



IBM System p5 505 entry server offers POWER5 technology in a 1U rack drawer package

Overview

The System p5™ 505 entry server (9115-505) is a powerful, rack-dense two-way-capable system that delivers the expandability and availability features required for data centers and small and medium size businesses. The raw computing power of the server positions it well for infrastructure applications such as file/print, Web serving, networking, systems management, and security. Its POWER5™ processor is also ideally suited for high-performance compute clusters.

The System p5 505 server comes in a 1U rack drawer package and is available in a one- or two-way configuration.

The p5-505 SMP includes a one- or two-way, 64-bit, copper-based POWER5 microprocessor.

- One-way POWER5 processor at 1.65 GHz is available without level 3 (L3) cache.
- Two-way POWER5 processors at 1.5 GHz and 1.65 GHz, both with 36 MB of L3 cache, are also available.

You can expand the base 1 GB of main memory to 32 GB for faster performance and exploitation of 64-bit addressing as used in large database applications.

The System p5 505 server contains DASD bays that can accommodate two 3.5-inch disk drives with a system capacity of 600 GB of disk storage. A slimline media bay is also available as an optical device.

Other integrated features include:

- One long double data rate (DDR) 266 MHz, 64-bit, PCI-X slot
- One low-profile 266 MHz, 64-bit, PCI-X slot
- Service processor

- Two 10/100/1000 Ethernet ports, USB ports, and hardware management console (HMC) ports
- One system port
- Dual-channel Ultra320 SCSI controller
- Hot-swap power and cooling
- Redundant power (optional) and cooling

Dynamic LPAR is supported on the System p5 505 server, allowing up to two partitions. In addition, the optional Advanced POWER™ Virtualization feature supports up to 10 partitions per processor.

The System p5 505 server is backed by a three-year warranty.

Key prerequisites

If installing AIX® on the system, select one of the following:

- AIX 5L™ for POWER V5.2 with the 5200-07 Recommended Maintenance Package (APAR IY67914), or later
- AIX 5L for POWER V5.3 with the 5300-03 Recommended Maintenance Package (APAR IY71011), or later

If installing Linux™ on the system, select one of the following:

- SUSE LINUX Enterprise Server 9 for POWER, or later
- Red Hat Enterprise Linux AS 4 for POWER, or later

At a glance

The IBM System p5™ 505 server offers:

- Outstanding value for entry UNIX® or Linux servers
- Powerful, symmetric multiprocessing (SMP) server for On Demand Business
- 1U rack-mount configuration for space constrained environments
- Performance and capacity needed by demanding on demand infrastructure and HPC applications
- Mainframe-inspired reliability, availability, and serviceability features
- Up to 32 GB of memory
- Two DASD bays for 3.5-in disk drives accommodating 600 GB of internal disk storage
- One slimline media bay for DVD-ROM or DVD-RAM
- Dynamic logical partitioning (LPAR) support

For ordering, contact:

Your IBM representative, an IBM Business Partner, or the Americas Call Centers at

800-IBM-CALL

Reference: YE001

Planned availability dates

- October 14, 2005, for server and features (except the following)
- November 18, 2005, for feature numbers 1820, 1835, 1836, and 1839 only
- February 24, 2006, for feature numbers 1912 and 5736 only
- March 31 2006, for feature number 1934 only

This announcement is provided for your information only. For additional information, contact your IBM representative, call 800-IBM-4YOU, or visit the IBM home page at: <http://www.ibm.com>.

Description

System p5 505 entry server

Summary of standard features:

- Rack-mount (1U) configuration
 - One- and two-way SMP design (one processor card):
 - One-way 1.65 GHz POWER5, 64-bit processor with no L3 cache
 - Two-way 1.5 GHz or 1.65 GHz POWER5, 64-bit processors with 36 MB L3 cache
 - 1 GB of DDR-2 533 MHz ECC memory, expandable to 32 GB
 - Two DASD bays for 3.5-in disk drives
 - One slimline media bay:
 - One DVD-ROM (default option, which can be deselected)
 - One DVD-RAM (optional)
- Note:** Either a DVD-ROM or DVD-RAM is required in a minimum configuration.
- Two PCI-X slots:
 - 64-bit, 266 MHz (long)
 - 64-bit, 266 MHz (low profile)
 - Integrated:
 - Dual 10/100/1000 Ethernet
 - Dual-channel Ultra320 SCSI controller
 - One external SCSI port
 - Service processor
 - Hot-swap and redundant fans
 - Two USB ports
 - One system port
 - Two HMC/UPS ports
 - 600 watt power supply, base (redundant power optional)

System p5 505 Express product offering

Express product offerings are available only as initial order.

If you order an System p5 505 server with the one-way, POWER5 1.65 GHz processor with no L3 cache (#7650), the two-way, POWER5 1.65 GHz processor with 36 MB L3 cache (#7652), or the two-way POWER5 1.5 GHz processor (#7674) with a minimum configuration, you qualify for an Express product offering. You receive a processor entitlement at no extra charge. The number of processors, total memory, quantity/size of disk, and presence of a media device are the only features that determine if you qualify for a processor entitlement at no additional charge.

When you purchase an Express product offering, you are entitled to a lower-priced AIX 5L or Linux operating system license, or you may choose to purchase the system with no operating system. The lower-priced AIX 5L or Linux operating system is processed via a feature number on AIX 5L and either Red Hat or SUSE LINUX. You can choose either the lower-priced AIX 5L or Linux subscription but not both. If you choose AIX 5L for your lower-priced operating system, you can also order Linux, but you will purchase your Linux subscription at full price

versus the reduced price. The converse is true if you choose a Linux subscription as your lower-priced operating system. Systems with a lower-priced AIX 5L offering are referred to as the System p5 Express, AIX 5L editions, and systems with a lower priced Linux operating system are referred to as the System p5 Express, OpenPower™ editions. In the case of Linux, only the first subscription purchased is lower priced. Therefore, for example, additional licenses purchased for Red Hat to run in multiple partitions are at full price.

You can make changes to the standard features as needed and still qualify for processor entitlements at no additional charge and a lower-priced AIX 5L operating system license. However, selection of total memory or DASD smaller than the total defined as the minimums disqualifies the order as an Express product offering.

If any of the features in an Express product offering are changed, the Express product offering identification feature (#95XX) will be removed from the order.

Entry offerings — Rack configuration:

- One one-way, 1.65 GHz processor card (#7650)
- One 1024 MB (2 x 512 MB) DIMMs (#1930)
- Two 73.4 GB 10,000 rpm disk drive (#1968)
- One IBM rack-mount drawer bezel and hardware (#7927)
- One power supply, 600 watt (#7958)
- One DVD-ROM (#1903)
- One language group specify (#9300 or 97xx)
- One power cord
- One Express product offering ID 91151F1 (#9557)

Receive one processor entitlement (#8639) at no additional charge. One processor is entitled.

Value offering — Rack configuration:

Two-way system offering:

- One two-way, 1.65 GHz processor card (#7652)
- Two 1024 MB (2 x 512 MB) DIMMs (#1930)
- Two 73.4 GB 10,000 rpm disk drive (#1968)
- One IBM rack-mount drawer bezel and hardware (#7927)
- One power supply, 600 watt (#7958)
- One DVD-ROM (#1903)
- One language group specify (#9300 or 97xx)
- One power cord
- One processor entitlement (#7372)
- One Express product offering ID 91151F3 (#9559)

Receive one processor entitlement (#8641) at no additional charge. Two processors are entitled.

