



IBM BladeCenter S Chassis offers support for IBM BladeCenter JS12, JS21, and JS22 servers and is now available through AAS order entry system

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At a glance

The IBM BladeCenter S Chassis offers:

- Two 950-watt/1450-watt power supplies for power redundancy; additional power supply options available
- Four hot-swap fan packs standard
- Two optional Disk Storage Modules for HDDs, six 3.5-inch SAS drives each
- Support for common I/O switches as other BladeCenter chassis
- One Advanced Management Module with built-in KVM support standard
- IBM BladeCenter S Office Enablement Kit feature
- IBM Director and Storage Configuration Manager, which support blades and HDDs in the BladeCenter S Chassis
- Ability to integrate Ethernet networking
- CD-RW/DVD-ROM media tray standard
- Support for up to six BladeCenter JS12, JS21, JS22, HS20, HS21, HS21 XM, HC10, LS20, LS21, and LS41 blades
- Availability through the AAS order entry system

For ordering, contact:

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

800-IBM-CALL Reference: YE001

Overview

IBM BladeCenter® S Chassis is now available through the AAS order entry system to support the IBM BladeCenter JS12, JS21, and JS22 servers.

Extends the benefits of BladeCenter outside the data center:

- Integrates servers, storage, networking, I/O, and applications into a single chassis
- Uses standard office power plugs in most countries with 100/240 V, so that you do not need a data center to take command of your data
- Offers flexible, modular technology that integrates blade servers supporting a wide range of operating systems
- Includes management tools that are open and easily integrated, allowing you to focus on your business, not your IT

- Helps build greener IT infrastructures with powerful IBM Cool Blue technology, and a portfolio of products and tools to help you plan, manage, and control power and cooling
- Includes IBM Director V5.2 and Storage Configuration Manager V1.1, which enable the user to configure storage options in the BladeCenter S Chassis

Offers the IBM BladeCenter S Office Enablement Kit feature, including:

- An acoustical module: The kit comes with an acoustical module that helps in making the BladeCenter S Chassis quieter for the office environment.
- Locking front and rear doors: To help ensure that your data will remain safe and secure in any environment.
- Bonus room for other IT: The Office Enablement Kit includes 4U of bonus space for other types of IT that an office may need in addition to the BladeCenter S Chassis.
- Easy mobility: The Office Enablement Kit comes with lockable wheels and fingergrrips to make your BladeCenter S Chassis easily transportable.
- Pre-configuration: Your BladeCenter S Chassis will be pre-configured and installed into the Office Enablement Kit allowing you to get your system up and running quickly without unnecessary extra configuration hassles.

The IBM i operating system 6.1 (formerly known as i5/OS™ V6R1) will be supported only on the IBM BladeCenter JS12 (7998-60X) in the BladeCenter S Chassis (7779-BCS) on May 30, 2008. Additional chassis support will be available later in 2008.

IBM i 6.1 will be supported on the IBM BladeCenter JS22 (7998-61X) in the BladeCenter S Chassis on June 13, 2008.

Key prerequisites

The BladeCenter S Chassis requires a:

- Power source
- Monitor, USB keyboard, and USB mouse
- Network switch module
- Rack
- BladeCenter JS12, JS21, or JS22 blade

Planned availability dates

- April 25, 2008, except for features noted below
- May 30, 2008, for IBM BladeCenter Open Fabric Manager features (#4941, #4942, #4943) and switch features (#3171, #3173, #3174, #3175, #3176)

Description

The BladeCenter S Chassis can hold up to six blade servers, and up to 12 hot-swap, 3.5-inch SAS disk drives in just 7U of rack space. It can also include up to four 950-watt/1450-watt power supplies. The BladeCenter S Chassis offers the necessary I/O network switching, power, cooling, and control panel information to support the individual servers.

IBM Director and SCM

IBM Director and Storage Configuration Manager (SCM) are available for easy installation and management of blades and HDDs for storage in the BladeCenter S Chassis. Downloads are available at

<http://www-03.ibm.com/systems/management/director/index.html>

Reference information

Refer to Hardware Announcement [107-576](#), dated September 18, 2007.

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 108-234

<https://www.ibm.com/partnerworld/mem/sla.jsp?num=108-234>

Trademarks

i5/OS is a trademark of International Business Machines Corporation in the United States or other countries or both.

BladeCenter and Wave are registered trademarks of International Business Machines Corporation in the United States or other countries or both.

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

Publications

An installation guide, safety and warranty publications are shipped with each BladeCenter® S system.

PDF publications:

- IBM BladeCenter Type 7779 Planning Guide
- IBM BladeCenter Type 7779 Installation Guide
- IBM BladeCenter Type 7779 Problem Determination and Service Guide
- IBM BladeCenter Type 7779 Warranty and Support Information

The following publication is available immediately.

Title	Order number
BladeCenter Solutions	GMI3-0173

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://publib.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.

Publications are offered in displayable softcopy form from the IBM BladeCenter Support Web site.

