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[IBM RS/6000 Model F50 Server -- a New Generation of 1- to 4-Way SMP Commercial Enterprise Servers](#)

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OVERVIEW

The RS/6000(TM) 7025 Model F50 server is the first of a new generation of 1- to 4-way symmetric multiprocessing (SMP) enterprise servers that provides for exceptional commercial price/performance in its class. This commercial solution addresses mission-critical, on-line transaction processing (OLTP) and collaborative computing comprised of Lotus Notes, Domino Server, Internet, intranet, extranet, and groupware application solutions.

The Model F50 has the connectivity to participate in most currently installed UNIX and PC networks. Use it as a SCSI, Ultra-SCSI, or Serial Storage Architecture (SSA) RAID server by taking advantage of the under-the-covers storage expansion capability. You can add memory, disk, media devices, and 1- to 4-way processor scalability as your needs grow with time.

The F50 base offering includes a 166MHz 604e PowerPC® processor with an X5-Cache system, 128MB of error-checking and correcting (ECC), synchronous DRAM (SDRAM) memory (expandable to 3GB), an ECC Level 2 cache comprised of 256KB per processor in an 8-way set-associative implementation, a service processor, a 4.5GB Ultra-SCSI-enabled high-performance disk drive, an 8X speed CD-ROM, and a 1.44MB 3.5-inch diskette drive. The F50 is packaged in a 9 x 22 (9 I/O slots and up to 22 disk/media bays) floor-standing tower that is attractive, compact, and quiet. The F50 is shipped with the ordered internal adapters and devices already configured and installed, with the software pre-installed, if desired. Installation is easy. A help desk is a phone call away if you need help as you install your system.

The Model F50 server includes a modular disk subsystem that allows fast, easy addition, and replacement of drives. It has a hot-swappable storage maximum capacity of 81.9GB and a flexible I/O subsystem of five PCI (32-bit), two PCI (64-bit), and two shared PCI/ISA slots. The I/O channels supported are the industry-common, high-performance PCI bus in addition to the traditional ISA bus. Adapters being offered have all undergone thorough testing to assure system compatibility.

Planned Availability Dates

- April 25, 1997, for the 7025 Model F50

– May 30, 1997, for feature MESs
– May 30, 1997, for SSA under-the-covers features (#2450, #3071, #3072, #6538 and #6539)
– July 31, 1997, for model upgrades

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HIGHLIGHTS

AT A GLANCE

This new Model F50 server:
– Can be used as a stand-alone, multiuser or application/database server providing for solutions
  in the mission-critical, online transaction processing environment.
– Has outstanding price/performance: its PCI/ISA-based I/O subsystem provides for greater
  overall application throughput via its implementation of a tri-peer PCI bus architecture.
– Can be configured for use as a SCSI, Ultra-SCSI or Serial Storage Architecture (SSA) RAID
  server.
– Was designed for ease of under-the-covers scalability and expandability by an end user or
  system administrator.
– Is the first RS/6000 enterprise server to use synchronous DRAM (SDRAM) memory technology
  to help enhance system performance.
– Adheres to Open industry standards.
– Offers pre-configured, tailored solutions for ease of ordering, installation and setup.

INTENDED CUSTOMERS

The Model F50 has outstanding price/performance as a follow-on to the Micro Channel-based
G-Series of 1- to 4-way RS/6000 servers available in the marketplace today. The Model F50 has
also a 1- to 4-way SMP migration path for those customers who currently have a Model F40 1- to
2-way machine installed.

KEY PREREQUISITES

AIX Version 4.2.1 (5765-C34) or later

DESCRIPTION

The RS/6000 7025 Model F50 is a powerful and expandable server designed to combine the following attributes:

- Unprecedented commercial price/performance in the 1- to 4-way RS/6000 Enterprise Server class utilizing PowerPC technology.
- Excellent reliability, availability and serviceability provided by error-checking and correcting (ECC) memory and cache, Service Processor for integrated system monitoring, hot-swappable disk drives, concurrent diagnostics and Service Director® for RS/6000.
- Operating system support provided by AIX®, the best rated UNIX operating system by noted industry consultant D.H. Brown. Over 10,000 AIX applications available spanning commercial and technical needs.
- Pre-configured tailored solutions available for ease of ordering, installation and setup.
- Supports Open Firmware based on the IEEE P1275 standard that further demonstrates IBM's commitment to open industry standards.
- "under-the-covers" system scalability and expandability supporting four media bays (two of which can be used for boot disk mirroring), 18 hot-swappable hard disk bays, two processor cards, two memory cards with each containing up to eight DIMM pairs and nine I/O slots for optional PCI expansion cards. Two of the nine slots can accommodate either PCI or ISA. Under-the-covers scalability and expansion can be achieved by the end user or system administrator without requiring the aid of an IBM service professional. The standard power supply provided will accommodate all under-the-covers scalability and expansion without requiring any modification.
- A robust, industry-standard, PCI/ISA-based I/O subsystem. Greater overall application throughput is achieved by a tri-peer PCI bus architecture implementation providing for up to 400 MBps aggregate I/O bandwidth.
- Provides for integrated dual-SCSI Fast/Wide controllers, an Ethernet 10Base5/T controller, three serial ports and one parallel port. These are standard on the system and are made available without utilizing any of the expansion slots provided.
- First of RS/6000 enterprise servers to utilize SDRAM memory for greater performance addressing up to 3GB of ECC memory. The 3GB of maximum memory is easily added by the end user or system administrator via the addition of DIMM pairs to the memory cards.
- A high-performance ECC L2 cache of 256KB per PowerPC processor. It is 8-way set associative that provides for a significant improvement in the cache hit rate efficiency.
- Quad-word shared memory controller for peak bandwidths of up to 1.3 GBps in support of more demanding applications.
- Supports Ultra-SCSI hard disks under-the-covers and external Ultra-SCSI subsystems.
- Supports Serial Storage Architecture (SSA) hard disks under-the-covers and external SSA subsystems.

– Under-the-covers RAID support provided by SCSI, Ultra-SCSI, or SSA. Implementing SCSI or SSA RAID provides for RAID levels 0, 1 and 5. Implementing Ultra-SCSI RAID provides for RAID levels 0 and 1. This means that the acquisition of an additional external RAID subsystem may not be necessary when taking advantage of the under-the-covers storage expansion capacity that the F50 provides.

– Enhanced Ethernet communication via optional 10/100 Mbit adapter support.

– Departmental server packaging in a compact deskside tower that accommodates a standard office environment without the need for any special power or cooling.

The result is an enterprise server that provides for outstanding price/performance and supports the broad range of applications currently available to the RS/6000 line of servers running AIX Version 4.2.1.

The F50 integrates key reliability, availability and serviceability (RAS) attributes:

– Error-checking and correcting (ECC) on system memory and L2 cache. Single-bit error correction and double-bit error detection.

– Parity detection for the system bus, PCI address and data busses.

– Hot-swappable disk drives.

– DASD fault tracking and warning.

– RAID 1 (via AIX DASD Mirroring function).

– RAID 0, 1 and 5 under the covers (optional via adapter).

– Online (concurrent) and remote (LAN or modem) system diagnostics.

– Vital Product Data (VPD) for most base system field replaceable units (FRUs).

– Service Director® for RS/6000.

The Service Processor, included as standard, enables or contributes to the following RAS functions, among others:

– Integrated system environmental monitoring/alerting included as standard. This includes AC/DC voltage, fan speed and temperature sensing.

– Early Power Off Warnings (EPOW) and error log analysis and alert.

– Auto-dial out, call IBM Service Centre capability. The system objective is to predict a potential component failure and automatically dispatch an IBM service representative to take preventative maintenance measures to avoid an outage. The system will also call the IBM Service Centre in the unlikely event of a critical failure.

– Integrated system monitoring provides for failure error logging, analysis and alert.

– Can be programmed by the system administrator to reboot after experiencing the following conditions:

  ▪ AC power restored (after a power loss)

  ▪ Hardware checkstop failures

- Machine check interrupt
- Operating system hang or failure

All of this provides for a 1- to 4-way SMP enterprise server platform of exceptional value capable of handling your demanding applications today and into the future.

Product Positioning

The Model F50 was designed to deliver excellent commercial application performance to the RS/6000 Enterprise Family of 1- to 4-way PCI-based PowerPC servers. The Model F50 provides outstanding price/performance as a follow-on to the Micro Channel-based G-Series of 1-to 4-way RS/6000 servers currently available in the marketplace today. The Model F50 also provides for a 1- to 4-way SMP migration path for those customers who currently have a Model F40 1- to 2-way machine installed.

The key imperatives that this system provides for are ease-of-use, price/performance, sophisticated system and network management capabilities, network centric database and groupware applications, excellent reliability, availability and serviceability (RAS). The F50 server is well suited for customers moving to the client/server computing environment who want to use this server as an application server, database server, print and file server, a mission-critical OLTP server, as well as a collaborative networked server running groupware applications, Lotus Notes and Domino, intranet, Internet, and extranet solutions.

SMP Scalability and Expandability

The Model F50 is well suited for customers who need the robust computing power provided by a 4-way SMP system today or who want the option to add extra performance in the future by adding processor cards to the standard 1-way system.

The possibility of expanding the system memory to 3GB and the hot-swappable internal disk capacity to 81.9GB makes the Model F50 an excellent choice for customers running large database applications.

Customers Implementing a Web Server

The RS/6000 Model F50 is an ideal platform for mission-critical Internet server applications such as electronic commerce. The Internet is an effective venue for buying and selling and can provide for a competitive advantage by supporting businesses and consumers' transactions on the World Wide Web. Moreover, a Domino-based F50 interactive Web server will allow a customer to have business processes on the Web providing for significant geographic flexibility and competitive advantage by being able to conduct business from almost anywhere.

The Model F50 is also an excellent platform in support of intranet (business-wide Web)

collaborative applications. These applications provide support for all of the activities that define the business such as product development, planning and project management, to name a few.

The Model F50 is also an excellent candidate for the support of the extranet. The extranet enables easy, fast and reliable communications with business partners, customers and suppliers by providing for an "open window" in a companies' intranet firewall via passwords. Strategic business partners can access whatever data a company wants to make available. Adding the power of groupware, audio and videoconferencing and e-mail could provide for a very robust extranet client/server implementation.

Customers Rightsizing from a Mainframe Environment

As many customers re-engineer their businesses from a mainframe centric environment to that of a client/server workgroup arrangement, they are finding that they would like to be able to have the same functional capabilities in this client/server environment that they had grown accustomed to in the mainframe world and more.

The Model F50 addresses this by providing for the capacity, media flexibility, hierarchical storage management, automation, robust communications and availability that were once capabilities only available on a mainframe.

Customers Consolidating Departmental Computing Operations

The Model F50 is an outstanding server for those customers who are focused on reducing operational costs of their existing computer environments. This can be accomplished by consolidating existing print and file and directory services departmental servers into a single, more robust Model F50. This provides for a single footprint that could be easier to manage at less cost.