Two-way system offering:

- One two-way, 1.5 GHz processor card (#7674)
- Two 1024 MB (2 x 512 MB) DIMMs (#1930)
- Two 73.4 GB 10,000 rpm disk drive (#1968)
- One IBM rack-mount drawer bezel and hardware (#7927)

- One power supply, 600 watt (#7958)
- One DVD-ROM (#1903)
- One language group specify (#9300 or 97xx)
- One power cord
- One processor entitlement (#7574)
- One Express product offering ID 91151F2 (#9560)

Receive one processor entitlement (#8634) at no additional charge. Two processors are entitled.

Reliability, availability, and serviceability (RAS)

Reliability, fault tolerance, and data integrity: The reliability of the System p5 505 server starts with components, devices, and subsystems that are designed to be fault-tolerant. During the design and development process, subsystems go through rigorous verification and integration testing processes. During system manufacturing, systems go through a thorough testing process designed to help ensure the highest level of product quality.

The System p5 505 server L3 cache and system memory includes error checking and correcting (ECC) fault-tolerant features. ECC can correct environmentally induced, single-bit, intermittent memory failures and single-bit hard failures. With ECC, the likelihood of memory failures is substantially reduced. ECC also provides double-bit memory error detection that helps protect data integrity in the event of a double-bit memory failure. System memory includes 4-bit packet error detection to help protect 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 are also included with the AIX operating system. Linux supports DASD mirroring (RAID-1) in software using the md driver. Some of the hardware RAID adapters that run on Linux also support mirroring.

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

PCI extended error handling: In the POWER5 systems, new I/O drawer hardware, system firmware, and AIX interaction allow transparent recovery of intermittent PCI bus parity errors and graceful transition to the I/O device available state in the case of a permanent parity error in the PCI bus. This mechanism is called PCI extended error handling (EEH). EEH-enabled adapters respond to a special data packet generated from the affected PCI slot hardware by calling system firmware, which examines the affected bus, allows the device driver to reset it, and continues without a system reboot. Currently, Linux does not support EEH.

Memory error correction extensions: The standard memory has single-error-correct and double-error-detect ECC circuitry to correct single-bit memory failures. Double-bit detection can help maintain data integrity by detecting and reporting multiple errors beyond what the ECC circuitry can correct. The memory chips are organized so that the failure of any specific memory module only affects a single bit within an ECC word (bit scattering). This allows for error correction and continued operation in the presence of a complete chip failure (Chipkill™ recovery).

The memory also uses memory scrubbing and thresholding to determine when spare memory modules, within each bank of memory, if available, should be used

to replace ones that have exceeded their threshold value (dynamic bit steering).

Redundancy for array self-healing: Although the most likely failure event in a processor is a soft single-bit error in one of its caches, other events can occur, and they need to be distinguished from one another. For the L1, L2, and L3 caches and their directories, hardware and firmware keep track of whether permanent errors are being corrected beyond a threshold. If exceeded, a deferred repair error log is created. Additional run-time availability actions, such as CPU vary off or L3 cache line delete, are also initiated.

L1 and L2 caches and L2 and L3 directories on the POWER5 chip are manufactured with spare bits in their arrays that can be accessed via programmable steering logic to replace faulty bits in the respective arrays. This is analogous to the redundant bit steering employed in main storage as a mechanism that is designed to help avoid physical repair, and is also implemented in POWER5 systems. The steering logic is activated during processor initialization and is initiated by the built-in self-test (BIST) at power-on time.

L3 cache redundancy is implemented at the cache line level. Exceeding correctable error thresholds while running causes a dynamic L3 cache line delete function to be invoked.

Service processor: The service processor standard on the System p5 diagnoses, checks the status of, and senses the operational conditions of a remote system.

The service processor runs on its own power boundary and does not require a system processor to be operational to perform its tasks.

The service processor supports surveillance of the connection to the HMC and to the system firmware (Hypervisor). It also offers:

- Remote power control options
- Environmental monitoring (but only critical errors are supported under Linux)
- Reset and boot features
- Remote maintenance and diagnostic functions including console mirroring

The service processor can place calls to report surveillance failures, critical environmental faults, and critical processing faults when the system is not managed by an HMC running service focal point.

Fault-monitoring functions

- BIST and POST check the processor, L3 cache, memory, and associated hardware required for proper booting of the operating system every time the system is powered on. If a noncritical error is detected, or if the errors occur in the resources that can be removed from the system configuration, the booting process is designed to proceed to completion. The errors are logged in the system nonvolatile RAM (NVRAM).
- Disk drive fault tracking can alert the system administrator of an impending disk failure before it affects customer operation.
- The AIX or Linux log (where hardware and software failures are recorded and analyzed by the error log analysis (ELA) routine) warns the system administrator about the causes of system problems. The service processor event log also logs unrecoverable checkstop conditions and forwards them to the service focal point

if the system is HMC attached. This also enables the IBM service representatives to bring along probable replacement hardware components when a service call is placed, thus minimizing system repair time.

Mutual surveillance: The service processor monitors the operation of the firmware during the boot process, and also monitors the Hypervisor for termination. The Hypervisor monitors the service processor and performs a reset/reload if it detects the loss of the service processor. If the reset/reload does not correct the problem with the service processor, the Hypervisor notifies the operating system. The operating system can take appropriate action, including calling for service.

First failure data capture (FFDC): FFDC helps ensure that potential errors can be quickly identified and accurately tracked to an individual field replaceable unit (FRU). These checkers are collected in a series of fault isolation registers (FIR), where they can easily be accessed by the service processor. All communication between the service processor and the FIR is accomplished "out of band." That is, operation of the error-detection mechanism is transparent to an operating system. This entire structure is "below the architecture" and is not seen, nor accessed, by system-level activities.

Environmental monitoring functions

- Temperature monitoring increases the fan speed rotation when ambient temperature is above the normal operating range.
- Temperature monitoring warns the system administrator of potential environmental related-problems (for example, air conditioning and air circulation around the system) so that appropriate corrective actions can be taken before a critical failure threshold is reached. It also performs an orderly system shutdown when the operating temperature exceeds the critical level.
- Fan speed monitoring provides a warning and an orderly system shutdown when the speed is out of the operational specification.
- Voltage monitoring provides a warning and an orderly system shutdown when the voltages are out of the operational specification.

Error handling and reporting: In the unlikely event of system hardware or environmentally induced failure, run-time error capture analyzes the hardware error signature to determine the cause of failure. The analysis is stored in the system NVRAM. When the system can be successfully rebooted either manually or automatically, the error is reported to the AIX or Linux operating system. ELA can be used to display the failure cause and the physical location of failing hardware.

With the integrated service processor, the system can automatically send out an alert via phone line to a pager or call for service in the event of critical system failure. A hardware fault also turns on the two attention indicators (one located on the front of the system unit and the other on the rear of the system) to alert the user of an internal hardware problem. The operator can also turn on the indicator to allow system identification. For identification, the indicators flash, but when an error occurs, the indicator lights remain on.

Availability enhancement functions: The auto-restart (reboot) option, when enabled, can reboot the system automatically following an unrecoverable software error, software hang, hardware failure, or environmentally induced (ac power) failure.

Serviceability: The System p5 505 server is designed for customer setup of the machine and for subsequent addition of most features (adapters/devices). For a fee, IBM service can perform the installation.

