



IBM Power Systems and IBM BladeCenter : New features offered on select products

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At a glance

IBM® Power® System enhancements:

- Gen2 PCIe riser card, and two Gen2 PCIe 10Gb Ethernet adapters for the IBM Power 720 and 740 Express® servers
- Smaller 4 GB memory feature option on the Power 710 and Power 730 Express servers
- Additional 3.55 GHz Power 740 configuration flexibility
- DC power and NEBS compliance now available on the Power 750 Express Server
- Expanded usage of replacement feature 5805 for SAS adapter feature 5803
- LTO-5 support by IBM i for the TS3100, TS3200, TS3310, and TS3500 tape libraries

IBM BladeCenter® enhancements:

- NEBS compliance on the BladeCenter PS700, PS701, and PS702
- 2980 watt power module for redundant power on the IBM BladeCenter H
- Feature number indicating there are two 2980 watt power modules in the BladeCenter H
- Broadcom 2-port Gb Ethernet Expansion Card (CIOv)
- QLogic Virtual Fabric Extension Module
- Cisco Nexus 4001I Switch Module and Software Upgrade License

Overview

Several hardware enhancements are available in fourth quarter 2010 for the Power Systems™ servers. These include enhancements for the Power 720/740 (PCIe Gen2), Power 710/730 (memory), Power 740 (configuration flexibility), Power 750 (NEBs), IBM i LTO-5 support, BladeCenter H chassis (ac power and CNA), Power Blade (CIOv Ethernet), a Red Hat Linux® preload option, and more.

The following PCIe Gen2 features are available on the IBM Power 720 and IBM Power 740 Express servers and can provide greater bandwidth with a smaller number of PCI slots/adapters:

- The PCIe Riser Card (Gen2) (#5685) is an optional feature providing four PCIe Gen2 low-profile (LP) slots for Gen1 or Gen2 adapter cards. It is physically very similar to the PCIe Riser Card (Gen1)(#5610).
- The PCIe2 (Gen2) Low Profile 2-port 10GbE SR Adapter (#5284) is supported in the PCIe Riser Card (Gen2) (#5685) and provides two 10 Gb Ethernet SFP+

SR ports attaching optical fiber cable up to 300 m length. This feature requires feature number 5685.

- The PCIe2 (Gen2) Low Profile 2-Port 10GbE SFP+ Copper Adapter (#5286) is supported in the PCIe Riser Card (Gen2) (#5685) and provides two 10 Gb Ethernet SFP+ active copper twinax ports attaching cables up to 5 m length. This feature requires feature number 5685.

The IBM Power 710 and IBM Power 730 Express servers have additional memory granularity, and the 4-core Power 710 Express has a lower minimum memory configuration option with a new, smaller memory feature:

- 4 GB (2 x 2 GB) Memory DIMMs, 1066 MHz, 2 Gb DDR3 DRAM (#4525)

The Power 740 Express server is provided additional configuration flexibility. The 3.55 GHz processor module (#8355) is now available in a quantity of one, allowing for an 8-core 3.55 GHz configuration. Previously, only a quantity of two 3.55 GHz processor modules were supported. An IBM Edition is available for the new configuration. This configuration will be available on December 10, 2010.

An alternative power supply option enables dc power and NEBS compliance for the IBM Power 750 Express server:

- Power Supply, 1700 Watt, DC, Hot-swap, Base and Redundant (#7708)

To order additional PCIe 380 MB Cache SAS RAID Adapters, feature number 5805 will be used instead of initially announced feature 5903 on the IBM Power 520, Power 550, Power 560, and Power 750 Express, the Power 570, Power 575, Power 595, Power 755, Power 770, Power 780, and Power 795 servers, and the IBM Smart Cube 6840, 6841, and 6842. Features 5805 and 5903 are identical except that the feature 5805 cache batteries are slightly more narrow.

Additional LTO-5 support for IBM i

- Configuration flexibility is enhanced for IBM POWER6™ and POWER7™ technology-based servers running IBM i 6.1 with 6.1.1 LIC, or later. Starting November 26, 2010, the LTO-5 tape libraries TS3100, TS3200, TS3310, and TS3500 will be supported after applying the latest IBM i PTFs. This joins the LTO-5 bridge box support for the TS2250 and TS2350.

The following PCI-X Ethernet adapter is now orderable on the IBM Power 550, 560, 570, and 595 servers. Previously, this adapter was supported but not orderable:

- 4-Port 10/100/1000 Base-TX PCI-X Adapter (#5740)

IBM i 6.1 with i 6.1.1 machine code support is available for the PCIe cryptographic adapter (#4807, #4808, #4809) providing additional performance and function with improved RAS features. The adapter provides a powerful, tamper-resistant solution for POWER7 and POWER6 clients who handle secure cryptographic and digital signature workload in their business in a highly efficient manner. This support will be available on November 19, 2010. Previously, only IBM i 7.1 or AIX® support had been announced.

The following features are available on the BladeCenter H:

- IBM BladeCenter H 2980W AC Power Module Indicator - Base (#9058)
This feature indicates that a BladeCenter H (7989-BCH) initial order contains two 2980 watt ac power modules. Every BladeCenter H initial order must contain two of feature 9058. Redundant power is available by ordering two of feature 3205.
- IBM BladeCenter H 2980W AC Power Module - Redundant Power (#3205)
This feature contains one 2980 watt power module for redundant power on the BladeCenter H. This feature is required if any of the blade server bays 8 to 14 or switch module bays 5 to 10 are used. This feature must be ordered in a quantity

of two. Feature number 9058 must be installed on the BladeCenter H in order to order this feature.

- QLogic Virtual Fabric Extension Module (#3268)

Clients using the BNT 10-port 10 Gb Ethernet Switch Module (#3248) for their LAN traffic can now combine it with this module and a Converged Network Adapter (CNA) such as the QLogic 2-port 10 Gb CNA (#8275) to converge their LAN and SAN on a single network. The QLogic Virtual Fabric Extension Module offers six ports of 8 Gb Fibre Channel connectivity, without the need for separate Fibre Channel expansion cards in the BladeCenter servers.

- Cisco Nexus 4001I Switch Module (#2241)

The Cisco Nexus 4001I Switch Module is a blade switch solution for the BladeCenter H chassis, providing the server I/O solution required for high-performance, scale-out, virtualized, and nonvirtualized Power computing architectures. It is a line rate, extremely low-latency, nonblocking, Layer 2, 10 Gigabit Ethernet blade switch that is fully compliant with Fibre Channel over Ethernet (FCoE) and IEEE Data Center Bridging standards.

The following feature is available on the IBM BladeCenter PS700, PS701, and PS702 Express servers, and the IBM Power 750 Express server:

- Flexible Thermal Settings for NEBS Applications (#0709)

The BladeCenter PS700, PS701, and PS702 Express and IBM Power 750 Express will be available in first quarter 2011 with support for NEBS requirements and conform to the NEBS Level 3 and the European Telecommunications Standards Institute (ETSI) standards.

Feature 0709 enables you to reset the thermal tolerances of the system to the higher limits specified by NEBS Level 3-compliant specifications.

The following feature is available on the IBM BladeCenter JS23, JS43, PS700, PS701, and PS702 Express:

- Broadcom 2-port Gb Ethernet Expansion Card (CIOv) (#8243)

The Broadcom 2-port Gb Ethernet Expansion Card (CIOv) is an Ethernet expansion card with two 1 Gb Ethernet ports designed for BladeCenter servers with CIOv expansion slots.

