Hardware Announcement
July 23, 1996

RISC System/6000 Model J40 Provides PowerPC Performance for Enterprise Applications

Overview

The RISC System/6000® Model J40 PowerPC™ Server is the newest deskside model based on the PowerPC 604™ architecture.

The J40 is a symmetric multiprocessing (SMP) system that offers higher performance and increased scalability over the previous 601-based SMP models.

The J40 accommodates up to four dual PowerPC 604 processor cards, four memory cards, and seven Micro Channel bus expansion slots. The J40 comes standard with a dual PowerPC 604 processor, 16KB/data and 16KB/instruction of L1 cache, 1MB L2 cache per processor, 128MB of shared memory, a SCSI-2 Fast/Wide DE adapter, a diskette drive, a CD-ROM drive, a 4.5GB Fast/Wide SCSI-2 disk, seven hot-pluggable disk bays, and three media bays. A single system image is provided via AIX® Version 4.1.4 or 4.2 for Servers.

The new RISC System/6000 PowerPC Servers are the latest generation of systems for business featuring an innovative symmetric multiprocessor design that combines the PowerPC —the leading RISC microprocessor; AIX —IBM′s industrial-strength UNIX[1]; and IBM′s large systems development experience to bring unprecedented reliability, scalability, and capacity to low-cost, enterprise servers.

These new SMP systems exploit the performance of the PowerPC 604 in two-, four-, six-, and eight-way processor configurations. Process performance growth can be accomplished by simply adding additional processor cards as performance requirements grow.

Designed to avoid typical performance bottlenecks, these new RISC System/6000 PowerPC Servers leverage IBM′s extensive large systems experience, applying mainframe-class technology to the SMP design. An innovative, non-blocking data crossbar speeds memory/processor interaction with a sustained memory subsystem bandwidth of 800MB/second. This high memory capacity allows future performance upgrades to most effectively exploit these systems. An integrated service processor continually monitors the system and automatically acts to recover the system from selected error conditions, enhancing system reliability.

Intended Customers

For businesses requiring SMP systems.

Key Prerequisites

AIX Version 4.1 or 4.2 and IBM-supported ASCII terminal.

Purchase Price: $54,000

Planned Availability Dates

- August 30, 1996, for the Model J40
- September 20, 1996, for Feature MESs
- September 20, 1996, for Model upgrades
- September 27, 1996, for feature number 2972, IBM Auto Token-Ring LANStreamer™ 32MC Adapter, for MESs and new systems

Product Number: 7013-J40

At a Glance

The RISC System/6000 Model J40 PowerPC Server offers powerful PowerPC Architecture™ in a deskside model with new price and price performance points.

Features include:

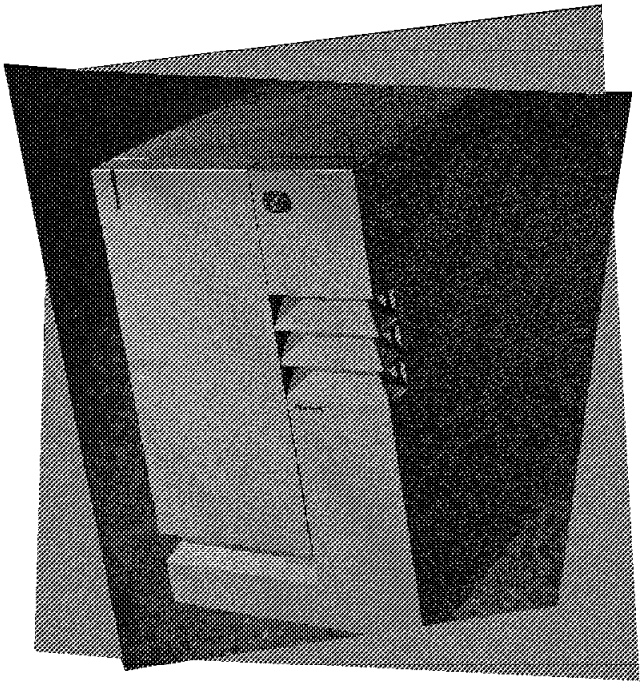
- PowerPC 604 processors running at 112MHz
- 16KB/data and 16KB/instruction of L1 cache, 1MB L2 cache per processor
- 128MB to 2GB memory
- 4.5GB to 40.5GB internal disk, with J01 94.5GB (Hot Plug)
- SCSI-2 Fast/Wide Differential adapter
- Six Micro Channel expansion slots available
- One 3.5-inch, 1.44MB internal disk drive
- Three serial ports
- One parallel port
- SystemGuard service processor that allows remote operation of the system
- Compatible with the RISC System/6000 family and the AIX/6000® for RISC System/6000 operating system

For ordering, contact:
Your IBM representative, an IBM Authorized Business Partner, or IBM Direct at

800-IBM-CALL Reference: RE001

This announcement is provided for your information only. For additional information, contact your IBM representative or the IBM Information Support Center at 800-426-3333.

Description



RS/6000 Model J40 Server

SMP Technology

Design: The RS/6000′s SMP design incorporates multiple PowerPC processors sharing a single common memory and a single copy of the AIX Version 4.1.4 and 4.2 for Servers operating system. Jobs are scheduled across the processors, allowing separate processes to be run simultaneously. Data and instructions are accessed from the shared memory, through a high-speed cache to the processors. This design with a coherent cache allows programs to exploit the parallelism provided by the multiple processors.

Design Requirements: A multiprocessor system must satisfy several design requirements when compared to a uniprocessor system. They must:

- Provide for scheduling of separate jobs across the various processors
- Provide for synchronization of those separate jobs
- Provide efficient paths between each processor and the memory subsystem
- Manage the processor caches to maintain cache coherency (consistency)
- Provide an input/output interface to the memory subsystem

Several additional requirements are placed on the design by the unique characteristics of commercial applications. The key to delivering good commercial performance is not a factor solely of the processor, but rather of the memory hierarchy and the ability to do rapid cache-to-cache transfers. Typically, commercial applications exhibit data access patterns with a large footprint. This is very different from scientific or technical workloads. Commercial workloads are characterized by high L1/L2 cache miss rates, heavy memory traffic, and high cache migration rates. As data traffic increases due to the large footprint of commercial workloads, it is evident that the memory bus is potentially a bottleneck. It is, therefore, critical to performance that the SMP system be designed to handle these applications.

Design Fulfillment: The RS/6000™ SMP models have the following major attributes:

- The operating system has the ability to schedule and synchronize work across the available processors.
- A high-bandwidth (800MB/sec) bus is provided for access between cache and memory.
- Cache and memory are efficiently managed to maintain cache consistency.

The design of the IBM SMP Servers helps increases performance as follows:

- The program elements most recently used or projected to be used are kept in L1 cache (fastest access).
- Programs and control objects are kept in L2 cache (next fastest).
- Directories to databases are kept in memory (next fastest to L2 cache).
- Actual databases are stored on disk drives.

IBM′s new generation of servers provides efficient paths between processors and memory and efficiently manages the processor caches to maintain cache coherency. A distributed directory “snoop” mechanism is used to maintain cache coherency. The traditional memory bus is still present, but it only carries address tags. A nonblocking cross-bar switch is added to the design, which carries the data between cache and memory or cache and cache. A patented, four-deep pipelined snoop architecture is used to provide outstanding concurrency in memory and cache operations and operates with the data cross-bar. The design allows operations to take place in single memory-read cycle, which in other SMP designs will take two or three such cycles.

Reliability, Availability, and Serviceability (RAS)

IBM continues to apply RAS experience to the RISC System/6000 Servers from many decades of building mission-critical mainframe computers. RAS characteristics such as error detection, fault tolerance, reliable hardware components, high availability, fault management, and concurrent or online diagnostics, which were once available only on mainframe computers, are now implemented in SMP RISC System/6000 Servers.

RAS is an integral part of the SMP RISC System/6000 and AIX Version 4 design philosophy. It starts with the development of the architecture and flows through the design, development, and manufacturing process. But RAS doesn′t stop there, it affects the way that IBM can offer service on SMP RISC System/6000 products to keep systems operational. In IBM, RAS is involved in all aspects of hardware design, programming support, manufacturing quality, application system design, service, and service support. Its purpose is to help assure that the IBM product is operational when you need it, reliably performs the job, handles the occasional failure in a nondisruptive fashion, is repaired quickly and competently, and allows resumption operations with a minimum of inconvenience.

Reliability, Fault Tolerance, and Data Integrity

- Reliability and availability are key concerns for any commercial system. In a widely distributed environment, this becomes more critical. To address this, the IBM design provides remote and local control. The IBM SMP Servers include features such as IBM SystemGuard, an imbedded service processor, which will enable remote operation of the system, remote power-on/power-off, running of diagnostics, and console support and processor reconfiguration in case of errors.

  The support processor is continuously powered, even when system power is off. The mirrored console support means that remote service actions are visible and controlled by the customer. This includes control over whether the system can be remotely rebooted. An additional feature is that the system can be set to dial a remote service or support point should the system fail, and a surveillance function allows the system to detect "hang" conditions in the system and, if necessary, invoke a rapid reboot.

  AIX Version 4 for Servers operating system also contributes to reliability and serviceability. Features such as the Logical Volume Manager, Journaled File System, and dynamic kernel all contribute to a reliable and robust operating system implementation.
- The reliability of SMP RS/6000 systems starts with reliable components, devices, and subsystems. During the design and development process, all subsystems go through a rigorous verification and integration testing process. During system manufacturing, all systems go through testing and "system run-in" process to help ensure that any potential early-life hardware failures are detected and removed in the factory.
- In addition to the support processor, the error checking and correction circuitry protecting memory is able to detect and correct single-bit failures. Double-bit errors and package failures (such as could be caused by a chip failure) can also be detected and auto reboot invoked.
- Disk mirroring and disk controller duplexing capability are also provided by AIX.
- Journaled File System maintains file system consistency and prevents data loss when the system is abnormally halted.

Availability and Fault Management

Fault Prevention

- Power-on test checks processors, memory, and associated hardware — that is required for proper booting of the operating system — every time the server is powered on.

