IBM RISC System/6000 Model J30 PowerPC Server

The RISC System/6000® Model J30 PowerPC™ Server represents the newest generation RISC System/6000 systems, based on the PowerPC Architecture™. The J30 is the first of a family of deskside, symmetric multiprocessors (SMP). The J30 is designed to accommodate up to four dual-processor cards, four memory cards, and seven Micro Channel® bus expansion slots. The J30 comes standard with:

- A dual 601 PowerPC processor card (2-way) with:
  - 32KB instruction/data Level 1 (L1) cache
  - 1MB Level 2 (L2) cache per processor
- 64MB of shared memory
- Seven hot-pluggable disk bays
- Three media bays
- A diskette drive
- A SCSI-2 Fast/Wide Differential Adapter
- A double-speed tray-loading CD-ROM
- A 2.2GB SCSI-2 internal disk

A single image is provided via AIX Version 4.1.1 for servers. A second dual-processor card is available. Configurations will initially be limited to a maximum of two dual-PowerPC 601™ processor cards.

The IBM RISC System/6000 Model J01 expansion cabinet provides for additional expansion capability. The J01 provides eight additional Micro Channel bus expansion slots and 14 media bays. Only one J01 expansion cabinet per J30 is supported. The power interface cable and Micro Channel expansion cable are provided with the J01.

Existing models of the RISC System/6000 deskside family may be upgraded to the J30. The upgraded system will have the same serial number as the predecessor system.

For information regarding a no-charge model conversion from the RISC System/6000 Model J30 PowerPC Server, refer to the **Product Preview for RS/6000 PowerPC Servers** section.

> *IN BRIEF . . .*
>
> - PowerPC performance and upgradeability offers 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 customer business data.
>
> - Software compatibility, with few exceptions, offers binary compatibility with AIX Version 3.2.5.
>
> - Investment protection leverages hardware, software, applications, and training.

Description	Purchase Price
RISC System/6000 7013-J30	$67,500
RISC System/6000 7013-J01	11,000

Planned Availability Dates:

For Model J30:	December 23, 1994
For Model J01:	March 24, 1995
For Model Upgrades and MESs:	March 24, 1995
For Features 4144 and 4156 (128MB memory card):	January 27, 1995
For Features 4146 and 4158 (512MB memory card):	January 27, 1995

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Description

RISC SYSTEM/6000 Model J30 PowerPC Server

The RISC System/6000 Model J30 is a deskside server designed to support up to eight processors and comes standard with:

- Four dual-processor card slots
- Four memory card slots
- Seven Micro Channel bus expansion slots
- Seven hot-pluggable disk bays
- Three hot-pluggable media bays

The J30 comes with a minimum of:

- Two 75MHz PowerPC 601 processors with:
  - 32KB instruction/data L1 cache
  - 1MB L2 cache per processor
  - 64MB of shared memory

A single image is provided via AIX® Version 4.1.1 for servers. The two processors are on a single card. The initial offering will support a 2-way or 4-way configuration. The 6-way and 8-way options will be available later in 1995.

Standard Features:

- One dual-601 PowerPC Processor card (2-way)

  Three available processor slots

- 64MB memory card

  64, 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 2.2GB SCSI-2 internal disk
  Selectable to two 1.1GB disks

- Three media bays

  Double-speed, tray-loading CD-ROM
  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

RISC System/6000 Model J01

The RISC System/6000 J01 Expansion cabinet allows additional expansion capability by providing eight Micro Channel bus expansion slots, and twelve hot-pluggable disk bays and two hot-pluggable media bays. The two media bays may be converted to hot-pluggable disk bays. One J01 may be attached per J30 processor.

The J01 expansion cabinet attaches to the left side of the J30 processor. The power interface cable and Micro Channel expansion cable are provided with the Model J01.
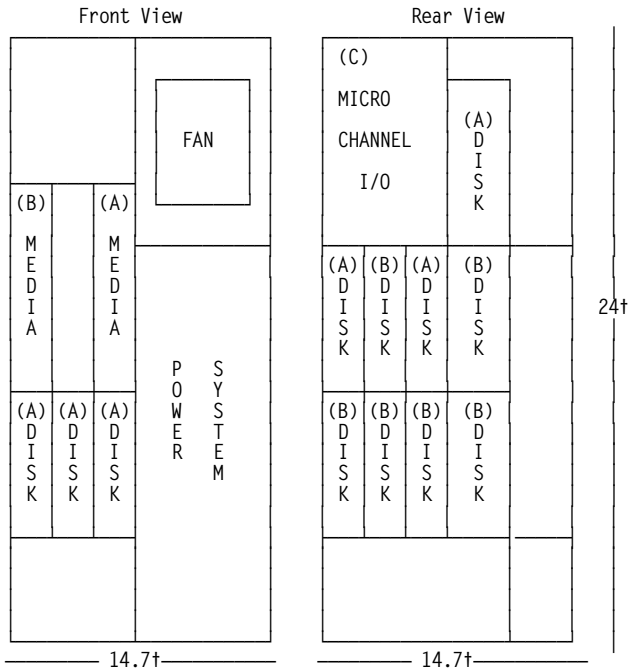
Configuration of J30
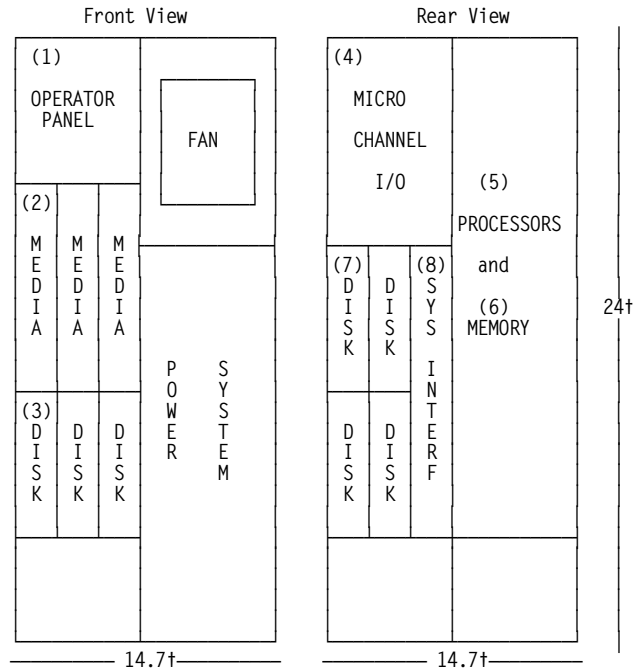
Notes:

1. Operator Panel: Feature #9221 (1.44MB diskette) > no select options

2. Media Devices (Three 3 maximum): Feature #9605 (CD–ROM/no caddy) or select to feature #2607 (CD–ROM2)
   Optional media: Feature #2608 (CD–ROM2), feature #2609 (CD–ROM/no caddy), feature #2632 (1/4–inch tape), feature #6138 (8 mm Tape), feature #6139 (4 mm tape)
   Optional disk (requires #6511): Feature #3052 (1.1GB), feature #3053 (2.2GB)