With this announcement, IBM now offers the option to have Red Hat Enterprise Linux 5 for POWER preloaded on select Power Systems servers. Save time and leverage IBM expertise by allowing IBM to install Linux in the factory prior to shipping the server. This option is available for the following IBM Power blades and IBM Power servers:

- IBM BladeCenter JS12, JS23, JS43, PS700, PS701, and PS702
- IBM Power Systems 520, 550, 560, 570, 710, 720, 730, 740, 750, 755, 770, and 780

Now available -- "How to" Support for IBM BladeCenter Power blades.

"How to" Support is now available for new and existing Power blade solutions to provide "How to" Support related to the IBM BladeCenter H and BladeCenter S chassis with Power blades and AIX, IBM i, or Linux. The support includes "How to" assistance with hardware, setup, and configuration. A single Linux on Power SupportLine agreement for one blade will cover hardware "how to" questions on all Power blades in the same chassis and the chassis. To receive full Linux support on Power, a SupportLine agreement must be purchased for each blade in the BladeCenter. A Software Maintenance Agreement (SWMA) is required for full support of AIX or IBM i on Power. The agreement can be purchased for a 1-year or 3-year period.

For one year coverage:

5771-LNX	1 year IBM Support for Linux	
1128	1 year Support per Server \$600.00	(Per BladeCenter provides 9/5 support)
1129	1 year Support per Server \$810.00	(Per BladeCenter provides 7/24 support)

For three year coverage:

5773-LNX	3 year IBM Support for Linux	
0953	3 year Support per Server \$1,640.00	(Per BladeCenter provides 9/5 support)
0954	3 year Support per Server \$2,214.00	(Per BladeCenter provides 7/24 support)

Key prerequisites

Refer to the specific feature description for the required operating system level support.

Planned availability date

- October 22, 2010, for feature numbers 0246, 0712, 1111, 1112, 1113, 1115, 1116, 1117, 1118, 1119, 1121, 1140, 3205, 5740, 6238, 6250, 6665, 8597, 8598, and 9058
- December 10, 2010, for feature numbers 0709, 2241, 2242, 3268, 4525, 5284, 5286, 5685, 5805, 7708, and 8243

Description

IBM BladeCenter H 2980W AC Power Module Indicator - Base (#9058) and IBM BladeCenter H 2980W AC Power Module - Redundant Power (#3205)

Currently, the BladeCenter H (7989-BCH) chassis includes two nonfeaturized 2900 watt power modules and support for two additional (optional) 2900 watt power modules (#3200) for redundancy. Every BladeCenter H initial order must contain two of feature 9058, indicating the BladeCenter H will include two nonfeaturized 2980 watt power modules. Two additional (optional) 2980 watt power modules (#3205) can be ordered for redundant power on the BladeCenter H.

Features 3200 and 3205 cannot be mixed in the BladeCenter H. Feature number 9058 must be installed on the BladeCenter H in order to order feature 3205. Feature 3200 cannot be on the order if feature 9058 is installed in the system.

QLogic Virtual Fabric Extension Modul IBM BladeCenter (#3268)

Clients using the BNT 10-port 10 Gb Ethernet Switch Module (#3248) for their LAN traffic can now combine it with this module and a Converged Network Adapter such as the QLogic 2-port 10 Gb CNA (#8275) to converge their LAN and SAN on a single network. The QLogic Virtual Fabric Extension Module offers six ports of 8 Gb Fibre Channel connectivity, without the need for separate Fibre Channel expansion cards in the BladeCenter servers.

The QLogic Virtual Fabric Extension Module for IBM BladeCenter has the following features:

- Standard I/O module form factor
- Six external autosensing Fibre Channel ports that operate at 8 Gbps, 4 Gbps, or 2 Gbps
- External ports that can be configured as full fabric (GL, G, F, FL, E) Fibre Channel ports, or transparent fabric (TF) Fibre Channel ports
- Up to 40 Gbps of internal bandwidth to the switch module

- Two internal full-duplex 100 Mbps Ethernet interfaces for management
- Power-on self-test (POST) diagnostics and status reporting
- Support for Non-Disruptive Code Load Activation (NDCLA)
- Registered State Change Notification (RSCN)
- Support for standards-based FC-SW2 interoperability
- Support for transparent mode (NPIV)
- Error detection
 - Cyclic redundancy check (CRC)
 - 8-byte and 10-byte conversion
 - Parity
 - Long frame and short frame
 - D_ID mismatch
 - S_ID mismatch
- Frame bundling
 - No frame bundling (frames are intermixed from different source ports)
 - Soft lockdown (The I/O module waits for the sequence to be completed or a gap in the frame traffic to occur before it services requests from a different port.)
- Configurable Fabric Address Notification (FAN)
- Support for up to 239 Fabric Extension Modules, depending on the configuration
- Maximum frame size: 2148 bytes (2112 byte payload)
- Nonblocking architecture to prevent latency
- Support for the Call Home function
- Support for Domain Name Service (DNS)
- Support for Internet Protocol (IP) Version 6
- Support for Internet Protocol security (IPsec)
- Support for separate trap community strings for each trap address
- Support for Simple Network Management Protocol (SNMP) Version 3
- Support for vital product data (VPD)
- Support for optional SFP+ modules
 - IBM 8 Gb SFP+ SW Optical Transceiver (part number 44X1964)

The QLogic Virtual Fabric Extension Module is installed in I/O bay 3 or Bridge bay 5 of the BladeCenter H. Installing two bridges, one in each bay, provides redundancy and performance benefits, although it is supported to install one QLogic Virtual Fabric Extension Module in bay 5 only. The QLogic Virtual Fabric Extension Module requires one or two 10-port 10 Gb Ethernet Switch Modules (#3248).

Broadcom 2-port Gb Ethernet Expansion Card (#8243)

The Broadcom 2-port Gb Ethernet Expansion Card (CIOv) is an Ethernet expansion card with two 1Gb Ethernet ports designed for BladeCenter servers with CIOv expansion slots.

This card is installed into the CIOv slot of the supported blade server. It provides connections to Ethernet-compatible modules located in bays 3 and 4 of supported BladeCenter chassis. The CIOv slot is a second-generation PCI Express x8 slot. A maximum of one Ethernet Expansion Card (CIOv) is supported per single-wide blade server.

Cisco Nexus 4001I Switch Module for IBM BladeCenter H (#2241)

The Cisco Nexus 4001I Switch Module is a blade switch solution for the BladeCenter H chassis, providing the server I/O solution required for high-performance, scale-out, virtualized, and nonvirtualized Power computing architectures. It is a line rate,

extremely low-latency, nonblocking, Layer 2, 10 Gigabit Ethernet blade switch that is fully compliant with Fibre Channel over Ethernet (FCoE) and IEEE Data Center Bridging standards.

The Cisco Nexus 4001I enables a standards-based, high-performance Unified Fabric running over 10 Gigabit Ethernet in the blade server environment. This Unified Fabric enables consolidation of LAN traffic, storage traffic (IP-based such as iSCSI, NAS, and Fibre Channel SAN), and high-performance computing (HPC) traffic over a single 10 Gigabit Ethernet server network.

This offering works with BladeCenter Open Fabric Manager, providing all the benefits of I/O virtualization at 10 Gbps speed.