Fault Monitoring

- IBM′s family of SMP RS/6000 system servers includes a service processor called SystemGuard, as a standard feature. SystemGuard continually monitors the hardware and the operating system. If, for instance, a CPU were to fail, the service processor is designed to detect this, reboot itself automatically, and run without the failed CPU. Likewise, if there were a memory error that could be corrected, the service processor is designed to detect this, reboot itself automatically, and run without the bad memory component.
- Temperature monitoring to provide orderly system shutdown when operating temperature exceeds the critical level.
- Fan speed monitoring.
- DC voltage monitoring to provide orderly system shutdown when DC voltages are out of operational specification.
- AC power loss sensing to provide orderly system shutdown.
- Disk fault tracking, which can alert the system administrator of an impending disk failure before it impacts customer operation.
- AIX log facility where hardware and software failures are recorded and analyzed (by Error Log Analysis (ELA) routine) to provide warnings to the system administrator on the causes of system problems. This also enables IBM service representatives to bring along needed replacement hardware components when a service call is placed, minimizing system repair time.

Availability Enhancement

- The J40 SMP has been constructed to allow hot-plugging of new disks or the removal of disks on the system. This means that the addition of new disks will not require a power down, and the dynamic nature of the AIX Version 4.1.4 or 4.2 operating system for Servers allows many new subsystems to be configured without a boot.
- Online (concurrent) Diagnostics with Error Log Analysis and Service Aids allow administrators or IBM service representatives to diagnose potential system malfunctions without interrupting end-user operation.
- Auto-restart option to automatically reboot the system following an unrecoverable software error.
- Ability to automatically reboot the system following a software hang, hardware failure, or environmental-induced (thermal or power) failure.

High Availability: HACMP configuration provides a high-availability solution that protects end users from most hardware and software system failures.

Serviceability

- The IBM SMP RS/6000 system servers have been built to be easily upgraded. The packaging is designed to permit convenient replacement or upgrading of processor, memory, or I/O adapters. For example, the processors are contained on dual processor cards. To upgrade from a two-way to a four-way system is merely a matter of plugging in an additional dual processor card.
- SystemGuard allows diagnostics and maintenance to be performed either locally or remotely. This is especially important to customers who may not have personnel with computer skills at the remote sites. The SystemGuard processor makes it possible for the system to be managed from a central location. The SMP RS/6000 servers can even be set up to automatically call an IBM Service Support Center if they fail to boot successfully.

  With SystemGuard, support personnel can remotely log in to a system to review error logs, perform remote maintenance, and remotely reset, boot, and diagnose the system via a phone line.

In addition, the SystemGuard processor operates on its own power boundary, making it possible to work on the system even if the system is powered off.

SystemGuard′s main features are:

  - Initialization process flow management
  - Local and remote control of the system (power-on/off, diagnostics, reconfiguration, and maintenance)
  - Console mirroring to make remote actions visible and controllable by the customer
  - Dial-out to a customer central site or IBM support center in case of system boot failure
  - Run-Time Surveillance

- SystemGuard controls the Power-on test and the loading of AIX and runs the programs used from the STANDBY and MAINTENANCE MENUs.
- Off-line test under the control of the MAINTENANCE MENU enables the servicer or the remote center to run the off-line test in a controlled and interactive mode.
- The diagnostics consist of Stand-alone Diagnostics and Online Diagnostics.
  - Stand-alone Diagnostics are resident on removable media. They must be booted or mounted before they can be run. If booted, they have no access to the AIX Error Log or the AIX Configuration Data. However, if mounted, they have access to the AIX Error Log or the AIX Configuration Data.
  - Online Diagnostics, when installed, are resident with AIX on the disk or server. They can be booted in single-user mode (referred to as service mode), run in maintenance mode (referred to as maintenance mode), or run concurrently (referred to as concurrent mode) with other applications. They have access to the AIX Error Log and the AIX Configuration Data.
    - Service Mode allows checking of all the system devices and features.
    - Concurrent Mode allows the normal system functions to continue while selected resources are being checked.
    - Maintenance Mode allows checking of most system resources.

World-Class Technical Service and Support: The SMP RS/6000 system servers come with IBM World-Class Technical Service and Support.

Hardware Service and Support

- IBM′s 24-hour per day, seven-day per week, four-hour response time is the best in the industry.
- The warranty period for the SMP RS/6000s is for one year and consists of 24-hours-a-day, seven-days-a-week coverage.
- A toll-free support line is available for initial hardware installation and setup assistance and feature installation assistance.

Service Director® /6000: This LPP is provided at no additional charge for customers who are currently under warranty or have an IBM Maintenance Agreement.

Service Director/6000 can provide increased system availability through remote maintenance information reporting. System errors are dynamically monitored and analyzed. If the situation warrants it, the system may automatically place a service call to IBM without any customer intervention being required. Service Director/6000 is an account management application for use by the IBM service provider.

Service Director/6000 for RISC System/6000 is an IBM-exclusive software application that features:

- Automatic problem analysis
- Problem isolation information
- Structured view of hardware events logged
- Statistics of Service Director/6000 for RISC System identified problem
- Automatic initiation of service requests to IBM (with customer authorization)

Online Customer Support: Online Customer Support for hardware problem reporting can be performed via remote login by Remote Support Center (RSC) specialists using normal AIX facilities, or by the Service Director/6000 for RISC System/6000 software LPP.

AIX support offerings are available under the AIX SupportLine Family of Services and Service Director/6000 for RISC System/6000.

Scalability: Scalability is also a key design consideration. The J40 SMP Servers have been built to be easily upgraded.

For example, the processors are contained on dual-processor cards. To upgrade from a two-way to a four-way system is merely a matter of plugging in an additional dual-processor card.

Another aspect of scalability is the I/O subsystem. The J40 SMP has been constructed to allow hot-plugging of new disks onto the system. This means that the addition of new disks will not require a power down, and the dynamic nature of the AIX Version 4.1.4 or 4.2 for Servers operating system allows many new subsystems to be configured without a boot.

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).

Model 7013-J40 Description

The RISC System/6000 Model J40 PowerPC Server has these features:

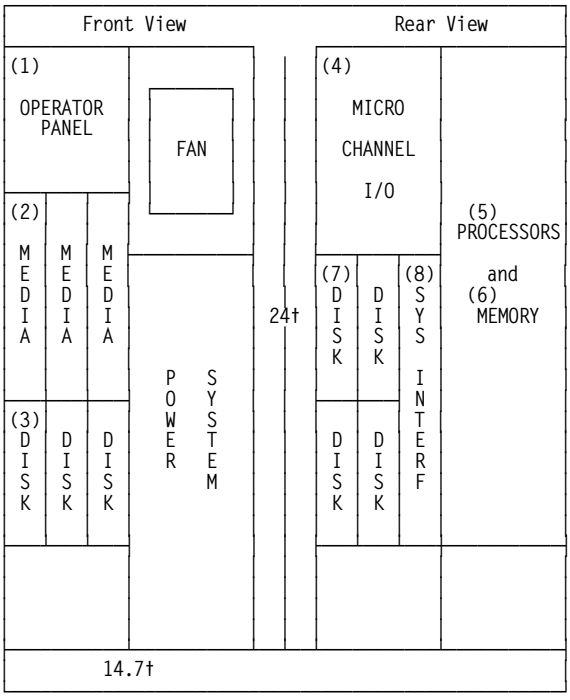
- PowerPC capabilities and upgradeability offer new levels of performance, support for future implementations, and attractive prices.
- System capacity sets a standard in its price class for expandability.
- System reliability sets a standard in its price class, with a service processor that protects your business data.
- Software compatibility (with few exceptions) system offers binary compatibility with AIX Version 3.2.5.
- The J40 helps protect your investment in hardware, software, applications, and training.

Existing models of the RISC System/6000 500 Series can be upgraded to the J40. The upgraded system will have the same serial number as the predecessor system.

Standard Features

- One dual, 604 112MHz PowerPC Processor card (two-way)
  - Three available processor slots for expansion
- 16KB/data and 16KB/instruction of L1 cache, 1MB L2 cache per processor
- 128MB memory card
  - 128, 256, and 512MB selects/optional memory cards
  - Maximum memory 2048MB
- 80MB/sec 32-bit Micro Channel Architecture
  - Seven Micro Channel bus expansion slots
  - Six slots available
- SCSI-2 Fast/Wide Differential Adapter
  - Supports internal 8-bit SCSI devices
  - Occupies one Micro Channel slot
- Seven hot-pluggable disk bays
  - One 4.5GB SCSI-2 internal disk
  - Selectable to two 2.2GB disks
- Three media bays
  - CD-ROM two-tray loading
  - Two optional media bays or disk bays (conversion hardware required for use as a disk bay)
- Operator Panel with 1.44MB, 3.5-inch diskette drive
- Three serial ports and one parallel port