- You can replace service parts. LEDs that indicate the parts that need to be replaced.
- Support personnel can remotely log into a system to review error logs and perform remote maintenance. The service processor analyzes a system that will not boot.
- The diagnostics consist of stand-alone diagnostics, loaded from the DVD-ROM drive, and online diagnostics.
- Online diagnostics, when installed, are resident with the AIX operating system on the disk or system. 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 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 System Management Services (SMS) error log is accessible from the SMS menu for tests performed through SMS programs. For results of service processor tests, access the error log from the service processor menu.

Service Agent: The Service Agent is available at no additional charge. When installed on a System p5 server, the Service Agent can improve the level of maintenance service from IBM.

The Service Agent:

- Monitors and analyzes system errors, and if needed, can automatically place a service call to IBM without customer intervention
- Can help 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

Online customer support (OCS): System specialists can provide OCS for hardware problem reporting via remote login. The Electronic Service Agent™ software can also be used.

Note: This RAS function is not supported under Linux.

AIX Support offerings will be under AIXSERV and Electronic Service Agent.

Business Partner information

If you are a Direct Reseller - System Reseller acquiring products from IBM, you may link directly to Business Partner information for this announcement. A PartnerWorld ID and password are required (use IBM ID).

BP Attachment for Announcement Letter 105-399

Trademarks

System p5, POWER5, POWER, AIX 5L, OpenPower, Chipkill, and Electronic Service Agent are trademarks of International Business Machines Corporation in the United States or other countries or both.

AIX is a registered trademark of International Business Machines Corporation in the United States or other countries or both.

UNIX is a registered trademark of the Open Company in the United States and other countries.

Linux is a trademark of Linus Torvalds in the United States, other countries or both

Other company, product, and service names may be trademarks or service marks of others.



IBM US Announcement Supplemental Information

October 4, 2005

Discretionary information

Linux™ support

For information on features and external devices supported by Linux on the System p5 505 server, visit

<http://www.ibm.com/servers/eserver/openpower/>

<http://www.ibm.com/servers/eserver/peries/linux>

Certain machine types that are supported on the System p5 505 server require installation of specific I/O adapters. If those I/O adapters are not supported by SUSE LINUX Enterprise Server 9 for POWER™, or later, or Red Hat Enterprise Linux AS 4 for POWER, the external machine types cannot be ordered on the system. The configurator generates a validation error and you must remove the external machine type from the initial order.

Some functions are not available when you run Linux on the System p5 505 server. Graphics adapter capability and support are limited.

Dynamic logical partitioning

Dynamic LPAR provides enhanced resource management for the System p5 505 server. It allows available system resources to be quickly and easily configured across multiple logical partitions to meet the rapidly changing needs of your business. Also, you can add new system resources into your system's configuration without requiring a reboot. As many as two LPARs are supported in a 2-way System p5 505 server without the Advanced POWER Virtualization feature (#7432). If this feature is installed in the system, up to 10 dynamic LPARs per processor (20 per two-way processor card) are supported in the stand-alone SMP server configuration.

Dynamic LPAR is supported by the following levels of the AIX® and Linux operating systems:

- AIX 5L™ for POWER V5.2, or later
- SUSE LINUX Enterprise Server 9, or later
- Red Hat Enterprise Linux AS 4 for POWER, or later

Advanced POWER Virtualization

With Advanced POWER Virtualization you can create partitions in units of less than 1 CPU (sub-CPU LPARs) and you can virtually add the same system I/O to these partitions. The feature also includes a software component that provides cross-partition workload management.

New in this release of Advanced POWER Virtualization is the Integrated Virtualization Manager (IVM). IVM is a browser-based system management interface that you can use to manage a single system without an HMC. Supported systems without an HMC that have the IBM Virtual I/O Server in a managed system can use IVM to create logical partitions on a single managed system, manage the virtual storage and virtual Ethernet on the managed system, and view service information related to the managed system. IVM is included at no additional charge as part of the optional Advanced POWER Virtualization.

Advanced POWER Virtualization combines three components:

- Firmware feature to turn on Micro-Partitioning™ technology
- Software feature for the I/O virtualization
- Software feature for partition load management

At initial order entry, select feature number 7432 to enable Micro-Partitioning technology during manufacturing. The enabling software media and publications will be shipped to you. When you order feature number 7432 as an MES, an activation key is posted on an IBM Web site. You must retrieve it and install it on the system. Visit

<http://www.912.ibm.com/pod/pod>

Other features of Advanced POWER Virtualization

- If any processors in a system have the Virtualization feature, all active processors must have it.
- After the Virtualization feature is installed in a system, it cannot be removed.
- Virtual Ethernet and Virtual Storage are part of Advanced POWER Virtualization.
- Partition Load Manager provides automated CPU and memory resource management across AIX 5L V5.2 or V5.3 logical partitions.

Advanced POWER Virtualization is supported by the following levels of the AIX and Linux operating systems:

- AIX 5L for POWER V5.3, or later
- SUSE LINUX Enterprise Server 9, or later
- Red Hat Enterprise Linux AS 4 for POWER, or later

Publications

The following information is shipped with the System p5 505 server. Additional copies are available. To order, contact your IBM representative.

This announcement is provided for your information only. For additional information, contact your IBM representative, call 800-IBM-4YOU, or visit the IBM home page at: <http://www.ibm.com>.

Title	Order number
IBM System Hardware Information Center CD-ROM	SK3T-8159
IBM eServer Safety Information Setup Instructions	G229-9054 SA41-5156
IBM Statement of Limited Warranty	Z125-4753
IBM License Agreement for Machine Code	Z125-5468
Pointer Sheet for Machine Internal Code License Agreement	GC52-1065

Hardware documentation such as installation instructions, user's information, and service information is available to download or view at

<http://publib.boulder.ibm.com/infocenter/pseries/index.jsp>

Services

Integrated Technology Services

IBM services include business consulting, outsourcing, hosting services, applications, and other technology management.

These services help you learn about, plan, install, manage, or optimize your IT infrastructure to be an On Demand Business. They can help you integrate your high-speed networks, storage systems, application servers, wireless protocols, and an array of platforms, middleware, and communications software for IBM and many non-IBM offerings. IBM is your one-stop shop for IT support needs.

For details on available services, contact your IBM representative or visit

<http://www.ibm.com/services/>

For details on available IBM Business Continuity and Recovery Services, contact your IBM representative or visit

<http://www.ibm.com/services/continuity>

For details on education offerings related to specific products, visit

<http://www.ibm.com/services/learning/index.html>

Select your country, and then select the product as the category.

Technical information

Physical specifications

- Width: 440 mm (17.3 in)
- Depth: 710 mm (28.0 in)
- Height: 43 mm (1.7 in)
- Weight:
 - Minimum configuration: 17.0 kg (37 lb)
 - Maximum configuration: 23.2 kg (51 lb)

To help ensure installability and serviceability in non-IBM industry standard racks, review the installation planning information for any product-specific installation requirements.