Customers Migrating to an SMP Environment

The RS/6000 Model F50 is a platform that is well suited for customers and application developers moving their applications to an SMP environment. The expandability of the system and the possibility of changing disks without powering off the system (via standard, hot-swappable disks) accommodates the change of an application development or migration environment. The Service Processor provides for the capability to monitor and maintain the system from a remote site, a function that may be of value to customers with development/migration teams working from different locations.

High Reliability, Availability and Serviceability

The Model F50 is designed for customers running business-critical applications with a requirement of high reliability and serviceability and a requirement to monitor and service systems at remote sites.

The system is equipped with a Service Processor standard. The Service Processor continuously monitors the status of the system and sends automatically a message to a remote site if a hardware or operating system problem is detected. The Service Processor enables remote power control, reset and boot features. It also enables remote maintenance and diagnostic activities, including console mirroring. The Model F50 with its Service Processor is ideal for customers with geographically distributed computing environments that need to be serviced and monitored remotely.

The system comes standard with ECC memory, providing a higher level of protection from memory errors than parity and non-parity memory-based systems.

The system is also equipped with hot-swappable disks standard that can be added or removed without powering down the system.

Publications

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

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        Title                        Order Number
    ------------------------------      ------------
    IBM RS/6000 7025 Setup Procedure        SA38-0539
    IBM RS/6000 7025 User's Guide           SA38-0540
    PCI Adapter Placement Reference         SA38-0538
    System Unit Safety Information        SA23-2652
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The IBM RS/6000 7025 Service Guide is not shipped with the F50 but is available by ordering SA38-0541 from IBM.

For a current list of publications, refer to the appropriate publications option on your respective CANVM2, TORVM3 and TOROVM1 system, or contact your local IBM representative.

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STATEMENT OF GENERAL DIRECTION

– IBM intends to provide support for HACMP on the RS/6000 7025 Model F50 with SCSI-2 disk subsystems (excluding the 7135 SCSI-2 RAID subsystems - all models) in third quarter 1997.
– IBM intends to provide support for HACMP on the RS/6000 7025 Model F50 with the 7135 SCSI-2 RAID subsystem Model 210 with 16MB of cache in second half 1997.
– IBM intends to provide support for HACMP on the RS/6000 7025 Model F50 with the 8way Non-RAID SSA PCI adapter in second half 1997.

TECHNICAL INFORMATION

Technical Description

Model Description 7025-F50

The Model F50 is a powerful, expandable deskside system designed to combine the following attributes (base system with noted expansion options):

– A 1-way 166MHz PowerPC 604e processor card (selectable 2-way processor card option)
  ▪ Instruction cache of 32KB, 4-way set-associative
  ▪ Data cache of 32KB, 4-way set-associative
– Optional 1- or 2-way 166MHz PowerPC 604e-X5 processor card
– 256KB ECC Level 2 cache per processor, 8-way set-associative
– Up to 32 memory DIMMs per system (accepts 32MB or 128MB memory DIMMs)
– 128MB ECC synchronous DRAM memory standard
– 3GB maximum addressable memory per system
– Service Processor standard
– 1.44MB, 3.5-inch diskette drive
– 4.5GB, high-performance Ultra-SCSI-enabled disk drive (achieves ultra speed via an optional Ultra-SCSI adapter) (Hot-swappable hard disk internal storage expandable up to 81.9GB)
– Tray-loading, 8X CD-ROM SCSI drive
– Five 32-bit PCI slots, two 32/64-bit PCI slots, and two shared PCI/ISA slots
– Dual integrated SCSI-2 Fast/Wide controllers
– 22 total media and disk bays
  ▪ Two media bays filled by base CD-ROM and floppy diskette drive
  ▪ One disk bay filled by base 4.5GB hot-swappable disk drive
  ▪ Two available 5.25-inch x 1.6-inch media or boot disk mirroring
  ▪ Five available and 12 optional hot-swappable disk drive bays
– Integrated Ethernet with thick (10Base5) and twisted pair (10BaseT) output connectors
– Keyboard and mouse ports
– Three serial ports and one parallel port
– 930-watt base power supply
– Optional entry-level graphics support

Select options are available for you to replace a standard feature with a higher-function feature. These select options allow you to order a richer configured system than the base model on the initial order. They include:

- Selects to one of the following disk options:
  - 4.5GB Ultra/Wide SCSI Enabled/Media Bay Mounting Hardware/Terminator
  - 9.1GB Ultra/Wide SCSI Enabled DASD Module
- Selects to one of the following memory options:
  - 256MB (2 x 128MB DIMMs)

NOTE: Additional memory can also be added in pairs of 32MB and/or 128MB DIMMs to a maximum addressable memory of 3GB.

The base system does not come standard with a keyboard, mouse, or graphics adapter. AIX Version 4.2.1 does not require a keyboard, mouse, or graphics adapter to operate on the base system.

Investment Protection
The Model F50 is designed to grow with your requirements by supporting under-the-covers scalability and expandability by providing the end user or system administrator the ability to add the following without any modification to the power supply provided with the server:

- Media devices
- System hard disks and backplanes
- 1- or 2-way SMP processor cards
- DIMMs implemented in pairs
- Up to a maximum of two memory cards (16 DIMMs per card)
- I/O Adapters (PCI and ISA)

The Model F50 is designed for easy cover removal, which enables the end user to configure and manage the system without requiring the aid of an IBM service professional.

Disk Subsystem
The Model F50 disk subsystem has been designed to provide exceptional expandability with easy installation and service. The Model F50 disk offerings allow internal hot-swappable disk capacities ranging from 4.5GB to 81.9GB in either 4.5GB or 9.1GB increments. The design feature that provides the upgradeability is the 6-pack backplane into which up to six disk drives can be installed. Individual drives are mounted in the 6-packs via carriers. The combination of drives in a carrier is defined as a DASD module in the **Feature Matrix**.

The Model F50 can accommodate up to three hot-swappable 6-packs. The hot-swap capability is enabled via the backplane associated with each 6-pack. The F50 provides a hot-swappable backplane as standard with the first 6-pack.

NOTE: Proper procedures must be followed whenever removing a disk drive.

The Model F50 disk subsystem incorporates dual integrated SCSI-2 Fast/Wide controllers. The

standard configuration controls 6-pack #1 and the removable media devices (for example, CD-ROM) with the first integrated SCSI-2 Fast/Wide controller.

An option to disconnect the first SCSI 6-pack from the media devices is available. This option, using feature number 2443, provides for a cable and a terminator. The terminator terminates the base cable from the media devices when disconnected from the first SCSI 6-pack. The cable provides a connection from the second integrated SCSI controller to the first 6-pack. Additional SCSI 6-packs (#6519) can be added. Each feature number 6519 added must be driven by a PCI SCSI adapter (#6208) and connected via cable (#2447).

Feature number 2444 provides the necessary cable to control 6-pack #2 from the second integrated SCSI-2 controller and is implementable only when feature number 2443 is not selected. Feature numbers 2443 and 2444 are mutually exclusive. If desired, 6-pack #3 can be added and controlled from an optional PCI SCSI-2 SE Fast/Wide Adapter (#6208 or equivalent) via the cable provided in feature number 2447.

Refer to the **Limitations** section for a more detailed discussion regarding the implementation of SCSI, SCSI RAID, Ultra-SCSI, Ultra-SCSI RAID, Serial Storage Architecture (SSA), and SSA RAID.

Industry Common PCI, ISA, and SCSI Technology
The Model F50 system features the popular PCI bus technology and also supports ISA and SCSI technology.

Compatible with Most AIX Version 4.2 Applications
Customers with applications currently installed on RS/6000 processors can enjoy binary compatibility by installing AIX Version 4.2.1 on their Model F50 systems. This provides the ability to further distribute applications on low-cost servers without having to maintain different operating systems and applications, permitting rapid exportation to multiple remote sites.

PowerPC Processor
The Model F50 system exploits the power of the PowerPC 604e microprocessor operating at 166MHz and tightly couples an X5 8-way set-associative ECC Level 2 cache of 256KB per processor. The X5 Level 2 cache and microprocessor communicate at a bus speed of 166MHz. to further increase performance.

Reliability, Fault Tolerance, and Data Integrity

The reliability of the Model F50 system starts with testing components, devices, and sub-systems. During the design and development process, all sub-systems go through a rigorous verification and integration testing process. During system manufacturing, all systems go through a thorough testing process to help ensure highest product quality level.

The Model F50 system L2 Cache and system memory offers ECC fault-tolerant features. ECC corrects environmentally induced single-bit intermittent memory failures as well as single-bit hard failures. With ECC, the majority of L2 Cache and memory failures will not impact system

operation. ECC also provides double-bit memory error detection, which protects data integrity in the event of a double-bit memory failure. In addition, system memory also provides four-bit packet error detection, which protects data integrity in the event of a DRAM chip failure. The system bus, I/O bus, and PCI buses are designed with parity error detection.

Disk mirroring and disk controller duplexing capability are also provided by the AIX operating system.

The Journaled File System of the AIX operating system maintains file system consistency and prevents data loss when the system is abnormally halted due to a power failure.

The available RAID hardware feature within the system provides data integrity and fault tolerance in the event of a disk drive failure.

Availability and Fault Management

SERVICE PROCESSOR
The Service Processor is included in the Model F50 providing an immediate means to diagnose, check status, and sense operational conditions of a remote server, even when the main processor is inoperable.

The Service Processor enables firmware and operating system surveillance, several remote power controls, environmental monitoring, reset and boot features along with remote maintenance and diagnostic activities, including console mirroring. Service Processor can place telephone calls to report surveillance failures, critical environmental faults, and critical processing faults.

FAULT MONITORING
The BIST (built-in self-test) and POST (power-on self-test) checks processor, L2 cache, memory and associated hardware that are required for proper booting of the operating system, every time the Server is powered on. If a non-critical error is detected or if the errors occur in the resources that can be removed from the system configuration, the booting process will proceed to completion. The errors are logged in the system non-volatile RAM.

Disk drive fault tracking can alert the system administrator of an impending disk failure before it impacts your system operation.

The AIX log facility, where hardware and software failures are recorded and analyzed (by Error Log Analysis (ELA) routine), provides a warning 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, thus minimizing system repair time.

MUTUAL SURVEILLANCE
The Service Processor can monitor the operation of the firmware during the boot process, and it

can monitor the operating system for loss of control. It also allows the operating system to monitor for Service Processor activity. The Service Processor can take appropriate action, including calling for service, when it detects the firmware or the operating system has lost control. Likewise, the operating system can request a Service Processor repair action if necessary.