Configuration of J40

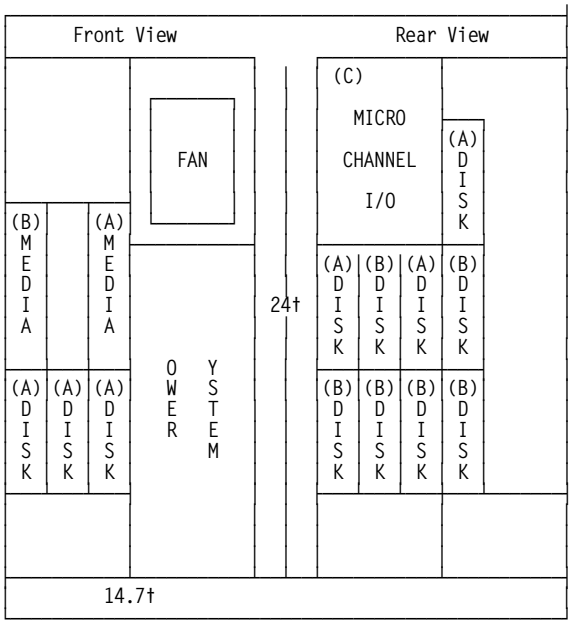


Notes:
(1) Operator Panel
Feature number 9221 (1.44MB Diskette Drive) no select options
(2) Media Devices (three maximum)
Feature number 9607 (CD–ROM 2/4X)
Optional media: Feature number 2621 (CD–ROM 2/4X), feature number 6138 (8–mm tape), feature number 6139 (4–mm tape)
Optional disk (requires feature number 6511): Feature number 3053 (2.2GB), feature number 3054 (4.5GB)
(3) Disk Devices/front (three maximum)
Feature number 9134 (4.5GB) or select to 2 x feature number 3094 (2.2GB)
Optional disk: Feature number 3053 (2.2GB), feature number 3054 (4.5GB)
(4) Micro Channel board (seven expansion slots, six available)
Feature number 9212 (SCSI–2 F/W Differential) and feature number 9441 (SCSI Cable to backplane)
Optional adapters: (refer to matrix)
(5) Processors
Feature number 9051 (2W–604 Processor Card)
Additional: Feature number 4301 (2W–604 Processor Card)
(6) Memory
Feature number 9046 (128MB Memory Card) or select to feature number 4147/8 (256/512MB)
Additional: Feature number 4156/7/8 (128/256/512MB)
(7) Disk Devices/rear: four maximum, requires feature number 2416 (adapter) and feature number 2441 (cable)
Optional disk: Feature number 3053 (2.2GB), feature number 3054 (4.5GB)
(8) I/O Panel
Three serial ports, one parallel port, two SCSI backplane input connectors

The RISC System/6000 J01 Expansion Cabinet allows additional expansion capability by providing eight Micro Channel Bus expansion slots and 12 hot-pluggable disk bays and two hot-pluggable media bays. The two media bays can be converted to hot-pluggable disk bays. One J01 can be attached per J40.

The J01 Expansion Cabinet attaches to the left side of the J40 processor. The power interface cable and Micro Channel expansion cable are provided with the Model J01.

Configuration of J01



Notes:
(A) SCSI Devices/A Bus: Requires feature number 2416 (adapter) and feature number 2441 (cable)
Optional media (one maximum): Feature number 2621 (CD–ROM–2/4X), feature number 6138 (8–mm tape), feature number 6139 (4–mm tape) (Order feature number 6511 to install disk in media position.)
Optional disk (six maximum): Feature number 3052 (1.1GB), feature number 3053 (2.2GB), feature number 3054 (4.5GB)
(B) SCSI Devices/B Bus: Same as A Bus
(C) Micro Channel board (eight expansion slots)
Optional adapters: (refer to matrix)

Feature Matrix

The following feature availability matrix uses the letter "A" to indicate features that are available and orderable on the specified models. "S" indicates a feature that is supported on the new model during a model conversion; these features will work on the new model, but additional quantities of these features cannot be ordered on the new model; they can only be removed. "N" indicates that the feature is not supported on the new model and must be removed during the model conversion. As additional features are announced, supported, or withdrawn, this list will be updated. Check with your IBM representative for additional information.

Part/ Feature Number	J40	A = Available S = Supported N = Not Supported, Must be Removed Description
0986	A	CCS Customer Service Specify (U.S.)
1000	S	Order Validation Specify Code
1101	N	Non–Locking Switch Select
1110	N	Keyboard — U.S. English Soft Touch
1902	N	OPTICS DAUGHTER CD, 1–PORT, 1063MBITS/S, SHORT WAVE
1904	N	FIBER CHANNEL MCA ADAPTER, MOTHER CD
1906	N	Fiber Channel Adapter/266
2390	S	540MB SCSI–2 Disk Drive
2391	S	400MB to 540MB SCSI–2 Disk Drive Select
2400	N	M–Video Capture Adapter (NTSC)
2402	A	IBM Network Terminal Accelerator — 256 Session
2403	S	IBM Network Terminal Accelerator — 2048 Session
2404	N	Ultimedia(R) Video I/O Adapter
2405	N	IBM Ultimedia Video Compression/Decompression Card
2410	S	SCSI–2 High–Performance External I/O Controller
2412	A	Enhanced SCSI–2 Differential Fast/Wide Adapter/A
2413	S	IBM SCSI–2 Differential Fast/Wide Adapter/A Select
2414	S	IBM SCSI–2 Fast/Wide Adapter/A Select
2415	A	IBM SCSI–2 Fast/Wide Adapter/A
2416	A	IBM SCSI–2 Differential Fast/Wide Adapter/A
2417	S	IBM SCSI–2 Differential Fast/Wide Adapter/A Select
2418	S	Enhanced SCSI–2 Differential Fast/Wide Adapter/A Select
2419	S	Enhanced SCSI–2 Differential Fast/Wide Adapter/A Select
2420	S	SCSI–2 Differential High–Performance External I/O Controller
2422	A	SCSI–2 Differential Y–Cable
2423	A	SCSI–2 Differential System to System Cable
2424	A	0.6M 16–bit SCSI–2 System to System Cable
2425	A	2.5M 16–bit SCSI–2 System to System Cable
2426	A	16–bit Y–Cable for IBM SCSI–2 Differential Fast/Wide Adapter/A
2427	A	8–bit Y–Cable for IBM SCSI–2 Differential Fast/Wide Adapter/A
2428	N	8–bit Internal 6–Drop Cable for IBM SCSI–2 Fast/Wide Adapters Select
2429	N	16–bit Internal 6–Drop Cable for IBM SCSI–2 Fast/Wide Adapters Select
2430	N	8–bit Internal 6–Drop Cable for IBM SCSI–2 Fast/Wide Adapters
2431	N	16–bit Internal 6–Drop Cable for IBM SCSI–2 Fast/Wide Adapters
2433	N	16–bit Internal 6–Drop Cable for IBM SCSI–2 Fast/Wide Adapters Select
2435	A	16–bit IBM SCSI–2 Fast/Wide Adapter/A to Dual–Ported Device Cable
2436	A	16–bit IBM SCSI–2 Differential Fast/Wide Adapter/A to Dual–Ported Device Cable
2437	A	8–bit IBM SCSI–2 Fast/Wide Adapter/A to Dual–Ported Device Cable
2438	A	8–bit IBM SCSI–2 Differential Fast/Wide Adapter/A to Dual–Ported Device Cable
2439	A	8–bit IBM SCSI–2 Fast/Wide Adapter/A to Single–Ported Device Cable
2441	A	SCSI Cable to Internal Devices
2500	N	355MB SCSI Disk Drive
2510	N	670MB SCSI Disk Drive
2511	N	355MB to 670MB SCSI Disk Drive Select Feature
2529	N	400MB to 857MB SCSI Disk Drive Select
2530	N	857MB SCSI Disk Drive
2531	N	355MB to 857MB SCSI Disk Drive Select
2532	N	640MB to 857MB SCSI Disk Drive Select
2534	N	800MB to 857MB SCSI Disk Drive Select
2542	N	640MB SCSI Disk Drive Pair
2543	N	355MB to 640MB SCSI Disk Drive Pair Select
2550	S	1GB SCSI Disk Drive
2551	S	400MB to 1GB SCSI Disk Drive Select
2552	S	800MB to 2GB SCSI Disk Drive Pair Select
2555	S	1GB SCSI–2 Disk Drive
2556	S	400MB to 1GB SCSI–2 Disk Drive Select
2557	S	800MB to 2GB SCSI–2 Disk Drive Pair Select
2560	N	400MB SCSI Disk Drive
2562	N	800MB SCSI Disk Drive Pair
2567	S	2GB to 2X1GB Disk Drive Select
2570	N	1.37GB SCSI Disk Drive
2572	N	400MB to 1.37GB SCSI Disk Drive Select
2574	N	800MB to 1.37GB SCSI Disk Drive Select
2580	S	2GB SCSI–2 Disk Drive
2583	S	1GB to 2GB SCSI–2 Disk Drive Select
2585	S	800MB to 2GB SCSI–2 Disk Drive Select
2586	S	2GB SCSI–2 Fast/Wide Disk Drive
2587	S	2GB to 2GB SCSI–2 Fast/Wide Disk Drive Select
2588	S	1GB to 2GB SCSI–2 Fast/Wide Disk Drive Select
2590	N	2.4GB SCSI–2 Disk Drive
2592	N	400MB to 2.4GB SCSI–2 Disk Drive Select
2593	N	670MB to 2.4GB SCSI–2 Disk Drive Select
2594	N	2.0GB to 2.4GB SCSI–2 Disk Drive Select
2598	N	2GB to 2.4GB SCSI–2 Disk Drive Select
2600	S	Internal CD–ROM
2602	S	Internal CD–ROM to CD–ROM–2 Select
2603	S	Internal CD–ROM–2
2604	S	600MB SCSI–2 Double–Speed Tray–loading CD–ROM
2613	S	600MB SCSI–2 Double–Speed Tray–loading CD–ROM Select
2614	S	600MB SCSI–2 Double–Speed Tray–loading CD–ROM Select
2615	N	External 5 1/4–Inch Diskette Drive Attachment Cable
2616	S	Quad Speed Tray–Loading CD–ROM
2617	S	Quad Speed Tray–Loading CD–ROM Select
2621	A	Quad Speed Tray–Loading CD–ROM Module
2630	S	Internal 1.2GB 1/4–inch Cartridge Tape Drive
2632	S	Internal 1.2GB 1/4–inch Cartridge Tape Drive Module
2650	N	POWER GXT150M(TM) Graphics Adapter
2700	A	4–Port Multiprotocol Communications Controller
2702	A	Multiprotocol Attachment Cable — V.35
2704	A	Multiprotocol Attachment Cable — X.21
2705	A	4–Port Multiprotocol Interface Cable
2706	A	Multiprotocol Modem Attachment Cable — EIA–232/V.24
2711	N	POWER Gt4xi(TM) 8–bit Graphics Adapter
2712	N	POWER Gt4xi 24–bit Graphics Adapter
2713	N	POWER Gt4i(TM) 24–bit Graphics Adapter
2720	S	Fiber Distributed Data Interface Single–Ring Adapter
2722	S	Fiber Distributed Data Interface Dual–Ring Upgrade Kit
2723	A	FDDI–Fiber Dual–Ring Upgrade
2724	A	FDDI–Fiber Single–Ring Adapter