Operating environment

- Temperature: (nonoperating) 5° to 45°C (41° to 113°F); recommended temperature (operating) 5° to 35°C (41° to 95°F)
- Relative humidity: 8% to 80%
- Maximum wet bulb: (power off) 28°C (80°F)
- Operating voltage: 100 to 127 V ac or 200 to 240 V ac (auto-ranging)
- Operating frequency: 50/60 Hz
- Power consumption: 400 watts (maximum — 2-way)
- Thermal output: 1,365 Btu/hour (maximum — 2-way)
- Power-source loading
 - 0.421 kVA (maximum configuration — 2-way)
 - Maximum altitude: 3,048 m (10,000 ft)
- Sound power: 6.0 bels idle/6.1 bels operating

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

- U.S.A.: FCC Class A
- Europe: CISPR 22 Class A
- Japan: VCCI-A
- Korea: Korean Requirement Class
- China: People's Republic of China commodity inspection law

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 System p5 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

- UL 1950 Underwriters Laboratory, Safety Information
- CSA C22.2 No. 950-M86
- EN60950 European Norm
- IEC 950, Edition 1, International Electrotechnical Commission, Safety Information
- Nordic deviations to IEC-950 1st Edition, as outlined in document EMKO-TSE (05-SEC) 200/93

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

Hardware requirements

System p5 505 system configuration: The minimum System p5 505 configuration must include a processor, a processor entitlement, memory, power supply, hard disk drive, a DVD-ROM or DVD-RAM, bezel and hardware indicator, power cord, and a language group specify. The defaults, if no choice is made, are:

- One-way, 1.65 GHz processor (#7650)
- One processor entitlement (#7370)
- 1 GB memory DIMM (#1930)

- Power supply, 600 watt, base (#7958)
- 73.4 GB hard disk drive (#1968)
- DVD-ROM (#1903)
- IBM bezel and hardware (#7927)
- Language group specify (#9300 or 97xx)
- Power cord (#6458, #6460, #6469-#6478, #6487, #6488, #6493-#6496, #6651, #6659, #6660, #6669, #6670, #6671, #6672, #6680, or #6687)

A keyboard, mouse, graphics adapter, and monitor are available as options.

The System p5 505 server can be configured to incorporate two processors, 32 GB of system memory, two PCI adapters, and a media device. This flexibility is made available through the many optional features for the System p5 505 server.

Each System p5 505 server **must include a minimum** of the following items:

- One system central electronics complex (CEC) enclosure with the following items:
 - One power cord (#6458, #6460, #6469-#6478, #6487, #6488, #6493-#6496, #6651, #6659, #6660, #6669, #6670, #6671, #6672, #6680, or #6687)
 - One language group, specify (#9300 or #97xx)
- Choose one processor card from:
 - POWER5™ processor — 1-way 1.65 GHz, no L3 cache (#7650)
 - POWER5 processor — 2-way 1.65 GHz, 36 MB L3 cache (#7652)
 - POWER5 processor — 2-way 1.5 GHz, 36 MB L3 cache (#7674)
- One or two processor entitlements:
 - #7370 or #8639 for processor card #7650
 - 2 x #7372, or 1 x #7372 and 1 x #8641 for processor card #7651
 - 2 x #7574, or 1 x #7574 and 1 x #8634 for processor card #7674
- Choose 1 GB minimum memory from:
 - 1024 MB DDR-2 Memory (2 x 512 MB DIMMs) (#1930)
 - 2048 MB DDR-2 Memory (2 x 1024 MB DIMMs) (#1931)
 - 4096 MB DDR-2 Memory (2 x 2048 MB DIMMs) (#1932)
 - 8192 MB DDR-2 Memory (2 x 4096 MB DIMMs) (#1934)
- Choose disk drive from:
 - 36.4 GB Ultra320 15,000 rpm (#1970)
 - 73.4 GB Ultra320 10,000 rpm (#1968)
 - 73.4 GB Ultra320 15,000 rpm (#1971)
 - 146.8 GB Ultra320 10,000 rpm (#1969)
 - 146.8 GB Ultra320 15,000 rpm (#1972)
 - 300 GB Ultra320 10,000 rpm (#1973)
- Choose media device from:
 - DVD-ROM (#1903)
 - DVD-RAM (#1900)

- Power supply 600 watt, base (#7958)
- IBM bezel and hardware (#7927)

RAID:

Feature number 1908, the Dual Channel SCSI RAID Enablement Card, supports RAID 0, 1, 5, 6, and 10. RAID 0, 1 and 10 are supported with two internal disk drives. External SCSI DASD is required for RAID 5 and RAID 6 support.

Software requirements: If installing AIX on the system, select one of the following:

- AIX 5L for POWER V5.2 with the 5200-07 Recommended Maintenance Package (APAR IY67914), or later
- AIX 5L for POWER V5.3 with the 5300-03 Recommended Maintenance Package (APAR IY71011), or later

If installing Linux on the system, select one of the following:

- SUSE LINUX Enterprise Server 9 for POWER, or later
- Red Hat Enterprise Linux AS 4 for POWER, or later

Note:

- Not all System p5 505 system features available on the AIX operating system are available on the Linux operating system.
- IDE DVD-ROM/DVD-RAM DLPAR operation is not supported by Red Hat Enterprise Linux AS 4 for POWER.

For information on features and external devices supported by Linux on the System p5 505, visit

<http://www.ibm.com/servers/eserver/pseries/linux>

Limitations

System

- Integrated system port is not supported when the HMC ports are connected to a HMC. Either the HMC ports or the integrated system port can be used, but not both.
- The integrated system port is supported only for modem and async terminal connections. Any other applications using serial ports require a separate serial port adapter to be installed in a PCI slot. The integrated system port does not support HACMP™ configurations.

Processor cards

- Only one processor card can be installed in the system.
- Processor cards are soldered to the planar.
- All processors installed in the system must be entitled:
 - #7650 requires 1 x #7370 or 1 x #8639
 - #7652 requires 2 x #7372 or 1 x #7372 and 1 x #8641
 - #7674 requires 2 x #7574 or 1 x #7574 and 1 x #8634

Power supply: The base machine contains one ac power supply with a second available for redundancy.

Redundant power supply and fans

- Second optional ac (#7958) power supply

- Redundant fans standard

System memory

- Maximum 32 GB of system memory.
- Minimum 1 GB of system memory.
- Memory DIMMs feature numbers 1930, 1931, 1932, and 1934 must be ordered and installed in pairs.
- Memory feature numbers can be mixed within a system.

Memory features

Feature	Feature number	Minimum quantity	Maximum quantity
1024 MB (2 x 512 MB DIMMs)	1930	0	4
2048 MB (2 x 1024 MB DIMMs)	1931	0	4
4096 MB (2 x 2048 MB DIMMs)	1932	0	4
8192 MB (2 x 4096 MB DIMMs)	1934	0	4

PCI card slots: The System p5 505 server has two 266 MHz, 64-bit PCI-X slots. One slot is long and the other slot is a low profile. Slots are not hot-swap. Low-profile adapters cannot be installed in the long slot and long or short adapters cannot be installed in the low profile slot.

Graphics adapters

- Graphics adapter, keyboard, and mouse are not required in the minimum configuration.
- The maximum number of graphics adapters supported in the System p5 505 is one.

I/O adapters: Feature numbers 1981, 1982, 5718 and 5719 require that a minimum 2-way processor be installed in the system.