ENVIRONMENTAL MONITORING
– Temperature monitoring which will increase the fan speed rotation when ambient temperature is above the normal operating range.
– Temperature monitoring to warn the system administrator of potential environmental related problems (e.g. Air Conditioning, Air Circulation around the system, etc.) so that appropriate corrective actions can be taken before a critical failure threshold is reached, and to provide orderly system shutdown when operating temperature exceeds the critical level.
– Fan speed monitoring to provide warning and orderly system shutdown when the speed is out of operational specification.
– DC voltages monitoring to provide warning and orderly system shutdown when the voltage(s) are out of operational specification.
– AC power loss sensing to provide orderly system shutdown.

ERROR HANDLING AND REPORTING
In an unlikely event of system hardware or environmental induced failure, the system "Run-time Error Capture" capability will systematically analyze the hardware error signature to determine the causes of failure. The analysis result will be stored in system non-volatile RAM (NVRAM). When the system can be successfully rebooted either manually or automatically, the error will be automatically reported to AIX O/S. The Error Log Analysis (ELA) can be used to display the cause of the failure and the physical location of the failing hardware.

With the integrated Service Processor, the system has the ability to automatically send out an alert via phone line to a pager or call for service in the event of a critical system failure.

AVAILABILITY ENHANCEMENT
– Hot-Swap disk drives provide the capability to add or remove a disk drive without powering down the system.
– On-line (Concurrent) Diagnostics with ELA and Service Aids allow administrators or IBM service representatives to diagnose potential system malfunction without interrupting end-user operation.
– The auto-restart (reboot) option, when enabled, reboots the system automatically following an unrecoverable software error, software hang, hardware failure, or environmental-induced (AC power) failure.

Serviceability

The Model F50 is designed for initial customer setup of the machine and for subsequent addition of most features (adapters/ devices). The installer should have knowledge of the AIX operating system and hardware pertaining to the installation.

The Model F50 allows support personnel to remotely log into a system to review error logs and perform remote maintenance. The F50 Service Processor enables the analysis of a system that will not boot.

The diagnostics consist of Stand-alone Diagnostics (system dedicated to service) and Online Diagnostics. The Online Diagnostics, when installed, are resident with AIX on the disk or server. They can be booted in single-user mode (service mode), run in maintenance mode, or run concurrently (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.
- The Systems Management Services (SMS) error log is accessible from the SMS menu, for tests performed through SMS programs. The Service Processor error log is accessible from the Service Processor menu for results of Service Processor tests.

Technical Service and Support

The Model F50 comes with IBM's outstanding technical service and support.

Hardware service requests for the F50 go to IBM's remote support center for initial problem diagnosis. This approach provides more direct access to skilled specialists. These specialists can either solve the problem over the phone or help get it resolved as quickly as possible by identifying the failing part or component and the specific skills required to resolve the problem.

SERVICE DIRECTOR FOR RS/6000
You can receive the Service Director® for RS/6000 at no additional charge if your RS/6000 processor is covered by an IBM Warranty or IBM Maintenance Service Agreement. When installed on your RS/6000, the Service Director for RS/6000 can enhance IBM's ability to provide you with maintenance service.

The Service Director for RS/6000:

- Monitors and analyzes system errors, and if needed, can place a service call automatically to IBM without customer intervention.
- Can reduce the effect of business disruptions due to unplanned system outages and failures.
- Performs problem analysis on a subset of hardware-related problems and, with customer

authorization, can report automatically the results to IBM Service

NOTE: Service Director for RS/6000 requires the AIX operating system.

ONLINE CUSTOMER SUPPORT (OCS)
Online Customer Support for hardware problem reporting may be performed via remote login by RS/6000 specialists using normal AIX facilities. The Service Director/6000 for RS/6000 software can also be used for this capability.

AIX Support offerings will be under AIXSERV and Service Director/6000 for RS/6000.

SET-UP OFFERING
IBM will offer a basic setup and diagnostic check-out of this product for a flat fee of two hours at the current labor rate. This basic setup will include a safety check of the electrical outlet, unpacking the product, placement of the product, and diagnostic check-out using a supported async terminal or graphics console supplied by the customer. For additional software/configuration services such as SmoothStart, call 800-IBM-4YOU and ask for Express Services.

For information about this and other RS/6000 products on the World Wide Web, enter the URL:

– http://www.rs6000.ibm.com

FEATURE MATRIX

The following feature availability for Machine Type 7025 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.

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     |F| A = Available  S = Supported
     |5| N = Not supported, must be removed
     |0|
Feature | |
Number  | |     Description
--------|-|----------------------------------------
0001    |A| After-market (MES) Order Indicator
1001    |N| Support Processor Option
2111    |A| PCI SCSI Adapter to 2-Port, 8-bit SE External Device Cable
2112    |A| PCI SCSI Adapter to 2-Port, 8-bit Differential External
        | |    Device Cable
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2113   |A| PCI SCSI Adapter to Single Port 8-bit SE External Device
   ||     Cable
2114   |A| PCI SCSI Adapter 16-bit Differential External Y Cable
2115   |A| PCI SCSI Adapter to 2-Port, 16-bit SE External Device Cable
2116   |A| PCI SCSI Adapter to 2-Port, 16-bit Differential External
   ||     Device Cable
2117   |A| PCI SCSI Adapter 16-bit SE External Y Cable
2424   |A| 0.6 m 16-bit SCSI-2 System-to-System Cable
2425   |A| 2.5 m 16-bit SCSI-2 System-to-System Cable
2443   |A| Integrated SCSI to DASD 6-Pack 16-bit Cable and Terminator
2444   |A| Integrated SCSI to DASD 6-Pack 16-bit Cable
2446   |A| PCI Ultra-SCSI Adapter to First DASD 6-Pack 16-bit Cable
2447   |A| 16-bit PCI SCSI SE Adapter to DASD 6-Packs Cable
2448   |A| Terminator (16-bit SCSI Bus)
2450   |A| Cable Assembly, SSA 6-Pack to PCI SSA Adapter Internal Ports
2451   |A| Cable Assembly, SSA 6-Pack to 6-Pack Daisy Chain
2452   |A| SSA Blank Disk Drive Module
2453   |A| Cable Assembly, SSA Internal to SSA External Bulkhead
   ||     Connector
2493   |A| IBM PCI RAID Adapter
2618   |A| 8X Speed Tray-Loading CD-ROM
2630   |N| Internal 1.2GB 1/4-Inch Cartridge Tape Drive
2638   |N| Video Capture (NTSC/PAL/SECAM), PCI/Long/32-bit/5 V
2701   |A| 4-Port Multiprotocol Communications Controller, ISA bus
2702   |A| Multiprotocol Attachment Cable - V.35
2703   |A| Multiprotocol Attachment Cable - V.35 (France)
2704   |A| Multiprotocol Attachment Cable - X.21
2705   |A| 4-Port Multiprotocol Interface Cable