The Cisco Nexus 4001I Switch Module includes the following features and functions:

- Form-factor
 - Single-height high-speed switch module
- External ports
 - Six 10 Gb SFP+ ports operating at wire speed. Also designed to support 1 Gb SFP if required, with the flexibility of mixing 1 Gb/10 Gb. Table 2 lists supported transceivers and cables.
 - One 10/100/1000 Mb copper RJ-45 used for management or data.
 - An RS-232 RJ-45 connector for serial port that provides an additional means to configure the switch module. The console cable is supplied with the switch module.
- Internal ports
 - Fourteen internal auto-negotiating ports: 1 Gb or 10 Gb to the server blades
 - One internal full-duplex 100 Mbps port connected to the management module
- Scalability and performance
 - Autosensing 1 Gb/10 Gb internal and external Ethernet ports for bandwidth optimization
 - Nonblocking architecture with wire-speed forwarding of traffic
 - Media access control (MAC) address learning: automatic update, supports up to 8 Kb MAC addresses
 - EtherChannels, virtual port channels (vPC), and LACP (IEEE 802.3ad) link aggregation, up to 60 Gb of total uplink bandwidth per switch, up to seven trunk groups, and up to six ports per group
 - Support for jumbo frames (up to 9216 bytes)
 - Traffic suppression (unicast, multicast, and broadcast)
 - IGMP snooping to limit flooding of IP multicast traffic (IGMP V2 and V3)
 - Configurable traffic distribution schemes over EtherChannel links based on source/destination IP addresses, MAC addresses, or ports
 - Spanning Tree edge ports (formerly PortFast) for rapid STP convergence
- Availability and redundancy
 - IEEE 802.1D-2004 Rapid and Multiple Spanning Tree Protocols (802.1w and 802.1s)
 - Layer 2 Trunk Failover to support active/standby configurations of network adapter teaming on blades
- VLAN support
 - Up to 512 VLANs supported per switch; VLAN numbers ranging from 1 to 4000
 - 802.1Q VLAN tagging support on all ports
 - Private VLANs
- Security
 - VLAN-based, MAC-based, and IP-based access control lists (ACLs)
 - Role-based access control
 - Radius, TACACS+

- Quality of service (QoS)
 - Support for IEEE 802.1p CoS, IP ToS/DSCP, Protocol, IP Real Time Protocol, and ACL-based (MAC/IP source and destination addresses, VLANs) traffic classification and processing
 - Traffic shaping and re-marking based on defined policies
 - Eight Weighted Round Robin (WRR) priority queues per port for processing qualified traffic
- Fibre Channel over Ethernet
 - Support for T11-compliant FCoE on all 10-Gigabit Ethernet interfaces.
 - FCoE Initialization Protocol (FIP): Converged Enhanced Ethernet Data Center Bridging Exchange (CEE-DCBX) protocol supports T11-compliant Gen-2 CNAs.
 - 802.1Q VLAN tagging for FCoE frames.
 - Priority-based flow control (IEEE 802.1Qbb) simplifies management of multiple traffic flows over a single network link and creates lossless behavior for Ethernet by allowing class-of-service (CoS)-based flow control.
 - Enhanced Transmission Selection (IEEE 802.1Qaz) enables consistent management of QoS at the network level by providing consistent scheduling of different traffic types (IP, storage, and so on).
 - Data Center Bridging Exchange (DCBX) Protocol (IEEE 802.1AB) simplifies network deployment and reduces configuration errors by providing autonegotiation of IEEE 802.1 DCB features between the network interface card (NIC) and the switch and between switches.
- Manageability
 - Command-line interface (CLI): You can configure switches using the CLI from an SSH V2 session, a Telnet session, or the console port. SSH provides a secure connection to the device.
 - XML Management Interface over SSH: You can configure switches using the XML management interface, which is a programming interface based on the NETCONF protocol that complements the CLI functionality. For more information, see the Cisco NX-OS XML Interfaces User Guide.
 - Cisco Data Center Manager support.
- Monitoring
 - Switch LEDs for external port status and switch module status indication
 - RMON
 - Change tracking and remote logging with syslog feature
 - Online diagnostics
 - Cisco Fabric Services
 - Session Manager
- Special functions
 - Serial over LAN (SOL)

The Cisco Nexus 4001I Switch Module does not ship with either SFP+ Transceivers or SFP+ Copper Cables. The following part numbers can be ordered directly from Cisco Systems or authorized Cisco Systems resellers:

Description	Cisco part number
10GBASE-SR SFP+ Module	SFP-10GSR
10GBASE-LR SFP+ Module	SFP-10GLR
10GBASE-CU SFP+ Cable 1 Meter	SFP-H10GB-CU1M
10GBASE-CU SFP+ Cable 3 Meter	SFP-H10GB-CU3M
10GBASE-CU SFP+ Cable 5 Meter	SFP-H10GB-CU5M
1000BASE-T SFP	GLC-T
GE SFP, LC connector SX transceiver	GLC-SX-MM
GE SFP, LC connector LX/LH transceiver	GLC-LH-SM

Software Upgrade License for Cisco Nexus 4001I (#2242)

The Cisco Nexus 4001I Switch Module is designed to support both 10 Gb Ethernet and Fibre Channel over Ethernet. Software Upgrade License for Cisco Nexus 4001I enables the switch to work in FCoE mode. When connected to a converged adapter in the server, this switch can route CEE packets to an upstream FCoE switch, which can then route the packets to the LAN or SAN.

PCIe Riser Card (Gen2) (#5685), PCIe2 (Gen2) Low Profile 2-port 10GbE SR Adapter (#5284), and PCIe2 (Gen2) Low Profile 2-Port 10GbE SFP+ Copper Adapter (#5286)

The PCIe Riser Card (Gen2) (#5685) is a follow-on to the PCIe Riser Card (Gen1) (#5610). These optional features provide four PCIe Gen1 (#5610) or Gen2 (#5685) connectors, allowing for installation of four low-profile (LP) adapter cards. Only Gen1 adapter cards are supported by feature 5610. Both Gen1 and Gen2 adapter cards are supported by feature 5685. Currently, the only PCIe adapter cards that can run at 8x PCIe Gen2 speed are the PCIe2 (Gen2) Low Profile 2-port 10GbE SR Adapter (#5284) and the PCIe2 (Gen2) Low Profile 2-Port 10GbE SFP+ Copper Adapter (#5286).

The PCIe Riser card (#5610 or #5685) is installed in GX++ slot 1, making the slot unavailable for a GX++ adapter.

Power Supply, 1700 Watt, DC, Hot-swap, Base and Redundant (#7708)

This feature provides a 1700 watt dc power supply, either as the primary power supply in the system or the secondary power supply for redundant power. AC and dc power supplies cannot be mixed in a system. Two power supplies are required on an order for the Power 750 (8233-E8B).

PCIe 380 MB Cache Dual - x4 3 Gb SAS RAID Adapter (#5805)

The PCIe 380 MB Cache Dual - x4 3 Gb SAS RAID Adapter is a short, full-high form-factor adapter that supports the attachment of SAS disk and SAS solid-state drives (SSD) using a pair of mini SAS 4x connectors. Write cache can provide an I/O performance boost even if RAID 5/6/10 is not used. From a high-level perspective, except for having a larger write cache, it is very similar to the feature 5902 PCI-X SAS adapter and provides a high-performance connection to SAS devices. Two of feature 5805 provides for mirrored write cache data and mirrored RAID parity footprints between the adapters for superior availability. Feature 5805 is installed in pairs, allowing for redundancy of the write cache. If the feature 5805 pairing is broken, then write cache is disabled.