I/O adapter features

I/O Adapter	Orderable feature number	Supported feature number	Max qty	Size
4x InfiniBand	1820		1	Short
Ultra320 SCSI RAID Enablement	1908		1	N/A
2 Gigabit Fibre Channel	1957		1	LP
Gigabit Ethernet TX (UTP)	1959		1	LP
Dual Channel Ultra320	1974		1	Short
Dual Channel Ultra320		5712	1	Short
Dual Channel Ultra320 SCSI RAID	1975		1	Long
Dual Channel Ultra320 SCSI RAID		5703	1	Long
2 Gigabit Fibre Channel	1977	5716	1	Short
Gigabit Ethernet SX (Fiber)	1978	5700	1	Short
Gigabit Ethernet SX (Fiber)	1979	5701	1	Short
GXT135P Graphics Accelerator	1980	2849	1	Short
2 Port Gigabit Ethernet TX (Fiber)	1983	5706	1	Short
2 Port Gigabit Ethernet SX (UTP)	1984	5707	1	Short
10/100 Mbps Ethernet		1985	1	Short
10/100 Mbps Ethernet		4962	1	Short
10 Gigabit Ethernet SR	1981	5718	1	Short
10 Gigabit Ethernet LR	1982	5719	1	Short
2 port Gigabit Ethernet TX (UTP)	1990		1	LP
PCI X Ultra320 SCSI	1912	5736	1	Short
2 Port USB	2738		1	Short
8 Port Asynchronous EIA(TM) 232	2943		1	Short
ARTIC960Hx 4 Port Multiprotocol	2947		1	Long
2 port Async IEA 232	5723		1	Short

LP = Low profile

Storage devices and bays

- Two DASD bays can accommodate two 3.5-inch disk drives with a system capacity of 600 GB of disk storage.
- You must select either a DVD-ROM (#1903) or DVD-RAM (#1900).

Storage device features

Device	Maximum quantity	Media bay	Orderable feature number	Supported feature number
DVD ROM (IDE)	1	Media 1	1903	
DVD RAM (IDE)	1	Media 1	1900	
36.4 GB 15,000 rpm Ultra320 SCSI Disk, Hot Swap	2	DASD 1 2	1970	3277
73.4 GB 10,000 rpm Ultra320 SCSI Disk, Hot swap	2	DASD 1 2	1968	3274
73.4 GB 15,000 rpm Ultra320 SCSI Disk, Hot swap	2	DASD 1 2	1971	3278
146.8 GB 10,000 rpm Ultra320 SCSI Disk, Hot swap	2	DASD 1 2	1969	3275
146.8 GB 15,000 rpm Ultra320 SCSI Disk, Hot swap	2	DASD 1 2	1972	3279
300 GB 10,000 rpm Ultra320 SCSI Disk, Hot swap	2	DASD 1 2	1973	3578

Linux operating system: If you are installing SUSE LINUX Enterprise Server 9 for POWER, or later, or Red Hat Enterprise Linux AS 4 for POWER, or later, visit the following Web site for information on supported I/O adapters and storage devices

<http://www.ibm.com/servers/eserver/pseries/hardware/facts/features.html>

Planning information

Cable orders: No additional cables are required.

Security, auditability, and control

This product uses the security and auditability features of host 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.

IBM Electronic Services

IBM has transformed its delivery of hardware and software support services to put you on the road to higher systems availability. Electronic Services is a Web-enabled solution that provides you with an exclusive, no-additional-charge enhancement to the service and support on the IBM eServer. You should benefit from greater system availability due to faster problem resolution and preemptive monitoring. Electronic

Services comprises of two separate, but complementary, elements: Electronic Services news page and Electronic Service Agent™.

Electronic Services news page provides you with a single Internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support. The news page enables you to gain easier access to IBM resources for assistance in resolving technical problems.

The Electronic Service Agent is a no-additional-charge software that resides on your IBM eServer system. It is designed to proactively monitor events and transmit system inventory information to IBM on a periodic, customer-defined timetable. The Electronic Service Agent tracks system inventory, hardware error logs, and performance information. If the server is under a current IBM maintenance service agreement or within the IBM warranty period, the Service Agent automatically reports hardware problems to IBM. Early knowledge about potential problems enables IBM to provide proactive service that maintains higher system availability and performance. In addition, information collected through the Service Agent is made available to IBM service support representatives when they are helping answer your questions or diagnosing problems.

To learn how Electronic Services can work for you, visit

<http://www.ibm.com/support/electronic>

Terms and conditions

Volume orders: Contact your IBM representative.

IBM Global Financing: Yes

Warranty period: Three years

Alternative warranty options are available on a special bid basis from your IBM representative or Business Partner.

Warranty service: If required, IBM provides repair or exchange service depending on the types of warranty service specified for the machine. IBM will attempt to resolve your problem over the telephone, or electronically via an IBM Web site. You must follow the problem determination and resolution procedures that IBM specifies. Scheduling of service will depend upon the time of your call and is subject to parts availability. If applicable to your product, parts considered customer replaceable units (CRUs) will be provided as part of the machine's standard warranty service. Service levels are response time objectives and are not guaranteed. The specified level of warranty service may not be available in all worldwide locations. Additional charges may apply outside IBM's normal service area. Contact your local IBM representative or your reseller for country- and location-specific information.

CRU service: IBM provides replacement CRUs to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM upon your request. CRUs are designated as being either a Tier 1 or a Tier 2 CRU.

Tier 1 CRU Installation of Tier 1 CRUs is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation.

For machines with on-site same-day response service IBM will replace a Tier 1 CRU part at your request, at no additional charge.

Tier 2 CRU You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge.

Based upon availability, CRUs will be shipped for next-business-day delivery. IBM specifies, in the materials shipped with a replacement CRU, whether a defective CRU must be returned to IBM. When return is required, return instructions and a container is shipped with the replacement CRU and you may be charged for the replacement CRU if IBM does not receive the defective CRU within 30 days of your receipt of the replacement.

The following parts have been designated as Tier 1 CRU parts:

- Blower
- Memory DIMMs
- Disk drive bezel
- Slimline DVD drive
- Rack mounting slide
- Disk drives
- Mechanical covers
- External cables
- Power supplies
- Keyboard
- Mouse
- Display

On-site service: IBM will repair the failing machine at your location and verify its operation. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well-lit, and suitable for the purpose.

9 hours per day, Monday through Friday, excluding holidays, next-business-day (NBD) response

Non-IBM parts support: IBM is now shipping machines with selected non-IBM parts that contain an IBM field replaceable unit (FRU) part number label. These parts are to be serviced during the IBM machine warranty period. IBM is covering the service on these selected non-IBM parts as an accommodation to their customers, and normal warranty service procedures for the IBM machine apply.

Warranty service upgrades and maintenance service options: For ServiceElect (Z125-5510) and ServiceSuite™ (Z125-5745) Statements of work:

Warranty service upgrades

On-site service: IBM will repair the failing machine at your location and verify its operation. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well lit, and suitable for the purpose. The following service selections are available as warranty upgrades for your machine type.

For machines with on-site same-day response service IBM will replace a Tier 1 CRU part at your request, at no additional charge. For additional information on the CRU service, see warranty information.

- 9 hours per day, Monday through Friday, excluding holidays, 4-hour average, same-business-day response
- 24 hours per day, 7 days a week, 4-hour average response

- 24 hours per day, 7 days a week, 2-hour average response

Maintenance services: If required, IBM provides repair or exchange service depending on the types of warranty service specified for the machine. IBM will attempt to resolve your problem over the telephone or electronically, via an IBM Web site. You must follow the problem determination and resolution procedures that IBM specifies. Scheduling of service will depend upon the time of your call and is subject to parts availability. If applicable to your product, parts considered CRUs will be provided as part of the machine's standard maintenance service. Service levels are response time objectives and are not guaranteed. The specified level of warranty service may not be available in all worldwide locations. Additional charges may apply outside IBM's normal service area. Contact your local IBM representative or your reseller for country- and location-specific information.

