 bytes (two to the thirtieth power) when referring to memory; in all other cases it is 1,000,000,000 (ten to the ninth power).

Interoperability

The Model 39H and the AIX® for RISC System/6000 operating system offer interoperability with other IBM and other vendor's systems, protecting the customer's data processing investment.

The Model 39H is binary compatible with previously announced RISC System/6000 systems to help to protect the customer's investment in software and hardware.

A system installation and management facility is provided as part of the operating system. The System Management Interface Tool (SMIT) facilitates the performance of system management tasks, such as software installation and configuration, device configuration and management, problem determination, and storage management.

Devices Supported

External I/O

- IBM 0562-002 Model 002 270-GB LAGO Systems LS/380L DataWheel 8 mm Tape Library with Laser Bar Code Scanner
- IBM 0562-004 Prestoserve for AIX/6000®
- IBM 3995 Model 063 40GB Optical Library Data Server
- IBM 3995 Model 163 188GB Optical Library Data Server
- IBM 3490E Models E01, E11
- IBM 7135 Model 010 RAIDiant Array
- IBM 7135 Model 110 RAIDiant Array
- IBM 7202 Model 900 Expansion Rack
- IBM 7203 External Portable Disk Drive Model 001
- IBM 7204 External Disk Drive Models 001, 002, and 010
- IBM 7204 Model 215 2GB External Disk Drive
- IBM 7204 Model 315 2GB External Disk Drive
- IBM 7204 Model 112 1.1GB External Disk Drive
- IBM 7204 Model 317 2.2GB External Disk Drive
- IBM 7204 Model 325 4.5GB External Disk Drive
- IBM 7206 4 mm External Tape Drive Models 001 and 005 (refer to the **Limitations** section)
- IBM 7207 Model 011 525MB External ¼-inch Cartridge Tape Drive
- IBM 7207 1.2GB External ¼-inch Cartridge Tape Drive Model 012
- IBM 7208 2.3GB External 8 mm Tape Drive Model 001
- IBM 7208 5.0GB 8 mm External Tape Drive Model 011
- IBM 7209 Optical Disk Drive Models 001 and 002
- IBM 7210 External CD-ROM Drive Models 001 and 005 (refer to the **Limitations** section)
- IBM 9291 Digital Trunk Processor
- IBM 9295 Digital Trunk Dual Processor
- IBM 9348 Model 012 Magnetic Tape Unit (½-inch 9-Track) (Requires 9348 Specify Code 9994)
- IBM 9333 Model 500 High-Performance Disk Drive Subsystem (Maximum of four per #6212 adapter)
- IBM 9333 Model 501 High-Performance Disk Drive Subsystem (Maximum of four per #6212 adapter)
- IBM 9334 Model 500 Deskside Expansion Unit (Maximum of two. One may be attached to the integrated SCSI.)
- IBM 9334 Model 501 Deskside Expansion Unit (Maximum of two per #2420 adapter)

ASCII Displays

The IBM 3151, 3161, 3162, 3163, and 3164 are supported in 3161 mode. Support of the IBM 3164 includes color attributes.

- IBM 3151 Model 310/410¹
- IBM 3161¹
- IBM 3162¹
- IBM 3163¹
- IBM 3164¹

¹ National Language Support is provided by a cartridge with ISO 8859-1 and national language keyboards.

- DEC** VT100
- DEC VT220
- DEC VT320
- DEC VT330
- WYSE** 30
- WYSE 50
- WYSE 60
- WYSE 350

X Stations

- IBM 7010 Model 120
- IBM 7010 Model 130
- IBM 7010 Model 140
- IBM 7010 Model 150

Displays

- IBM 5081 16 Color Display² (#1280 is required)
- IBM 5081 19 Color Display³ (RPQ 8K1680 is required)
- IBM 6091 19 Color Display⁴ (1280 x 1024 60Hz only)
- IBM 6091 23 Color Display⁵ (1280 x 1024 60Hz only)
- IBM 8508 19 Mono Display (1280 x 1024 67Hz only)

² Features a Trinitron** CRT that has a fixed image size of 14.8 inches/375 mm measured diagonally

³ Features a Trinitron CRT that has a fixed image size of 17.3 inches/439 mm measured diagonally

⁴ Features a Trinitron CRT that has a fixed image size of 17.3 inches/439 mm measured diagonally

⁵ Features a Trinitron CRT that has a fixed image size of 21.4 inches/544 mm measured diagonally

Supported IBM Monitors Complying to ISO 9241 Part 3

- 6091 Model 016⁶
- 6091 Model 19i⁷
- POWERdisplay 16⁸
- POWERdisplay 17⁹
- POWERdisplay 19¹⁰
- POWERdisplay 20¹¹

⁶ Features a Trinitron CRT that has a fixed image size of 14.8 inches/375 mm measured diagonally

⁷ Features a Trinitron CRT that has a fixed image size of 17.3 inches/439 mm measured diagonally

⁸ Features a Trinitron CRT that has a fixed image size of 14.8 inches/375 mm measured diagonally