Feature 5805 supports SAS SFF disk drives located in a PCIe 12X I/O Drawer or SAS disk drives located in an EXP 12S Disk Drawer. AIX/Linux formatted SAS drives can be attached, and RAID 0, RAID 5, RAID 6, and RAID 10 are supported. The CCIN number for feature 5805 is 574E.

With proper cabling and configuration, multiple wide ports are used to provide redundant paths to each dual-port SAS disk or SSD. The adapter manages SAS path redundancy and path switching should a SAS drive failure occur. The pairing of feature 5805 provides a high availability I/O configuration to protect against the failure of a SAS adapter. SAS X cables attach SAS disk drives in EXP 12S Disk Drawers. SAS feature 3688 cables attach SFF SAS drives in an PCIe 12X I/O Drawer. The high availability I/O configuration connection is provided via the internal wiring within the PCIe 12X I/O drawer itself.

Highlights:

- Supports up to 48 SAS disks when configured with four feature 5886 EXP 12S Disk Drawers.
- SAS speed = 3 Gbs.
- SAS Serial SCSI Protocol (SSP) and Serial Management Protocol (SMP).

- 380 MB of nonvolatile fast write cache can increase disk subsystem performance.
- Dual controller supports mirrored write cache data and mirrored RAID parity footprints.
- Concurrent firmware update.

4 GB (2 x 2 GB) Memory DIMMs, 1066 MHz, 2 Gb DDR3 DRAM (#4525)

This memory feature offers customers a third option when ordering memory for the Power 710 and Power 730 Express servers. This announcement changes the minimum system configurations on the Power 710 and Power 730.

The minimum Power 710 initial order must include a processor module, processor activations, memory, one HDD/SSD, a storage backplane, a power supply and power cord, an operating system indicator, a chassis indicator, and a Language Group Specify.

If IBM i is the Primary Operating System (#2145), the initial order must also include one additional HDD/SSD, Mirrored System Disk Level Specify Code, and a System Console Indicator. A DVD is defaulted on every order but may be de-selected.

The minimum defined initial order configuration, if no choice is made, when AIX or Linux is the primary operating system is:

Feature number	Description
8350	0/4 core 3.0 GHz POWER7 Processor Module
4 x 8360	4 Processor Activations
4525	4 GB (2 x 2 GB) Memory
1883	73.4 GB 15k SFF HDD
5263	Storage Backplane for 2.5-inch Drives /SATA DVD/Tape
1832	Quad-port RJ45 1 Gb HEA
5603	Power Supply, 1725 Watt AC
7317	Single Processor Chassis
9300/97xx)	Language Group Specify
2146 or 2147	Primary Operating System Indicator-IBM AIX (2146) or Linux (2147)
6xxx	One Power Cord

Note: No internal DASD is required if feature 0837 (Boot from SAN) is selected. A Fibre Channel or Fibre Channel over Ethernet adapter must be ordered if feature 0837 is selected.

The minimum defined initial order configuration, if no choice is made, when IBM i is the primary operating system is:

Feature number	Description
8350	0/4 core 3.0 GHz POWER7 Processor Module
4 x 8360	4 Processor Activations
4525	4 GB (2 x 2 GB) Memory
2 x 1884	69.7 GB 15K RPM SAS SFF HDD
5268	Storage Backplane for six SFF Drives/SATA DVD bay/Dual write Cache SAS RAID, external SAS port
1832	Quad-port RJ45 1 Gb HEA
5603	Power Supply, 1725 Watt AC
7317	Single Processor Chassis
9300/97xx)	Language Group Specify
2145	Primary Operating System Indicator - IBM i
0040	Mirrored System Disk Level Specify Code
0566 or 0567	IBM i 6.1.1 or IBM i 7.1 indicator
5550	System Console on HMC Indicator
6xxx	One Power Cord

Notes:

- When IBM i is the primary operating system (#2145), a DVD-ROM or DVD-RAM must be accessible by the Power 710. A DVD will be defaulted on every order but may be de-selected.
- No internal DASD is required if feature 0837 (Boot from SAN) is selected. A Fibre Channel or Fibre Channel over Ethernet adapter must be ordered if feature 0837 is selected.

The minimum Power 730 initial order must include two processor modules, processor activations, memory, one HDD/SSD, a storage backplane, two power supplies and two power cords, an operating system indicator, a chassis indicator, and a Language Group Specify.

If IBM i is the Primary Operating System (#2145), the initial order must also include one additional HDD/SSD, Mirrored System Disk Level Specify Code, and a System Console Indicator. A DVD is defaulted on every order but may be de-selected.

The minimum defined initial order configuration, if no choice is made, when AIX or Linux is the primary operating system is:

Feature number	Description
2 x 8350	0/4 core 3.0 GHz POWER7 Processor Module
8 x 8360	8 Processor Activations
2 x 4525	8 GB (2 x 2 GB) Memory
1883	73.4 GB 15k SFF HDD
5263	Storage Backplane for 2.5-inch Drives /SATA DVD/Tape
1832	Quad-port RJ45 1 Gb HEA
2 x 5603	Power Supply, 1725 Watt AC
7318	Two Processor Chassis
9300/97xx)	Language Group Specify
2146 or 2147	Primary Operating System Indicator-IBM AIX (2146) or Linux (2147)
2 x 6xxx	Two Power Cords

Note: No internal DASD is required if feature 0837 (Boot from SAN) is selected. A Fibre Channel or Fibre Channel over Ethernet adapter must be ordered if feature 0837 is selected.

The minimum defined initial order configuration, if no choice is made, when IBM i is the primary operating system is:

Feature number	Description
2 x 8350	0/4 core 3.0 GHz POWER7 Processor Module
8 x 8360	8 Processor Activations
2 x 4525	8 GB (2 x 2 GB) Memory
2 x 1884	69.7 GB 15K RPM SAS SFF HDD
5268	Storage Backplane for six SFF Drives/SATA DVD bay/Dual write Cache SAS RAID, external SAS port
1832	Quad-port RJ45 1 Gb HEA
2 x 5603	Power Supply, 1725 Watt AC
7318	Two Processor Chassis
9300/97xx)	Language Group Specify
2145	Primary Operating System Indicator - IBM i
0040	Mirrored System Disk Level Specify Code
0566 or 0567	IBM i 6.1.1 or IBM i 7.1 indicator
5550	System Console on HMC Indicator
2 x 6xxx	Two Power Cords

Notes:

- When IBM i is the primary operating system (#2145) a DVD-ROM or DVD-RAM must be accessible by the Power 730.

- No internal DASD is required if feature 0837 (Boot from SAN) is selected. A Fibre Channel or Fibre Channel over Ethernet adapter must be ordered if feature 0837 is selected.

Accessibility by people with disabilities

A U.S. Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be requested at:

http://www.ibm.com/able/product_accessibility/index.html

Section 508 of the U.S. Rehabilitation Act

IBM Power Systems models are capable, when used in accordance with IBM's associated documentation, of satisfying the applicable requirements of Section 508 of the Rehabilitation Act, provided that any assistive technology used with the product properly interoperates with it.

Statement of general direction

Red Hat has stated that Red Hat Enterprise Linux 6 intends to support PCI Express 2.0 adapters on Power 720 and Power 740 systems.

All statements regarding IBM's plans, directions, and intent are subject to change or withdrawal without notice. Any reliance on these statements of general direction is at the relying party's sole risk and will not create liability or obligation for IBM.