Part/ Feature Number	J 4 0	A = Available S = Supported N = Not Supported, Must be Removed Description
2725	S	FDDI–STP Single–Ring Adapter
2726	S	FDDI–STP Dual–Ring Upgrade
2735	N	High–Performance Parallel Interface Adapter
2754	A	S/390(R) ESCON(R) Channel Emulator
2755	A	Block Multiplexer Channel Adapter
2756	A	ESCON Control Unit Adapter
2757	A	Block Multiplexer Channel Adapter Cable
2758	A	Block Multiplexer Channel Cable Assembly
2759	A	System/370(TM) Channel Emulator/A
2760	N	Grayscale Graphics Display Adapter
2768	N	POWER Gt3i(TM)
2770	N	Color Graphics Display Adapter
2776	N	POWER Gt4e(TM)
2777	N	POWER Gt3(TM)
2780	N	High–Performance, 8–bit, 3D Color Graphics Processor
2781	N	High–Performance, 24–bit, 3D Color Graphics Processor
2782	N	24–bit, Z–Buffer Solid Rendering Option
2783	N	24–bit, Color Graphics Frame Buffer Upgrade
2790	N	POWER Gt4x(TM) 8–bit Feature
2791	N	POWER Gt4x 24–bit Feature
2792	N	POWER Gt4(TM) 8–bit to 24–bit Upgrade
2794	N	POWER Gt4 Performance Upgrade
2795	N	POWER Gt4 8–bit Feature
2796	N	POWER Gt4 24–bit Feature
2800	N	System/370 Host Interface Adapter
2801	N	5086 Attachment Adapter
2802	N	5085 Attachment Adapter
2810	N	Graphics Input Device Adapter
2811	N	Graphics Input Device Cable
2820	N	IBM 7250 Attachment Adapter
2829	N	External I/O Controller — Towers
2831	S	SCSI–2 High–Performance Internal I/O Controller
2832	A	SCSI Controller Cable
2833	N	Integrated SCSI Controller Cable
2835	A	SCSI High–Performance External I/O Controller
2836	A	SCSI–2 Controller Cable
2860	N	Serial Optical Channel Converter
2866	N	6–Meter Serial Optical Channel Converter Cable
2867	N	10–Meter Serial Optical Channel Converter Cable
2868	N	20–Meter Serial Optical Channel Converter Cable
2869	N	60–Meter Serial Optical Channel Converter Cable
2870	N	100–Meter Serial Optical Channel Converter Cable
2914	S	SCSI–2 Passthrough Terminator Cable (50–Pin)
2915	S	SCSI Controller Passthrough Terminator Cable (60–Pin)
2921	S	ARTIC960 Coprocessor (1MB)
2922	N	Cable Option EIA 232
2923	A	Cable Option EIA 530 RS 422
2924	A	ARTIC960 Coprocessor (4MB)
2926	A	Cable Option ISO 4902 V.36
2927	A	Cable Option ISO 4903 X.21
2928	S	ARTIC960 Coprocessor (8MB)
2929	A	ARTIC960 Coprocessor, 8–port EIA–232
2930	A	8–Port Asynchronous Adapter — EIA–232
2934	A	Asynchronous Terminal/Printer Cable EIA–232
2935	A	ARTIC960 Coprocessor, 6–port V.36
2936	A	Asynchronous Cable EIA–232/V.24
2937	S	Printer/Terminal Interposer — EIA–232
2938	A	ARTIC960 Coprocessor, 8–port X.21
2939	A	ARTIC960 8–port EIA–232 Cable
2940	A	8–Port Asynchronous Adapter — EIA–422A
2941	A	ARTIC960 6–port V.36 Cable
2942	A	ARTIC960 6–port X.21 Cable
2945	A	Asynchronous Terminal Cable — EIA–422A
2950	S	8–Port Asynchronous Adapter — MIL–STD 188
2955	A	16–Port Asynchronous Adapter — EIA–232
2957	A	16–Port Asynchronous Adapter — EIA–422A
2959	S	1–Port Multiprotocol Communications Adapter
2960	A	X.25 Interface Co–Processor/2 Adapter
2965	A	X.25 Attachment Cable X.21 — 3–Meter (10 ft)
2966	A	X.25 Attachment Cable V.24 — 3–Meter (10 ft)
2967	A	X.25 Attachment Cable V.35 — 3–Meter (10 ft)
2970	S	Token–Ring High–Performance Network Adapter
2972	A	IBM Auto Token–Ring LANStreamer 32 MC Adapter
2976	S	X.25 Attachment Cable X.21 — 6–Meter (20 ft)
2977	S	X.25 Attachment Cable V.24 — 6–Meter (20 ft)
2978	S	X.25 Attachment Cable V.35 — 6–Meter (20 ft)
2980	A	Ethernet High–Performance LAN Adapter
2984	S	TURBOWAYS(TM) 100 ATM Adapter
2989	A	TURBOWAYS 155 ATM Adapter
2990	S	3270 Connection Adapter — U.S.

Part/ Feature Number	J 4 0	A = Available S = Supported N = Not Supported, Must be Removed Description
2992	N	Ethernet/FDX 10 Mbps TP/AUI MC Adapter
2993	N	Ethernet High–Performance BNC MC Adapter
2995	A	Multiport Interface Cable
2996	A	16–Port Interface Cable — EIA–232
2997	A	16–Port Interface Cable — EIA–422A
3030	S	1.1GB SCSI–2 Disk Drive
3031	S	2.2GB SCSI–2 Disk Drive
3032	S	1.1GB SCSI–2 Fast/Wide Disk Drive
3033	S	2.2GB SCSI–2 Fast/Wide Disk Drive
3034	S	4.5GB SCSI–2 Fast/Wide Disk Drive
3040	S	1.1GB SCSI–2 Fast/Wide Disk Drive Select
3041	S	1.1GB SCSI–2 Fast/Wide Disk Drive Select (Must order quantity of two)
3043	S	2.2GB SCSI–2 Fast/Wide Disk Drive Select
3044	S	2.2GB SCSI–2 Fast/Wide Disk Drive Select
3047	S	4.5GB SCSI–2 Fast/Wide Disk Drive Select
3048	S	4.5GB SCSI–2 Fast/Wide Disk Drive Select
3052	S	1.1GB SCSI–2 Fast/Wide Disk Drive Module
3053	A	2.2GB SCSI–2 Fast/Wide Disk Drive Module
3054	A	4.5GB SCSI–2 Disk Drive Module
3060	S	1GB SCSI–2 Initial Order (Must order quantity of two)
3061	S	1GB SCSI–2 Initial Order (Must order quantity of four)
3062	S	2GB SCSI–2 Initial Order (Must order quantity of two)
3063	S	2GB SCSI–2 Initial Order (Must order quantity of four)
3064	S	2GB SCSI–2 Fast/Wide Initial Order (Must order quantity two)
3065	S	2GB SCSI–2 Fast/Wide Initial Order (Must order quantity of four)
3094	A	2.2GB F/W DIFF MODULE SEL (Feature number 9134), QTY 2 REQ'D
3100	A	PC Parallel Printer Cable
3124	A	Serial–to–Serial Port Cable for Drawer/Drawer
3125	A	Serial–to–Serial Port Cable for Rack/Rack
3130	A	SCSI Device–to–Device Cable
3600	N	POWERdisplay 16
3601	N	POWERdisplay 19
3607	N	POWERdisplay 17
3608	N	POWERdisplay 20
3612	N	P50 Color Monitor
3613	N	P70 Color Monitor
3614	N	P200 Color Monitor
3615	N	P201 Color Monitor
4008	N	8MB SD1 Memory Card
4010	N	8MB to 16MB SD1 Memory Select Feature
4016	N	16MB SD1 Memory Card
4032	N	32MB HD1 Memory Card
4033	N	8MB to 32MB HD1 Memory Select
4035	N	64MB HD1 Memory Card
4036	N	8MB to 64MB HD1 Memory Select
4061	A	Memory Conversion Kit to 256MB Memory
4062	A	Memory Conversion Kit to 512MB Memory
4063	N	8MB HD3 Memory Card
4065	N	32MB HD2 Memory Card
4066	N	16MB HD3 Memory Card
4067	N	32MB HD3 Memory Card
4068	N	16MB to 32MB HD3 Memory Select
4069	N	64MB HD3 Memory Card
4070	N	16MB to 64MB HD3 Memory Select
4071	N	32MB to 64MB HD3 Memory Select
4090	N	128MB Memory Card
4092	N	32MB to 128MB Memory Select
4095	N	256MB Memory Card
4096	N	32MB to 256MB Memory Select
4147	A	256MB Memory Select
4148	A	512MB Memory Select
4155	S	64MB Memory Card
4156	A	128MB Memory Card
4157	A	256MB Memory Card
4158	A	512MB Memory Card
4213	N	13W3 to 15–Pin, D–Shell Converter Cable
4214	N	13W3 to 60/77Hz Display Cable
4221	N	Ethernet AUI/Thin Riser
4222	N	Ethernet Twisted Pair Riser
4224	A	Ethernet 10BaseT Transceiver
4227	N	Sun–Compatible Display Converter Cable
4229	N	13W3 to PowerDisplay 16S Display Cable