⁹ Features a Trinitron CRT that has a maximum viewable image size of 16.1 inches/409 mm measured diagonally

¹⁰ Features a Trinitron CRT that has a maximum viewable image size of 17.3 inches/439 mm measured diagonally

¹¹ Features a Trinitron CRT that has a fixed image size of 19.1 inches/486 mm measured diagonally

Graphic Processors

- IBM 5085 All Models
- IBM 5086 Model 001
- IBM 5086 Model 01i
- IBM 5086 Model 002
- IBM 7235 Model 001
- IBM 7235 Model 002
- IBM 7235 Model 01i
- IBM 7235 Model 02i
- IBM 7250 Model 001
- IBM 7250 Model 002

Dials

- IBM 6094-010
 - Requires 6094 cable #4015 for attachment to a Graphics Input Device Adapter #2810
 - Requires 6094 feature #4060 for attachment to a standard serial port
 - The 6094 feature #4061 may also be required
- IBM 6094 Model 30 Spaceball

Digitizers

- IBM 5084-M1
- IBM 5084-M2
- IBM 5084-M3

Lighted Program Function Keyboard

- IBM 6094-020
 - Requires 6094 cable #4015
 - Requires 6094 feature #4060 for attachment to a standard serial port
 - The 6094 feature #4061 may also be required

Note: If either standard serial port is configured for attachment of dials or a lighted programmable function keyboard, the remaining standard serial port is unavailable for use by devices other than dials or lighted programmable function keyboard.

Tablets

- IBM 5083 Model 021 (requires 5083 cable feature #4015)
- IBM 5083 Model 022 (requires 5083 cable feature #4015)
- IBM 6093 Tablet Model 011 (requires 6093 cable feature #4015)
- IBM 6093 Tablet Model 012 (requires 6093 cable feature #4015)

Plotters

- IBM 6180 M1 Color
- IBM 6182 Color
- IBM 6184 Color
- IBM 6185 Model 1 Color
- IBM 6185 Model 2 Color
- IBM 6186 Color
- IBM 6187
- IBM 7372

Modems

Modem support allows communication through common carrier telephone networks using dial-up or leased lines with asynchronous protocols or the synchronous half-duplexed SDLC protocols. Not all of the features supported by the listed modems are supported by AIX Version 3.2 for RISC System/6000.

Modems	Protocols	Standards
IBM 5822 DSU up to 56Kbps	SYNC	CCITT V.35
IBM 5841 1200bps	ASYNC SYNC	EIA-232D
IBM 5853 2400bps	ASYNC SYNC	EIA-232D, CCITT V.24
IBM 5865 9600bps	SYNC	EIA-232D, CCITT V.24
IBM 7855 up to 19.2 Kbps	ASYNC	CCITT V.32, V.22 bis Bell 103, 212
IBM 7861 up to 19.2KBps	ASYNC SYNC	EIA-232D, CCITT V.24
IBM 7868 up to 19.2KBps	ASYNC SYNC	EIA-232D, CCITT V.24
Hayes Smartmodem 1200**	ASYNC	EIA-232D
Hayes Smartmodem 2400	ASYNC	SDLC EIA-232D, CCITT V.24
Hayes V-Series 9600	ASYNC	SDLC EIA-232D, CCITT V.24
Racal-Vadic 1200PA**	ASYNC	EIA-232D
Racal-Vadic 1200VP	ASYNC	EIA-232D
Racal-Vadic VI2422	ASYNC	EIA-232D
Racal-Vadic 2400PA	ASYNC	EIA-232D
Racal-Vadic 2400VP	ASYNC	EIA-232D
Racal-Vadic VI2222VP	ASYNC	EIA-232D
Telebit Trailblazer Plus	ASYNC	EIA-232D

Printers

- IBM 2380-001 Personal Printer II
- IBM 2381-001 Personal Printer II
- IBM 2390-001 Personal Printer II
- IBM 2391-001 Personal Printer II
- IBM 2380 Plus Printer, emulating the 2380 Personal Printer for PPDS (IBM ASCII) (Note 6)
- IBM 2381 Plus Printer, emulating the 2381 Personal Printer for PPDS (Note 6)
- IBM 2390 Plus Printer, emulating the 2390 Personal Printer for PPDS (Note 6)
- IBM 2391 Plus Printer, emulating the 2391 Personal Printer for PPDS (Note 6)
- IBM 3812-002 Page Printer (Note 1)
- IBM 3816-01D and 01S Page Printer (Note 2)
- IBM 3930-03D and 03S Page Printer, emulating the HP LaserJet III Si
- IBM 4019-001 LaserPrinter (Note 3)
- IBM 4019-E01 LaserPrinter E (Note 3)
- IBM 4029-010 LaserPrinter 5E
- IBM 4029-020 LaserPrinter 6
- IBM 4029-022 LaserPrinter (Note 6)
- IBM 4029-030 LaserPrinter 10
- IBM 4029-042 LaserPrinter
- IBM 4029-040 LaserPrinter 10L
- IBM 4037 5E Page Printer, emulating the IBM 4029 LaserPrinter for PCL emulation and for PPDS (IBM ASCII) (Note 6)
- IBM 4039-10R LaserPrinter 10R (Note 8)
- IBM 4039-10D LaserPrinter 10D (Note 8)
- IBM 4039-12L LaserPrinter 12L (Note 8)
- IBM 4039-12R LaserPrinter 12R (Note 8)
- IBM 4039-16L LaserPrinter 16L (Note 8)
- IBM LaserPrinter 4039-12R, -12L, and -16L Plus, emulating the IBM 4039 LaserPrinter
- Lexmark 4047 5E, emulating the IBM 4039 LaserPrinter
- IBM 4070 IJ Printer Model 1
- IBM 4072-001 ExecJet® Printer
- IBM 4076 ExecJet II Printer (Notes 6 and 7)
- IBM 4079-001 Color JetPrinter
- IBM 4201-002 Proprinter® II
- IBM 4201-003 Proprinter III
- IBM 4202-002 Proprinter II XL
- IBM 4202-003 Proprinter III XL
- IBM 4207-002 Proprinter X24E
- IBM 4208-002 Proprinter XL24E