Product number

The following are newly announced features on the specific models of the IBM Power Systems 7014, 7042, 7316, 7778, 7779, 7809, 7989, 7998, 8202, 8203, 8204, 8205, 8231, 8233, 8234, 8236, 8261, 8406, 9117, 9119, 9125, and 9179 machine type:

Description	Machine type	Model	Feature number
Flexible Thermal Settings for NEBS Applications	8233	E8B	0709
	8406	70Y	
		71Y	
Manufacturing Routing Code for CSC	8204	E8A	0712
	8234	EMA	
	9117	MMA	
	9119	FHA	
CAT5E Ethernet Cable, 3M BLUE	8234	EMA	1111
	9117	MMA	
	9119	FHA	
CAT5E Ethernet Cable, 10M BLUE	8234	EMA	1112
	9117	MMA	
	9119	FHA	
CAT5E Ethernet Cable, 25M BLUE	8234	EMA	1113
	9117	MMA	
	9119	FHA	
CAT5E Ethernet Cable, 3M GREEN	8234	EMA	1115
	9117	MMA	
	9119	FHA	
CAT5E Ethernet Cable, 10M GREEN	8234	EMA	1116
	9117	MMA	
	9119	FHA	
CAT5E Ethernet Cable, 25M GREEN	8234	EMA	1117
	9117	MMA	
	9119	FHA	
CAT5E Ethernet Cable, 3M YELLOW	8234	EMA	1118
	9117	MMA	

CAT5E Ethernet Cable, 10M YELLOW	9119	FHA	
	8234	EMA	1119
	9117	MMA	
CAT5E Ethernet Cable, 25M YELLOW	9119	FHA	
	8234	EMA	1121
	9117	MMA	
Custom Service Specify, Rochester Minn, USA	9119	FHA	
	7014	B42	1140
		S25	
		T00	
		T42	
	7042	C08	
		CR5	
		CR6	
	7316	TF3	
	7778	23X	
	7779	BCS	
	7809	H22	
	7989	BCH	
	7998	60X	
	8202	E4B	
	8203	E4A	
	8204	E8A	
	8205	E6B	
	8231	E2B	
	8233	E8B	
	8234	EMA	
	8236	E8C	
	8261	E4S	
	8406	70Y	
		71Y	
	9117	MMA	
		MMB	
	9119	FHA	
		FHB	
	9179	MHB	
Cisco Nexus 4001I Switch Module for IBM BladeCenter H	7989	BCH	2241
Software Upgrade License for Cisco Nexus 4001I	7989	BCH	2242
IBM BladeCenter H 2980W AC Power Module - Redundant Power	7989	BCH	3205
QLogic Virtual Fabric Extension Module for IBM BladeCenter	7989	BCH	3268
4GB (2x2GB) Memory DIMMs, 1066 MHz, 2Gb DDR3 DRAM	8231	E2B	4525
PCIe2 LP 2-port 10GbE SR Adapter	8202	E4B	5284
	8205	E6B	
PCIe2 LP 2-Port 10GbE SFP+ Copper Adapter	8202	E4B	5286
	8205	E6B	
PCIe Riser Card (Gen2)	8202	E4B	5685
	8205	E6B	
4-Port 10/100/1000 Base-TX PCI-X Adapter	8204	E8A	5740
	8234	EMA	
PCIe 380MB Cache Dual - x4 3Gb SAS RAID Adapter	8203	E4A	5805
	8204	E8A	
	8233	E8B	
	8234	EMA	
	8236	E8C	
	8261	E4S	
	9117	MMA	
		MMB	
	9119	FHA	
		FHB	
	9125	F2A	
	9179	MHB	
HIGH-END APPEARANCE SIDE COVERS	9179	MHB	6238
HIGH-END APPEARANCE FRONT DOOR	9179	MHB	6250
Power Supply, 1700 Watt, DC, Hot-swap, Base and Redundant	8233	E8B	7708
Broadcom 2-port Gb Ethernet Expansion Card (CIOV)	7778	23X	8243
	8406	70Y	
		71Y	
PowerVM -Standard Edition, Qty 100 of #7943	9119	FHB	8597
PowerVM (Enterprise Edition), Qty 100 of #8002	9119	FHB	8598
IBM BladeCenter H 2980W AC Power Module			

Indicator - Base 7989 BCH 9058

The following are features already announced for the IBM Power Systems 7014, 9117, and 9119 machine type:

Description	Machine type	Model	Feature number
Rack Content Specify: 9910-P64/E64/E65 FC 6641/6645/6645 Battery Module - 3EIA	7014	S25	0246
4-Port 10/100/1000 Base-TX PCI-X Adapter	9117	MMA	5740
	9119	FHA	
Power Cord 3 M (10 ft), Drawer to IBM PDU, 250V/10A	7014	S25	6665

Feature conversions

The existing components being replaced during a model or feature conversion become the property of IBM and must be returned.

Feature conversions are always implemented on a "quantity of one for quantity of one" basis. Multiple existing features may not be converted to a single new feature. Single existing features may not be converted to multiple new features.

The following conversions are available to customers:

Feature conversions for 8203-E4A to 8202-E4B adapter features

From FC:	To FC:	Return parts
5904 - PCI-X DDR 1.5GB Cache SAS RAID Adapter	5908 - PCI-X DDR 1.5GB Cache SAS RAID Adapter (BSC)	No

Feature conversions for 9117-MMA to 9117-MMB adapter features

From FC:	To FC:	Return parts
5904 - PCI-X DDR 1.5GB Cache SAS RAID Adapter	5908 - PCI-X DDR 1.5GB Cache SAS RAID Adapter (BSC)	No

Feature conversions for 9117-MMA to 9179-MHB adapter features

From FC:	To FC:	Return parts
5904 - PCI-X DDR 1.5GB Cache SAS RAID Adapter	5908 - PCI-X DDR 1.5GB Cache SAS RAID Adapter (BSC)	No

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).

<https://www.ibm.com/partnerworld/mem/sla.jsp?num=110-199>

Publications

No publications are shipped with the announced product.

The IBM Systems Information Center provides you with a single information center where you can access product documentation for IBM systems hardware, operating systems, and server software. Through a consistent framework, you can efficiently

find information and personalize your access. The IBM Systems Information Center is at

<http://publib14.boulder.ibm.com/infocenter/systems>

IBM Publications Center Portal

<http://www.ibm.com/shop/publications/order>

The Publications Center is a worldwide central repository for IBM product publications and marketing material with a catalog of 70,000 items. Extensive search facilities are provided, as well as payment options via credit card. A large number of publications are available online in various file formats, which can currently be downloaded free of charge.

Services

Global 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

Specified operating environment

Software requirements

Refer to the specific feature description for the required operating system level support.

Planning information

Cable orders

No cables are required.

Security, auditability, and control

This product uses the security and auditability features of host hardware, host software, and application software.

Limitations:

The BladeCenter server has no security-intrusion detection.

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 help you achieve higher system availability. Electronic Services is a web-enabled solution that offers an exclusive, no-additional-charge enhancement to the service and support available for IBM servers. These services are designed to provide the opportunity for greater system availability with faster problem resolution and preemptive monitoring. Electronic Services comprises two separate, but complementary, elements: Electronic Services news page and Electronic Services Agent.

The Electronic Services news page is 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 no-additional-charge software that resides on your server. It monitors events and transmits system inventory information to IBM on a periodic, client-defined timetable. The Electronic Service Agent automatically reports hardware problems to IBM. Early knowledge about potential problems enables IBM to deliver proactive service that may result in higher system availability and performance. In addition, information collected through the Service Agent is made available to IBM service support representatives when they help answer your questions or diagnose problems. Installation and use of IBM Electronic Service Agent for problem reporting enables IBM to provide better support and service for your IBM server.