Part/ Feature Number	J40	A = Available S = Supported N = Not Supported, Must be Removed Description
4234	N	13W3 to 13W3 Display Cable
4236	N	13W3 to 3W3 Display Cable
4301	A	Dual PowerPC 604 112MHz Processor Card with 1MB L2 Cache
4350	N	POWERgraphics GTO Accelerator Feature
5005	A	Software Preinstall
5032	N	32MB Memory SIMM Kit
5064	N	64MB Memory SIMM Kit
5128	N	128MB Memory SIMM Kit
6010	N	Keyboard — 101 Keys (U.S.)
6011	N	Keyboard — 102 Keys (Belgian–Dutch/French)
6012	N	Keyboard — 102 Keys (Canadian French)
6013	N	Keyboard — 102 Keys (Danish)
6014	N	Keyboard — 102 Keys (Finnish)
6015	N	Keyboard — 102 Keys (French)
6016	N	Keyboard — 102 Keys (German)
6017	N	Keyboard — 102 Keys (Italian)
6019	N	Keyboard — 102 Keys (Norwegian)
6020	N	Keyboard — 102 Keys (Portuguese)
6021	N	Keyboard — 102 Keys (Spanish)
6022	N	Keyboard — 102 Keys (Swiss)
6023	N	Keyboard — 102 Keys (United Kingdom/English)
6024	N	Keyboard — 102 Keys (Icelandic)
6025	N	Keyboard — 102 Keys (Turkish)
6026	N	Keyboard — 102 Keys (Greek)
6027	N	Keyboard — 102 Keys (Hebrew)
6028	N	Keyboard — 102 Keys (Arabic)
6030	N	Keyboard — 106 Keys (Japanese/Kanji)
6031	N	Keyboard — 106 Keys (Korean)
6033	N	Keyboard — 106 Keys (Chinese Traditional/Taiwan)
6034	N	Keyboard — Dutch #143 (Netherlands)
6035	N	Keyboard — Turkish #440
6041	N	3–Button Mouse
6138	A	Internal 8–mm 5/10GB Tape Module
6139	A	Internal 4–mm 4/8GB Tape Module
6141	S	CD–ROM to 5GB 8–mm Tape Select
6142	S	4GB/8GB 4–mm Internal Tape Drive
6143	N	CD–ROM to 2.3GB 8–mm Internal Tape Drive Select
6144	S	CD–ROM to 5.0GB 8–mm Internal Tape Drive Select
6145	S	CD–ROM–2 to 4GB 4–mm Tape Drive Select
6146	N	2.3GB 8–mm Internal Tape Drive
6147	S	5GB/10GB 8–mm Internal Tape Drive
6175	A	Cluster Power Controller
6176	A	Null Modem Cable: CPC to TTY
6177	A	Null Modem Cable: CPC to CPC
6178	A	Null Modem Cable: CPC to CPU
6210	S	High–Performance Disk Drive Subsystem Adapter (40MB/sec)
6211	S	High–Performance Disk Drive Subsystem Adapter (80MB/sec)
6212	A	High–Performance Subsystem Adapter (40/80MB/sec)
6214	A	High Performance 4–Port SSA Adapter
6216	A	Enhanced 4–PORT, SSA, Serial Adapter, MCA
6300	A	Digital Trunk Adapter
6301	N	M–Audio Capture Playback Adapter
6302	A	IBM Ultimedia Audio Adapter
6305	A	Digital Trunk Dual Adapter
6306	N	IBM Speech Accelerator 1
6307	N	IBM Speech Accelerator 2
6400	N	64–Port Asynchronous Controller
6401	N	16–Port Asynchronous Concentrator
6402	N	RJ–45 to DB–25 Converter Cable
6501	N	3.5–inch Disk Drive Mounting Hardware
6506	N	Incremental Cooling Fan
6511	A	Media to Disk Bay Conversion Hardware
6514	A	Hot Swap 8–bit Disk Enclosure
6515	A	Hot Swap Media Enclosure
6516	A	Hot Swap 16–bit Disk Enclosure
7002	S	IBM Realtime Interface Co–Processor: Multiport/2 Adapter (.5MB)
7004	S	IBM Realtime Interface Co–Processor: Multiport/2 Adapter (1MB)
7006	A	IBM Realtime Interface Co–Processor: Portmaster(R) Adapter/A (1MB)
7008	S	IBM Realtime Interface Co–Processor: Portmaster Adapter/A (2MB)
7022	S	IBM Realtime Interface Co–Processor: Multiport/2 4–Port RS–232 Interface Board
7024	S	IBM Realtime Interface Co–Processor: Multiport/2 6–Port RS–232–C Synchronous Interface Board
7026	S	IBM Realtime Interface Co–Processor: Multiport/2 8–Port RS–232 Interface Board
7028	S	IBM Realtime Interface Co–Processor: Multiport/2 8–Port RS–422–A Interface Board
7030	S	IBM Realtime Interface Co–Processor: Multiport/2 RS–232/RS–422 Interface Board
7042	A	IBM Realtime Interface Co–Processor: 8–Port RS–232 Interface Board/A
7044	A	IBM Realtime Interface Co–Processor: 8–Port RS–422 Interface Board/A
7046	A	IBM Realtime Interface Co–Processor: 6–Port V.35 Interface Board/A
7102	S	IBM Realtime Interface Co–Processor: EIA RS–232–C Multiport Interface Cable
7104	S	IBM Realtime Interface Co–Processor: Synchronous Interface Cable
7106	A	IBM Realtime Interface Co–Processor: 6–Port V.35 Cable
7107	A	IBM Realtime Interface Co–Processor: V.35 Network Cable
7108	A	IBM Realtime Interface Co–Processor: 8–port EIA–232/422 Cable
7111	A	IBM Realtime Interface Co–Processor: X.21 Network Cable
8128	A	128–Port Asynchronous Controller
8130	A	Remote Asynchronous Node 16–Port EIA–232 (U.S.)
8131	A	128–Port Asynchronous Controller Cable, 4.5 Meter
8132	A	128–Port Asynchronous Controller Cable, 23 cm (9–in)
8133	A	RJ–45 to DB–25 Converter Cable
8135	A	64–Port to 128–Port Pin–Out Converter
8136	A	Rack–Mountable Remote Asynchronous Node 16–Port EIA–232
8A0836	N	MG24 Graphics Adapter
8A0875	N	ICL Search Accelerator
9000	N	Ethernet AUI/Thin Riser Specify
9001	N	Ethernet Twisted Pair Riser Specify
9042	N	1MB L2 Cache Specify
9046	A	128MB Memory Specify
9051	A	Dual Processor 604 SMP 2W, Base, 112MHz, 1MB L2
9116	N	Transformer Specify, 115 to 127 V AC
9134	A	Base 4.5GB F/W Disk DIFF MODULE
9150	N	Serial Optical Channel Converter Module Specify
9212	A	Base Enhanced SCSI–2 Differential Fast/Wide Adapter/A
9216	S	IBM SCSI–2 Fast/Wide Adapter/A Specify
9218	S	Internal CD–ROM–2 Specify
9219	S	SCSI–2 I/O Controller Specify
9220	N	SCSI I/O Controller Specify
9221	A	3.5–inch, 1.44MB Diskette Drive Specify
9223	S	Internal CD–ROM Specify
9231	N	8MB SD1 Memory Specify
9232	N	32MB HD2 Memory Specify
9234	N	16MB HD3 Memory Specify
9235	N	32MB HD3 Memory Specify
9236	N	16MB SD1 Memory Specify
9243	N	640MB SCSI Disk Drive Specify
9244	N	400MB SCSI Disk Drive Specify
9245	N	800MB SCSI Disk Drive Specify
9246	N	355MB SCSI Disk Drive Specify
9249	S	1GB SCSI–2 Disk Drive Specify
9263	S	2GB SCSI–2 Disk Drive Specify X2
9300	A	Language Group Specify — U.S. English
9430	N	SCSI–2 Fast/Wide Internal Cable Specify
9441	A	Base SCSI Cable to Internal Devices
9607	A	Base Quad–Speed, Tray–loading CD–ROM Module
9986	A	Power Cord Specify — Chicago (125 V, 15 A) (1.8 M)(6 ft)

Devices Supported

External Storage Machines: These subsystems are rack-mountable:

- IBM 0562 Model 001 LAGO Systems 270GB LS/380L DataWheel 8-mm Tape Library
  - Interface: SCSI (#2410, #2415)
  - Rack mount: 4 EIA
  - Power Input: 100-240 V AC

- IBM 0562 Model 002 LAGO Systems 270GB LS/380L DataWheel 8-mm Tape Library with Laser Bar Code Scanner
  - Interface: SCSI (#2410, #2415)
  - Rack mount: 4 EIA
  - Power Input: 100-240 V AC
- IBM 3490 Model C11 Enhanced Capability Magnetic Tape Subsystem
  - Interface: SCSI (#2412, #2416, #2420)
  - Rack mount: 14 EIA
  - Power Input: 200-240 V AC/300 V DC
- IBM 3490 Model C22 Enhanced Capability Magnetic Tape Subsystem
  - Interface: SCSI (#2412, #2416, #2420)
  - Rack mount: 14 EIA
  - Power Input: 200-240 V AC/300 V DC
- IBM 3490 Model E11 Enhanced Capability Magnetic Tape Subsystem
  - Interface: SCSI (#2412, #2416, #2420)
  - Rack mount: 8 EIA for pair of E11s
  - Power Input: 200-240 V AC/300 V DC
- IBM 3590 High-Performance Tape Subsystem Models B11
  - Interface: SCSI (#2412, #2416, #2420)
  - Rack mount: 12 EIA
  - Power input: 200-240 V AC/300 V DC
- IBM 7012 Model G02 Expansion Cabinet
  - Interface: SCSI-2 F/W (#2415)
  - Rack Mount: 4 EIA
  - Power Input: 100-240 V AC
- IBM 7027 Model HSC High-Capacity Storage Drawer
  - Interface: SCSI-2 F/W (#2415)
  - Rack Mount: 7 EIA
  - Power Input: 100-240 V AC
- IBM 7027 Model HSD High-Capacity Storage Drawer
  - Interface: SCSI-2 F/W (#2412, #2416)
  - Rack Mount: 7 EIA
  - Power Input: 100-240 V AC
- IBM 7133 Model 010 Serial Storage Architecture (SSA) Disk Subsystem
  - Interface: SSA (#6214)
  - Rack mount: 4 EIA
  - Power Input: 200-240 V AC
- IBM 7134 Model 010 High-Density SCSI Disk Subsystem
  - Interface: SCSI (#2412, #2416)
  - Rack mount: 4 EIA
  - Power Input: 200-240 V AC/300 V DC (or -48 V DC RPQ)
- IBM 7135 Model 010 RAIDiant Array
  - Interface: SCSI (#2416, #2420)
  - Rack mount: 10 EIA
  - Power Input: 200-240 V AC (or -48 V DC RPQ)
- IBM 7135 Model 110 RAIDiant Array
  - Interface: SCSI (#2416, #2420)
  - Rack mount: 10 EIA
  - Power Input: 200-240 V AC (or -48 V DC RPQ)
- IBM 7135 Model 210 RAIDiant Array
  - Interface: SCSI (#2412)
  - Rack mount: 10 EIA
  - Power Input: 200-240 V AC (or -48 V DC RPQ)
- IBM 7137 Models 512, 513, 514 Disk Array Subsystem
  - Interface: SCSI (#2412, #2416, #2420)
  - Rack Mount: 4 EIA
  - Power Input: 200-240 V AC
- IBM 9333 Model 010 High-Performance Disk Drive Subsystem
  - Interface: Serial link (#6212)
  - Rack mount: 4 EIA
  - Power Input: 200-240 V AC/300 V DC (or -48 V DC option)
- IBM 9333 Model 011 High-Performance Disk Drive Subsystem
  - Interface: Serial link (#6212)
  - Rack mount: 4 EIA
  - Power Input: 200-240 V AC/300 V DC (or -48 V DC option)
- IBM 9334 Model 010 SCSI Expansion Unit
  - Interface: SCSI (#2410, #2415)
  - Rack mount: 4 EIA
  - Power Input: 200-240 V AC/300 V DC (or -48 V DC RPQ)
- IBM 9334 Model 011 SCSI Expansion Unit
  - Interface: SCSI (#2412, #2416, #2420)
  - Rack mount: 4 EIA
  - Power Input: 200-240 V AC/300 V DC (or -48 V DC RPQ)