3. Disk Devices/front (three maximum): Feature #9133 (2.2GB) or select 2 x feature #3050 (1.1GB)
   Optional disk: Feature #3052 (1.1GB), feature #3053 (2.2GB)

4. Micro Channel board (seven expansion slots, six available): Feature #9217 (SCSI–2 F/W Diff) and feature #9441 (SCSI Cable to backplane)
   Optional adapters: (refer to matrix)

5. Processors: Feature #9302 (2W–601 Processor Card)
   Additional: Feature #4302 (2W–601 Processor Card)

6. Memory: Feature #9045 (64MB Memory Card) or select to features #4144/#4145/#4146 (128/256/512MB)
   Additional: Features #4155/#4156/#4157/#4158 (64/128/256/512MB)

7. Disk Devices/rear: four maximum, requires feature #2416 (adapter) and feature #2441 (cable)
   Optional disk: Feature #3052 (1.1GB), feature #3053 (2.2GB)

8. I/O Panel: Three serial ports, one parallel port, two SCSI backplane input connectors

Configuration of J01

```
     Front View                    Rear View
                               ┌──────────┬──────────┐
┌──────┬──────────────┐        │ (C)      │          │
│      │              │        │          │          │
│      │   ┌──────┐   │        │ MICRO    │  (A)     │
│      │   │      │   │        │          │  D       │
│      │   │ FAN  │   │        │ CHANNEL  │  I        │
│      │   │      │   │        │          │  S        │
│      │   └──────┘   │        │  I/O     │  K        │
├──────┬──────┬───────┤        │          │          │
│ (B)  │ (A)  │       │        ├────┬────┬────┬───────┤
│ M    │ M    │       │        │(A) │(B) │(A) │ (B)   │
│ E    │ E    │       │        │ D  │ D  │ D  │  D    │
│ D    │ D    │  P    │        │ I  │ I  │ I  │  I     │  24†
│ I    │ I    │  O  S │        │ S  │ S  │ S  │  S     │
│ A    │ A    │  W  Y │        │ K  │ K  │ K  │  K    │
├──────┬──────┤  E  S │        ├────┬────┬────┬───────┤
│ (A)  │(A)│(A)│  R  T │        │(B) │(B) │(B) │ (B)   │
│ D    │ D │ D │     E │        │ D  │ D  │ D  │  D    │
│ I    │ I │ I │     M │        │ I  │ I  │ I  │  I     │
│ S    │ S │ S │       │        │ S  │ S  │ S  │  S     │
│ K    │ K │ K │       │        │ K  │ K  │ K  │  K    │
├──────┴──────┴───────┤        ├────┴────┴────┴───┬───┤
│                     │        │                  │   │
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└─────────────────────┘        └──────────────────┴───┘
   ──── 14.7† ────                ──── 14.7† ────
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Notes:

A. SCSI Devices/A Bus:  Requires feature #2416
   (adapter) and #2441 (cable)   Optional media
   (One maximum):  Feature #2608 (CD-ROM2), feature
   #2609 (CD-ROM/no caddy), feature #2632 (1/4-inch
   tape), feature #6138 (8 mm tape), feature #6139
   (4 mm tape) (Order feature #6511 to install disk
   in Media position)   Optional disk (six maximum):
   Feature #3052 (1.1GB), feature #3053 (2.2GB)
B. SCSI Devices/B Bus:  Same as A Bus
C. Micro Channel board (eight expansion slots)
   Optional adapters: (refer to matrix)
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SMP Technology

Design: The RS/6000's new SMP design incorporates multiple PowerPC processors sharing a single common memory and single copy of the AIX Version 4.1.1 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 simple design with a coherent cache allows programs to exploit the parallelism provided by the multiple processors.

Design Requirements: There are several requirements that the design of a multiprocessor system must satisfy when compared to a uniprocessor system, including:

- 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

There are several additional requirements 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 because of 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:

- An operating system with the ability to schedule and synchronize work across the available processors

- A high-bandwidth 800MB/sec bus provided for access between cache and memory

- Cache and memory managed efficiently to provide cache consistency

The design of the IBM SMP servers is to maximize performance as follows:

- The most recently-used or projected-to-use program elements 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 non-blocking cross-bar switch is added to the design that carries the data between cache and memory or cache and cache. A patented, four-deep pipelined snoop architecture provides the highest degree of concurrency in memory and cache operations and operates with the data cross-bar. The design allows operations to take place in a single memory-read cycle that in other SMP designs will take two or three such cycles.

Reliability and Availability: 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 SystemGuard™, an imbedded service processor that will enable remote operation of the system, remote power-on/power-off, running of diagnostics, service, repair, and console support, and processor reconfiguration if errors. The support processor is continuously powered even when the 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 re-booted. 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 re-boot.

In addition to the support processor, the error checking and correction circuitry protecting memory is able to detect and correct all single bit failures. Double-bit errors

and package failures (such as caused by a chip failure) will also be detected and auto-reboot invoked.

When talking about reliability and serviceability, one must not forget the important part played by AIX Version 4.1.1 for servers operating system. Features such as the logical volume manager, journaled file system and dynamic kernel all contribute to a reliable and robust operating system implementation.