- IBM 4212-001 Proprinter 24P
- IBM 4216-031 Personal Page Printer II
- IBM 4224-301, 302, 3C2, and 3E3 Serial Printer
- IBM 4226-302 Printer
- IBM 4230 Impact Printer Models 4S3, 4I3, 5S3, and 5I3, emulating the IBM Proprinter III XL
- IBM 4232-302 Impact Dot Matrix Printer, emulating the IBM Proprinter II XL
- IBM 4232-302 Dot Matrix Printer, emulating the IBM 4202
- IBM 4234-009 Line Dot Matrix Printer
- IBM 4234-13 Line Dot Matrix Printer
- IBM 5202-001 Quietwriter® III (Note 4)
- IBM 5204-001 Quickwriter® (Note 4)
- IBM 6252 Impactwriter® AP2 (7012: #2936, #2937, or #3100 required)
- IBM 6252 AS2 (7012: #2936, #2937, or #3100 required)
- IBM 6252 AP8 Impactwriter (Note 5)
- IBM 6252 AS8 Impactwriter (Note 5)
- IBM 6262 A12, A14, A22
- IBM 6408 Line Matrix Printer, emulating the IBM 4234
- IBM 6412 Model CTA Line Matrix Printer, emulating the IBM 4234 Line Dot Matrix Printer

The following non-IBM printers are also supported:

- HP LaserJet Series II** (Note 9)
- HP LaserJet Series III** (Note 9)
- HP LaserJet Series III Si** (Note 9)
- Hewlett Packard LaserJet 4 (Note 9)
- TI OmniLaser 2115**
- DATAPRODUCTS LZR 2665**
- PRINTRONIX P9012**
- DATAPRODUCTS BP 2000**
- QMS** Colorscript 100 Model 20

Printer notes:

1. Feature number 3155 for the IBM 3812 printer is required for attachment to the RISC System/6000 system.
2. Feature number 7652 for the IBM 3816 printer is required for attachment to the RISC System/6000 system.
3. When using the serial ports, the IBM 4019 requires feature number 9143 (system serial interface adapter) for attachment to the RISC System/6000 system.
4. The IBM RISC System/6000 system supports Code Page 850. The Code Page 850 cartridge must be installed on the IBM 5202 printer to fully use the full characters sets of the system. For details on available cartridges, refer to the IBM 5202 Sales Manual. Other IBM printers have Code Page 850 resident.
5. Impactwriter A models emulate the IBM 4202-3 printer for traditional line printing of simple text and numbers. Graphics, all points addressable, and large characters cannot be printed.

6. For assistance with these printers and for the latest AIX virtual printer files (colon files), call Lexmark Customer Support. Virtual printer files (colon files) for the 4037 and 4076 printers are available from Lexmark. Colon files for these printers are distributed via:

- Lexmark Customer support line: 606-232-3000
- Dial-in BBS: 606-232-5238
- VM request machine DRIVERS at LEXCJN1 (for IBM customers and IBM representatives)
- Lexmark Internet file server: ftp.lexmark.com
- Reader response card for the 4037 and 4076

7. Use the virtual printer files available from Lexmark for the PCL emulation mode of the 4076 printer. For PPDS (IBM ASCII), select emulation of the 2390 Personal Printer.

8. AIX support software for the LaserPrinter Integrated Network Option has the Network Option cards (features numbers 5495, 5496, and 5497 on the IBM 4039 LaserPrinter.)

9. AIX support software for the HP JetDirect Ethernet Card.

Note: For optimum system performance, high-speed serial printers should be attached to the native ports or the 128-Port Async Controller.

The parallel printer port is provided for the convenience character printer. High-speed printers or applications requiring a large amount of data transfer per page (for example, high density graphics) should use the serial interface for optimum system performance.