2706   |A| Multiprotocol Modem Attachment Cable -- EIA-232/V.24
2708   |N| Eicon ISDN DIVA PRO 2.0 PCI S/T Adapter for PowerPC Systems
2741   |A| SysKonnect SK-NET FDDI-LP SAS PCI for PowerPC Systems
2742   |A| SysKonnect SK-NET FDDI-LP DAS PCI for PowerPC Systems
2743   |A| SysKonnect SK-NET FDDI-UP SAS PCI for PowerPC Systems
2837   |N| MVP Multi-Monitor Adapter, PCI/Long/32-bit/3.3 or 5 V Adapter
2839   |A| POWER GXT110P Graphics Adapter - PCI
2851   |N| POWER GXT250P Graphics Adapter - PCI
2852   |N| POWER GXT255P Graphics Adapter - PCI
2853   |N| POWER GXT800P Graphics Adapter - PCI
2854   |N| POWER GXT500P Graphics Adapter - PCI
2855   |N| POWER GXT550P Graphics Adapter - PCI
2856   |N| IBM 7250 Attachment Adapter - PCI
2859   |N| POWER GXT800P with Texture Graphics Adapter - PCI
2900   |A| 4.5GB Ultra-SCSI 16-bit Disk Drive
2901   |A| 4.5GB Ultra-SCSI 16-bit Hot-Swap Disk Drive
2902   |S| 4.5GB Ultra-SCSI 16-bit Hot-Swap Disk Drive Select
2911   |A| 9.1GB Ultra-SCSI 16-bit Hot-Swap Disk Drive
2912   |S| 9.1GB Ultra-SCSI 16-bit Hot-Swap Disk Drive Select
2931   |A| 8-Port Asynchronous Adapter -- EIA-232, ISA Bus
2932   |A| 8-Port Asynchronous Adapter EIA-232/422-A, ISA Bus
2933   |A| 128-Port Asynchronous Controller, ISA Bus
2934   |A| Asynchronous Terminal/Printer Cable EIA-232
2936   |A| Asynchronous Cable EIA-232/V.24
2945   |A| Asynchronous Terminal Cable -- EIA-422-A
2951   |A| 2-Port Cable, V.24/EIA-232
2952   |A| 2-Port Cable, V.35
2953   |A| 2-Port Cable, V.36/EIA-449
2954   |A| 2-Port Cable, X.21
2961   |A| X.25 Interface Co-processor Adapter, ISA Bus
2962   |A| 2-Port Multiprotocol PCI 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)
2976   |A| X.25 Attachment Cable X.21 - 6 meter (20 ft)
2977   |A| X.25 Attachment Cable V.24 - 6 meter (20 ft)
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2978   |A| X.25 Attachment Cable V.35 - 6 meter (20 ft)
2979   |A| PCI Auto LANStreamer Token-Ring Adapter
2985   |A| PCI Ethernet BNC/RJ-45 Adapter
2986   |A| 3Com 10/100 Mbps PCI Fast Etherlink XL for PowerPC Systems
2987   |A| PCI Ethernet AUI/RJ-45 Adapter
2988   |A| TURBOWAYS 155 PCI MMF ATM Adapter
2998   |N| TURBOWAYS 25 ATM PCI Adapter
3005   |S| 4.5GB Ultra-SCSI 16-bit Disk Drive Select
3006   |A| 4.5GB SCSI-2 Fast/Wide 1-inch (25 mm) High Disk Drive Select
3019   |A| 9.1GB Fast/Wide Ultra-SCSI Disk Drive Select (#9394)
3071   |A| 4.5GB SSA Hot-Swap Disk Drive
3072   |A| 9.1GB SSA Hot-Swap Disk Drive
3080   |S| 4.5GB SCSI-2 Fast/Wide 1-inch (25 mm) High Hot-Swap
       | |    Disk Drive
3081   |S| 4.5GB SCSI-2 Fast/Wide 1-inch (25 mm) High Hot-Swap
       | |  Disk Drive Select
3083   |S| 2.2GB SCSI-2 Fast/Wide Hot-Swap Disk Drive
3084   |S| 4.5GB SCSI-2 Fast/Wide Hot-Swap Disk Drive
3090   |S| 9.1GB SCSI-2 Fast/Wide Hot-Swap Disk Drive
3091   |S| 9.1GB SCSI-2 Fast/Wide Hot-Swap Disk Drive Select
3092   |S| 4.5GB SCSI-2 Fast/Wide Hot-Swap Disk Drive Select
3124   |A| Serial to Serial Port Cable for Drawer/Drawer
3125   |A| Serial to Serial Port Cable for Rack/Rack
3131   |A| RAID Internal Port to External Connector Cable
3251   |N| 13W3 to 3-BNC, ID=V100 Display Cable
3253   |N| 13W3 to 3-BNC, ID=1010 Display Cable
3612   |S| P50 Color Monitor
3613   |A| P70 Color Monitor
3614   |A| P200 Color Monitor
3615   |A| P201 Color Monitor
3752   |A| Service Package
3753   |A| Options Library (hardcopy)
4093   |A| Memory Expansion Feature (16 Position)
4106   |A| 256MB (2 x 128MB) DIMMS, 200-Pin 10 ns SDRAM, Select (#9083)
4107   |A| 64MB (2 x 32MB) DIMMS, 200-Pin 10 ns SDRAM
4110   |A| 256MB (2 x 128MB) DIMMS, 200-Pin 10 ns SDRAM
4111   |N| 8MB EDO DRAM DIMM Memory
4112   |N| 16MB EDO DRAM DIMM Memory
4113   |N| 32MB EDO DRAM DIMM Memory
4114   |N| 64MB EDO DRAM DIMM Memory
4115   |N| 128MB EDO DRAM DIMM Memory
4128   |N| 16MB to 32MB EDO DRAM DIMM Memory Select
4129   |N| 16MB to 64MB EDO DRAM DIMM Memory Select
4130   |N| 16MB to 128MB EDO DRAM DIMM Memory Select
4213   |N| 13W3 to 15-Pin D-Shell Converter Cable
4214   |N| 13W3 to 60/77Hz Display Cable
4217   |N| 6091 Attachment Cable
4219   |N| 6091-19i (77Hz-ISO), POWERdisplay 17, 19, 20 Monitor Cable
4223   |A| Ethernet 10Base2 Transceiver
4234   |N| 13W3 to 13W3 Display Cable
4235   |N| Cable, 15-Pin D-Shell to 13W3, ID=1010, for P70/200
4237   |A| 13W3 to 15-Pin DDC/ID Bits Switchable Display Cable
4238   |A| DDC 15-Pin to 13W3 Display Cable
4239   |N| 15-D Adapter to 3BNC ID Cable
4240   |N| DDC 13W3 to 13W3 Display Cable
4241   |N| 13W3 to 13W3 DDC/ID Bits Switchable Display Cable
4303   |A| PowerPC 604e 166MHz 2-way Processor Card with 2 x 256KB L2
       | |    Cache Select
4306   |N| PowerPC 604e 166MHZ Processor Card with 512KB L2 Cache
4307   |A| PowerPC 604e 166MHz 1-way Processor Card with 256KB L2 Cache
4309   |A| PowerPC 604e 166MHz 2-way Processor Card with 2 x 256KB L2
       | |    Cache
4340   |N| 233MHz PowerPC 604e Processor, 1MB L2 Cache, Select
4341   |N| 233MHz PowerPC 604e Processor Card with 1MB L2 Cache
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5005    |A| Software Preinstall
5014    |N| Windows NT Server Tracking Indicator
6041    |A| Three-Button Mouse
6137    |N| 4 mm Internal Tape Drive and Autoloader (Vertical)
6142    |A| 4GB/8GB 4 mm Internal Tape Drive
6147    |A| 5GB/10GB 8 mm Internal Tape Drive
6206    |A| PCI Single-Ended Ultra-SCSI Adapter
6207    |A| PCI Differential Ultra-SCSI Adapter
6208    |A| PCI SCSI-2 Fast/Wide Single-ended Adapter
6209    |A| PCI SCSI-2 Fast/Wide Differential Adapter
6218    |A| IBM PCI SSA 4-Port RAID Adapter
6308    |N| Personal Microphone
6309    |N| Digital Trunk Quad PCI Adapter
6405    |N| Amplified Speakers (U.S. Power Supply)
6509    |A| Media Bay Disk Drive Mounting Kit
6519    |A| SCSI 6-Pack Hot-Swap Backplane/Power Cable
6520    |N| First Six SCSI Hot-Swap Bays and Backplane Select
6521    |N| Second Six SCSI Hot-Swap Bays Kit
6522    |N| Third Six SCSI Hot-Swap Bays Kit
6523    |N| SCSI 6-Pack, Non-Hot Swap, Backplane/Power Cable
6528    |A| Hot-Swap Carrier for Fast/Wide SCSI Disk
6535    |N| Second Six SCSI Bays Kit
6536    |N| Third Six SCSI Bays Kit
6537    |N| SCSI 6-Pack, Hot-Swap, Backplane/Power Cable
6538    |A| Select SSA (Instead of Standard SCSI Backplane) 6-Pack
        | |    Backplane:  First Position
6539    |A| SSA 6-Pack Backplane (First/Second/Third Position) with
        | |    Backplane Power Cable and Internal SSA
        | |    Daisy Chain Cable
6549    |N| Additional Power Supply for SSA 2nd and 3rd 6-Packs
6900    |A| Enhanced Keyboard - U.S. English (103P)
6908    |A| Enhanced Keyboard - Canadian French (058)
7252    |N| Power GXT1000 Internal Graphics Accelerator
7253    |N| Power GXT1000 Advanced Graphics Option
7254    |N| Power GXT1000 Video Output Option
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-inch)
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
9004    |A| Southern Hemisphere Specify for Monitors
9080    |N| 32MB EDO DRAM Memory DIMM Specify
9082    |N| 16MB EDO DRAM Memory DIMM Specify
9083    |A| Base 128MB (4 x 32MB) DIMMS, 200-Pin 10 ns SDRAM
9300    |A| Language Group Specify - U.S. English
9303    |A| Base Processor, 1-way, 604e, 166MHz, 256KB L2 Cache
9305    |N| Base PowerPC 604e 166MHz Process Card with 512KB L2 Cache
9394    |A| Base 4.5GB Fast/Wide Ultra-SCSI Disk Drive
9398    |S| Base 2.2GB SCSI-2 Hot-Swap Disk Drive
9712    |A| Language Group Specify - Canadian French
9800    |A| Power Cord Specify - United States/Canada
9996    |A| Internal RAID Indicator
```

Supported Devices

The following external machine types are supported on the indicated models:

```
        |F|  X = Supported Device
        |5|
        |0|
```

```
Machine   ||
Type/     ||
Model     ||      Description
---------|-|---------------------------------------
         ||
---------+-+------ Printers ---------------------
- - - - -|-|- - - - - - - - - - - - - - - - - - -
2380-001 |X| Personal Printer Series II
2380-002 |X| Plus Printer
2381-001 |X| Personal Printer Series II
2381-002 |X| Plus Printer
2390-001 |X| Personal Printer Series II
2390-002 |X| Plus Printer
2391-001 |X| Personal Printer Series II
2391-002 |X| Plus Printer
3112-001 |X| Page Printer
3116-001 |X| Page Printer
3116-002 |X| Page Printer
3116-003 |X| Page Printer
3130-01S |X| Advanced Function Printer
3130-02D |X| Advanced Function Printer
3130-02S |X| Advanced Function Printer
3130-03S |X| Advanced Function Printer
3912-AS0 |X| Page Printer
3912-AS1 |X| Page Printer
3912-NS0 |X| Page Printer
3912-NS1 |X| Page Printer
3916-AS0 |X| Page Printer
3916-AS1 |X| Page Printer
3916-NS0 |X| Page Printer
3916-NS1 |X| Page Printer
3930-03D |X| Page Printer
3930-03S |X| Page Printer
4037-05E |X| Page Printer
4039-10D |X| LaserPrinter 10D
4039-10P |X| LaserPrinter 10 Plus
4039-10R |X| LaserPrinter 10R
4039-12L |X| LaserPrinter 12L Plus
4039-12R |X| LaserPrinter 12R Plus
4039-16L |X| LaserPrinter 16L Plus
4070-001 |X| Ink-Jet Printer
4070-002 |X| Ink-Jet Printer
4072-001 |X| ExecJet Printer
4076-001 |X| ExecJet II Printer
4076-02C |X| ExecJet IIc Printer
4079-001 |X| Color Jetprinter PS
4230-4I3 |X| Impact Matrix Printer
         |F|  X = Supported Device
         |5|
         |0|
Machine   ||
Type/     ||
Model     ||      Description
---------|-|---------------------------------------
4230-4S3 |X| Impact Matrix Printer
4230-5I3 |X| Impact Matrix Printer
4230-5S3 |X| Impact Matrix Printer
4232-302 |X| Impact Dot Matrix Printer
4247-001 |X| Serial Impact Matrix Printer
4247-A00 |X| Serial Impact Matrix Printer
6400-004 |X| Line Matrix Printer
6400-008 |X| Line Matrix Printer
6400-012 |X| Line Matrix Printer
6400-04P |X| Line Matrix Printer
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6408-A00 |X| Line Matrix Printer
6408-CTA |X| Line Matrix Printer
6412-A00 |X| Line Matrix Printer
6412-CTA |X| Line Matrix Printer
         | |
---------+-+------  Plotters  ---------------------
- - - - -|-|- - - - - - - - - - - - - - - - - - - -
6180-001 |X| Color Plotter
6182-001 |X| Auto Feed Color Plotter
6184-001 |X| Color Plotter
6185-001 |X| Color Plotter
6185-002 |X| Color Plotter
         | |
---------+-+------  Communications  -----------------
- - - - -|-|- - - - - - - - - - - - - - - - - - - -
4033-001 |X| Token-Ring LAN Connection - 4/16 Mbps (IBM)
4033-002 |X| Ethernet 10BaseT LAN Connection (IBM)
4033-003 |X| Ethernet 10Base2/5 LAN Connection (IBM)
4033-011 |X| Token-Ring LAN Connection - 4/16 Mbps (Novell)
4033-012 |X| Ethernet 10BaseT LAN Connection (Novell)
4033-013 |X| Ethernet 10Base2/5 LAN Connection (Novell)
7318-P10 |X| Serial Communications Network Server
7318-S20 |X| Serial Communications Network Server
         | |
---------+-+------  Disk  --------------------------
- - - - -|-|- - - - - - - - - - - - - - - - - - - -
7027-HSC |X| High Capacity Storage Drawer
7027-HSD |X| High Capacity Storage Drawer
7131-105 |X| Multi-Storage Tower
7131-405 |X| SSA Multi-Storage Tower
7133-010 |X| SSA Disk Subsystem (Rack-Mounted)
7133-020 |X| SSA Disk Subsystem (Rack-Mounted)
7133-500 |X| SSA Disk Subsystem
7133-600 |X| SSA Disk Subsystem
7137-412 |X| Disk Array Subsystem (1.97 - 6.91GB)
7137-413 |X| Disk Array Subsystem (3.94 - 13.77GB)
7137-414 |X| Disk Array Subsystem (8.39 - 29.36GB)
7137-415 |X| Disk Array Subsystem (17.7 - 70.83GB)
7137-512 |X| Disk Array Subsystem (1.97 - 6.91GB) (Rack Mounted)
         |F|  X = Supported Device
         |5|
         |0|
Machine  | |
Type/    | |
Model    | |     Description
---------|-|-----------------------------------------
7137-513 |X| Disk Array Subsystem (3.94 - 13.77GB) (Rack Mounted)
7137-514 |X| Disk Array Subsystem (8.39 - 29.36GB) (Rack Mounted)
7137-515 |X| Disk Array Subsystem (17.7 - 61.98GB) (Rack Mounted)
7203-001 |X| Portable Disk Drive
7204-113 |X| 2.2GB Fast/Wide Disk Drive
7204-114 |X| 4.5GB Fast/Wide Disk Drive
7204-139 |X| 9.1GB Fast/Wide Disk Drive
7204-317 |X| 2.2GB Differential Fast/Wide Disk Drive
7204-325 |X| 4.5GB Differential Fast/Wide Disk Drive
7204-339 |X| With Differential Bridge Box with 9.1GB
         | |   Hard Disk Drive
         | |
---------+-+------  Displays  ----------------------
- - - - -|-|- - - - - - - - - - - - - - - - - - - -
3151-110 |X| ASCII Display Station
3151-310 |X| ASCII Display Station (Green, ASCII)
3151-350 |X| ASCII Display Station (Green, PS/2)
3151-360 |X| ASCII Display Station (Green, ASCII)
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3151-410 |X| ASCII Display Station (Amber, ASCII)
3151-450 |X| ASCII Display Station (Amber, PS/2)
3151-460 |X| ASCII Display Station (Amber, ASCII)
3151-510 |X| ASCII Display Station (Green, PS/2)
3151-51Y |X| ASCII Display Station (Green, PS/2)
3151-560 |X| ASCII Display Station (Green, PS/2)
3151-610 |X| ASCII Display Station (Amber, PS/2)
3151-61Y |X| ASCII Display Station (Amber, PS/2)
3151-660 |X| ASCII Display Station (Amber, PS/2)
3152-010 |X| ASCII Display Station (Black-on-White, ASCII)
3152-020 |X| ASCII Display Station (Black-on-White, PS/2)
3153-AA3 |X| InfoWindow II ASCII Display Station (Amber)
3153-AB0 |X| InfoWindow II ASCII Display Station (Amber)
3153-AG3 |X| InfoWindow II ASCII Display Station (Green)
3153-AW3 |X| InfoWindow II ASCII Display Station (White)
3153-BA0 |X| InfoWindow II ASCII Display Station (Amber)
3153-BA3 |X| InfoWindow II ASCII Display Station (Amber/RS-232)
3153-BB0 |X| InfoWindow II ASCII Display Station (Amber)
3153-BG3 |X| InfoWindow II ASCII Display Station (Green/RS-232)
3153-BW3 |X| InfoWindow II ASCII Display Station (White/RS-232)
3153-CA0 |X| InfoWindow II ASCII Display Station (Amber)
3153-CA3 |X| InfoWindow II ASCII Display Station (Amber/RS-422)
3153-CB0 |X| InfoWindow II ASCII Display Station (Amber)
3153-CG3 |X| InfoWindow II ASCII Display Station (Green/RS4-22)
3153-CW3 |X| InfoWindow II ASCII Display Station (White/RS-422)
3153-GB0 |X| InfoWindow II ASCII Display Station (Green)
3153-H1Y |X| InfoWindow II ASCII Display Station (Green)
         |F|  X = Supported Device
         |5|
         |0|
Machine  | |
Type/    | |
Model    | |      Description
---------|-|----------------------------------------
3153-H2Y |X| InfoWindow II ASCII Display Station (Green)
3153-HA0 |X| InfoWindow II ASCII Display Station (Green)
3153-HB0 |X| InfoWindow II ASCII Display Station (Green)
3153-I1Y |X| InfoWindow II ASCII Display Station (Green)
3153-I2Y |X| InfoWindow II ASCII Display Station (Green)
3153-IA0 |X| InfoWindow II ASCII Display Station (Green)
3153-IB0 |X| InfoWindow II ASCII Display Station (Green)
3153-WB0 |X| InfoWindow II ASCII Display Station (White)
3153-XA0 |X| InfoWindow II ASCII Display Station (White)
3153-XB0 |X| InfoWindow II ASCII Display Station (White)
3153-ZA0 |X| InfoWindow II ASCII Display Station (White)
3153-ZB0 |X| InfoWindow II ASCII Display Station (White)
6553-503 |X| P50 UV-N MPR-II Color Monitor
6553-504 |X| P50 UV-N MPR-II Color Monitor
6553-523 |X| P50 UV-N TCO-92 Color Monitor
6554-673 |X| P70 UV-N Color Monitor
6554-674 |X| P70 UV-N Color Monitor
6555-773 |X| P200 UV-N Color Monitor
6555-774 |X| P200 UV-N Color Monitor
6555-803 |X| P201 UV-N Color Monitor
         | |
---------+-+------ Power --------------------------
- - - - -|-|- - - - - - - - - - - - - - - - - - - -
9910-U01 |X| PRESTIGE 650
9910-U03 |X| PRESTIGE 600
9910-U11 |X| PRESTIGE 1000 EXT
9910-U13 |X| PRESTIGE 1000 EXT
         | |
---------+-+------ SCSI Devices ------------------
- - - - -|-|- - - - - - - - - - - - - - - - - - - -
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     3995-C60 |X| Optical Library Dataserver (1 Drive)
     3995-C62 |X| Optical Library Dataserver (2 Drives)
     3995-C64 |X| Optical Library Dataserver (2 Drives)
     3995-C66 |X| Optical Library Dataserver (4 Drives)
     3995-C68 |X| Optical Library Dataserver (4 Drives)
     7209-003 |X| Optical Disk Drive
     7210-010 |X| CD-ROM Drive (Quad speed)
     7210-015 |X| CD-ROM Drive (8x speed)
          | |
     ---------+-+------  Tape  ---------------------------
     - - - - -|-|- - - - - - - - - - - - - - - - - - - - -
     3466-B01 |X| StorageSmart Galileo Subsystem
     3490-C11*|X| Magnetic Tape Subsystem
     3490-C22*|X| Magnetic Tape Subsystem
     3490-F00*|X| With Differential Single Drive Unit in 3490 Tape Drive
     3490-F01*|X| With Differential Floor Model with 3490 Tape Drive
     3490-F11*|X| With Differential Rack Model with 3490 Tape Drive
     3494-L10*|X| Tape Library Dataserver
     3494-L12*|X| Tape Library Dataserver
          |F|  X = Supported Device
          |5|
          |0|
Machine   | |
Type/     | |
Model     | |      Description
     ---------|-|----------------------------------------
     3570-B00*|X| Tape Subsystem
     3570-B01*|X| Tape Subsystem (1 Drive)
     3570-B02*|X| Tape Subsystem (2 Drives)
     3570-B11*|X| Tape Subsystem (Rack-Mounted, 1 Drive)
     3570-B12*|X| Tape Subsystem (Rack-Mounted, 2 Drives)
     3590-B11*|X| High Performance Tape Subsystem
     7206-005 |X| 4GB 4mm Tape Drive
     7207-012 |X| 1.2GB 1/4-inch Tape Drive
     7207-315 |X| 13GB 1/4-inch Tape Drive
     7208-011 |X| 5GB 8 mm Tape Drive
     7331-205 |X| 8 mm Tape Library
     7336-205 |X| 4 mm Tape Library
     9348-012 |X| 1/2-inch 9-Track Magnetic Tape Unit
          | |
     ---------+-+------  Expansion Cabinets  -------------
     - - - - -|-|- - - - - - - - - - - - - - - - - - - - -
     7015-R00 |X| R00 System Rack
```

* Planned availability of June 6, 1997,

for supported attachment to the F50.

Specified Operating Environment

Physical Specifications

– Width: 245 mm (9.6 in); with pedestal: 350 mm (13.7 in)

– Depth: 695 mm (27.3 in); with pedestal: 745 mm (29.3 in)

– Height: 620 mm (24.3 in)

– Weight: 35 kg (75 lb) - Minimum Configuration; 55 kg (120 lb) - Maximum Configuration

– Thermal Output:

- 281 joules/sec (958 Btu/hr, minimum configuration)
- 425 joules/sec (1449 Btu/hr, typical configuration)
- 606 joules/sec (2066 Btu/hr, maximum configuration)

Operating Environment
- Temperature: 16 to 32 degrees C (60 to 90 F)
- Relative humidity: 8 to 80 (percent)
- Maximum wet bulb: 23 degrees C
- Maximum altitude: 7,000 ft
- Operating voltages:
  - 100 to 125 V AC 50/60Hz
  - 200 to 245 V AC 50/60Hz
- Electrical output: 425 watts (typical); 610 watts (maximum)
- Power source loading:
  - 0.43 kVA (typical configuration)
  - 0.61 kVA (maximum configuration)

Noise Level and Sound Power

- Sound Power: 5.5 Bels Idle/5.8 Bels Operating
- Sound Pressure: 39 dBa Idle/41 dBa Operating

EMC Conformance Classification

As a prospective buyer please be advised by this statement that this equipment is subject to DOC equivalent of FCC rules and that it shall comply with the appropriate DOC equivalent of FCC rules before final delivery to a buyer or centres of distribution.

- U. S. A. - DOC equivalent of FCC CFR47 Part 15 Class A
- Europe - CISPR 22 Class B; "CE" Mark of Conformity
- Japan - VCCI-2
- Korea - Korean Requirement Class B

NOTE: A system configured with feature numbers 3615, 6218, 8130 or 8134 constitutes a Class A system. Also, a configuration using more than one SysKonnect FDDI adapter (#2741, #2742 or #2743) where any one of them is feature number 2743 (SysKonnect SK-NET FDDI-UP SAS PCI), constitutes a Class A system.

Homologation: Telecom Environmental Testing (Safety and EMC)

Homologation approval for specific countries has been initiated with the IBM Homologation and Type Approval (HT&A) organization in LaGaude.

This IBM RS/6000 model and applicable features meet the environmental testing requirements of the country TELECOM and have been designed and tested in compliance with the Full Quality Assurance Approval (FQAA) process as delivered by the British Approval Board for Telecom (BABT), the U.K. Telecom Regulatory authority.

Product Safety/Country Testing/Certification

– U.S.A.: UL
– Canada: CNL (CSA or cUL)
– Germany/Europe: GS Mark (Safety, TUV, EN60 950)

Energy Conservation Requirements

The Model F50 is in compliance with IBM Corporate Bulletin C-B 0-2594-000 Statement of Conformity of IBM Product to External Standard (Suppliers Declaration).

The Model F50 is in compliance with the Japan Energy Conservation Law.

Harmonic Current Emissions (N-B 2-4700-017 Compliance)
This product meets the harmonic current emissions requirements of EN 61000-3-2:1995 and EN 60555-2 and is classified as Class A Equipment under both of the standards. Harmonic current measurements were made at input voltages and frequencies of 100 volts, 50Hz; 100 volts, 60Hz; 200 volts, 50Hz; 200 volts, 60Hz; and 230 volts, 50Hz.

A typical configuration of this product requires an input power of 400 watts while operating. The fundamental and harmonic currents for this product at 400 watts of input power are as follows:

```
Input  Fundamental  Third Harmonic
Volts  Current (A)  Current (A)
-----  -----------  --------------
 100    4.00          0.32

 200    2.00          0.22

 230    1.74          0.16
```

Currents for harmonic numbers 2 through 40 not listed in the table above are 0.04 Amps or less.

Hardware Requirements
Either an ASCII terminal with an attachment cable or a graphics display with an attachment cable and graphics adapter is required for initial set up and must be available locally for service. If an ASCII terminal is used, it must be attached through a serial port.

Software Requirements
AIX Version 4.2.1 (5765-C34) or later. When using AIX Version 4.2.1 or later, the Model F50 does

not require a keyboard, mouse or graphics adapter.

Model Conversions

You can upgrade the 7025-F40 1-to 2-way SMP to the 7025-F50 1-, 2-, 3- or 4*-way SMP.

* A 4-way F50 can be configured by ordering a quantity of two 2-way CPU cards (#4309) when ordering the F50 model upgrade. The base 1-way CPU card included with the upgrade order becomes the property of the customer and is not returned to IBM.

The following Qs and As provide details on the contents of the F50 model conversion shipment group and the additional features you will have to order or have available before performing the upgrade. The Qs and As also discuss which existing features are supported. Note that this model upgrade is not customer setup (CSU).

What is contained in the model conversion shipment group?

The upgrade to the Model F50 contains the following items:

– The Model F50 base configuration, less boot hard disk and 8X CD-ROM, with the customer's existing serial number consisting of:
   - 1-way 166MHz PowerPC 604e processor card
      - Instruction cache of 32KB, 4-way set-associative
      - Data cache of 32KB, 4-way set-associative
   - 256KB ECC Level 2 cache per processor, 8-way set-associative
   - 128MB ECC synchronous SDRAM memory standard
   - Service Processor standard
   - 1.44MB, 3.5-inch diskette drive
   - Five 32-bit PCI slots, two 32/64-bit PCI slots and two shared PCI/ISA slots
   - Dual integrated SCSI-2 Fast/Wide controllers
   - One SCSI hard disk backplane providing for up to six available hard disk bays (expandable to 22 total media and disk bays)
      - One media bay filled by base floppy diskette drive
      - Two available 5.25-inch x 1.6-inch media or boot disk mirroring (one filled by CD-ROM transfer from F40)
   - Integrated Ethernet with thick (10Base5) and twisted pair (10BaseT) output connectors
   - Keyboard and mouse ports
   - Three serial ports and one parallel port
   - 930-watt base power supply
   - New labels
   - Installation instructions

- New diagnostics
- New publications

When placing the order for the model upgrade you can order all field installable features available on the F50 to tailor your upgrade to best fit your computing environment. Select features will not be made available.

Your existing F40 disk, media devices and PCI/ISA adapters may be transferred to the new Model F50 system as most are supported. The replaced F40 chassis with its base features, less all hard disks and one 8X CD-ROM, become the property of IBM and must be returned to IBM. Optional features of the F40 system will either be installed in the new F50 system or returned to you. These optional features include memory, processor cards, hard disk backplanes, media devices, PCI/ISA adapter cards and power supplies.

NOTE: The F40 processor cards, memory, SCSI backplanes, service processor, power supplies, media device feature numbers 6137 and 2630, high-end graphics and video capture adapters, microphone, and speakers are not supported on the F50 system.

What may be transferred from F40 to F50?

– All hard disks
– 8X CD-ROM
– Most PCI/ISA communications and storage adapters
– Graphics adapter limited to feature number 2839.

What additional features will I need to order?

At a minimum, upgraded machines must contain the same or equivalent base features as the Model F50 at the conclusion of the upgrade. A minimum of 4.4GB of SCSI hard disk capacity must be moved from the F40 to the F50. In addition, the 8X CD-ROM must be moved from the F40 to the F50.

The following items must be ordered or available for installation with the upgrade:

– Must order MES Order Indicator feature number 0001.
– 8X CD-ROM
– A minimum of 4.4GB of SCSI hard disk capacity
– Processor cards; if more than a 1-way configuration required
– Memory; if more than 128MB required
– Additional hard disk backplanes to support SCSI or SSA
– AIX Version 4.2.1 (5765-C34) or later, required
  7025-F40s licensed for AIX Version 4.1 (Client, Server D5 or Connections package) or AIX Version 4.2 (Workgroup, Entry Server, or Connections) must upgrade to AIX Version 4.2.1

(5765-C34) as part of the model conversion. Additional users must also be upgraded. The number of additional users that can be upgraded is equal to the current number of users that are licensed. AIX Version 4.1 Server D5 and AIX Version 4.2 Entry Server with unlimited users can upgrade those users to unlimited (78 billable) Designated Users. It is recommended that the upgrade to AIX Version 4.2.1 be accomplished on the F40 before the model conversion. Using Migration Install will perserve all file systems except /tmp, as well as the root volume group, logical volumes, and system configuration files.

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 may 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?

Many features on the existing F40 model are not supported on the model F50. Refer to the **Feature Availability Matrix** for a listing of supported and non-supported features. Non-supported features remain your property, except for the base F40 features and are not returned to IBM.

Limitations
SCSI
For initial orders, a single SCSI 6-pack connected to an integrated SCSI controller is provided as the default via a base SCSI cable. This base cable also connects the SCSI media devices. A single hot-swappable 16-bit 4.5GB Ultra-SCSI enabled hard disk (#9394) is standard.

An option to disconnect the first SCSI 6-pack from the media devices is available. This option, using feature number 2443, provides for a cable and a terminator. The terminator terminates the base cable from the media devices when disconneted from the first SCSI 6-pack. The cable connects the second integrated SCSI controller to the first 6-pack. If this option is implemented, additional SCSI 6-packs (#6519) can be added. Each feature number 6519 must be driven by a PCI SCSI adapter (#6208) and connected via cable (#2447).

If there is no requirement to disconnect the first SCSI 6-pack from the media devices, then an optional second SCSI 6-pack (#6519) may be ordered and attached to the second integrated SCSI adapter via cable (#2444). An optional third SCSI 6-pack (#6519) may be ordered and driven by PCI SCSI adapter (#6208) connected via cable (#2447). Note, feature numbers 2443 and 2444 are mutually exclusive.

Refer to **Feature Matrix** for supported SCSI hard disks.

The following table indicates maximum devices that can be used with SCSI adapter and cable combinations. Multidevice indicates an external enclosure that may contain more than one SCSI device.