CRU service: IBM provides replacement CRUs to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM upon your request. CRUs are designated as being either a Tier 1 or a Tier 2 CRU.

- Tier 1 CRUs

Installation of Tier 1 CRUs is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation.

For machines with on-site same-day response service IBM will replace a Tier 1 CRU part at your request, at no additional charge.

- Tier 2 CRUs

You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge.

Based upon availability, CRUs will be shipped for next-business-day delivery. IBM specifies, in the materials shipped with a replacement CRU, whether a defective CRU must be returned to IBM. When return is required, return instructions and a container is shipped with the replacement CRU and you may be charged for the replacement CRU if IBM does not receive the defective CRU within 30 days of your receipt of the replacement.

The following parts have been designated as Tier 1 CRU parts:

- Blower
- Memory DIMMs
- Disk drive bezel
- Slimline DVD drive
- Rack mounting slide
- Disk drives
- Mechanical covers
- External cables
- Power supplies
- Keyboard
- Mouse
- Display

On-site service: IBM will repair the failing machine at your location and verify its operation. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well-lit, and suitable for the purpose. The following service selections are available as maintenance options for your machine type.

- 9 hours per day, Monday through Friday, excluding holidays, NBD response

- 9 hours per day, Monday through Friday, excluding holidays, 4-hour average, same-business-day response

- 24 hours per day, 7 days a week, 4-hour average response

- 24 hours per day, 7 days a week, 2-hour average response

Non-IBM parts support: Under certain conditions, IBM Integrated Technology Services repairs selected non-IBM parts at no additional charge for machines that are covered under warranty service upgrades or maintenance services.

IBM Service provides hardware problem determination on non-IBM parts (adapter cards, PCMCIA cards, disk drives, memory, and so forth) installed within IBM systems covered under warranty service upgrades or maintenance services and provides the labor to replace the failing parts at no additional charge.

If IBM has a Technical Service Agreement with the manufacturer of the failing part, or if the failing part is an accommodations part (a part with an IBM FRU label), IBM may also source and replace the failing part at no additional charge. For all other non-IBM parts, customers are responsible for sourcing the parts. Installation labor is provided at no additional charge, if the machine is covered under a warranty service upgrade or a maintenance service.

Usage plan machine: No

IBM hourly service rate classification: Two

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

Field-installable features: Yes

Model conversions: No

Machine installation: Customer setup. Customers are responsible for installation according to the instructions IBM provides with the machine.

Graduated program license charges apply: Yes. The applicable processor group is: D5

Licensed machine code: IBM machine code is licensed for use by a customer on the IBM machine for which it was provided by IBM under the terms and conditions of the IBM License Agreement for Machine Code, to enable the machine to function in accordance with its specifications, and only for the capacity authorized by IBM and for which the customer has acquired. You can obtain the agreement by contacting your IBM representative or at

http://www.ibm.com/servers/support/machine_warranties/machine_code.html

IBM may release changes to the machine code. IBM plans to make the machine code changes available for download from the IBM pSeries technical support Web site

<http://techsupport.services.ibm.com/server/mdownload>

If the machine does not function as warranted and your problem can be resolved through your application of downloadable machine code, you are responsible for downloading and installing these designated machine code changes as IBM specifies. If you would prefer, you may request IBM to install downloadable machine code changes; however, you may be charged for that service.

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

Prices

The following are newly announced features on the specified models of the IBM System p5 9115 machine type:

Description	Feature number	Purchase price	MMMC ¹	Initial/MES/Both/Support	CSU	RP MES
Machine type/model 9115-505						
System p5 MT 9115		\$ 0	\$79			Yes
System Seller Indicator	0050	NC		Initial		
AIX Partition Specify	0265	0		Both	Yes	No
Linux Partition Specify	0266	0		Both	Yes	No
Integrate with DR400 IBM TotalStorage® Retention Solution	0705	NC		Initial		
Made In America Indicator	0983	NC		Initial		
PCI-X Dual-port 4x IB HCA	1820	1,095		Both	Yes	No
3 meter 4x IB Cable	1835	217		Both	Yes	No
8 meter 4x IB Cable	1836	358		Both	Yes	No
1.5 meter 4x IB Cable	1839	192		Both	Yes	No
4.7 GB IDE Slimline DVD-RAM Drive	1900	499		Both	Yes	No
IDE Slimline DVD-ROM Drive	1903	378		Both	Yes	No
Dual Channel SCSI RAID Enablement Card	1908	650		Both	Yes	No
PCI-X DDR Dual Channel Ultra320 SCSI Adapter	1912	658		Both	Yes	No
1024MB (2x512MB) DIMMs, 276-PIN, 533 MHz DDR-2 SDRAM	1930	1,100		Both	Yes	No
2048MB (2x1024MB) DIMMs, 276-PIN, 533 MHz DDR-2 SDRAM	1931	1,700		Both	Yes	No
4096MB (2x2048MB) DIMMs, 276-PIN, 533 MHz DDR-2 SDRAM	1932	3,550		Both	Yes	No
8192MB (2x4096MB) DIMMs, 276-PIN, 533 MHz DDR-2 SDRAM	1934	22,000		Both	Yes	No
2 Gigabit Fibre Channel PCI-X Adapter (Low profile)	1957	1,749		Both	Yes	No
IBM 10/100/1000 Base-TX Ethernet Low Profile PCI-X Adapter (Copper)	1959	210		Both	Yes	No
73.4 GB 10,000 rpm Ultra320 SCSI Disk Drive Assembly	1968	439		Both	Yes	No
146.8 GB 10,000 rpm Ultra320 SCSI Disk Drive Assembly	1969	699		Both	Yes	No
36.4 GB 15,000 rpm Ultra320 SCSI Disk Drive Assembly	1970	1,199		Both	Yes	No