Scalability: Scalability is also a key design consideration. IBM SMP servers are built to be easily upgraded. In fact, the packaging permits convenient replacement or upgrading of processor, memory, or I/O adapters. For example, the processors are contained on dual-processor cards and to upgrade from a 2-way to a 4-way system is merely a matter of plugging in an additional dual-processor card. It is IBM's intention to support up to six PowerPC 604 processors in the first half of 1995, and up to eight processors by year end 1995.

Another aspect of scalability is the I/O subsystem. The IBM SMP is constructed to allow hot-plugging of new disks onto the system. This means that addition of new hard files will not require a power down, and the dynamic nature of the AIX Version 4.1.1 for Servers operating system allows many new subsystems to be configured without a boot.

Feature Availability 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 this new model at time of announcement 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. A blank in a column indicates that the specific feature does not apply to that model.

Feature Number	J011	J030	A = Available S = Supported N = Not Supported, Must be Removed Description
0986	A	S	CCS Customer Service Specify
1000		S	Order Validation Specify Code
1110		N	Keyboard — U.S. English Soft Touch
1906	N	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		N	IBM Network Terminal Accelerator — 256 Session
2403		N	IBM Network Terminal Accelerator — 2048 Session
2404		N	IBM Ultimedia Video I/O Adapter
2405		N	IBM Ultimedia Video Compression/ Decompression Card
2410		S	SCSI–2 High–Performance External I/O Controller
2413		S	IBM SCSI–2 Differential Fast/Wide Adapter/A Select
2414		S	IBM SCSI–2 Fast/Wide Adapter/A Select
2415	A	A	IBM SCSI–2 Fast/Wide Adapter/A

Feature Number	J011	J030	A = Available S = Supported N = Not Supported, Must be Removed Description
2416	A	A	IBM SCSI–2 Differential Fast/Wide Adapter/A
2417	A		IBM SCSI–2 Differential Fast/Wide Adapter/A Select
2420		S	SCSI–2 Differential High–Performance External I/O Controller
2422	A	A	SCSI–2 Differential Y–Cable
2423	A	A	SCSI–2 Differential System to System Cable
2424	A	A	0.6M 16–bit SCSI–2 Differential System to System Cable
2425	A	A	2.5M 16–bit SCSI–2 Differential System to System Cable
2426	A	A	16–bit Y–Cable for IBM SCSI–2 Differential Fast/Wide Adapter/A
2427	A	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	A	16–bit IBM SCSI–2 Fast/Wide Adapter/A to Dual–Ported Device Cable
2436	A	A	16–bit IBM SCSI–2 Differential Fast/Wide Adapter/A to Dual–Ported Device Cable
2437	A	A	8–bit IBM SCSI–2 Fast/Wide Adapter/A to Dual–Ported Device Cable
2438	A	A	8–bit IBM SCSI–2 Differential Fast/Wide Adapter/A to Dual–Ported Device Cable
2439	A	A	8–bit IBM SCSI–2 Fast/Wide Adapter/A to to Single–Ported Device Cable
2441	A	A	Cable SCSI (Short) to Internal 8–Bit 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		S	640MB SCSI Disk Drive Pair
2543		S	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		S	400MB SCSI Disk Drive
2562		S	800MB SCSI Disk Drive Pair
2567		S	2GB to 2 x 1GB 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 Fast/Wide Disk Drive Select
2586		N	2GB SCSI–2 Fast/Wide Disk Drive
2587		N	2GB to 2GB SCSI–2 Fast/Wide Disk Drive Select
2588		N	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	CD–ROM for Processor Drawer
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

Feature Number	J01	J30	Description
			A = Available S = Supported N = Not Supported, Must be Removed
2607		A	Internal Caddy-Loading CD-ROM Select
2608	A	A	Internal Caddy-Loading CD-ROM Module
2609	A	A	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 5.25-Inch Diskette Drive Attachment Cable
2630		S	1.2GB Internal 1/4-Inch Cartridge Tape Drive
2632	A	A	Internal 1/4-Inch Tape 1.2GB SCSI Module
2650	A	A	POWER GXT150M Graphics Adapter
2700	A	A	4-Port Multiprotocol Communications Controller
2702	A	A	Multiprotocol Attachment Cable — V.35
2704	A	A	Multiprotocol Attachment Cable — X.21
2705	A	A	4-Port Multiprotocol Interface Cable
2706	A	A	Multiprotocol Modem Attachment Cable — EIA-232/V.24
2711		N	POWER Gt4xi 8-bit Graphics Adapter
2712		N	POWER Gt4xi 24-bit Graphics Adapter
2713		N	POWER Gt4i 24-bit Graphics Adapter
2720		S	Fiber Distributed Data Interface Single-Ring Adapter
2722		A	Fiber Distributed Data Interface Dual-Ring Upgrade Kit
2723	A	A	FDDI-Fiber Dual-Ring Upgrade
2724	A	A	FDDI-Fiber Single-Ring Adapter
2725	A	A	FDDI-STP Single-Ring Adapter
2726	A	A	FDDI-STP Dual-Ring Upgrade
2735		N	High-Performance Parallel Interface Adapter
2754		N	S/390 (R) ESCON Channel Emulator
2755	A	A	Block Multiplexer Channel Adapter
2756		N	ESCON Control Unit Adapter
2757	A	A	Block Multiplexer Channel Adapter Cable
2759		N	System/370 (TM) Channel Emulator/A
2760		N	Grayscale Graphics Display Adapter
2768		N	POWER Gt3i
2770		N	Color Graphics Display Adapter
2776		N	POWER Gt4e
2777		N	POWER Gt3
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 8-bit Feature
2791		N	POWER Gt4x 24-bit Feature
2792		N	POWER Gt4 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 POWER GXT1000 Accelerator Card
2829		N	External I/O Controller — Towers
2831		S	SCSI-2 High-Performance Internal I/O Controller
2832		N	SCSI Controller Cable
2833		N	Integrated SCSI Controller Cable
2835		N	SCSI High-Performance External I/O Controller
2836	A	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 Passthru Terminator Cable (50-Pin)

Feature Number	J01	J30	Description
			A = Available S = Supported N = Not Supported, Must be Removed
2915		S	SCSI Controller Passthru Terminator Cable (60-Pin)
2921		N	Artic960 Co-Processor (1MB)
2922		N	Cable Option EIA 232
2923		N	Cable Option EIA 530 RS-422
2924		N	Artic960 Co-Processor (4MB)
2926		N	Cable Option ISO 4902 V.36
2927		N	Cable Option ISO 4903 X.21
2928		N	Artic960 Co-Processor (8MB)
2930	A	A	8-Port Asynchronous Adapter — EIA-232
2936	A	A	Asynchronous Cable EIA-232/V.24
2937	A	A	Printer/Terminal Interposer — EIA-232
2940	A	A	8-Port Asynchronous Adapter — EIA-422A
2945	A	A	Terminal Cable — EIA-422A
2950	A	A	8-Port Asynchronous Adapter — MIL-STD 188