These machines can be attached (J40-unique):

- IBM 9333 Model 500 High-Performance Disk Drive Subsystem
- IBM 9333 Model 501 High-Performance Disk Drive Subsystem
- IBM 9334 Model 500 SCSI Expansion Unit
- IBM 9334 Model 501 SCSI Expansion Unit
- IBM 9348 Model 012 Magnetic Tape Unit

These machines can be attached:

- IBM 0840 Model 001 Exabyte EXB-10e 50GB 8-mm Tape Cartridge Handling Subsystem
- IBM 3514 Model 212 and 213 Disk Array Subsystem
- IBM 7137 Model 412, 413, 414 Disk Array Subsystem
- IBM 3995 Model A63 Optical Library Dataserver
- IBM 3995 Model 063 Optical Library Dataserver
- IBM 3995 Model 163 Optical Library Dataserver
- IBM 3494 Model L10 Tape Library Dataserver
- IBM 7131 Model 105 Multi-Storage Tower (requires SCSI differential interface to processor drawer)
- IBM 7131 Model 405 Multi-Storage Tower
- IBM 7133 Model 500 SSA Disk Subsystem
- IBM 7318 Serial Communications Network Server Model P10 (supported only on AIX 4.2 at this time)
- IBM 7318 Serial Communications Network Server Model S20 (supported only on AIX 4.2 at this time)
- IBM 7332 Model 005 4-mm DDS-2 Tape Autoloader
- IBM 7336 Model 205 4-mm Tape Library

These machines can be attached:

- IBM 7203 Model 001 Portable Disk Unit
- IBM 7204 Model 001 1GB External Disk Drive
- IBM 7204 Model 010 1GB External Disk Drive
- IBM 7204 Model 215 2GB External Disk Drive

- IBM 7204 Model 315 2GB Fast/Wide External Disk Drive
- IBM 7204 Model 112 External Disk Drive (1.1GB)
- IBM 7204 Model 113 2.2GB External Disk Drive
- IBM 7204 Model 114 4.5GB External Disk Drive
- IBM 7204 Model 317 External Disk Drive (2.2GB)
- IBM 7204 Model 325 External Disk Drive (4.5GB)
- IBM 7206 Model 001 External 4-mm Tape Drive (2GB)
- IBM 7206 Model 005 External 4-mm Tape Drive (4GB)
- IBM 7207 Model 001 150MB 1/4-inch Tape Drive
- IBM 7207 Model 011 525MB External 1/4-Inch Cartridge Tape Drive
- IBM 7207 Model 012 1.2GB External 1/4-Inch Cartridge Tape Drive
- IBM 7208 Model 001 External 8-mm Tape Drive (2.3GB)
- IBM 7208 Model 011 External 8-mm Tape Drive (5.0GB)
- IBM 7209 Model 001 Optical Disk Drive (595MB)
- IBM 7209 Model 002 Optical Disk Drive (1.19GB)
- IBM 7210 Model 001 External CD-ROM Drive
- IBM 7210 Model 005 External CD-ROM Drive

S/370™ Channel Attached Machines (Requires #2759)

- IBM 3825 Page Printer
- IBM 3827 Page Printer
- IBM 3838 Advanced Function Magnetic Ink Character Recognition MICR Printer
- IBM 3835 Page Printer Model 1
- IBM 3835 Page Printer Model 2
- IBM 3900 Advanced Function Printer
- IBM 3480 Magnetic Tape Subsystem, all models
- IBM 3490 Magnetic Tape Subsystem, all models
- IBM 3490E Magnetic Tape Subsystem, all models
- IBM 3494 Tape Library Dataserver
- IBM 3495 Tape Library Dataserver

S/390 ESCON Channel Attached Machines (Requires #2754)

- IBM 3490 Magnetic Tape Subsystem, all models
- IBM 3490E Magnetic Tape Subsystem, all models
- IBM 3494 Tape Library Dataserver
- IBM 3495 Tape Library Dataserver

ASCII Terminals

- IBM 3151 Model 310/410[2]
- IBM 3153 Model BA3/BG3/BW3
- IBM 3161[2]
- IBM 3162[2]
- IBM 3163[2]
- IBM 3164[2]
- DEC VT100
- DEC VT220
- DEC VT320
- DEC VT330
- WYSE 30
- WYSE 50
- WYSE 60
- WYSE 350

[2] National language support is provided through the use of Cartridge 8859/1.2, inserted in the terminal and appropriate keyboard.

X Terminals

- IBM Xstation 120
- IBM Xstation 130
- IBM Xstation 140
- IBM Xstation 150

Plotters

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

Modems: Modem support is provided to allow communication through telecommunications networks using dial-up or leased lines with asynchronous protocols or the synchronous half-duplexed synchronous data link control (SDLC) or binary synchronous communication (BSC) protocols. Not all of the features supported by the listed modems are supported by AIX Version 4.1.4 or 4.2 for Servers.

Modems	Protocols		Standards
IBM 5822 up to 56 Kbps		SYNC	CCITT V.35
IBM 5841 1200 bps	ASYNC	SYNC	EIA-232D
IBM 5853 2400 bps	ASYNC	SYNC	EIA-232D, CCITT V.24
IBM 5865 9600 bps		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 19.2 Kbps		SYNC	EIA-232D, CCITT V.24
IBM 7868 up to 19.2 Kbps		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 VI1222VP	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[3]
- IBM 2381 Plus Printer[3]
- IBM 2390 Plus Printer[3]
- IBM 2391 Plus Printer[3]
- IBM 3112-001 Page Printer
- IBM 3116-001, -002, and -003 Page Printers
- HP Color LaserJet
- HP LaserJet 4/4M
- HP LaserJet 4Si/4Si MX

- HP LaserJet 4 Plus/4M Plus
- HP LaserJet 4V/4MV
- Lexmark 4039-10R LaserPrinter Plus 10R
- Lexmark 4039-12L LaserPrinter Plus 12L
- Lexmark 4039-12R LaserPrinter Plus 12R
- Lexmark 4039-16L LaserPrinter Plus 16L
- Lexmark 4047-05E ValueWriter 600
- Lexmark 4076-02C ExecJet® IIc
- Lexmark 4079-001 Color JetPrinter Plus
- Lexmark Optra Laser Printer Lxi, Lx, Rx, L, and R
- IBM 3812-002 Page Printer[4]
- IBM 3816-01D and 01S Page Printer[5]
- IBM 3930-03D and 03S Page Printer, emulating the HP LaserJet III Si
- IBM 4019-001 LaserPrinter[6]
- IBM 4019-E01 LaserPrinter E[6]
- IBM 4029-010 LaserPrinter 5E
- IBM 4029-020 LaserPrinter 6
- IBM 4029-022 LaserPrinter[3]
- IBM 4029-030 LaserPrinter 10
- IBM 4029-042 LaserPrinter
- IBM 4029-040 LaserPrinter 10L
- IBM 4037 5E Page Printer[3]
- IBM 4039-10R LaserPrinter 10R[7]
- IBM 4039-10D LaserPrinter 10D[7]
- IBM 4039-12L LaserPrinter 12L[7]
- IBM 4039-12R LaserPrinter 12R[7]
- IBM 4039-16L LaserPrinter 16L[7]
- IBM 4070 IJ Printer Model 1
- IBM 4072-001 ExecJet® Printer
- IBM 4076 ExecJet II Printer[3,8]
- 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 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[9]
- IBM 5204-001 Quickwriter®[9]
- IBM 6252 Impactwriter® AP2 (7012: #2936, #2937, or #3100 required)
- IBM 6252 AS2 (7012: #2936, #2937, or #3100 required)
- IBM 6252 AP8 Impactwriter®[10]
- IBM 6252 AS8 Impactwriter[10]
- IBM 4247 Model A00
- IBM 6262 A12, A14, A22
- IBM 6400 Model 004 Line Matrix Printer, emulating the IBM 4234 printer
- IBM 6400 Model 008 Line Matrix Printer, emulating the IBM 4234 printer
- IBM 6400 Model 012 Line Matrix Printer, emulating the IBM 4234 printer
- IBM 6408 Model A00, CTA Line Matrix Printer, emulating the IBM 4234 printer
- IBM 6412 Model A00, CTA Line Matrix Printer, emulating the IBM 4234 Line Dot Matrix Printer
- IBM LaserPrinter 4039-12R, -12L, and -16L Plus, emulating the IBM 4039 LaserPrinter[3,7]
- Lexmark 4047 5E, emulating the IBM 4039 LaserPrinter[3,7]
- IBM 4230 Impact Printer Models 4S3, 4I3, 5S3, and 5I3, emulating the Proprinter III XL
- IBM 4232-302 Impact Dot Matrix Printer, emulating the Proprinter II XL[3]

The following non-IBM printers are also supported:

- HP LaserJet Series II[11]
- HP LaserJet Series III[11]
- HP LaserJet Series III Si[11]
- Hewlett-Packard LaserJet 4[11]
- TI Omnilaser 2115
- DATAPRODUCTS LZR 2665
- PRINTRONIX P9012
- DATAPRODUCTS BP 2000
- QMS Colorscript 100 Model 20

Printer notes:

[3] For assistance with these printers, call Lexmark Customer Support. Lexmark Customer Support Line: 606-232-3000; Lexmark Internet File Server: ftp.lexmark.com

[4] Feature number 3155 attaches the IBM 3812 printer to the RISC System/6000 system.