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

Terms and conditions

MES discount applicable

Equal to the volume commitment discount

Field-installable feature

Yes

Warranty period

These features assume the same warranty or maintenance terms as the machine in which they are installed for the full warranty or maintenance period announced for such machine.

Customer setup

Yes, except for feature 5805 on the 9119-FHA and 9119-FHB, and feature 5740 on the 9119-FHA.

Machine code

Same license terms and conditions as base machine.

Prices

For additional information and current prices, contact your local IBM representative.

The following are newly announced features on the specific models on the IBM Power Systems 7014, 7042, 7316, 7778, 7779, 7809, 7989, 7998, 8202, 8203, 8204, 8205, 8231, 8233, 8234, 8236, 8261, 8406, 9117, 9119, 9125, and 9179 machine type:

Description Machine type	Model 7014	Feature number	Purchase price	Minimum Monthly Maint. Charge	Initial/ MES/ Both/ Support	RP CSU MES
Custom Service Specify, Rochester Minn, USA						
	B42	1140			Both	Yes No
	S25				Both	Yes No
	T00				Both	Yes No
	T42				Both	Yes No

Description Machine type	Model 7042	Feature number	Purchase price	Minimum Monthly Maint. Charge	Initial/ MES/ Both/ Support	RP CSU MES
Custom Service Specify, Rochester Minn, USA						
	C08	1140			Both	Yes No
	CR5				Both	Yes No
	CR6				Both	Yes No

Description Machine type	Model 7316	Feature number	Purchase price	Minimum Monthly Maint. Charge	Initial/ MES/ Both/ Support	RP CSU MES
Custom Service Specify, Rochester Minn, USA						
	TF3	1140			Both	Yes No

Description Machine type	Model 7778	Feature number	Purchase price	Minimum Monthly Maint. Charge	Initial/ MES/ Both/ Support	RP CSU MES
Custom Service Specify, Rochester Minn, USA						
	23X	1140			Both	Yes No
Broadcom 2-port Gb Ethernet Expansion Card (CIOV)						
	23X	8243			Both	Yes No

Description Machine type	Model 7779	Feature number	Purchase price	Minimum Monthly Maint. Charge	Initial/ MES/ Both/ Support	RP CSU MES
Custom Service Specify, Rochester Minn, USA						
	BCS	1140			Both	Yes No

Description Machine type	Model 7809	Feature number	Purchase price	Minimum Monthly Maint. Charge	Initial/ MES/ Both/ Support	RP CSU MES
Custom Service Specify, Rochester Minn, USA						
	H22	1140			Both	Yes No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine type 7989	number	numbers	price	Maint. Charge	Monthly MES/ Both/ Support	CSU MES
Custom Service Specify, Rochester Minn, USA	BCH	1140			Both	Yes No
Cisco Nexus 4001I Switch Module for IBM BladeCenter H	BCH	2241			Both	Yes No
Software Upgrade License for Cisco Nexus 4001I	BCH	2242			Both	Yes No
IBM BladeCenter H 2980W AC Power Module - Redundant Power	BCH	3205			Both	Yes No
QLogic Virtual Fabric Extension Module for IBM BladeCenter	BCH	3268			Both	Yes No
IBM BladeCenter H 2980W AC Power Module Indicator - Base	BCH	9058			Initial	N/A No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine type 7998	number	numbers	price	Maint. Charge	Monthly MES/ Both/ Support	CSU MES
Custom Service Specify, Rochester Minn, USA	60X	1140			Both	Yes No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine type 8202	number	numbers	price	Maint. Charge	Monthly MES/ Both/ Support	CSU MES
Custom Service Specify, Rochester Minn, USA	E4B	1140			Both	Yes No
PCIe2 LP 2-port 10GbE SR Adapter	E4B	5284			Both	Yes No
PCIe2 LP 2-Port 10GbE SFP+ Copper Adapter	E4B	5286			Both	Yes No
PCIe Riser Card (Gen2)	E4B	5685			Both	Yes No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine type 8203	number	numbers	price	Maint. Charge	Monthly MES/ Both/ Support	CSU MES
Custom Service Specify, Rochester Minn, USA	E4A	1140			Both	Yes No
PCIe 380MB Cache Dual - x4 3Gb SAS RAID Adapter	E4A	5805			Both	Yes No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine type 8204	number	numbers	price	Maint. Charge	Monthly MES/ Both/ Support	CSU MES
Manufacturing Routing Code for CSC	E8A	0712			Initial	N/A No
Custom Service Specify, Rochester Minn, USA	E8A	1140			Both	Yes No
4-Port 10/100/1000 Base-TX PCI-X Adapter	E8A	5740			Both	Yes No
PCIe 380MB Cache Dual - x4 3Gb SAS RAID Adapter	E8A	5805			Both	Yes No

Minimum Initial/

Description Machine type	Model number	Feature numbers	Purchase price	Monthly Maint. Charge	MES/ Both/ Support	RP CSU	MES
Custom Service Specify, Rochester Minn, USA	E6B	1140			Both	Yes	No
PCIe2 LP 2-port 10GbE SR Adapter	E6B	5284			Both	Yes	No
PCIe2 LP 2-Port 10GbE SFP+ Copper Adapter	E6B	5286			Both	Yes	No
PCIe Riser Card (Gen2)	E6B	5685			Both	Yes	No

Description Machine type	Model number	Feature numbers	Purchase price	Minimum Monthly Maint. Charge	Initial/ MES/ Support	RP CSU	MES
Custom Service Specify, Rochester Minn, USA	E2B	1140			Both	Yes	No
4GB (2x2GB) Memory DIMMs, 1066 MHZ, 2Gb DDR3 DRAM	E2B	4525			Both	Yes	No

Description Machine type	Model number	Feature numbers	Purchase price	Minimum Monthly Maint. Charge	Initial/ MES/ Support	RP CSU	MES
Flexible Thermal Settings for NEBS Applications	E8B	0709			Both	Yes	No
Custom Service Specify, Rochester Minn, USA	E8B	1140			Both	Yes	No
PCIe 380MB Cache Dual - x4 3Gb SAS RAID Adapter	E8B	5805			Both	Yes	No
Power Supply, 1700 Watt, DC, Hot-swap, Base and Redundant	E8B	7708			Initial	N/A	No

Description Machine type	Model number	Feature numbers	Purchase price	Minimum Monthly Maint. Charge	Initial/ MES/ Support	RP CSU	MES
Manufacturing Routing Code for CSC	EMA	0712			Initial	N/A	No
CAT5E Ethernet Cable, 3M BLUE	EMA	1111			Both	Yes	No
CAT5E Ethernet Cable, 10M BLUE	EMA	1112			Both	Yes	No
CAT5E Ethernet Cable, 25M BLUE	EMA	1113			Both	Yes	No
CAT5E Ethernet Cable, 3M GREEN	EMA	1115			Both	Yes	No
CAT5E Ethernet Cable, 10M GREEN	EMA	1116			Both	Yes	No
CAT5E Ethernet Cable, 25M GREEN	EMA	1117			Both	Yes	No
CAT5E Ethernet Cable, 3M YELLOW	EMA	1118			Both	Yes	No
CAT5E Ethernet Cable, 10M YELLOW	EMA	1119			Both	Yes	No
CAT5E Ethernet Cable, 25M YELLOW	EMA	1121			Both	Yes	No
Custom Service Specify, Rochester Minn, USA	EMA	1140			Both	Yes	No
4-Port 10/100/1000 Base-TX PCI-X Adapter	EMA	5740			Both	Yes	No
PCIe 380MB Cache Dual - x4 3Gb SAS RAID Adapter	EMA	5805			MES	Yes	No