2955	A	A	16-Port Asynchronous Adapter — EIA-232
2957	A	A	16-Port Asynchronous Adapter — EIA-422A
2959		S	1-Port Multiprotocol Communications Adapter
2960	A	A	X.25 Interface Co-Processor/2
2965	A	A	X.25 Attachment Cable X.21 — 3-Meter (10 feet)
2966	A	A	X.25 Attachment Cable V.24 — 3-Meter (10 feet)
2967	A	A	X.25 Attachment Cable V.35 — 3-Meter (10 feet)
2970	A	A	Token-Ring High-Performance Network Adapter
2972	A	A	IBM Auto Token-Ring LANStreamer 32 MC Adapter
2976	A	A	X.25 Attachment Cable X.21 — 6-Meter (20 feet)
2977	A	A	X.25 Attachment Cable V.24 — 6-Meter (20 feet)
2978	A	A	X.25 Attachment Cable V.35 — 6-Meter (20 feet)
2980	A	A	Ethernet High-Performance LAN Adapter
2984		N	Turboways 100 ATM Adapter
2990	A	A	3270 Connection Adapter
2995	A	A	Multiport Interface Cable
2996	A	A	16-Port Interface Cable — EIA-232
2997	A	A	16-Port Interface Cable — EIA-422A
3032		N	1.1GB SCSI-2 Fast/Wide Disk Drive
3033		N	2.2GB SCSI-2 Fast/Wide Disk Drive
3034		N	4.5GB SCSI-2 Fast/Wide Disk Drive
3043		N	2.2GB SCSI-2 Fast/Wide Disk Drive Select
3044		N	2.2GB SCSI-2 Fast/Wide Disk Drive Select
3047		N	4.5GB SCSI-2 Fast/Wide Disk Drive Select
3048		N	4.5GB SCSI-2 Fast/Wide Disk Drive Select
3050		A	1.1GB SCSI-2 Fast/Wide Disk Drive Module Select (Must order quantity of two)
3052	A	A	1.1GB SCSI-2 Fast/Wide Disk Drive Module
3053	A	A	2.2GB SCSI-2 Fast/Wide 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		N	2GB SCSI-2 Fast/Wide Initial Order (Must order quantity two)
3065		N	2GB SCSI-2 Fast/Wide Initial Order (Must order quantity of four)
3100		A	PC Parallel Printer Cable
3130	A	A	SCSI Device to Device Cable
3600		N	POWERdisplay 16
3601		N	POWERdisplay 19
3607		N	POWERdisplay 17
3608		N	POWERdisplay 20
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/MP
4062		A	Memory Conversion Kit to 512MB/MP
4063		N	8MB HD3 Memory Card
4065		N	32MB HD2 Memory Card
4066		N	16MB HD3 Memory Card

Feature Number	J031	J330	Description
			A = Available S = Supported
			N = Not Supported, Must be Removed
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
4144		A	128MB MP Memory Select
4145		A	256MB MP Memory Select
4146		A	512MB MP Memory Select
4155		A	64MB MP Memory Card
4156		A	128MB MP Memory Card
4157		A	256MB MP Memory Card
4158		A	512MB MP Memory Card
4213		N	15-Pin D-Shell to Xstation 150 Display Converter Cable
4214		N	Xstation 150 to 6091 Display Cable
4221		N	Ethernet AUI/Thin Riser
4222		N	Ethernet Twisted-Pair Riser
4224	A	N	Ethernet 10BaseT Transceiver
4227		N	Sun Compatible Display Converter Cable
4229		N	POWER Gt1x to 5-BNC Connector Cable
4302		A	2-Way 601 MP Processor Card/1MB L2
4350		N	POWERgraphics GTO Accelerator Feature
5005		A	AIX Operating System Preload (U.S.)
5032		N	32MB Memory SIMM Kit
5064		N	64MB Memory SIMM Kit
5128		N	128MB Memory SIMM Kit
6010		N	Keyboard — U.S. 101 Keys
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)
6018		N	Keyboard — Brazilian #275
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	A	Internal 8 mm 5/10GB VDAT Tape Module
6139	A	A	Internal 4/8GB Tape Module
6141		S	CD-ROM-2 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		N	5GB/10GB 8 mm Internal Tape Drive
6175		A	Cluster Power Controller
6210		S	High-Performance Disk Drive Subsystem Adapter (40MB/s)
6211		S	High-Performance Disk Drive Subsystem Adapter (80MB/s)
6212	A	A	High-Performance Subsystem Adapter (40/80MB/s)
6300		N	Digital Trunk Adapter
6301		N	M-Audio Capture Playback Adapter
6302	A	A	IBM Ultimedia Audio Adapter
6305		N	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	A	Media to Disk Bay Conversion Hardware
6514	A	A	Disk Module Mounting Cage
6515	A	A	Media Module Mounting Cage
7002		N	IBM Realtime Interface Co-Processor: Multiport/2 Adapter (.5MB)
7004		N	IBM Realtime Interface Co-Processor: Multiport/2 Adapter (1MB)
7006	A	A	IBM Realtime Interface Co-Processor: Portmaster Adapter/A (1MB)
7008	A	A	IBM Realtime Interface Co-Processor: Portmaster Adapter/A (2MB)
7022		N	IBM Realtime Interface Co-Processor: Multiport/2 4-Port RS-232 Interface Board
7024		N	IBM Realtime Interface Co-Processor: Multiport/2 6-Port RS-232-C Synchronous Interface Board
7026		N	IBM Realtime Interface Co-Processor: Multiport/2 8-Port RS-232 Interface Board
7028		N	IBM Realtime Interface Co-Processor: Multiport/2 8-Port RS-422-A Interface Board
7030		N	IBM Realtime Interface Co-Processor: Multiport/2 RS-232/RS-422 Interface Board
7042	A	A	IBM Realtime Interface Co-Processor: 8-Port RS-232 Interface Board/A
7044	A	A	IBM Realtime Interface Co-Processor: 8-Port RS-422 Interface Board/A
7046	A	A	IBM Realtime Interface Co-Processor: 6-Port V.35 Interface Board/A
7102		N	IBM Realtime Interface Co-Processor: EIA RS-232-C Multiport Interface Cable
7104		N	IBM Realtime Interface Co-Processor: Synchronous Interface Cable
7106	A	A	IBM Realtime Interface Co-Processor: 6-Port V.35 Cable
7108	A	A	IBM Realtime Interface Co-Processor: 8-Port Cable
8128	A	A	128-Port Asynchronous Controller
8130	A	A	Remote Asynchronous Node 16-Port EIA-232
8131	A	A	128-Port Asynchronous Controller Cable, 4.5 M (15 feet)
8132	A	A	128-Port Asynchronous Controller Cable, 23 cm (9-inch)
8133	A	A	RJ-45 to DB-25 Converter Cable
8135	A	A	64-Port to 128-Port Pin-Out Converter
8A0836		N	MG24 Graphics Adapter
8A0875		N	ICL Search Accelerator
9042		N	1MB L2 Cache Specify
9045		A	64MB Base MP Memory
9116		N	Transformer Specify, 115 to 127 V AC
9133		A	2.2GB Base SCSI-2 Fast/Wide Disk Drive Module
9150		N	Serial Optical Channel Converter Module Specify
9216		S	IBM SCSI-2 Fast/Wide Adapter/A Specify
9217		A	IBM SCSI-2 Fast/Wide Differential 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 Diskette 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		S	640MB SCSI Disk Drive Specify
9244		S	400MB SCSI Disk Drive Specify
9245		S	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	A	Language Group Specify — U.S. English
9302		A	Base MP 2-Way (601) Processor Card, 1.0MB L2