[5] Feature number 7652 attaches the IBM 3816 printer to the RISC System/6000 system.

[6] When using the serial ports, the IBM 4019 needs feature number 9143 (system serial interface adapter) for attachment to the RISC System/6000 system.

[7] AIX support software for the LaserPrinter Integrated Network Option is provided with the Network Option cards (#5495, #5496, and #5497 on the IBM 4039 LaserPrinter).

[8] 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.

[9] The RISC System/6000 system supports Code Page 850. The Code Page 850 cartridge must be installed on the IBM 5202 printer to fully utilize the full character sets of the system. For details on available cartridges, refer to the IBM 5202 Sales Manual. Other IBM printers have Code Page 850 resident.

[10] 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.

[11] AIX support software for the HP JetDirect Ethernet Card.

Printer Peripherals

- Token Ring for HP JetDirect Network Attachment
- 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)

Product Positioning

The new RISC System/6000 PowerPC Servers are the latest generation of systems for business featuring an innovative SMP design that combines the PowerPC — the leading RISC microprocessor; AIX — IBM′s industrial-strength UNIX; and IBM′s large systems development experience to bring unprecedented reliability, scalability, and capacity to low-cost, enterprise servers.

These new SMP systems exploit the performance of the PowerPC 604 in two-, four-, six-, and eight-way processor configurations. Process performance growth can be accomplished by simply adding additional processor cards as performance requirements grow.

Designed to avoid typical performance bottlenecks, these new RISC System/6000 PowerPC Servers leverage IBM′s extensive large systems experience, applying mainframe-class technology to the SMP design. An innovative, non-blocking data crossbar speeds memory/processor interaction with a sustained memory subsystem bandwidth of 800MB/second. This high memory capacity allows future performance upgrades to most effectively exploit these systems. An integrated

service processor continually monitors the system and automatically acts to recover the system from selected error conditions, enhancing system reliability.

For many customers with installed RS/6000 500 series servers, attractively priced upgrades to these new SMP systems are available to provide continued performance growth.

Most technical server applications requiring the maximum performance on floating-point or numerically intensive workloads will be best served by the POWER2-based uniprocessors. They continue to offer the best performance and price-performance on these technical applications.

Publications

The following publications will be shipped with the RISC System/6000 Model J40. Additional copies are available.

Title	Order Number
7013 J Series Base Unit Setup Procedures	SA23-2723
7013 J Series Operator Guide	SA23-2724
7013 J Series Service Guide	SA23-2725
POWERstation™ and POWERserver® Common	SA23-2687
Diagnostics and Service Guide AIX and Related Products Documentation Overview	SC23-2456
RISC System/6000 System Unit Safety Information	SA23-2652

Also, the following publication is available. To order, contact your IBM representative.

Title	Order Number
IBM RISC System/6000 System Overview and Planning	GC23-2406

System Library Subscription Service (SLSS) is available by product number and subject code. Customers currently subscribing to SLSS will receive publication updates automatically.

Education Support

Call IBM Education and Training at 800-IBM-TEACH (426-8322) for education catalogs, schedules, and enrollments.

Technical Information

Specified Operating Environment

Physical Specifications

- Width: 360 mm (14.7 in)
- Depth: 750 mm (29.5 in)
- Height: 610 mm (24.0 in)
- Base weight: 43.5 kg (100 lb)
- Fully configured weight: 84 kg (184 lb)

Operating Environment

- Temperature: 16° to 32°C (60° to 90°F)
- Relative humidity: 8% to 80% (20% to 80% with tape media)
- Maximum wet bulb: 23°C (73°F) maximum
- Sound Power:
  - 6.0 Bels Idle
  - 6.2 Bels Operating

Power Supply

- Voltage: 100 to 125 V, 200 to 240 V Nominal Same Auto Ranging; 50/60Hz
- Power supply: 780 Watts output (maximum)
- Thermal output: 2765 Btus per hour
- Power source loading: 0.9 K VA

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

- U.S.: FCC CFR47 Class A
- Germany: IOP
- Europe: CISPR 22 EN55022 Class A
- Japan: VCCI-1

Environmental Impact Assessment: Environmental Impact Assessment Number 617P-3

The RISC System/6000 models were developed in compliance with IBM corporate policy letter number 139 (Environmental Affairs).

The product complies with IBM Corporate Standard C-S 3-0527-002 (1991-06) Control of Chemicals in IBM Facilities, Requirements, and Responsibilities.

Product Safety/Country Testing/Certification:

- U.S.: UL 1950
- Canada: CSA C22.2 950-M89
- Germany: EN60-950 (IEC950)

General Requirements: Compliance with IBM Corporate Bulletin C-B 0-2594-000 Statement of Conformity of IBM Product to External Standard (Suppliers Declaration)

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	
Denmark	DEMKO	
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 Location	ISO 9000 Certification
Santa Palomba, Italy	
Manufacturing	9002
Havant, England	
Development	9001
Wangaratta, Australia	
Manufacturing	9002
Austin, Texas	
Manufacturing	9002
Development	9001
AIX Software Development	9001

Hardware Requirements: IBM-supported ASCII terminal and cable.

Software Requirements: Customers ordering the new IBM 604-based SMP systems can order either AIX V4.1 or AIX V4.2. Customers ordering AIX V4.2 should refer to Software Announcement 296-124, dated April 23, 1996. For information on LPPs, refer to the AIX LPP Roadmap, available from your IBM representative, or from the World Wide Web at URL:

http://www.austin.ibm.com/software/Apps/LPPmap.html

Model Conversions: You can upgrade these 500 series server models to the Model J40 PowerPC Server.

- 520, 52H, 530, 53E, 53H, 540, 550, 55E, 55S, 560, 56F, 55L, 570, 57F, 580, 58F, 58H*, 590*, and 59H*

* One additional dual (two-way) 604 112MHz processor card (#4301) for 58H, 590, and 59H to J40 upgrades.

Note: Additional dual processor cards are available for a fee with all upgrades.

This section provides details on the contents of the J40 model conversion shipment group and the additional features you will need to order or have available before performing the upgrade. Also, it discusses which existing features are supported and offers several options for using existing memory when upgrading to the J40.

What Is Contained in the Model Conversion Shipment Group?

The upgrades to the Model J40 contain the following items:

- One dual PowerPC (two-way) 604 112MHz processor card
- Chassis with customer's existing serial number
- New labels
- Installation instructions
- New diagnostics
- New publications

Your existing supported disk, media devices, and adapters can be transferred to the new Model J40 system. The replaced chassis and main circuit boards become the property of IBM and must be returned to IBM. Optional features of the replaced system will either be installed in the new system or returned to you.

What Additional Features Will I Need to Order?

Upgraded machines must contain the same or equivalent base features as the Model J40 at the conclusion of the upgrade.

These items must be installed or available with the upgrade:

- One additional dual (two-way) 604 112MHz processor card (#4301) for 58H, 590, and 59H to J40 upgrades.

  Note: Additional dual processor cards are available for a fee with all upgrades.

- SMP-compatible memory cards with a minimum of 128MB of memory
- SCSI-2 Fast/Wide Differential Adapter
- CD-ROM drive
- 4GB of 3.5-inch, 8-bit or 16-bit SCSI-2 disk drives converted to 8-bit or 16-bit, hot-pluggable disk enclosures

  Note: The Model J40 uses hot-pluggable disk bays in place of the disk bays used in the 500 series systems. For an additional charge, 8-bit and 16-bit, hot-pluggable disk enclosures are available to convert your supported SCSI 3.5-inch disk drives into modular packages for installation into the Model J40.

If additional hardware is required for the upgrade, it must be purchased with the upgrade or be available at the time of the upgrade. It will also be necessary to perform a prerequisite analysis of all customer machine orders before the upgrade being scheduled for shipment.

Which of My Existing Features Are Supported?

Several features on the existing 500 series models are not supported on the Model J40. Refer to the **Feature Availability Matrix** for a listing of supported and non-supported features.

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

Memory Feature Exchange: IBM offers an SMP memory exchange program, at a reduced fee, for customers who are converting from a uniprocessor to an SMP processor. Customers with installed IBM uniprocessor memory may use the exchange program to acquire SMP memory. IBM will exchange uniprocessor memory for equal or greater capacity SMP memory. (Uniprocessor memory 4MB, 8MB, and 16MB does not apply).

Planning Information

Cable Orders: No cables required

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

Security, Auditability, and Control

Security and auditability features of the J40 systems are:

- Physical security is provided by a key lock that helps prevent cover removal when locked.
- A three-position MODE switch helps provide logic security for the system.

Otherwise, these products uses the security and auditability features of host hardware, software, and 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).

IBM hardware products are manufactured from new parts, or new and used parts. In some cases, the hardware product may not be new and may have been previously installed. Regardless, IBM's warranty terms apply.