Description	Feature number	Purchase price	MMMC ¹	Initial/ MES/ Both/ Support	CSU	RP MES
73.4 GB 15,000 rpm Ultra320 SCSI Disk Drive Assembly	1971	\$1,999		Both	Yes	No
146.8 GB 15,000 rpm Ultra320 SCSI Disk Drive Assembly	1972	2,999		Both	Yes	No
300 GB 10,000 rpm Ultra320 SCSI Disk Drive Assembly	1973	1,500		Both	Yes	No
PCI-X Dual Channel Ultra320 SCSI RAID Adapter	1974	658		Both	Yes	
	1975	3,000		Both	Yes	No
2 Gigabit Fibre Channel PCI-X Adapter	1977	2,267		Both	Yes	No
IBM Gigabit Ethernet-SX PCI-X Adapter	1978	1,416		Both	Yes	No
IBM 10/100/1000 Base-TX Ethernet PCI-X Adapter	1979	1,066		Both	Yes	No
POWER GXT135P Graphics Accelerator with Digital Support	1980	381		Both	Yes	No
10 Gigabit Ethernet-SR PCI-X Adapter	1981	5,000		Both	Yes	No
10 Gigabit Ethernet-LR PCI-X Adapter	1982	9,853		Both	Yes	No
2-Port 10/100/1000 Base-TX Ethernet PCI-X Adapter	1983	1,599		Both	Yes	No
2-Port Gigabit Ethernet-SX PCI-X Adapter	1984	2,124		Both	Yes	No
10/100 Mbps Ethernet PCI Adapter II	1985	412		Support	Yes	
Dual Port 10/100/1000 Base-TX Ethernet PCI-X Adapter (Low profile)	1990	1,599		Both	Yes	No
PCI SCSI Adapter 16-Bit Differential External Y Cable Converter Cable, VHDCI to P, Mini-68 pin to 68 pin, 0.3M	2114	225		Both	Yes	No
	2118	50		Both	Yes	No
2.5M 16-bit SCSI-2 System-to-System Cable	2425	108		Both	Yes	No
LC-SC 50 Micron Fiber Converter Cable	2456	83		Both	Yes	No
LC-SC 62.5 Micron Fiber Converter Cable	2459	83		Both	Yes	No
External USB 1.44 MB Diskette Drive	2591	83		Both	Yes	No
2-Port USB PCI Adapter	2738	250		Both	Yes	No
POWER GXT135P Graphics Accelerator with Digital Support	2849	381		Support	Yes	
ARTIC960Hx 4-Port EIA-232 Cable	2861	354		Both	Yes	No
4-Port X.21 Cable	2863	417		Both	Yes	No
4-Port V.35 (DTE) Cable	2864	700		Both	Yes	No
ARTIC960RxD Quad DTA, H.100, 4-Drop Cable	2877	25		Both	Yes	No

Description	Feature number	Purchase price	MMMC¹	Initial/ MES/ Both/ Support	CSU	RP MES
Asynchronous Terminal/ Printer Cable EIA-232	2934	\$ 37		Both	Yes	No
Asynchronous Cable EIA-232/V.24	2936	61		Both	Yes	No
8-Port Asynchronous Adapter EIA-232/ RS-422, PCI bus	2943	1,162		Both	Yes	No
ARTIC960Hx 4-Port Multiprotocol PCI Adapter	2947	3,021		Both	Yes	No
Serial to Serial Port Cable for Drawer/Drawer	3124	67		Both	Yes	No
Rack/Rack	3125	67		Both	Yes	No
73.4 GB 10,000 rpm Ultra320 SCSI Disk Drive Assembly	3274	439		Support	Yes	
146.8 GB 10,000 rpm Ultra320 SCSI Disk Drive Assembly	3275	699		Support	Yes	
36.4 GB 15,000 rpm Ultra320 SCSI Disk Drive Assembly	3277	1,199		Support	Yes	
73.4 GB 15,000 rpm Ultra320 SCSI Disk Drive Assembly	3278	1,999		Support	Yes	
146.8 GB 15,000 rpm Ultra320 SCSI Disk Drive Assembly	3279	2,999		Support	Yes	
300 GB 10,000 rpm Ultra320 SCSI Disk Drive Assembly	3578	1,500		Support	Yes	
IBM P260/P275 Color Monitor, Business Black, and Cable	3628	1,166		Support	Yes	
L200P Flat Panel Monitor	3636	1,645		Both	Yes	No
IBM T541H /L150p 15-inch TFT Color Monitor	3637	625		Both	Yes	No
IBM C220p 21-inch Color Monitor, Business Black, and Cable	3638	829		Support	Yes	
ThinkVision® L170p Flat Panel Monitor	3639	829		Support	Yes	
ThinkVision L171p Flat Panel Monitor	3640	829		Both	Yes	No
ThinkVision L191p Flat Panel Monitor	3642	1,200		Both	Yes	No
Service Package	3752	62		Both	Yes	No
Serial Port Converter Cable, 9-Pin to 25-Pin	3925	21		Both	Yes	No
Asynch Printer/ Terminal Cable, 9-pin to 25-pin, 4M	3926	76		Both	Yes	No
6-Foot Extender Cable for Displays (15-pin D-shell to 15-pin D-shell)	4242	83		Both	Yes	No
Extender Cable — USB Keyboards, 2M	4256	42		Both	Yes	No

Description	Feature number	Purchase price	MMMC ¹	Initial/MES/Both/Support	CSU	RP MES
Rack Status Beacon Cable, Junction Box To Drawer Or Status Beacon	4691	\$ 10		Support	Yes	
Rack Status Beacon Cable, Junction Box Daisy Chain	4692	10		Support	Yes	
10/100 Mbps Ethernet PCI Adapter II	4962	412		Support		
Custom Service Specify Software Preinstall	5001	NC		Initial		
IBM Gigabit Ethernet-SX PCI-X Adapter	5005	NC		Initial		
IBM 10/100/1000 Base-TX Ethernet PCI-X Adapter	5700	1,416		Support	Yes	
IBM 10/100/1000 Base-TX Ethernet PCI-X Adapter	5701	1,066		Support	Yes	
PCI-X Dual Channel Ultra320 SCSI RAID Adapter	5703	3,000		Both	Yes	
2-Port 10/100/1000 Base-TX Ethernet PCI-X Adapter	5706	1,599		Support	Yes	
2-Port Gigabit Ethernet-SX PCI-X Adapter	5707	2,124		Support	Yes	
PCI-X Dual Channel Ultra320 SCSI Adapter	5712	658		Support	Yes	
2 Gigabit Fibre Channel PCI-X Adapter	5716	2,267		Support	Yes	
10 Gigabit Ethernet-SR PCI-X Adapter	5718	5,000		Support	Yes	
10 Gigabit Ethernet-LR PCI-X Adapter	5719	9,853		Support	Yes	
2-Port Asynchronous IEA-232 PCI Adapter	5723	285		Both	Yes	No
PCI-X DDR Dual Channel Ultra320 SCSI Adapter	5736	658		Support	Yes	
Power Cable — Drawer to IBM PDU, 14-foot, 250V/10A	6458	14		Both	Yes	No
Power Cord (14-foot), Drawer to OEM PDU (125V, 15A), Plug Type #4	6460	14		Both	Yes	No
(14-foot), Drawer to OEM PDU, (250V, 15A), United States, Plug Type #5	6469	14		Both	Yes	No
(6-foot), to Wall (125V, 15A), Plug Type #4	6470	14		Both	Yes	No
(9-foot), to Wall/ OEM PDU, (125V, 15A), Plug Type #70	6471	14		Both	Yes	No
(9-foot), to Wall/ OEM PDU, (250V, 16A), Plug Type #18	6472	14		Both	Yes	No
(9-foot), to Wall/ OEM PDU, (250V, 10A), Plug Type 19	6473	14		Both	Yes	No