Printer Peripherals

- 4033-001 IBM LAN Connection for Printers and Plotters (Token-Ring)
- 4033-002 IBM LAN Connection for Printers and Plotters (Ethernet, Twisted Pair)
- 4033-003 IBM LAN Connection for Printers and Plotters (Ethernet, Thick and Thin)
- 4033-011 IBM LAN Connection for Printers and Plotters (Token-Ring)
- 4033-012 IBM LAN Connection for Printers and Plotters (Ethernet, Twisted Pair)
- 4033-013 IBM LAN Connection for Printers and Plotters (Ethernet, Thick and Thin)

Product Positioning

The RISC System/6000 Model 39H is the highest performance desktop server offered by IBM. It features an implementation of the POWER2 Architecture™, which is the industry's most advanced generation of super scalar design. The differences in performance between a RISC System/6000 Model 39H and the Model 390 are very significant in the support of applications that require numeric-intensive computing. The wider path to memory and higher capacity for L2 cache available on the 39H provides additional performance for applications, which have found those factors to limit performance. The primary focus of the 39H as a product is to meet the requirements of the desktop technical server marketplace and those users who do not have the memory, storage, or I/O requirements that can only be fulfilled in a larger, deskside model.

Publications

The following publications are shipped with the product. Additional copies are available for a fee.

Title	Order Number
7012 Models 380/390/39H Operator Guide	SA23-2623
7012 Models 380/390/39H Service Guide	SA23-2624
Common Diagnostics and Service Guide	SA23-2687
Documentation Overview	SC23-2456
7012 Hardware Setup Procedures	SA23-2731
Safety Guide	SA23-2652

The following publications have been updated and are available for a fee. To order, contact your IBM representative.

Title	Order Number
7012 POWERstation™ and POWERserver™ Operator Guide	SA23-2623
7012 POWERstation and POWERserver Installation and Service Guide	SA23-2624
7012 Models 380, 390, and 39H Hardware Setup Guide	SA23-2731
Documentation Overview	SC23-2456
System Unit Safety Information	SA23-2652
IBM RISC System/6000 System Overview	GC23-2406
IBM RISC System/6000 Planning for Your System Installation	GC23-2407
POWERstation and POWERserver Common Diagnostics and Service Guide	SA23-2687
Customer Support Information	SA23-2690
CD-ROM Hypertext Information Base Library for AIX Version 3.2	SC23-2163
Problem Solving Guide and Reference	SC23-2204
Quick Reference	SC23-2401
AIX Version 3.2 Diskless Workstation Management Guide	SC23-2433
Getting Started	GC23-2521
IBM POWERdisplay 17 and 20 Setup and Operator Guide	GA23-2076
IBM POWERdisplay 17 and 20 Service Guide	SY66-0225

The System Library Subscription Service (SLSS) is available by order number only. Customers currently subscribing to SLSS will receive publication updates automatically.

Education Support

Education to support the RISC System/6000 hardware and related software is available to support effective installation planning, programming, and efficient day-to-day operations.

For a complete listing of available courses, contact your IBM representative or call IBM Education and Training at 800-IBM-TEACH (426-8322), for education catalogs, schedules, and enrollments.

Technical Information

Specified Operating Environment

Physical Specifications

	Horizontal	Vertical
Width:	442 mm (17.4 in.)	280 mm (11 in.) at pedestal
Depth:	478 mm (18.8 in.)	478 mm (18.8 in.)
Height:	162 mm (6.4 in.)	452 mm (17.8 in.) with pedestal
Weight:	18.1-21.8 kg 40-48 lbs.	

Operating Environment

- Temperature: 16° to 32° C (60° to 90° F)
- Relative humidity: 8% to 80%
- Maximum wet bulb: 23° C (73° F)
- Noise level (average at one meter position — typical machine):
 - Desktop position: 41 dBA operating, 41 dBA idle
 - Floor-standing position: 38 dBA operating, 38 dBA idle

Voltage:	100 to 125 V AC, 200 to 240 V AC Nominal; Auto Ranging; 50/60 Hz
Power supply:	275 Watts output (peak)
Thermal output:	50 Btu per hour (220 joules/sec)
Power source loading:	0.34 KVA

EMC Conformance Classification

- U.S.A. —FCC Class A
- Germany —IOP
- Europe —CISPR 22
- Japan —VCCI-1

General Requirements: The announced product complies with IBM Corporate Bulletin C-B 0-2594-000, Statement of Conformity of IBM Product to External Standard (Suppliers Declaration).

EMC Conformance Classification: This equipment is subject to FCC rules and it shall comply with the appropriate FCC rules before final delivery to the buyer or centers of distribution.

Environmental Impact Assessment Number 617P-3: The RISC System/6000 processors were developed in compliance with IBM corporate policy letter number 139 (Environmental Affairs).

The announced product complies with IBM Corporate Standard C-S 3-0527-002 (2091-06), Control of Chemicals in IBM Facilities, Requirements and Responsibilities.