Minimum Initial/

Description	Model	Feature	Purchase	Monthly	MES/	RP
Machine type	number	numbers	price	Maint.	Both/	CSU
				Charge	Support	MES
Custom Service Specify, Rochester Minn, USA	E8C	1140			Both	Yes No
PCIe 380MB Cache Dual - x4 3Gb SAS RAID Adapter	E8C	5805			Both	Yes No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine type	number	numbers	price	Monthly	MES/	CSU
				Charge	Support	MES
Flexible Thermal Settings for NEBS Applications	70Y	0709			Both	Yes No
	71Y				Both	Yes No
Custom Service Specify, Rochester Minn, USA	70Y	1140			Both	Yes No
	71Y				Both	Yes No
Broadcom 2-port Gb Ethernet Expansion Card (CIOv)	70Y	8243			Both	Yes No
	71Y				Both	Yes No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine type	number	numbers	price	Monthly	MES/	CSU
				Charge	Support	MES
Manufacturing Routing Code for CSC	MMA	0712			Initial	N/A No
CAT5E Ethernet Cable, 3M BLUE	MMA	1111			Both	Yes No
CAT5E Ethernet Cable, 10M BLUE	MMA	1112			Both	Yes No
CAT5E Ethernet Cable, 25M BLUE	MMA	1113			Both	Yes No
CAT5E Ethernet Cable, 3M GREEN	MMA	1115			Both	Yes No
CAT5E Ethernet Cable, 10M GREEN	MMA	1116			Both	Yes No
CAT5E Ethernet Cable, 25M GREEN	MMA	1117			Both	Yes No
CAT5E Ethernet Cable, 3M YELLOW	MMA	1118			Both	Yes No
CAT5E Ethernet Cable, 10M YELLOW	MMA	1119			Both	Yes No
CAT5E Ethernet Cable, 25M YELLOW	MMA	1121			Both	Yes No
Custom Service Specify, Rochester Minn, USA	MMA	1140			Both	Yes No
	MMB				Both	Yes No
PCIe 380MB Cache Dual - x4 3Gb SAS RAID Adapter	MMA	5805			MES	Yes No
	MMB				Both	Yes No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine type	number	numbers	price	Monthly	MES/	CSU
				Charge	Support	MES
Manufacturing Routing Code for CSC	FHA	0712			Initial	N/A No
CAT5E Ethernet Cable, 3M BLUE	FHA	1111			Both	Yes No
CAT5E Ethernet Cable, 10M BLUE	FHA	1112			Both	Yes No
CAT5E Ethernet Cable, 25M BLUE	FHA	1113			Both	Yes No
CAT5E Ethernet Cable, 3M GREEN	FHA	1115			Both	Yes No

CAT5E Ethernet Cable, 10M GREEN	FHA	1116		Both	Yes	No
CAT5E Ethernet Cable, 25M GREEN	FHA	1117		Both	Yes	No
CAT5E Ethernet Cable, 3M YELLOW	FHA	1118		Both	Yes	No
CAT5E Ethernet Cable, 10M YELLOW	FHA	1119		Both	Yes	No
CAT5E Ethernet Cable, 25M YELLOW	FHA	1121		Both	Yes	No
Custom Service Specify, Rochester Minn, USA	FHA	1140		Both	Yes	No
	FHB			Both	Yes	No
PCIe 380MB Cache Dual - x4 3Gb SAS RAID Adapter	FHA	5805		Both	No	No
	FHB			Both	No	No
PowerVM -Standard Edition, Qty 100 of #7943	FHB	8597		Both	Yes	No
PowerVM (Enterprise Edition), Qty 100 of #8002	FHB	8598		Both	Yes	No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine type	number	numbers	price	Monthly	MES/	CSU
				Charge	Both/	MES
PCIe 380MB Cache Dual - x4 3Gb SAS RAID Adapter	F2A	5805		MES	Yes	No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine type	number	numbers	price	Monthly	MES/	CSU
				Charge	Support	MES
Custom Service Specify, Rochester Minn, USA	MHB	1140		Both	Yes	No
PCIe 380MB Cache Dual - x4 3Gb SAS RAID Adapter	MHB	5805		Both	Yes	No
HIGH-END APPEARANCE SIDE COVERS	MHB	6238		MES	Yes	No
HIGH-END APPEARANCE FRONT DOOR	MHB	6250		MES	Yes	No

The following are features already announced for the IBM Power Systems 7014, 9117, and 9119 machine type:

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine type	number	numbers	price	Monthly	MES/	CSU
				Charge	Support	MES
Rack Content Specify: 9910-P64/E64/E65 FC 6641/6645/6645 Battery Module - 3EIA	S25	0246		Both	Yes	No
Power Cord 3 M (10 ft), Drawer to IBM PDU, 250V/10A	S25	6665		Both	Yes	No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine type	number	numbers	price	Monthly	MES/	CSU
				Charge	Support	MES
4-Port 10/100/1000 Base-TX PCI-X Adapter	MMA	5740		Both	Yes	No

Minimum Initial/

Description	Model	Feature	Purchase	Monthly	MES/	RP
Machine type	number	numbers	price	Maint.	Both/	CSU
				Charge	Support	MES
4-Port 10/100/1000	Base-TX FHA	PCI-X 5740	Adapter		Both	No No

Feature conversions

Feature conversions for 8203-E4A to 8202-E4B adapter features

From FC:	To FC:	Parts Returned	Purchase Price
5904 - PCI-X DDR 1.5GB Cache SAS RAID Adapter	5908 - PCI-X DDR 1.5GB Cache SAS RAID Adapter (BSC)	No	

Feature conversions for 9117-MMA to 9117-MMB adapter features

From FC:	To FC:	Parts Returned	Purchase Price
5904 - PCI-X DDR 1.5GB Cache SAS RAID Adapter	5908 - PCI-X DDR 1.5GB Cache SAS RAID Adapter (BSC)	No	

Feature conversions for 9117-MMA to 9179-MHB adapter features

From FC:	To FC:	Parts Returned	Purchase Price
5904 - PCI-X DDR 1.5GB Cache SAS RAID Adapter	5908 - PCI-X DDR 1.5GB Cache SAS RAID Adapter (BSC)	No	

Machine type	Model	Feature number	Description	One-time charge
7014	B42	1140	Custom Service Specify,Roches	\$0
7014	S25	1140	Custom Service Specify,Roches	\$0
7014	T00	1140	Custom Service Specify,Roches	\$0
7014	T42	1140	Custom Service Specify,Roches	\$0
7042	C08	1140	Custom Service Specify,Roches	\$0
7042	CR5	1140	Custom Service Specify,Roches	\$0
7042	CR6	1140	Custom Service Specify,Roches	\$0
7316	TF3	1140	Custom Service Specify,Roches	\$0
7778	23X	1140	Custom Service Specify,Roches	\$0
7778	23X	8243	Broadcom 2-port Gb Ethernet Ex	\$299
7779	BCS	1140	Custom Service Specify,Roches	\$0
7809	H22	1140	Custom Service Specify,Roches	\$0
7989	BCH	1140	Custom Service Specify,Roches	\$0
7989	BCH	2241	Cisco Nexus 4001I Switch Modul	\$11,999
7989	BCH	2242		\$3,899