```
        J J   A = Available   S = Supported
        0 3   N = Not Supported, Must be Removed
        1 0
Feature
Number          Description

9430      N   SCSI—2 Fast/Wide Internal Cable Specify
9441      A   Base SCSI Cable to Internal 8—Bit Devices
9605      A   Base Internal Tray—loading CD—ROM
9800    A A   Power Cord Specify — United States/
                Canada (125 V, 15 A)
9986    A A   Power Cord Specify — Chicago (125V, 15A)
                (1.8 M)(6 feet)
```

Devices Supported

External Storage Machines: These machines are rack-mountable and can be attached if installed in a 7202 expansion rack.

- IBM 9333 Model 010 High-Performance Disk Drive Subsystem

  - Interface: Serial link (#6212)
  - Rack mount: Four EIA
  - Power Input: 200-240 V AC/300 V DC

- IBM 9333 Model 011 High-Performance Disk Drive Subsystem

  - Interface: Serial link (#6212)
  - Rack mount: Four EIA
  - Power Input: 200-240 V AC/300 V DC

- IBM 9334 Model 010 SCSI Expansion Unit

  - Interface: SCSI (#2410, #2415)
  - Rack mount: Four EIA
  - Power Input: 200-240 V AC/300 V DC

- IBM 9334 Model 011 SCSI Expansion Unit

  - Interface: SCSI (#2420, #2416)
  - Rack mount: Four EIA
  - Power Input: 200-240 V AC/300 V DC

- IBM 0562 Model 001 LAGO Systems 270GB LS/380L DataWheel 8 mm Tape Library

  - Interface: SCSI (#2410, #2415)
  - Rack mount: Four 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: Four EIA
  - Power Input: 100-240 V AC

- IBM 3490 Model C11 Enhanced Capability Magnetic Tape Subsystem

  - Interface: SCSI (#2420, #2416)
  - Rack mount: 14 EIA
  - Power Input: 200-240 V AC/300 V DC

- IBM 3490 Model C22 Enhanced Capability Magnetic Tape Subsystem

  - Interface: SCSI (#2420, #2416)
  - Rack mount: 14 EIA
  - Power Input: 200-240 V AC/300 V DC

- IBM 3490 Model E11 Enhanced Capability Magnetic Tape Subsystem

  - Interface: SCSI (#2420, #2416)
  - Rack mount: Eight EIA for pair of E11s
  - Power Input: 200-240 V AC/300 V DC

- IBM 7134 Model 010 High Density SCSI Disk Subsystem

  - Interface: SCSI (#2416)
  - Rack mount: Four EIA
  - Power Input: 200-240 V AC/300 V DC

- IBM 7137 Models 512, 513, 514 Disk Array Subsystem

  - Interface: SCSI (#2416, #2420)
  - Rack Mount: Four EIA
  - Power Input: 200 — 240 V AC

These machines may 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 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 317 External Disk Drive (2.2GB)
- IBM 7204 Model 325 External Disk Drive (4.5GB)
- IBM 7206 Model 001 External 4 mm Tape Drive (2.0GB)
- IBM 7206 Model 005 External 4 mm Tape Drive (4.0GB)
- IBM 7207 Model 001 150MB ¼-inch Tape Drive
- IBM 7207 Model 011 525MB External ¼-inch Cartridge Tape Drive
- IBM 7207 Model 012 1.2GB External ¼-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
- IBM 7332 Model 005 4 mm DDS-2 Tape Autoloader
- 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

This unit is a Micro Channel adapter with software:

- IBM 0562 Model 004 Prestoserve for IBM AIX/6000®

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

- IBM 3151 Model 310/410[1]
- IBM 3161[1]
- IBM 3162[1]
- IBM 3163[1]
- IBM 3164[1]
- DEC VT100
- DEC VT220
- DEC VT320
- DEC VT330
- WYSE 30
- WYSE 50
- WYSE 60
- WYSE 350

[1] National language models are supported by a cartridge with ISO 8859-1 and national language keyboards.

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 4.1.1 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[2]
- IBM 2381 Plus Printer[2]
- IBM 2390 Plus Printer[2]
- IBM 2391 Plus Printer[2]
- IBM 3812-002 Page Printer[3]
- IBM 3816-01D and 01S Page Printer[4]
- IBM 3930-03D and 03S Page Printer, emulating the HP LaserJet III Si**
- IBM 4019-001 LaserPrinter[5]
- IBM 4019-E01 LaserPrinter E[5]
- IBM 4029-010 LaserPrinter 5E
- IBM 4029-020 LaserPrinter 6
- IBM 4029-022 LaserPrinter[2]
- IBM 4029-030 LaserPrinter 10
- IBM 4029-042 LaserPrinter
- IBM 4029-040 LaserPrinter 10L
- IBM 4037 5E Page Printer[2]
- IBM 4039-10R LaserPrinter 10R[6]
- IBM 4039-10D LaserPrinter 10D[6]
- IBM 4039-12L LaserPrinter 12L[6]
- IBM 4039-12R LaserPrinter 12R[6]
- IBM 4039-16L LaserPrinter 16L[6]
- IBM 4070 IJ Printer Model 1
- IBM 4072-001 ExecJet® Printer
- IBM 4076 ExecJet II Printer[2,7]
- 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 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[8]
- IBM 5204-001 Quickwriter® [8]
- IBM 6252 Impactwriter® AP2 (7012: #2936, #2937, or #3100 required)
- IBM 6252 AS2 (7012: #2936, #2937, or #3100 required)
- IBM 6252 AP8 Impactwriter[9]
- IBM 6252 AS8 Impactwriter[9]
- IBM 6262 A12, A14, A22
- IBM 6408 Line Matrix Printer emulating the IBM 4234
- IBM 4039-12R, -12L, and -16L Plus LaserPrinter, emulating the IBM 4039 LaserPrinter[2,6]
- Lexmark 4047 5E, emulating the IBM 4039 LaserPrinter[2,6]
- 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[2]
- IBM 6412 Model A00, CTA Line Matrix Printer, emulating the IBM 4234 Line Dot Matrix Printer

The following non-IBM printers are also supported:

- HP LaserJet Series II**[10]
- HP LaserJet Series III**[10]
- HP LaserJet Series III Si**[10]
- Hewlett-Packard LaserJet 4[10]
- TI Omnilaser 2115**
- DATAPRODUCTS LZR 2665**
- PRINTRONIX P9012**
- DATAPRODUCTS BP 2000**
- QMS** Colorscript 100 Model 20

[2] For assistance with these printers, call Lexmark Customer Support:
Lexmark Customer support line: 606-232-3000
Lexmark Internet file server: ftp.lexmark.com

[3] Feature number 3155 for the IBM 3812 printer is required for attachment to the RISC System/6000 system.

[4] Feature number 7652 for the IBM 3816 printer is required for attachment to the RISC System/6000 system.

[5] When using the serial ports, the IBM 4019 requires a (System serial interface adapter, #9143) for attachment to the RISC System/6000 system.

[6] AIX support software for the LaserPrinter Integrated Network Option has the Network Option cards (#5495, #5496, #5497) on the IBM 4039 LaserPrinter.

[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 IBM 2390 Personal Printer.

[8] 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 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.

[9] 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.

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

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)

Limitations:

Model J30:

- Six Micro Channel bus slots available

Model J30 with a J01:

- A maximum of 14 SCSI and Serial-link Adapters in combination (#2410, #2415, #2416, #2420 and #6212)

- A maximum of eight SCSI-Differential Adapters (#2420)

- A maximum of seven Serial-link adapters (#6212)

- A maximum of seven 128-Port Async Adapters (#8128)

- A maximum of eight Realtime Interface Co-Processors in combination (#7006 or #7008)