Product Safety/Country Testing/Certification

- U.S.A. —UL
- Canada —CSA
- Europe —EN60-950.
- Germany —GS Mark (Safety, TUV)

Telecom Environmental Testing (Safety and EMC): IBM RISC System/6000 Models and applicable features meet the environmental testing requirements of the country TELECOM. The testing and approval process is ongoing.

Country	Environmental Test Safety	EMC
Canada	CSA	
Chile	Telecom	
Finland	EIF	
France	LCIE	LCIE
Hong Kong	Telecom	
Ireland	Telecom	
Italy	Telecom	
Japan	Telecom	
Korea	Telecom	
Malaysia	SIRIM	
Mexico	Telecom	
Netherlands	Telecom	
New Zealand	Telecom	Telecom
Spain	Ministry of Industry	
Switzerland	SEV	
U.K.	BABT	

ISO 9000 Certification, IBM Locations

Santa Palomba, Italy
Havant, England
Austin, Texas, U.S.A.

Supported IBM Monitors That Comply to ISO 9241 Part 3

- **6091 Model 016** (fixed image size of 377 mm (14.9 in.) for the 1280 x 1024 resolution, measured diagonally)
- **6091 Model 19i** (fixed image size of 439 mm (17.3 in.) for the 1280 x 1024 resolution, measured diagonally)
- **POWERdisplay 16** (fixed image size of 375 mm (14.8 in.) for the 1280 x 1024 resolution measured diagonally)
- **POWERdisplay 17** (maximum viewable image size of 409 mm (16.1 in.) measured diagonally)
- **POWERdisplay 19** (fixed image size of 439 mm (17.3 in.) for the 1280 x 1024 resolution measured diagonally)
- **POWERdisplay 20** (maximum viewable image size of 486 mm (19.1 in.) measured diagonally)

Hardware Requirements: IBM supported ASCII terminal or IBM supported display, display adapter, and keyboard.

Software Requirements: AIX/6000 applications written for POWER-based RISC System/6000 models will run on the new POWER2-based models without recompilation, and will run significantly faster. Additional performance improvements can be achieved by recompiling with the latest versions of the IBM XL compilers to further exploit the POWER2 technology.

Applications compiled using a compiler option that exploits POWER2 technology may not function properly on systems that do not use the new POWER2 technology. Customers with any combination of POWER-, PowerPC™ 601(TM)- and POWER2-based systems may continue to run their applications unmodified. New applications and recompilation of existing applications for use in a mixed processor environment should be compiled using the POWER or common mode options available in the XL compilers or any other compilers that support those options. Refer to Software Announcements 293-488 and 293-493, dated September 21, 1993, for more information.

Concurrent diagnostics for AIX Version 3.2.5 will be shipped with Version 3.2.5 Enhancement 5 and will be available on March 31, 1995.

Customers with machines shipped between February 17, 1995, and March 31, 1995, must order the service APAR (IX48611) for concurrent diagnostics.

Model Conversions: Model conversions will be available to upgrade the Models 340, 34H, 350, 360, 370, 380, and 390 as follows:

From	To
340	39H
34H	39H
350	39H
360	39H
370	39H
380	39H
390	39H

Model Upgrade Descriptive/Ordering Information: All upgrades from a Model 340, 34H, 350, 360, and 370 to a Model 39H will be shipped using a new "chassis exchange" process.

All upgrades from a Model 380 and 390 to a Model 39H will be shipped using a processor upgrade.

The upgrade provides a model conversion for customers with these installed systems and want the RISC System/6000 Model 39H processor capability. This field installable model conversion will help provide increased system performance and contribute to the protection of a customer's initial investment in the Model 300 series systems. The resultant model conversion will retain the serial number of the system before the upgrade.

Model conversion offers a high degree of flexibility in increasing the performance level of the system and helping the customers, with computation-intensive applications, to take advantage of the performance of the new processor while protecting their investment in disks and features.

Model Upgrade Compatibility: The RISC System/6000 Models 380, 390, and 39H use a SCSI-2 fast/wide interface. All other external interfaces are the same as on the Models 340, 34H, 350, 360, and 370. The following cables will be required for externally attached devices after the model conversion:

Feature	Description
2439	8-bit IBM SCSI-2 Fast/Wide Adapter/A to Single Ported Device
2437	8-bit IBM SCSI-2 Fast/Wide Adapter/A to Dual Ported Device
2435	16-bit IBM SCSI-2 Fast/Wide Adapter/A to Dual Ported Device

All Micro Channel adapters, external and internal devices currently supported by the RISC System/6000 Model 39H and announced later as supported by the RISC System/6000 Model 39H, will also be supported by the newly-converted 39H.

The SCSI-2 Fast/Wide interface does not support the following devices:

- 7206-001 External 4 mm Tape Drive
- 7210-001 External CD-ROM Drive
- 160MB Disk Drive feature numbers 2120, 2121, 2123, 9240, 9241, and 9242.

Several features on the existing 300 series models are not supported on the Model 39H. Refer to the **Feature**

Availability Matrix in the Sales Manual for a listing of supported and non-supported features.