7989	BCH	3205	Software Upgrade License for C IBM BladeCenter H 2980W AC Pow	\$549
7989	BCH	3268	QLogic Virtual Fabric Extensio	\$6,499
7989	BCH	9058	BladeCenter Power Module Ind	\$0
7998	60X	1140	Custom Service Specify,Roches	\$0
8202	E4B	1140	Custom Service Specify,Roches	\$0
8202	E4B	5284	PCIe2 LP 2-port 10GbE SR Adapt	\$3,500
8202	E4B	5286	PCIe2 LP 2-Port 10GbE SFP + Cop	\$1,800
8202	E4B	5685	PCIe Riser Card (Gen2)	\$2,000
8203	E4A	1140	Custom Service Specify,Roches	\$0
8203	E4A	5805	PCIe 380MB Cache Dual - x4 3Gb	\$2,199
8204	E8A	0712	Manufacturing Routing Code for	\$0
8204	E8A	1140	Custom Service Specify,Roches	\$0
8204	E8A	5740	4-Port 10/100/1000 Base-TX PCI	\$830
8204	E8A	5805	PCIe 380MB Cache Dual - x4 3Gb	\$2,199
8205	E6B	1140	Custom Service Specify,Roches	\$0
8205	E6B	5284	PCIe2 LP 2-port 10GbE SR Adapt	\$3,500
8205	E6B	5286	PCIe2 LP 2-Port 10GbE SFP + Cop	\$1,800
8205	E6B	5685	PCIe Riser Card (Gen2)	\$2,000
8231	E2B	1140	Custom Service Specify,Roches	\$0
8231	E2B	4525	4GB (2x2GB) Memory DIMMs,1066	\$532
8233	E8B	0709	Flexible Thermal Settings for	\$0
8233	E8B	1140	Custom Service Specify,Roches	\$0
8233	E8B	5805	PCIe 380MB Cache Dual - x4 3Gb	\$2,199
8233	E8B	7708	Power Supply,1700 Watt,DC,H	\$1,500
8234	EMA	0712	Manufacturing Routing Code for	\$0

8234	EMA	1111	CAT5E Ethernet Cable,3M BLUE	\$25
8234	EMA	1112	CAT5E Ethernet Cable,10M BLUE	\$45
8234	EMA	1113	CAT5E Ethernet Cable,25M BLUE	\$80
8234	EMA	1115	CAT5E Ethernet Cable,3M GREEN	\$25
8234	EMA	1116	CAT5E Ethernet Cable,10M GREEN	\$45
8234	EMA	1117	CAT5E Ethernet Cable,25M GREEN	\$80
8234	EMA	1118	CAT5E Ethernet Cable,3M YELLOW	\$25
8234	EMA	1119	CAT5E Ethernet Cable,10M YELLOW	\$45
8234	EMA	1121	CAT5E Ethernet Cable,25M YELLOW	\$80
8234	EMA	1140	Custom Service Specify,Roches	\$0
8234	EMA	5740	4-Port 10/100/1000 Base-TX PCI	\$830
8234	EMA	5805	PCIe 380MB Cache Dual - x4 3Gb	\$2,199
8236	E8C	1140	Custom Service Specify,Roches	\$0
8236	E8C	5805	PCIe 380MB Cache Dual - x4 3Gb	\$2,199
8406	70Y	0709	Flexible Thermal Settings for	\$0
8406	71Y	0709	Flexible Thermal Settings for	\$0
8406	70Y	1140	Custom Service Specify,Roches	\$0
8406	71Y	1140	Custom Service Specify,Roches	\$0
8406	70Y	8243	Broadcom 2-port Gb Ethernet Ex	\$299
8406	71Y	8243	Broadcom 2-port Gb Ethernet Ex	\$299
9117	MMA	0712	Manufacturing Routing Code for	\$0
9117	MMA	1111	CAT5E Ethernet Cable,3M BLUE	\$33
9117	MMA	1112	CAT5E Ethernet Cable,10M BLUE	\$59
9117	MMA	1113	CAT5E Ethernet Cable,25M BLUE	\$104

9117	MMA	1115	CAT5E Ethernet Cable,3M GREEN	\$33
9117	MMA	1116	CAT5E Ethernet Cable,10M GREE	\$59
9117	MMA	1117	CAT5E Ethernet Cable,25M GREE	\$104
9117	MMA	1118	CAT5E Ethernet Cable,3M YELLOW	\$33
9117	MMA	1119	CAT5E Ethernet Cable,10M YELL	\$59
9117	MMA	1121	CAT5E Ethernet Cable,25M YELL	\$104
9117	MMA	1140	Custom Service Specify,Roches	\$0
9117	MMB	1140	Custom Service Specify,Roches	\$0
9117	MMA	5805	PCIe 380MB Cache Dual - x4 3Gb	\$2,880
9117	MMB	5805	PCIe 380MB Cache Dual - x4 3Gb	\$2,880
9119	FHA	0712	Manufacturing Routing Code for	\$0
9119	FHA	1111	CAT5E Ethernet Cable,3M BLUE	\$33
9119	FHA	1112	CAT5E Ethernet Cable,10M BLUE	\$59
9119	FHA	1113	CAT5E Ethernet Cable,25M BLUE	\$104
9119	FHA	1115	CAT5E Ethernet Cable,3M GREEN	\$33
9119	FHA	1116	CAT5E Ethernet Cable,10M GREE	\$59
9119	FHA	1117	CAT5E Ethernet Cable,25M GREE	\$104
9119	FHA	1118	CAT5E Ethernet Cable,3M YELLOW	\$33
9119	FHA	1119	CAT5E Ethernet Cable,10M YELL	\$59
9119	FHA	1121	CAT5E Ethernet Cable,25M YELL	\$104
9119	FHA	1140	Custom Service Specify,Roches	\$0
9119	FHB	1140	Custom Service Specify,Roches	\$0
9119	FHA	5805	PCIe 380MB Cache Dual - x4 3Gb	\$2,880
9119	FHB	5805	PCIe 380MB Cache Dual - x4 3Gb	\$2,880

9119	FHB	8597	Qty 100 x feat 7943 Std Ed	\$0
9119	FHB	8598	Qty 100 x feat 8002 Enter Ed	\$0
9125	F2A	5805	PCIe 380MB Cache Dual - x4 3Gb	\$2,880
9179	MHB	1140	Custom Service Specify,Roches	\$0
9179	MHB	5805	PCIe 380MB Cache Dual - x4 3Gb	\$2,880
9179	MHB	6238	HIGH-END APPEARANCE SIDE COVER	\$650
9179	MHB	6250	HIGH-END APPEARANCE FRONT DOOR	\$3,000
7014	S25	0246	Module - 3EIA	\$0
7014	S25	6665	Power Cord 3 M (10 ft),Drawer	\$19
9117	MMA	5740	4-Port 10/100/1000 Base-TX PCI	\$1,099
9119	FHA	5740	4-Port 10/100/1000 Base-TX PCI	\$1,099

Feature conversions

Machine type	Model	Part number	Description	One-time charge
8202	E4B	820359045908	Feat conv 5904 to 5908	\$50
9117	MMB	911759045908	Feat conv 5904 to 5908	\$66
9179	MHB	911759045908	Feat conv 5904 to 5908	\$66

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