Volume Orders: For information about 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 can 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 Type	Discount Three-Year	Five-Year
7013	12%	17%

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

Option	Discount Three-Year	Five-Year
Network	15%	20%
System	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.

When a type of service involves the exchange of a machine or part, the replacement may not be new, but will be in good working order.

Product Availability Status: New product available

Field-Installable Features: Yes

Model Conversions: Yes

Customer Setup: No

Licensed Internal Code: Yes

Educational Allowance: A reduced charge is available to qualified education customers. The educational allowance cannot be added to any other discount or allowance.

Charges

Model J40

Description	Machine Type	Purchase Price	MMMC[12]
RISC System/6000	7013	$54,000	$540

[12] Monthly Minimum Maintenance Charge

Description	Feature Number	Purchase Price	MMMC
2.2GB F/W DIFF MODULE SEL[13]	3094	$ 0	
256MB Memory Select	4147	8,320	
512MB Memory Select	4148	24,960	
Dual PowerPC 604 112MHz Processor Card with 1MB L2 Cache	4301	12,000	$120
128MB Memory Specify	9046	NC	
Dual PowerPC 604 112MHz Processor Card with 1MB L2 Cache, Base	9051	NC	
BASE 4.5GB F/W Disk Drive DIFF MODULE	9134	NC	

[13] Quantity of two required.

The following previously announced features are available on the specified models.

Description	Feature Number	Purchase Price
CCS Customer Service Specify (U.S.)	0986	NC
IBM Network Terminal Accelerator — 256 Session	2402	$4,500
Enhanced SCSI-2 Differential Fast/Wide Adapter/A	2412	1,370
IBM SCSI-2 Fast/Wide Adapter/A	2415	1,070
IBM SCSI-2 Differential Fast/Wide Adapter/A	2416	1,370
SCSI-2 Differential Y-Cable	2422	224
SCSI-2 Differential System to System Cable	2423	108
0.6M 16-bit SCSI-2 System to System Cable	2424	108

Description	Feature Number	Purchase Price
2.5M 16-bit SCSI-2 System to System Cable	2425	$ 130
16-bit Y-Cable For IBM SCSI-2 Differential Fast/Wide Adapter/A	2426	445
8-bit Y-Cable for IBM SCSI-2 Differential Fast/Wide Adapter/A	2427	425
16-bit IBM SCSI-2 Fast/Wide Adapter/A to Dual-Ported Device Cable	2435	150
16-bit IBM SCSI-2 Differential Fast/Wide Adapter/A to Dual-Ported Device Cable	2436	150
8-bit IBM SCSI-2 Fast/Wide Adapter/A to Dual-Ported Device Cable	2437	125
8-bit IBM SCSI-2 Differential Fast/Wide Adapter/A to Dual-Ported Device Cable	2438	125
8-bit IBM SCSI-2 Fast/Wide Adapter/A to Single-Ported Device Cable	2439	145
SCSI Cable to Internal Devices	2441	75
Quad-Speed, Tray-Loading CD-ROM Module	2621	995
4-Port Multiprotocol Communications Controller	2700	2,600
Multiprotocol Attachment Cable — V.35	2702	117
Multiprotocol Attachment Cable — X.21	2704	117
4-Port Multiprotocol Interface Cable	2705	500
Multiprotocol Modem Attachment Cable — EIA-232/V.24	2706	93
FDDI-Fiber Dual-Ring Upgrade	2723	1,995
FDDI-Fiber Single-Ring Adapter	2724	3,995
S/390 ESCON Channel Emulator	2754	10,000
Block Multiplexer Channel Adapter	2755	4,400
ESCON Control Unit Adapter	2756	10,000
Block Multiplexer Channel Adapter Cable	2757	700
Block Multiplexer Channel Cable Assembly	2758	900
System/370 Channel Emulator/A	2759	3,500
SCSI Controller Cable	2832	315
SCSI High-Performance External I/O Controller	2835	1,245
SCSI-2 Controller Cable	2836	195
Cable Option EIA 530 RS 422	2923	575
ARTIC960 Coprocessor (4MB)	2924	3,495
Cable Option ISO 4902 V.36	2926	575
Cable Option ISO 4903 X.21	2927	575
ARTIC960 Coprocessor, 8-port EIA-232	2929	3,495
8-Port Asynchronous Adapter — EIA-232	2930	832
Asynchronous Terminal/Printer Cable EIA-232	2934	45
ARTIC960 Coprocessor, 6-port V.36	2935	3,495
Asynchronous Cable EIA-232/V.24	2936	73
ARTIC960 Coprocessor, 8-port X.21	2938	3,495
ARTIC960 8-port EIA-232 Cable	2939	365
8-Port Asynchronous Adapter — EIA-422A	2940	936
ARTIC960 6-port V.36 Cable	2941	510
ARTIC960 6-port X.21 Cable	2942	325
Asynchronous Terminal Cable — EIA-422A	2945	$ 130
16-Port Asynchronous Adapter — EIA-232	2955	1,125
16-Port Asynchronous Adapter — EIA-422A	2957	1,550
X.25 Interface Co-Processor/2 Adapter	2960	1,570
X.25 Attachment Cable X.21 — 3-Meter (10-ft)	2965	104
X.25 Attachment Cable V.24 — 3-Meter (10-ft)	2966	104
X.25 Attachment Cable V.35 — 3-Meter (10-ft)	2967	192
IBM Auto Token-Ring LANstreamer 32 MC Adapter	2972	850
Ethernet High-Performance LAN Adapter	2980	722
TURBOWAYS 155 ATM Adapter	2989	2,695
Multiport Interface Cable	2995	384
16-Port Interface Cable — EIA-232	2996	295
16-Port Interface Cable — EIA-422A	2997	639
2.2GB SCSI-2 Fast/Wide Disk Drive Module	3053	2,300
4.5GB SCSI-2 Disk Drive Module	3054	3,250
PC Parallel Printer Cable	3100	48
Serial to Serial Port Cable for Drawer/Drawer	3124	80
Serial to Serial Port Cable for Rack/Rack	3125	80
SCSI Device to Device Cable	3130	78
Memory Conv Kit to 256MB Memory	4061	2,000
Memory Conv Kit to 512MB Memory	4062	2,000
128MB Memory Card	4156	8,320
256MB Memory Card	4157	16,640
512MB Memory Card	4158	33,280
Ethernet 10BaseT Transceiver	4224	195
Software Preinstall	5005	NC
Internal 8mm 5/10GB Tape Module	6138	5,695
Internal 4mm 4/8GB Tape Module	6139	2,995
Cluster Power Controller	6175	3,100
Null Modem Cable: CPC to TTY	6176	70
Null Modem Cable: CPC to CPC	6177	75
Null Modem Cable: CPC to CPU	6178	45
High-Performance Subsystem Adapter (40/80MB/Sec)	6212	4,000
High Performance 4-Port SSA Adapter	6214	1,370
Enhanced 4-PORT SSA SERIAL ADPTR, MCA	6216	2,000
Digital Trunk Adapter	6300	1,200
IBM Ultimedia Audio Adapter	6302	295
Digital Trunk Dual Adapter	6305	2,400
Media to Disk Bay Conversion Hardware	6511	20
Hot Swap 8-bit Disk Enclosure	6514	500
Hot Swap Media Enclosure	6515	500
Hot Swap 16-bit Disk Enclosure	6516	500
IBM Realtime Interface Co-Processor: Portmaster Adapter/A (1MB)	7006	1,595
IBM Realtime Interface Co-Processor: 8-Port RS-232 Interface Board/A	7042	627

Description	Feature Number	Purchase Price
IBM Realtime Interface Co-Processor: 8-Port RS-422 Interface Board/A	7044	$ 673
IBM Realtime Interface Co-Processor: 6-Port V.35 Interface Board/A	7046	1,227
IBM Realtime Interface Co-Processor: 6-Port V.35 Cable	7106	848
IBM Realtime Interface Co-Processor: V.35 Network Cable	7107	150
IBM Realtime Interface Co-Processor: 8-port EIA-232/422 Cable	7108	375
IBM Realtime Interface Co-Processor: X.21 Network Cable	7111	125
128-Port Asynchronous Controller	8128	1,295
Remote Asynchronous Node 16-Port EIA-232 (U.S.)	8130	1,495
128-Port Asynchronous Controller Cable, 4.5 Meter	8131	60
128-Port Asynchronous Controller Cable, 23 cm (9 in)	8132	40
RJ-45 to DB-25 Converter Cable	8133	120
64-Port to 128-Port Pin-Out Converter	8135	45
Rack-Mountable Remote Asynchronous Node 16-Port EIA-232	8136	1,995
Base Enhanced SCSI-2 Differential Fast/Wide Adapter/A	9212	NC
3-1/2 Inch 1.44MB Diskette Drive Specify	9221	NC
Language Group Specify —U.S. English	9300	NC
Base SCSI Cable to Internal Devices	9441	NC
Base Quad-Speed, Tray-loading CD-ROM Module	9607	NC
Language Group Specify —Candian French	9712	NC
Power Cord Specify — United States/Canada	9800	NC
Power Cord Specify — Chicago (125V, 15A) (1.8 m)(6 ft)	9986	NC

Model Conversion Purchase Prices

Model From	Model To	Model Conversion Purchase Price*
520	J40	$29,500
52H	J40	29,500
530	J40	29,500
53E	J40	29,500
53H	J40	29,500
540	J40	29,500
550	J40	29,500
55E	J40	29,500
55S	J40	29,500
560	J40	29,500
56F	J40	29,500
55L	J40	29,500
570	J40	29,500
57F	J40	29,500
580	J40	29,500
58F	J40	29,500
58H	J40	18,000
590	J40	18,000
59H	J40	18,000

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

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To order, contact IBM Direct, your local IBM representative, or your IBM Authorized Business Partner.

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Internet: ibm_direct@vnet.ibm.com
Mail: IBM Direct
Dept. RE001
P.O. Box 16848
Atlanta, GA 30321-0848
Reference: RE001

To identify your local IBM Authorized Business Partner or IBM representative, call 800-IBM-4YOU.

Note: Shipments will begin after the planned availability date.