Before accepting the order, IBM will advise you of all features that will not be supported because of upgrading your machine. Non-supported features remain your property and are not returned to IBM.

A minimum of 64MB memory in pairs is required before the upgrade. Customers who do not meet the memory minimum must order additional memory features or SIMM kits. This is not included in the price of the model conversion. Memory must be installed in equal pairs. CPU memory and memory card must be of equal capacity. Refer to the **Limitations** section.

For upgraded machines, it may be necessary for 8MB or 16MB memory to be replaced or for SIMM kits to be installed to meet the above requirements.

A machine being upgraded must have a minimum of 2GB of SCSI-2 disks installed or on order. These can be any one or a combination of the following:

Feature	Description
2555	1GB SCSI-2 Drive
2556	400MB to 1GB SCSI-2 Drive Select
2580	2GB SCSI-2 Drive
2582	400MB to 2GB SCSI-2 Drive Select
2586	2GB SCSI-2 Fast/Wide Disk Drive
2587	2GB SCSI-2 Fast/Wide Disk Drive Select
3033	2.2 GB SCSI-2 Fast/Wide Disk Drive
3034	4.5 GB SCSI-2 Fast/Wide Disk Drive
3044	2.2 GB SCSI-2 Fast/Wide Disk Drive Select
3048	4.5 GB SCSI-2 Fast/Wide Disk Drive Select
9249	1GB SCSI-2 Disk Drive Specify (x2)
9263	2GB SCSI-2 Disk Drive Specify (x1)

Current machine configuration (product topology information) will be requested by the plant before scheduling the shipment of this upgrade.

Model Upgrade Kit Parts

For Models 340, 34H, 350, 360, and 370 to Model 39H: This model upgrade kit will contain some or all of the following:

- Base Model 39H chassis and covers with the serial number of the original machine
- New memory card without SIMMs
- Maintenance documentation
- CD-ROM
- As-required engineering changes

This upgrade is accomplished by transferring the customer's existing media, disks, adapters, and memory SIMMs to the new chassis. The chassis will contain the same serial number as the customer's existing machine.

Note: The displaced chassis and all associated parts removed become the property of IBM.

For Models 380 and 390 to Model 39H: All 380 or 390 to 39H (MES) model conversions will be a processor upgrade.

The model conversion MESs contain some or all of the following items and are ordered through the HONE configurator:

- Processor replacement
- As required engineering changes
- Installation instructions
- New publications

Note: Parts removed become the property of IBM.

Model Upgrade Ordering Information: When ordering this model conversion, you must specify the model conversion on the MES order.

Model Upgrade Supported Features Information: All features announced as supported on the 39H are also available on this model conversion.

The following features now supported on Models 340, 34H, 350, 360, 370, 380, and 390 will **not** be supported on the newly-converted system:

Feature	Description
2121	160MB SCSI Disk Drive
2780	High-Performance 8-bit 3D Color Graphics Processor
2781	High-Performance 24-bit 3D Color Graphics Processor
2782	24-bit Z-Buffer Solid Rendering Option
2783	24-bit Color Graphics Frame Buffer Upgrade
4040	.5MB L2 Cache Memory
4041	1MB L2 Cache Memory
4063	8MB HD3 Memory Card
4066	16MB HD3 Memory Card
6531	19-Inch Equipment Rack Mounting Hardware
6532	Rack Mount/ Environmentally-Hardened Option
9234	16MB Base HD3 Memory Card
9241	Base 160MB SCSI Disk Drive
9242	160MB SCSI Disk Drive Specify

There are several features on the existing 300 series models that are not supported on the Model 39H. Refer to the **Feature Availability Matrix** in the Sales Manual for a listing of supported and non-supported features.

Before accepting the order, IBM will advise you of all features that will not be supported because of upgrading your machine. Non-supported features remain your property and are not returned to IBM.

Model Upgrade Supported but not Orderable Features: The following features now supported on the Models 340, 34H, 350, 360, and 370 are supported but cannot be ordered on the newly-converted system.

Feature	Description
2390	540MB SCSI-2 Disk Drive
2391	400MB to 540MB SCSI-2 Disk Drive Select
2392	160MB to 540MB SCSI-2 Disk Drive Select
2400	M-Video Capture Adapter (NTSC)
2550	1GB SCSI Disk Drive
2553	160MB to 1GB SCSI Disk Drive Select
2556	400MB to 1GB SCSI-2 Disk Drive Select
2558	160MB to 1GB SCSI-2 Disk Drive Select
2560	400MB SCSI Disk Drive
2563	160MB to 400MB SCSI Disk Drive Select
2581	160MB to 2GB SCSI-2 Disk Drive Select
2582	400MB to 2GB SCSI-2 Disk Drive Select
2720	Fiber Distributed Data Interface Single-Ring Adapter