```
_____
| Adapters |     Cables     |     Maximum Number of Devices     |
```

Feature Numbers	Internal Feature Numbers	External Feature Numbers	Internal	External Single Device	External Multi-Device
Integrated (standard) #1	(standard)	No External Support	3 - Media (1 is standard) 6 - Disk (1 is standard)	No External Support	No External Support
Integrated (standard) #2 without External Multi-Devices	2443 or 2444	2111 2113 2115 2117	6 - Disk	2	Not Applicable
Integrated (standard) #2 with External Multi-Devices	Not Applicable	2111 2113 2115 2117	0 Cannot mix single and multi-device	0 Cannot mix single and multi-device	1
6208 Without external multi-devices	2447 6522 6536	2111 2113 2115 2117	6 - Disk	4	0 Cannot mix single and multi-devices
6208 With external multi-device	No Internal Support	2111 2113 2115 2117	0 Cannot mix single and multi-device	0 Cannot mix single and multi-device	1
6209	No Internal Support	2112 2114 2116	0	25-meter cable maximum and 15 SCSI addresses maximum	

Support for the 9348-012 Tape Drive requires a dedicated SCSI adapter per unit.

SCSI RAID

If a SCSI RAID configuration is desired, the 16-bit 4.5GB Ultra-SCSI enabled hard disk must be moved into a media bay for use as a boot drive by selecting feature number 3006 in place of the standard feature number 9394. Feature number 3006 includes the necessary media-bay mounting hardware, a terminator, and the 16-bit 4.5GB Ultra-SCSI enabled hard disk. The terminator terminates the base cable from the media devices when disconnected from the first standard SCSI 6-pack.

Feature number 2447 provides a cable connection from the first SCSI 6-pack driven by a PCI SCSI RAID adapter (#2493). Additional SCSI 6-packs (#6519) can be added. Each feature number 6519 added must be driven by the PCI SCSI RAID adapter (#2493) and connected via cable (#2447). Note, up to three SCSI 6-packs can be connected to a single PCI SCSI RAID

adapter (#2493) to enable SCSI RAID 0, 1 and 5 under-the-covers.

Ultra-SCSI
If an Ultra-SCSI configuration is desired, the following discussion is applicable. A SCSI 6-pack supports Ultra-SCSI drives at ultra speed. However, Ultra-SCSI speed is not supported by the integrated dual SCSI Fast/Wide controllers. Therefore, feature number 2446 must be ordered to disconnect the first SCSI 6-pack from the media devices. Feature number 2446 provides for a cable and a terminator. The terminator terminates the cable from the media devices when disconnected from the first SCSI 6-pack. The cable provides a connection from the first SCSI 6-pack driven by a PCI Ultra-SCSI Single-Ended adapter (#6206). Additional SCSI 6-packs (#6519) can be added. Each feature number 6519 added must be driven by a PCI Ultra-SCSI SE adapter (#6206) and connected via cable (#2447). Note, one dedicated PCI Ultra-SCSI SE adapter (#6206) must be used per SCSI 6-pack to enable Ultra-SCSI speed. Note also, ultra enabled drives will throttle back automatically to SCSI-2 speed if the SCSI 6-packs are connected to the integrated or non-integrated SCSI Fast/Wide adapters, rather than the PCI Ultra-SCSI adapters.

Refer to the **Feature Matrix** for supported Ultra-SCSI hard disks.

Ultra-SCSI RAID
If an Ultra-SCSI RAID configuration is desired, the PCI Ultra-SCSI Differential adapter (#6207) can be used to support external Ultra-SCSI RAID subsystems. Ultra-SCSI RAID is supported in an under-the-covers configuration via the striping (RAID 0) and mirroring function (RAID 1) of AIX and using the PCI Ultra-SCSI SE adapter (#6206). Note, feature number 2493 does not support RAID under-the-covers at ultra speed.

Serial Storage Architecture (SSA) and SSA RAID
If an SSA configuration is desired, the 16-bit 4.5GB ultra-enabled hard disk must be moved into a media bay for use as a boot drive by selecting feature number 3006 in place of the standard feature number 9394. Feature number 3006 includes the necessary media-bay mounting hardware, a terminator, and the 16-bit 4.5GB Ultra-SCSI enabled hard disk. The terminator terminates the base cable from the media devices when disconnected from the first standard SCSI 6-pack.

The standard SCSI 6-pack must be replaced with an SSA 6-pack by selecting feature number 6538. A PCI SSA adapter (#6218) must be chosen along with SSA cabling. To optimize performance when more than one PCI SSA adapter (#6218) is required, it is recommended that each adapter be assigned to a slot supported by an individual SCSI bus. For example, the first PCI SSA adapter could use slots 1 or 2, a second PCI SSA adapter could use slots 3, 4 or 5 and a third PCI SSA adapter could use slots 6, 7, 8 or 9. Two SSA cable options are available. The first cable option (#2450) provides internal cables to internal ports on the PCI SSA adapter to allow connection of up to three SSA 6-packs (up to eighteen SSA 4.5GB drives), all under-the-covers of the model F50. A higher availability configuration can be achieved by implementing individual SSA 6-pack loops under-the-covers. One PCI SSA adapter (#6218) each with cable option

(#2450) is required to support each SSA 6-pack loop. One set of adapter (#6218) and cable (#2450) is required per SSA backplane (#6538) or (#6539). This configuration, when used with the AIX functions of striping (RAID 0) and mirroring (RAID 1), eliminates a PCI SSA adapter as a single point of failure. The second cable option (#2453) provides for the connection of up to three SSA 6-packs under-the-covers and exits the rear cover via bulkhead connection to the external ports of the PCI SSA adapter (#6218). This cable option will allow up to 30 additional external SSA devices, for a maximum of 48 total devices, to be connected to the SSA loop at the point where it exits the rear covers.

NOTE: Feature number 6218 does not support an HACMP configuration.

Additional SSA 6-packs can be added by choosing feature number 6539. This includes an SSA 6-pack and daisy chain cable.

SSA hard disks supported are feature numbers 3071 and 3072. Feature number 3071 provides for a 1-inch, 4.5GB SSA hard disk and the second, feature number 3072, provides for a 1.6-inch, 9.1GB SSA hard disk. A minimum order quantity of two hard disks is required. Feature number 3072 is a co-requisite with one feature number 2452, supplied by IBM on the initial plant order, as discussed below.

The first two drives must be located in bays one and five of each 6-pack ordered. Of course, a full 6-pack can be configured as well. Should the desired capacity fall short of fully populating a 6-pack, an SSA blank disk drive module (#2452) will be included with the initial plant order (must be ordered if MES) to occupy any SSA backplane connector that does not have an SSA hard disk occupying it. The SSA blank disk drive module (#2452) must be installed first if it is being used in conjunction with a 1.6-inch 9.1GB SSA hard disk (#3072).

Supported minimum SSA backplane (6-pack) configurations are:

Two #3071s with four #2452s
Two #3072s with four #2452s
One #3071 and one #3072 with four #2452s

In summary, the following combinations of features and their respective quantities are allowed per SSA 6-pack backplane, feature number 6538 or 6539:

3071 (4.5GB)	3072 (9.1GB)	2452 (Blank)
2	0	4
3	0	3
4	0	2
5	0	1
6	0	0
1	1	4
2	1	3
3	1	2
4	1	1
0	2	4
1	2	3
2	2	2
0	3	3

Disk Drives:

The 9.1GB (#2911, #3019 and #3072) disk drives require two bays. This allows for up to three 9.1GB drives maximum per 6-pack.

The boot disk drive (#3006) is a select option that swaps the base 4.5GB Ultra-SCSI enabled system hard disk (#9394) for one that is located in a media bay. Feature number 3006 includes the media-bay mounting hardware and terminator required to accomplish this. Feature number 6509, media bay mounting hardware, is a corequisite with a 4.5GB Ultra-SCSI-enabled hard disk (#2900), to provide for the option of locating a second hard disk in the media bay area. Hard disks located in the media bays are non-hot-swappable. They can, however, be mirrored if desired by using the RAID mirroring function contained within AIX. The F50 has two available media bays. If the bays are consumed by hard disks in the manner described herein, then any other optional devices, such as a tape back-up unit, must be attached externally to the system.

Hot-swap capability is standard on all supported drives when installed in any of the three SCSI or SSA 6-packs available. The hot-swap capability is enabled via the backplanes located within the SCSI or SSA 6-packs.

Memory:
IBM memory DIMMs must be installed in pairs. Pairs may be mixed on a memory card. Each F50 supports a maximum of two memory cards. Each memory card supports 16 DIMM slots; the equivalent of 8 DIMM pairs. Individual IBM SDRAM DIMMs in capacities of 32MB and 128MB are supported.

The base system memory configuration is 128MB (#9083), consisting of four 32MB SDRAM ECC DIMMs. A select feature (#4106) can be ordered to replace this base memory. It consists of two 128MB SDRAM ECC DIMMs to provide for a base of 256MB. Additional memory increments of 64MB (#4107) or 256MB (#4110) may also be ordered. Feature number 4107 consists of two 32MB SDRAM ECC DIMMs and feature number 4110 consists of two 128MB DRAM ECC DIMMs.

The second memory card (#4093) must be ordered when the first memory card is fully populated with eight pairs of DIMMs. Memory card feature number 4093 contains no memory DIMMs. Therefore, memory DIMMs must be ordered separately to populate memory card feature number 4093.

A maximum of 3GB of memory is supported and addressable when both memory cards are used. A maximum of 4GB of memory could physically be installed, but is not addressable nor supported.

64-Bit PCI Slots:
The Model F50 provides two 64-bit PCI slots. These slots will accommodate either 64-bit or 32-bit PCI adapters. The 32-bit and 64-bit PCI adapters can also be intermixed on the 64-bit PCI bus. The speed is adapter dependent. If both 64-bit slots are used simultaneously, then both adapters will run at the speed of the slowest adapter. The default speed is 33MHz for both 64-bit PCI slots.

Graphics Adapter:
There can be a maximum of two graphics adapters installed on the system with AIX Version 4.2.1. The Model F50 provides support for the GXT110P entry-level (#2839) 2D graphics adapter. Feature number 2839 can only be used in I/O slots 3, 4 or 5. This adapter is used in conjunction with graphics consoles as an alternative to ASCII if desired. If an ASCII console is desired, it would be supported via serial port S1 and would not require the use of this adapter.

AIX systems may be ordered with or without a keyboard, mouse, or graphics adapter.

Feature	Adapter	AIX Version 4.2.1
2839	GXT110P	Yes

High-Speed Networking Adapters:
A maximum of four high-speed networking adapters are supported per system in any combination. This limitation includes the following adapters:

– 3Com 10/100 Mbps PCI Fast EtherLink XL for PowerPC Systems (#2986)

– SysKonnect SK-NET FDDI-LP SAS PCI for PowerPC Systems (#2741)

– SysKonnect SK-NET FDDI-LP DAS PCI for PowerPC Systems (#2742) ;Li.SysKonnect SK-NET FDDI-UP SAS PCI for PowerPC Systems (#2743)

– TURBOWAYS 155 ATM Adapter, PCI/Short/32-bit/5 V, 155 MBps (#2988)

AIX Installation:
Installation of the AIX operating system is limited to the following methods:

– By manufacturing with the initial order

– CD-ROM

– Via a restore tape made with the AIX command 'mksysb' and a supported 4-mm or 8-mm tape drive

Hardware Requirements:
Either an ASCII terminal with an attachment cable or a graphics display is required for initial setup and must be available locally for service. If an ASCII console is used, it must be attached through serial port S1.

If a graphics adapter is installed, console messages (IPL progress/error information/systems management information) will be directed to the graphics adapter. The system does not detect if a display is attached to the adapter. The user may attach any supported device to the adapter.

If a graphics adapter is not installed, console messages will be directed to serial port S1. The system does not detect if an ASCII console is attached to serial port S1; use of any device other than an ASCII console on serial port S1 will result in lost messages and unpredictable results on that device.

Boot Devices:
The system may be booted from CD-ROM, internal or external hard disk or network booted using Ethernet (via integrated or #2985, #2986 or #2987) or Token-Ring (#2979) adapters. Network boot on FDDI adapters (#2741, #2742 or #2743) is not supported. System boot from PCI RAID adapters (#2493 or #6218) is not supported.

Cables Required for Use with Displays:
Refer to the following table to determine the appropriate IBM cable feature number to order for the Model F50. Note that in some cases, the appropriate cable is either included with the monitor or is ordered with the graphics subsystem.

---- Graphics Connector ---

```
              GXT110P
   Displays     (15D)
   --------     -------
   P50          Display*

   P70           4238
   P200          4238

   P201          4237
```

* The appropriate cable is included with the display.
Display Cable Chart
Feature Cable
Number Part   Standard Use Cables   Adapter Monitor ID Bit
        Number
---------------------------------------   ------- ------- ------
4237   96G1712 P201 only DDC/ID Switch 15-D   13W3   DDC/1010**
4238   96G2156 P Series Monitor ID   15-D   13W3   DDC

** Includes logic in cable powered by P201; only for P201.

The P200/P201 has a maximum viewable image size of 486 mm (19.1 in) measured diagonally.
The P70 has a maximum viewable image size of 403 mm (15.9 in) measured diagonally. The P50
has a maximum viewable image size of 346 mm (13.6 in) measured diagonally.

Software Requirements
AIX Version 4.2.1 (5765-C34), or later. When using AIX Version 4.2.1 or later, the Model F50 does
not require a keyboard, mouse or graphics adapter.

Planning Information

Cable Orders
No cables required.

Accessories and/or Supplies
Accessories can be purchased by calling IBM Direct at 1-800-IBM-CALL (1-800-426-2255).

Supplies can be purchased from LEXMARK International Supplies Dealers.

Security, Auditability and Control
Security and auditability features of the F50 systems:

– Physical security that is provided by a key lock that helps prevent cover removal when locked.

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

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

ORDERING INFORMATION

If you are interested in this announcement, please contact any of the following:

– IBM Marketing Representatives

– IBM RS/6000 Open Catalogue (1-800-IBM-CALL(1-800-426-2255, extension 1296) or IBM_DIRECT@CA.IBM.COM)

– IBM Business Partner - Distributor

– IBM Business Partner - Solution Provider

– IBM Business Partner - Reseller

– IBM Business Partner - Systems Integrator

– IBM Business Partner - Sales Agent

– IBM Business Partner - Product Agent

TERMS

(For a description of terms, see Announcement Glossary A93 - 904)
IBM Leasing:
 ICA Lease Offering: Yes
 Eligible for Maintenance: Yes
 Eligible for Common Rent Commencement Date: Yes
Warranty Period: One Year
Warranty Service: IBM On-Site Repair (IOR)
Warranty Options: None
Maintenance Service: IOR
IBM Hourly Service Rate Classification: Two
Customized ServicePlan Offering (CSO):   Yes
Customer Set Up: See below
Field Installable Feature: Yes
Model Conversion: Yes
Machine Code: Yes

Customer Set Up:

Yes, the initial installation and subsequent feature upgrades are CSU, however the F40 to F50 model upgrade is not CSU.
Machine Group for Processor-Based Charge Programs:

```
                    ---------MACHINE---------
 FORM  EXHIBIT NUMBER AND NAME          TYPE    MODEL   GROUP
 ----  -------------------------------------- ------- ------- --------
 6398  M8309   Machine Groups for Processor-  7025    F50     E5
          Based Charge Programs - IBM
           RISC System/6000(TM)                       Machine
```

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CHARGES

(For a description of terms, see Announcement Glossary A93 - 904)
Prices are subject to change without notice.
GST, QST and Sales Taxes, where applicable, are extra.

	MACHINE TYPE/ MODEL	FEATURE NUMBER	MINIMUM PURCHASE PRICE	MAINTENANCE CHARGE MONTHLY
DESCRIPTION				
------------	--------	-------	--------	------------
RS/6000	7025/F50		$40,775	$266.00

DESCRIPTION	FEATURE NUMBERS	MINIMUM PURCHASE PRICE	MAINT. CHARGE MONTHLY	INITIAL/ MES/ BOTH
------------------------------------	-------	--------	-------	--------
FOR MACHINE TYPE 7025, MODEL F50				
Integrated SCSI to DASD 6-Pack 16-bit Cable and Terminator	2443	$ 115		Both
Terminator (16-bit SCSI BUS)	2448	85		MES
Cable Assembly, SSA 6-Pack to PCI SSA Adapter Internal Ports	2450	65		Both
Cable Assembly, SSA 6-Pack to 6-Pack Daisy Chain	2451	30		MES
SSA Blank Disk Drive Module	2452	105		Both
Cable Assembly, SSA Internal to SSA External Bulkhead Connector	2453	430		Both
4.5GB Ultra-SCSI 16-bit Disk Drive	2900	3,670		Both
4.5GB Ultra-SCSI 16-bit Hot-Swap Disk Drive	2901	3,810		Both
9.1GB Ultra-SCSI 16-bit Hot-Swap Disk Drive	2911	7,195		Both
2-Port Cable, V.24/EIA-232	2951	245		Both
2-Port Cable, V.35	2952	450		Both
2-Port Cable, V.36/EIA-449	2953	360		Both
2-Port Cable, X.21	2954	245		Both
2-Port Multiprotocol PCI Adapter	2962	2,250		Both
TURBOWAYS 155 PCI MMF ATM Adapter	2988	2,250		Both

4.5GB SCSI-2 Fast/Wide 1-inch (25mm)
　High Disk Drive Select　　　　3006　　NC　　　　Initial

9.1GB Fast/Wide Ultra SCSI Disk Drive
　Select (9394)　　　　　　　3019　　3,385　　　　Initial

4.5GB SSA Hot-Swap Disk Drive　　3071　　4,090　　　　Both

9.1GB SSA Hot-Swap Disk Drive　　3072　　7,760　　　　Both

Memory Expansion Feature (16 Position) 4093　　1,465　　　　Both

256MB (2 X 128MB) DIMMS, 200-Pin 10 ns
　SDRAM, SEL(9083)　　　　　4106　　5,420　　　　Initial

64MB (2 X 32MB) DIMMS, 200-Pin 10 ns
　SDRAM　　　　　　　　　4107　　2,710　　　　Both

256MB (2 X 128MB) DIMMS, 200-Pin 10 ns
　SDRAM　　　　　　　　　4110　　10,840　　　　Both

PowerPC 604e 166MHz 2-way Processor
　Card with 2 x 256KB L2 Cache Select 4303　　9,170　　$ 93　　Initial

PowerPC 604e 166MHz 1-way Processor
　Card with 256KB L2 Cache　　　4307　　9,170　　$ 93　　Both

PowerPC 604e 166MHz 2-way Processor
　Card with 2 x 256KB L2 Cache　　4309　　18,340　　$185　　Both

PCI Single-Ended Ultra-SCSI Adapter　6206　　555　　　　Both

PCI Differential Ultra-SCSI Adapter　6207　　915　　　　Both

Media Bay Disk Drive Mounting Kit　6509　　70　　　　Both

SCSI 6-Pack Hot-Swap Backplane/Power
　Cable　　　　　　　　　6519　　775　　　　Both

Select SSA (Instead of Standard SCSI
　Backplane) 6-Pack Backplane: First
　Position　　　　　　　　6538　　NC　　　　Initial

SSA 6-pack Backplane (First/Second/
　Third Position) with Backplane
　Power Cable and Internal SSA Daisy
　Chain Cable　　　　　　　6539　　450　　　　Both

Base 128MB (4 X 32MB) DIMMS, 200-Pin
　10 ns SDRAM　　　　　　9083　　NC　　　　Initial

Base Processor, 1-way, 604e, 166MHz,
　256KB L2 Cache　　　　　9303　　NC　　　　Initial

Base 4.5GB Fast/Wide Ultra-SCSI Disk
　Drive　　　　　　　　　9394　　NC　　　　Initial


```
                              INITIAL/
                     FEATURE       MES/
DESCRIPTION                  NUMBERS      BOTH
------------------------------------   -------     --------
```
The following previously announced
features are available on

Machine Type 7025, Model F50.

After-market (MES) Order Indicator	0001	MES
PCI SCSI Adapter to 2-Port, 8-bit SE External Device Cable	2111	Both
PCI SCSI Adapter to 2-Port, 8-bit Differential External Device Cable	2112	Both
PCI SCSI Adapter to Single Port 8-bit SE External Device Cable	2113	Both
PCI SCSI Adapter 16-bit Differential External Y Cable	2114	Both
PCI SCSI Adapter to 2-Port, 16-bit SE External Device Cable	2115	Both
PCI SCSI Adapter to 2-Port, 16-bit Differential Ext Device Cable	2116	Both
PCI SCSI Adapter 16-bit SE External Y Cable	2117	Both
0.6 m 16-bit SCSI-2 System-to-System Cable	2424	Both
2.5 m 16-bit SCSI-2 System-to-System Cable	2425	Both
Integrated SCSI to DASD 6-Pack 16-bit Cable	2444	Both
PCI Ultra-SCSI Adapter to First DASD 6-Pack 16-bit Cable	2446	Both
16-bit PCI SCSI SE Adapter to DASD 6-Packs Cable	2447	Both
IBM PCI RAID Adapter	2493	Both
8X Speed Tray-Loading CD-ROM	2618	Both
4-Port Multiprotocol Communications Controller, ISA bus	2701	Both
Multiprotocol Attachment Cable - V.35	2702	Both
Multiprotocol Attachment Cable - X.21	2704	Both
4-Port Multiprotocol Interface Cable	2705	Both
Multiprotocol Modem Attachment Cable -- EIA-232/V.24	2706	Both
SysKonnect SK-NET FDDI-LP SAS PCI for PowerPC Systems	2741	Both
SysKonnect SK-NET FDDI-LP DAS PCI for PowerPC Systems	2742	Both
SysKonnect SK-NET FDDI-UP SAS PCI for		

PowerPC Systems	2743	Both
POWER GXT110P Graphics Adapter - PCI	2839	Both
POWER GXT250P Graphics Adapter - PCI	2851	Both
8-Port Asynchronous Adapter -- EIA-232, ISA Bus	2931	Both
8-Port Asynchronous Adapter -- EIA-232/ 422-A, ISA Bus	2932	Both
128-Port Asynchronous Controller, ISA Bus	2933	Both
Asynchronous Terminal/Printer Cable EIA-232	2934	Both
Asynchronous Cable EIA-232/V.24	2936	Both
Asynchronous Terminal Cable -- EIA-422A	2945	Both
X.25 Interface Co-processor Adapter, ISA Bus	2961	Both
X.25 Attachment Cable X.21 - 3 meter (10 ft)	2965	Both
X.25 Attachment Cable V.24 - 3 meter (10 ft)	2966	Both
X.25 Attachment Cable V.35 - 3 meter (10 ft)	2967	Both
X.25 Attachment Cable X.21 - 6 meter (20 ft)	2976	Both
X.25 Attachment Cable V.24 - 6 meter (20 ft)	2977	Both
X.25 Attachment Cable V.35 - 6 meter (20 ft)	2978	Both
PCI Auto LANstreamer Token-Ring Adapter	2979	Both
PCI Ethernet BNC/RJ-45 Adapter	2985	Both
3Com 10/100 Mbps PCI Fast Etherlink XL for PowerPC Systems	2986	Both
PCI Ethernet AUI/RJ-45 Adapter	2987	Both
Serial to Serial Port Cable for Drawer/Drawer	3124	Both
Serial to Serial Port Cable for Rack/Rack	3125	Both
RAID Internal Port to External Connector Cable	3131	Both
P70 Colour Monitor	3613	Both

P200 Colour Monitor	3614	Both
P201 Colour Monitor	3615	Both
Service Package	3752	Both
Options Library (hardcopy)	3753	Both
Ethernet 10Base2 Transceiver	4223	Both
13W3 to 15-Pin DDC/ID Bits Switchable Display Cable	4237	Both
DDC 15-Pin to 13W3 Display Cable	4238	Both
Software Pre-install	5005	Initial
Three-Button Mouse	6041	Both
4GB/8GB 4 mm Internal Tape Drive	6142	Both
5GB/10GB 8 mm Internal Tape Drive	6147	Both
PCI SCSI-2 Fast/Wide Single-ended Adapter	6208	Both
PCI SCSI-2 Fast/Wide Differential Adapter	6209	Both
IBM PCI SSA 4-Port RAID Adapter	6218	Both
Hot-Swap Carrier for Fast/Wide SCSI Disk	6528	MES
Enhanced Keyboard - U.S. English (103P)	6900	Both
Enhanced Keyboard - Canadian French (058)	6908	Both
Remote Asynchronous Node 16-Port EIA-232 (U.S.)	8130	Both
128-Port Asynchronous Controller Cable, 4.5 metre	8131	Both
128-Port Asynchronous Controller Cable, 23 cm (9 inch)	8132	Both
RJ-45 to DB-25 Converter Cable	8133	Both
64-Port to 128-Port Pin-Out Converter	8135	Both
Rack Mountable Remote Asynchronous Node 16-Port EIA-232	8136	Both
Southern Hemisphere Specify for Monitors	9004	Both
Language Group Specify - U.S. English	9300	Initial
Language Group Specify - Canadian French	9712	Initial

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Power Cord Specify - United States/
   Canada                          9800         Initial

Internal RAID Indicator           9996         Initial
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Model Conversion Purchase Prices:

```
  Model      Model Conversion
 From  To     Purchase Price
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 F40  F50     $ 29,630 *
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 * Parts removed or replaced become the property of IBM and must
   be returned.

Allowance and Discounts

Educational Allowance: 30%
IVO Volume Discount: Yes

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