- A maximum of eight Fiber Distributed Data Interface Adapters in combination (#2720, #2722, #2723, #2724, #2725 or #2726)

- A maximum of eight of any one type of the following adapters: 4-Port Multiprotocol Communication adapters (#2700), Token-Ring adapters (#2970 or #2972), Ethernet adapters (#2980), or X.25 Interface Co-Processors (#2960)

- A maximum of 12 of the following adapters may be ordered in combination: 4-Port Multiprotocol Communication Adapters (#2700), Token-Ring adapters (#2970 or #2972), Ethernet adapters (#2980), X.25 Interface Co-Processors (#2960), Fiber Distributed Data Interface Adapters (#2723, #2724, #2725, #2726)

- Some features **cannot** be installed if an upgrade is performed (refer to Feature Availability Matrix for information).

  If features are removed in performing the upgrade they remain the property of the customer. The features are not for return to IBM except for feature number 9150, which is part of the returned system board.

Disk Storage Adapters and Subsystems on Model J30:

Storage configurations can be maximized for individual types of storage, or combination of types (for example, all SCSI, all serial-link, SCSI and serial-link in combination). The following chart shows maximum disk capacity for each maximized configuration. The **Assumptions** section defines each adapter/subsystem combination. The **Configuration** sections show the type or combination of types of storage in each header followed by the quantity of each adapter in the left-hand column with the quantity of each type of storage in the center and right-hand columns.

- Assumptions

  - Base SCSI-2 adapter supports internal disk and media devices

  - Maximum SCSI + Serial adapters is six without expansion cabinet

  - Maximum SCSI + Serial adapters is 14 with expansion cabinet

  - Maximum Serial adapters is six

  - SCSI-2 Differential Adapter may connect to any of the following:

    - - J30-front: 4 — 2.2GB disks = 8.8GB
    - - J30-rear: 4 — 2.2GB disks = 8.8GB
    - - J01-A bus: 7 — 2.2GB disks = 15.4GB
    - - J01-B bus: 7 — 2.2GB disks = 15.4GB
    - - IBM 7134: 15 — 4.5GB disks = 67.5GB

  - Serial-link Adapter connects to four IBM 9333

    - - IBM 9333: 4 — 2GB disks = 8GB

  - Maximum 7134 + 9333 drawers is 28 per processor drawer

  - One media bay is reserved for tape

- Calculated storage limits: Maximum 886GB

Configurations without Expansion Cabinet:

# Adapters	Internal/Int/Exp	7134/9333 Drawers
Configuration 1 —		
Base + Int/Exp + Ext SCSI: >> 278.80GB		
6 SCSI-2 Diff	1 Internal @ 8.8GB	4 -7134 @ 67.50GB
	1 Int/Exp @ 8.8GB	
0 Serial		0 -9333 @ 8.00GB

Configuration 2 —
Base + Ext SCSI: >> 346.30GB

6	SCSI-2 Diff	1 Internal @ 8.8GB	5 -7134 @ 67.50GB	
		0 Int/Exp @ 8.8GB		
0	Serial		0 -9333 @ 8.00GB	

Configuration 3 —
Base + Serial: >> 168.80GB

1	SCSI-2 Diff	1 Internal @ 8.8GB	0 -7134 @ 67.50GB	
		0 Int/Exp @ 8.8GB		
5	Serial		20 -9333 @ 8.00GB	

Configurations with Expansion Cabinet:

# Adapters	Internal/Int/Exp	7134/9333/J01 Expansion Cabinet

Configuration 4 —
Base + Int/Exp + Ext SCSI: >> 714.60GB

14	SCSI-2 Diff	1 Internal @ 8.8GB	10 -7134 @ 67.50GB
		1 Int/Exp @ 8.8GB	2 -J01 Exp 15.40GB
0	Serial		0 -9333 @ 8.00GB

Configuration 5 —
Base + Ext SCSI: >> 886.30GB

14	SCSI-2 Diff	1 Internal @ 8.8GB	13 -7134 @ 67.50GB
		0 Int/Exp @ 8.8GB	0 -J01 Exp 15.40GB
0	Serial		0 -9333 @ 8.00GB

Configuration 6 —
Base + Serial: >> 200.80GB

1	SCSI-2 Diff	1 Internal @ 8.8GB	0 -7134 @ 67.50GB
		0 Int/Exp @ 8.8GB	0 -J01 Exp 15.40GB
6	Serial		24 -9333 @ 8.00GB

= Quantity; Int = Internal; Exp = Expansion

Product Positioning

The new RISC System/6000 PowerPC servers are the first of a new generation of systems for business featuring an innovative symmetric multiprocessor (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. With the addition of these new IBM SMP PowerPC servers, along with the RISC System/6000 uniprocessors and highly-scalable Power Parallel SP2™, IBM offers the broadest range of binary-compatible UNIX-based servers in the industry.

These new SMP systems exploit the performance of the PowerPC 601 in a 2-way or 4-way processor configuration. Over time, these systems will incorporate higher-performance PowerPC microprocessors and, for Models J30 and R30, up to 8-way processor configurations. This built-in upgrade path allows easy capacity upgrades as performance requirements grow.

Designed to avoid typical performance bottlenecks, IBM's 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/s. This high-memory capacity allows future performance upgrades to most effectively exploit these systems. Reliability has been enhanced with the inclusion of an integrated service processor that continually monitors the system and automatically acts to recover the system from selected error conditions.

Supporting the SMP-enabled AIX Version 4.1.1 for servers operating system, these systems are binary-compatible with most over 10,000 of the applications available for the RISC System/6000 uniprocessors. Combining resources and experience, IBM and its leading software partners are focused to quickly offer application enablers, such as the leading database offerings, for the new SMP servers to provide timely availability of solutions.

The RISC System/6000 uniprocessors remain best suited for many server applications as they offer strong granularity in performance and expansion as well as a large range of model upgrades. As performance needs grow beyond the uniprocessors, aggressively priced upgrades are available from many of the deskside and rack-mounted uniprocessors to SMP systems.

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.

Statement of General Direction

Product Preview for RS/6000 PowerPC Servers

The RS/6000 symmetric multiprocessor (SMP) 4-way PowerPC 601 systems will deliver in excess of 1250 transactions per minute (TPM). IBM intends to significantly increase the performance of the RS/6000 SMP product family over time.

The RS/6000 PowerPC SMP servers are designed to support increasingly powerful generations of PowerPC processors. Introduction of the PowerPC 604 processor in the first half of 1995, will provide a performance increase of 1.5 to two times the performance of PowerPC 601-based SMP systems. For planning purposes, IBM expects the performance to increase by a factor of 1.5 times for workloads that scale with the TPM measurement, and by a factor of two times for workloads that scale with the SPEC benchmarks. System performance will vary depending upon the application.

Introduction of 6-way and 8-way systems along with additional software tuning will further increase SMP system performance.

G30, J30, and R30 models, installed before the planned availability of comparable PowerPC 604-based SMP models, will be converted to the 604 processor at no additional charge.