Feature	Description
2722	Fiber Distributed Data Interface Dual-Ring Upgrade Kit
2760	Grayscale Graphics Display Adapter
2770	Color Graphics Display Adapter
2777	POWER Gt3™
2790	POWER Gt4x™ 8-bit Feature
2791	POWER Gt4x 24-bit Feature
2792	POWER Gt4™ 8-bit to 24-bit Upgrade
2794	POWER Gt4 Performance Upgrade
2795	POWER Gt4 8-bit Feature
2796	POWER Gt4 24-bit Feature
2801	5086 Attachment Adapter
2802	5085 Attachment Adapter
2833	Integrated SCSI Controller Cable
2914	SCSI-2 Passthrough Terminator Cable (50-Pin)
2915	SCSI Controller Passthrough Terminator Cable (60-Pin)
3600	POWERdisplay 16
3601	POWERdisplay 19
4063	8MB HD3 Memory Card
4066	16MB HD3 Memory Card
4068	16MB to 32MB HD3 Memory Select
4074	16MB to 64MB HD3 Memory Select
4091	16MB to 128MB Memory Select
4099	16MB to 256MB Memory Select
4350	POWERgraphics GTO Accelerator
6210	High-Performance Disk Drive Subsystem Adapter (40MB/Sec)
6211	High-Performance Disk Drive Subsystem Adapter (80MB/Sec)
6301	M-Audio Capture Playback Adapter
6306	IBM Speech Accelerator 1
6307	IBM Speech Accelerator 2
6400	64-Port Asynchronous Controller
9115	Transformer Specify, 100 to 110 V AC
9116	Transformer Specify, 115 to 127 V AC
9117	Transformer Specify, 200 to 220 V AC
9118	Transformer Specify, 230 to 240 V AC
9244	400MB SCSI Disk Drive Specify

All other previously announced features, if installed on the Models 340, 34H, 350, 360, or 370 may be included in the upgrade to the Model 39H. However, after the upgrade, only those features that can be ordered on the 39H will be available except for feature numbers 6401, 6402, 9115, 9116, 9117, and 9118, which can be ordered if feature number 6400 is already installed on the previous 300 series model.

Model Upgrade Hardware Prerequisites

- Models 340, 34H, 350, 360, 370, 380, and 390
- Minimum of 32MB memory
- Minimum of 2GB, SCSI-2 disk installed

To achieve the improved performance of the SCSI-2 fast/wide disk drives, they should not be mixed with SCSI-2 drives.

Model Upgrade Warranty Period: The warranty for the original machine (Models 340, 34H, 350, 360, 370, 380, and 390) controls the warranty period of the converted machine (Model 39H) so that any time remaining from the original one-year warranty on the Model 300 is applied to the Model 39H conversion.

Replacement parts assume the remaining warranty of the parts they replaced. Additional new parts, if any, have a one-year warranty.

Limitations: Models 380, 390, and 39H use an integrated SCSI-2 fast/wide interface. All other external interfaces are the same as on the Models 340, 34H, 350, 360, and 370.

- “Target mode” is not supported by the integrated SCSI-2 fast/wide interface.
- The SCSI-2 integrated Fast/Wide interface does not support the following devices:
 - 7206-001 External 4 mm Tape Drive
 - 7210-001 External CD-ROM Drive
 - 160MB Disk Drive feature numbers 2120, 2121, 2123, 9240, 9241, and 9242
 - 200MB Disk Drive feature numbers 2490, 2491, 2492, 2495, and 2496

Cables used for attaching existing SCSI devices are not compatible with the new SCSI-2 integrated interface. The following cables are required with the integrated SCSI-2 fast/wide interface:

Feature	Description
2439	8-bit IBM SCSI-2 Fast/Wide Adapter/A to Single Ported Device
2437	8-bit IBM SCSI-2 Fast/Wide Adapter/A to Dual Ported Device
2435	16-bit IBM SCSI-2 Fast/Wide Adapter/A to Dual Ported Device

Memory must be installed in pairs. CPU memory and memory card must be of equal capacity.

Because the Model 39H is a POWER2 model with a multichip ceramic module (MCM), the memory must be installed in pairs. This is unlike any other 300 series model.

Because of space limitations caused by the regulator card and a large MCM on the new processor card, there is only one memory card slot.

Provision has been made to add memory SIMMs on the processor card. The memory MB on the processor card must equal the memory MB on the memory card. There are 8 SIMM positions on both cards.

The standard 64MB memory is composed of a 32MB Processor Card SIMM Memory and a 32MB Memory Card. It can be increased to 512MB by using 256MB Processor Card SIMM Memory and a 256MB Memory Card.

A number of new feature codes have been created to handle memory granularity.

The only way to increase (upgrade) the system memory will be to remove the installed SIMMs and replace them with SIMMs of a greater capacity.

Concurrent diagnostics for AIX Version 3.2.5 will be shipped with the Version 3.2.5 Enhancement 5 and will be available on March 31, 1995. Customers with machines shipped between February 17, 1995, and March 31, 1995, must order the service APAR (IX48613) for concurrent diagnostics.