Description	Feature number	Purchase price	MMMC¹	Initial/ MES/ Both/ Support	CSU	RP MES
(9-foot), to Wall/ OEM PDU, (250V, 13A), Plug Type #23	6474	\$14		Both	Yes	No
(9-foot), to Wall/ OEM PDU, (250V, 16A), Plug Type #32	6475	14		Both	Yes	No
(9-foot), to Wall/ OEM PDU, (250V, 10A), Plug Type #24	6476	14		Both	Yes	No
(9-foot), To Wall/ OEM PDU, (250V, 16A), Plug Type #22	6477	14		Both	Yes	No
(9-foot), To Wall/ OEM PDU, (250V, 16A), Plug Type #25	6478	14		Both	Yes	No
(6-foot), To Wall, (250V, 15A), United States, Plug Type #5	6487	14		Both	Yes	No
(9-foot), To Wall/ OEM PDU, (125V, 15A or 250V, 10A), Plug Type #2	6488	40		Both	Yes	No
(9-foot), To Wall/ OEM PDU, (250V, 10A), Plug Type #62	6493	14		Both	Yes	No
(9-foot), To Wall/ OEM PDU, (250V, 10A), Plug Type #69	6494	14		Both	Yes	No
(9-foot), To Wall/ OEM PDU, (250V, 10A), Plug Type #73	6495	14		Both	Yes	No
(9-foot), To Wall/ OEM PDU, (250V, 10A), Plug Type #66	6496	14		Both	Yes	No
(9-foot), To Wall/ OEM PDU, (125V, 15A), Plug Type #75	6651	14		Both	Yes	No
(9-foot), To Wall/ OEM PDU, (250V, 15A), Plug Type #76	6659	14		Both	Yes	No
(14-foot), Drawer To OEM PDU (125V, 15A), Plug Type #59 (Denan marking)	6660	14		Both	Yes	No
(14-foot), Drawer to OEM PDU, (250V, 15A), Plug Type #57 (Denan marking)	6669	14		Both	Yes	No
(6-foot), To Wall (125V, 15A), Plug Type #59 (Denan marking)	6670	14		Both	Yes	No
(9-foot), Drawer to IBM PDU, 250V/10A	6671	14		Both	Yes	No
(5-foot), Drawer to IBM PDU, 250V/10A	6672	14		Both	Yes	No
(9-foot), to Wall/ OEM PDU, (250V, 10A), Plug Type #6, Insulated	6680	14		Both	Yes	No
(6-foot), To Wall, (250V, 15A), Plug Type #57 (Denan marking)	6687	14		Both	Yes	No

Description	Feature number	Purchase price	MMMC ¹	Initial/ MES/ Both/ Support	CSU	RP MES
IBM/OEM Rack Mounting Slide Kit	7179	\$ 65		Both	Yes	No
AAP Software Pre-Install Indicator	7305	NC		Initial		
One Processor Entitlement for Processor						
Feature #7650	7370	373		Both	Yes	No
Feature #7652	7372	501		Both	Yes	No
Feature #7674	7574	292		Both	Yes	No
Advanced POWER Virtualization	7432	590		Both	Yes	No
1-way 1.65 GHz POWER5 Processor Card, No L3 Cache	7650	1,055		Initial		
2-way 1.65 GHz POWER5 Processor Card, 36MB L3 Cache	7652	1,454		Initial		
2-way 1.5 GHz POWER5 Processor Card, 36MB L3 Cache	7674	833		Initial		
Ethernet Cable, 6M, HMC to System Unit	7801	12		Both	Yes	No
Ethernet Cable, 15M, HMC to System Unit	7802	26		Both	Yes	No
IBM Rack-mount Drawer Bezel and Hardware	7927	25		Both	Yes	No
OEM Rack-mount Drawer Bezel and Hardware	7932	225		Both	Yes	No
Power Supply, 600 Watt AC, Hot-swap, Base and Redundant	7958	300		Both	Yes	No
128-Port Asynchronous Controller Cable, 4.5 Meter	8131	50		Both	Yes	No
23 cm (9-Inch)	8132	33		Both	Yes	No
RJ-45 to DB-25 Converter Cable	8133	100		Both	Yes	No
Rack Mountable Remote Asynchronous Node	8136	2,083		Support	Yes	
16-Port EIA-232 Enhanced Remote Asynchronous Node	8137	1,329		Support	Yes	
16-Port EIA-232						
Zero-priced Express Product Offering Processor Entitlement for #7674	8634	0		Both	Yes	No
Zero-priced Express Product Offering Processor Entitlement for #7650	8639	0		Both	Yes	No
Zero-priced Express Product Offering Processor Entitlement for #7652	8641	0		Both	Yes	No

Description	Feature number	Purchase price	MMMC ¹	Initial/ MES/ Both/ Support	CSU	RP MES
Quiet Touch Keyboard						
USB, Business Black,						
U.S. English, #103P	8800	\$ 83		Both	Yes	No
French, #189	8801	83		Both	Yes	No
Italian, #142	8802	83		Both	Yes	No
German/ Austrian, #129	8803	83		Both	Yes	No
U.K.English, #166	8804	83		Both	Yes	No
Spanish, #172	8805	83		Both	Yes	No
Japanese, #194	8806	83		Both	Yes	No
Brazilian/ Portuguese, #275	8807	83		Both	Yes	No
Canadian French, #058	8808	83		Both	Yes	No
Belgian/Dutch, #120	8810	83		Both	Yes	No
Swedish/ Finnish, #153	8811	83		Both	Yes	No
Danish, #159	8812	83		Both	Yes	No
Bulgarian, #442	8813	83		Both	Yes	No
Swiss/French/ German, #150F/G	8814	83		Both	Yes	No
Norwegian, #155	8816	83		Both	Yes	No
Dutch, #143	8817	83		Both	Yes	No
Portuguese, #163	8818	83		Both	Yes	No
Greek, #319	8819	83		Both	Yes	No
Hebrew, #212	8820	83		Both	Yes	No
Hungarian, #208	8821	83		Both	Yes	No
Polish, #214	8823	83		Both	Yes	No
Slovakian, #245	8825	83		Both	Yes	No
Czech, #243	8826	83		Both	Yes	No
Turkish, #179	8827	83		Both	Yes	No
LA Spanish, #171	8829	83		Both	Yes	No
Arabic, #238	8830	83		Both	Yes	No
Korean, #413	8833	83		Both	Yes	No
Chinese/U.S., #467	8834	83		Both	Yes	No
French Canadian, #445	8835	83		Both	Yes	No
Thai, #191	8836	83		Both	Yes	No
Russian, #443	8838	83		Both	Yes	No
Yugoslavian/ Latin, #105	8839	83		Both	Yes	No
U.S. English (EMEA), #103P	8840	83		Both	Yes	No
Mouse — Business	8841	62		Both	Yes	No
Black with Keyboard						
Attachment Cable						
Southern Hemisphere	9004	0		Both	Yes	No
Designator for Monitors						
Factory Integration	9169	NC		Initial		
Specify						
Express Product						
Offering 91151F1	9557	NC		Initial		
Offering 91151F3	9559	NC		Initial		
Offering 91151F2	9560	NC		Initial		

Description	Feature number	Purchase price	MMMC ¹	Initial/MES/Both/Support	CSU	RP MES
Language Group Specify						
U.S. English	9300	NC		Initial		
Dutch	9700	NC		Initial		
French	9703	NC		Initial		
German	9704	NC		Initial		
Polish	9705	NC		Initial		
Portuguese	9707	NC		Initial		
Spanish	9708	NC		Initial		
Italian	9711	NC		Initial		
Canadian French	9712	NC		Initial		
Japanese	9714	NC		Initial		
Traditional Chinese (Taiwan)	9715	NC		Initial		
Korean	9716	NC		Initial		
Turkish	9718	NC		Initial		
Hungarian	9719	NC		Initial		
Slovakian	9720	NC		Initial		
Russian	9721	NC		Initial		
Simplified Chinese (PRC)	9722	NC		Initial		
Czech	9724	NC		Initial		
Romanian	9725	NC		Initial		
Slovenian	9727	NC		Initial		

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