In addition to the model conversions announced today, IBM intends to announce model conversions from RS/6000 desktop server Models 340, 34H, 350, 360, 370, 380, and 390 to the new Model G30.

The RS/6000 Models J30 and J01 will support the 4.5GB SCSI-2 Fast/Wide disk by the first quarter of 1995.

Publications

The following publications are shipped with the RISC System/6000 Model J30 PowerPC Server base unit. Additional copies are available.

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

The following publications are shipped with the RISC System/6000 Model J01 PowerPC Server expansion unit.

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

The following publications are available. To order, contact your IBM representative.

Title	Order Number
7013 J Series Base Unit	
Setup Procedure	SA23-2723
7013 J Series Operator Guide	SA23-2724
7013 J Series Service Guide	SA23-2725
POWERstation and POWERserver	
Common Diagnostics and Service Guide	SA23-2687
AIX and Related Products	
Documentation Overview	SC23-2456
IBM RISC System/6000 System	
Overview and Planning	GC23-2406
7013 J Series Expansion Unit	
Setup Procedure	SA23-2726

The 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: The following applies to Models J30 and J01:

- Width: 360 mm (14.7 inches)
- Depth: 750 mm (29.5 inches)
- Height: 610 mm (24.0 inches)
- Base Weight: 43.5 kg (100 pounds)
- Fully Configured Weight: 67.9 kg (150 pounds)

Operating Environment:

- Temperature: 16°C to 32°C (60°F to 90°F)
- Relative Humidity: 8% to 80% (20% ─ 80% with tape media)
- Maximum Wet Bulb: 23°C (73°F)
- Sound Power:
  - 5.5 Bels Idle
  - 5.8 Bels Operating

Power Supply:

- Voltage:
  - Models J30 and J01 ─100 to 127 V AC, 200 to 240 V AC Nominal

- Auto Ranging:
  - Models J30 and J01 ─50/60 Hz

- Power Supply:
  - Model J30 ─810 Watts output
  - Model J01 ─540 Watts output

- Thermal output:
  - Model J30 ─2765 Btus per hour
  - Model J01 ─1843 Btus per hour

- Power Source loading:
  - Model J30 ─0.9 KVA
  - Model J01 ─0.6 KVA

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.

- U.S.A. ─FCC 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).

Compliance 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.A. ─UL 1950
- Canada ─CSA C22.2 950-M89
- Germany ─GS Mark (Safety, TUV) EN60-950 (IEC 950)

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	
United Kingdom	BABT	

IBM Location	ISO 9000 Certification
Santa Palomba, Italy Manufacturing	9002
Havant, England Development	9001
Wangaratta, Australia Manufacturing	9002
Austin, Texas U.S.A. Manufacturing	9002
Development	9001
AIX Software Development	9001

Hardware Requirements: IBM-supported ASCII terminal and cable

Software Requirements: AIX Version 4.1.1 for servers plus updates available at the availability of RISC System/6000 Model J30 PowerPC Server.

The majority of the more than 10,000 existing AIX Version 3.2.5-based applications are expected to be binary compatible with AIX Version 4.1.1 for servers. This expectation is based on IBM's knowledge of the aspects of AIX that have been changed, and their potential impact to an application running on the system, as well as IBM's own in-house experiences. However, application providers will need to certify that their individual applications will run unchanged. This is typically done through the vendor's own testing process. Customers, then, should consult the application vendor for verification of compatibility. There are situations where some AIX Version 3.2.5-based applications will **not** run unchanged on AIX Version 4.1.1. Examples include applications that use certain kernel extensions or device drivers. For the vendors of these applications, IBM is providing documentation, education, and support to help the vendor identify the changes necessary to make their application AIX Version 4.1.1-compatible.

Refer to Software Announcement 294-612, dated October 4, 1994, for more information.

Model Conversions

Model conversions are available to upgrade the J30 model as follows:

Model From	To
520	J30
52H	J30
530	J30
53E	J30
53H	J30
540	J30
550	J30
55E	J30
55S	J30
560	J30
56F	J30
55L	J30
570	J30
57F	J30
580	J30
58F	J30
58H[a]	J30
590[a]	J30
59H[a]	J30

[a]   See text following

Customers with installed RISC System/6000 500 series models requiring additional transaction processing performance can upgrade to the new Model J30. These customers can preserve their investment and attain the increased levels of server performance.

All upgrades to the Model J30 will come with one dual (2-way) 601 processor card as standard. An additional dual-processor card (#4302) must be ordered when upgrading from certain models marked with an "a" above.

Upgraded machines must contain the same or equivalent base features as the Model J30 at the conclusion of the upgrade. The existing RISC System/6000 uniprocessor memory cards are not compatible with the new J30 Model. The 64MB memory requirement may be satisfied by purchasing new memory cards, converting 128MB or 256MB uniprocessor memory or exchanging memory cards separately as required. (Refer to the **Feature Availability Matrix and Charges** section for the memory options and associated charges. A list of memory exchanges is shown at the end of this section.) Some upgrades may require the purchase of an additional adapter to support the disks from the original system. 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.

AIX Version 4.1.1 for servers must be installed and the customers applications validated before performing the upgrade.

The hot-pluggable disk enclosure must be purchased for each 3.5-inch disk that is to be installed in the new Model J30. (5.25 inch drives are not supported in the J30 or J01).

Upgrade Considerations: Memory can be installed in increments of 64, 128, 256 and 512MB.

Uniprocessor memory cards will not work on the Model J30. New memory cards must be purchased as appropriate and available before attempting the upgrade. (Refer to the **Memory Feature Exchange** section below.)

There are several features on the existing 500 series models that are not supported on the Model J30. Refer to the **Feature Availability Matrix** for a listing of supported and non-supported features. Customers must be advised of all features being displaced as a result of upgrading their machine before accepting the customer's order.

Any features displaced as a result of performing an upgrade remain the property of the customer and should not be returned to IBM. The exception to this is the Serial Optical Channel Converter Module on the Models 570, 57F, 580 and 58F (specify feature number 9150 for an integrated circuit on the system board that is returned).

The upgrades to the Model J30 contain some or all of the following items:

- One dual-601 75 MHz processor card chassis with the customer's existing serial number
- New labels
- Installation instructions
- New diagnostics
- New publications

Note: The customer must have at least one MP memory card with a minimum of 64MB of memory, a SCSI-2 Fast/Wide Differential adapter, a CD-ROM, and 2GB of 3.5-inch 8-bit or 16-bit SCSI-2 disk drives either installed or available with the upgrade. The upgrade is accomplished by transferring all of the customers existing supported 3.5-inch disk, media, adapters (and 128/256 Memory SIMMs if installed) to the new Model J30 chassis. The replaced chassis and all associated components removed or replaced become the property of IBM and must be returned to IBM.

A model conversion of the Model J30 to the PowerPC 604 processor based system will be provided at no additional charge for systems installed before the planned availability of comparable PowerPC 604-based systems. Refer to **Product Preview for RS/6000 PowerPC Servers** for more information.

The following memory feature exchange is offered on upgrades to a RISC System/6000 Model J30 PowerPC Server. IBM will exchange currently installed memory cards for equal and/or capacity MP memory cards. The price for this exchange is less than the list price for a new MP memory card.

Memory Feature Exchange

Quantity From	Feature Number	Quantity To	Feature Number
32MB TO 64MB			
1	4032	1	4155
2	4032	1	4155
1	4033	1	4155
1	9235	1	4155
1	4067	1	4155
2	4067	1	4155
1	4068	1	4155
64MB TO 64MB			
1	4035	1	4155
1	4036	1	4155
1	4069	1	4155
1	4070	1	4155
1	4071	1	4155

Quantity From	Feature Number	Quantity To	Feature Number
64MB TO 128MB			
2	4035	1	4156
2	4069	1	4156
128MB to 128MB			
1	4090	1	4156
1	4092	1	4156
128MB TO 512MB			
2	4090	1	4158
2	4092	1	4158
2	4094	1	4158
256MB TO 512MB			
2	4095	1	4158
2	4096	1	4158

Planning Information

Cable Orders: No cables required

Problem Determination: For problem analysis, the RISC System/6000 Model J30 PowerPC Server diagnostic programs, with installed AIX Version 4.1.1 for Servers programs, provide console routines that lead a user through problem determination and provides direction to resolve problems. The SystemGuard™ service processor provides initialization, does initial machine testing, communicates with the operator through an ASCII terminal, and gives control to the processor to boot.

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

Security, Auditability, and Control

Security and auditability features of the systems are:

- A key lock that provides physical security to help prevent cover removal when locked

- A three-position MODE switch that helps provide logic security for the system

Otherwise, these products use 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

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.

Customer Fulfillment Option Applies: Yes

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 IBM Customer Agreement (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%

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

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

IBM Support Services: Ongoing technical support services for these products are available for a fee on an hourly or subscription basis from the AIX Support Family of services. These technical support services include operational assistance, remote and on-site consulting, system planning and design, project management, and implementation. For additional information, contact your IBM representative or authorized remarketer, or call 800-CALLAIX (225-5249). For further details, refer to Services Announcement 694-018, dated July 26, 1994, (AIX Support Family Enhancements and New Technical Support Structure).

Product Availability Status: New product available

Field Installable Features: Yes

Model Conversions: Yes

Customer Setup: Yes, for initial installation, and installation and removal of hot-pluggable disk and media.

Graduated Charges: The announced products are in Processor Group F5 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

Description	Machine Type	Model Number	Purchase Price	Monthly MMC*
RISC System/6000	7013	J30	$67,500	$675
RISC System/6000	7013	J01	11,000	110

Description	Model Number	Feature Number	Purchase Price	Monthly MMC*	Removal Charge
Cable SCSI (Short) to Internal 8-Bit Devices	J01 J30	2441	$ 75	$ 0	$ 0
Internal Caddy-Loading CD-ROM Module Select	J30	2607	0	0	116
Internal Caddy-Loading CD-ROM Module	J01 J30	2608	995	15	116
600MB SCSI-2 Double-Speed Tray-Loading CD-ROM	J01 J30	2609	995	15	116
Internal ¼-inch Tape 1.2GB SCSI Module	J01 J30	2632	2,295	16	116
IBM Auto Token-Ring LANStreamer 32 MC Adapter	J01 J30	2972	995	0	116
1.1GB SCSI-2 Disk Drive Select (must order two)	J30	3050	800	0	116
1.1GB SCSI-2 Fast/Wide Disk Drive Module	J01 J30	3052	2,100	0	116
2.2GB SCSI-2 Fast/Wide Disk Drive Module	J01 J30	3053	3,400	0	116

Description	Model Number	Feature Number	Purchase Price	Monthly MMC*	Removal Charge
Memory Conversion Kit to 256MB/MP	J30	4061	$2,000+	$ 0	$116
Memory Conversion Kit to 512MB/MP	J30	4062	2,000+	0	116
128MB MP Memory Select	J30	4144	8,600	0	116
256MB MP Memory Select	J30	4145	25,600	0	116
512MB MP Memory Select	J30	4146	57,600	0	116
64MB MP Memory Card	J30	4155	6,400	0	116
128MB MP Memory Card	J30	4156	15,000	0	116
256MB MP Memory Card	J30	4157	32,000	0	116
512MB MP Memory Card	J30	4158	64,000	0	116
2-Way 601 MP Processor Card/1MB L2	J30	4302	15,000	150	116
Internal 8 mm 5/10GB VDAT Tape Module	J01				
	J30	6138	5,695	50	192
Internal 4 mm 4/8GB Tape Module	J01				
	J30	6139	2,995	35	192
Cluster Power Controller	J30	6175	3,100	0	116
Media to Disk Bay Conversion Hardware	J01				
	J30	6511	20	0	0
Disk Module Mounting Cage	J01				
	J30	6514	500	0	116
Media Module Mounting Cage	J01				
	J30	6515	500	0	116
64 MB Base MP Memory	J30	9045	0	0	116
2.2GB Base SCSI Module	J30	9133	0	0	116
SCSI-2 Fast/Wide Differential Adapter/A Specify	J30	9217	0	0	116
Base MP 2-Way (601) Processor Card 1.0MB L2	J30	9302	0	0	116
Base SCSI Cable to Internal 8-Bit Devices	J30	9441	0	0	0
Base Internal Tray-Loading CD-ROM	J30	9605	0	0	116

*   MMC = Minimum Maintenance Charge
+   Parts removed or replaced become the property of IBM and must be returned.

Note: If field installed on a purchased machine, parts removed or replaced become the property of IBM and must be returned.

Model Conversion Purchase Prices:

Model From	To	Model Conversion Purchase Price+ (Highest)
520	J30	$29,500
52H	J30	39,500
530	J30	29,500
53E	J30	29,500
53H	J30	29,500
540	J30	29,500
550	J30	29,500
55E	J30	29,500
55S	J30	29,500
560	J30	29,500
56F	J30	29,500
55L	J30	39,500
570	J30	34,500
57F	J30	34,500
580	J30	29,500
58F	J30	29,500
58H	J30	18,000
590	J30	18,000
59H	J30	18,000

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