Machines, which use the Media Bay Disk Drive Mounting kit (for installing 3.5-inch disk drives in the available 5.25-inch media bay) will support any valid 1GB, 1.1GB, 2GB, 2.2GB, or 4.5GB disk drive. This feature is automatically configured when required with an associated disk drive. It is not available as an independently ordered feature. The maximum number of disk drives supported in the media bay is one.

L2 Cache Memory (4045 and 4046) must be installed in pairs.

Planning Information

Customer Responsibilities: The 7012-39H is designed as customer hardware setup. Customer hardware setup publications are shipped with the product.

Cable Orders: No cables required

Problem Determination: For problem analysis, the Model 39H diagnostic programs, with installed AIX/6000 programs, provide console routines that lead a user through problem determination and provides direction to resolve problems.

Packaging: Shipment Group

- Model 39H system unit
- Language Group — specified on the order, includes the following publications:
 - Quick Reference
 - System User’s Guide
 - Customer Support Information
 - Documentation Overview
 - 7012 POWERstation and POWERserver Operator Guide
 - POWERstation and POWERserver Common Diagnostics and Service Guide
 - 7012 POWERstation and POWERserver Installation and Service Guide
 - System Unit Safety Information
 - AIX Version 3.2 Diskless Workstation Management Guide
- Power cords
- Diagnostic diskettes

Accessories and/or Supplies: Supplies can be purchased from LEXMARK International Supplies Dealers.

Security, Auditability, and Control

Security and auditability features of the systems include:

- Physical security provided by a key lock that helps prevent cover removal when locked unless used with the optional non-locking switch
- A three-position MODE switch that helps provide logic security for the system
- An optional Security Tie-down Cable Accessory

Otherwise, these products use the security and auditability features of host hardware, software and/or application software.

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

Terms and Conditions

This product is available for purchase under the terms of the IBM Customer Agreement (ICA).

Volume orders: For information regarding volume orders, contact your IBM representative.

IBM Credit Corporation Financing: Term leases and installment payment plans are available for commercial and state and local government customers.

Warranty Period: One year

Warranty Service: IBM On-Site Repair (IOR)

Maintenance Service: IOR

IBM Hourly Service Rate Classification: Two

IBM Warranty Service, Maintenance Service or IBM Hourly Service may be obtained by calling 800-IBM-SERV (426-7378). IBM Hourly Service is available at the applicable rate and terms, including element exchange price if applicable.

Mid-Range System Option: The announced product is an eligible machine for the Mid-Range System Option* of the ICA.

Eligible Types	Discount	
	Three-Year	Five-Year
7012	12%	17%

Corporate Service Option: The announced product is an eligible machine for the Corporate Service Option* of the ICA.

	Discount	
	Three-Year	Five-Year
Network System	15%	20%
	12%	17%

* A revised exhibit will be available at a later date.

Extended Maintenance Option: The announced product is an eligible machine under the Extended Maintenance Option of the ICA.

Product Availability Status: New product available

Field Installable Features: Yes

Model Conversions: Yes

Customer Setup: Yes

IBM provides customers an installation option on the RISC System/6000 300-series models. Customers can initially install their own machines or choose to have IBM perform this service for an additional fee. IBM will continue to install and service all MES features and model conversions.

Graduated Charges: The announced product is in Processor Group E5 for software with graduated charges.

Licensed Internal Code: Yes

Educational Allowance: A 20% educational allowance is available to qualifying institutions in accordance with the Attachment for Educational Allowance. The educational allowance may not be added to any other discount or allowance.

Charges

Product Charges

Description	Feature Number	Purchase Price	MMC Monthly	Removal Charge
IBM RISC System/6000 7012-39H		\$30,900	\$300	N/A
0.5 MB L2 Cache Memory ¹² (Pairs required)	4045	2,000	N/A	\$116
1.0 MB L2 Cache Memory ¹² (Pairs required)	4046	4,000	N/A	116
64MB Processor Card SIMM Memory Select ¹²	4050	2,400	N/A	116
128MB Processor Card SIMM Memory Select ¹²	4051	11,000	N/A	116
256MB Processor Card SIMM Memory Select ¹²	4052	28,000	N/A	116
32MB Processor Card SIMM Memory ¹²	4053	2,900	N/A	116
64MB Processor Card SIMM Memory ¹²	4054	5,300	N/A	116
128MB Processor Card SIMM Memory ¹²	4055	13,900	N/A	116
256MB Processor Card SIMM Memory ¹² +	4056	30,900	N/A	116
6091 Attachment Cable Models 380, 390, 39H	4217	105	N/A	116
Media Bay Disk Drive Mounting Kit for Models 380, 390, 39H	6509	20	N/A	116
32MB Processor Card SIMM Memory Specify ¹²	9239	0	N/A	116

Model Conversion Purchase Prices

From	Model	To	Model Conversion Purchase Price+
340		39H	\$21,000
34H		39H	21,000
350		39H	21,000
360		39H	21,000
370		39H	21,000
380		39H	18,000
390		39H	14,000

MMC = Minimum Maintenance Charge

N/A = Not Available

¹² Model Number = 39H

+ Parts removed or replaced become the property of IBM and must be returned.

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