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

Physical specifications

- Width: 444 mm (17.5 in)
- Depth: 733.4 mm 28.9 in)
- Height: 306.3 mm (12 in)
- Weight:
 - 40.82 kg (90 lb) (minimum configuration)
 - 108.86 kg (240 lb) (maximum configuration)

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

Operating environment

- Temperature:
 - 10° to 35°C (50° to 95°F) at 0 to 914 m (0 to 3,000 ft)
 - 10° to 32°C (50° to 90°F) at 914 to 2,133 m (3,000 to 7,000 ft)
- Relative humidity: 8% to 80%
- Maximum altitude: 2,133 m (7,000 ft)
- Electrical power:
 - 200-240 V ac (nominal), 50 or 60 Hz
 - 110-127 V ac (nominal), 50 or 60 Hz

- Minimum configuration: 0.40 kVA (two power supplies)
- Maximum configuration: 3.50 kVA (four power supplies)
- Power consumption: 3,500 watts maximum
- Thermal output
 - Ship configuration — 1,365 Btu/hr (400 watts)
 - Full configuration — 11,942 Btu/hr (3,500 watts)
- Acoustical noise emissions for BladeCenter with six blade servers:
 - 6.3 through 6.9 bels blade dependent (operating)
 - 6.3 through 6.9 bels blade dependent (idling)

Standards

This system supports or complies with the following standards:

- Multiprocessor Specification (MPS) 1.4.
- Hardware-enabled to meet the International Organization for Standardization (ISO) 9241, Part 3.

Equipment approvals and safety

- FCC — Verified to comply with Part 15 of the FCC Rules, Class A
- Canada ICES-003, issue 4, Class A
- UL/IEC 60950-1¹
- CAN C22.2 No. 60950-1-03
- NOM-019¹

¹ These servers are certified by the respective UL and NOM agencies.

Hardware requirements

BladeCenter S configuration

A control panel located on the top left of the media tray contains following LEDs:

- Power good
- Blade location
- Over temperature
- Information
- General fault

There are two USB ports and one CD-RW/DVD-ROM on the media tray.

The rear housing contains:

- Four hot-swap, redundant fan pack assemblies in the center, mounted one on top of the other
- Two standard 950-watt/1450-watt power supply modules and module bays for two optional power supply modules on each side of the fan pack assemblies
- One standard management module for KVM/Management

Minimum system configuration

Each 7779-BCS configuration must contain a minimum of:

- One — BladeCenter JS12 (7998-60X), JS21 (7988-J21), or JS22 (7998-61X) blade
- One — CD-RW/DVD-ROM Combo (#4156)

You can add additional features as needed.

Note: A minimum of one copy of the System Documentation and Software(#5832-5846) is required at each customer installation.

Rack installations

The BladeCenter S Chassis 7U rack-drawer enclosure is designed to be installed in a 19-inch rack cabinet designed for 28-inch deep devices, such as the 7014-B42. If rack installation in the 7014-B42 is ordered, #4651-#4666, a max of four BladeCenter S can be installed in each rack.

If the BladeCenter S Chassis is ordered from the factory with the IBM BladeCenter Office Enablement Kit (#5129), the BladeCenter S Chassis will be mounted in the Office Enablement Kit tower enclosure at no charge.

If you choose not to use an IBM rack:

- The rack must meet EIA-310-D Standards for mounting flanges and hole locations.
- The front to rear distance of the mounting flanges must be 698.5 — 762 mm (27.5 — 30 in).
- The thickness of the mounting flanges must be 1.9 — 3.3 mm.
- The mounting flanges must have either 7.1 mm (.28 in) diameter holes or 9.6 mm (.38 in) square holes on the standard EIA hole spacing.
- The rack must have a minimum depth of 70 mm (2.76 in) between the front mounting flange and inside of the front door for appropriate cooling.
- The rack must have a minimum depth of 157 mm (6.2 in) between the rear mounting flange and inside of the rear door to install the server and make space for cable management.
- The minimum side-to-side clearance in the rack between the front and rear mounting flanges must be 467 mm (18.2 in) to accommodate the width of the server and the slide mounting brackets.
- The minimum side-to-side clearance in the rack between each door and the mounting flanges must be 484 mm (19.1 in) to accommodate the slide mounting brackets.
- The rack should include perforated front and rear doors and must not prevent the flow of cool air into the front or out of the rear and hot air out the rear of the rack (front and rear doors, if present, must be perforated). Stand-alone racks must have side and top panels to prevent the flow of air from the sides, top, or bottom of the rack. All empty EIA space in the rack must be closed off with filler panels to prevent the recirculation of air within the rack.
- The weight-handling capacity of the rack must be sufficient to support the maximum rack configuration, including all servers, external cables, and power distribution units (PDUs).
- The rack must provide proper stabilization so that the rack does not become unstable when servers are pulled out for service.

Power considerations

BladeCenter S Chassis comes with two or four 100 to 127 V ac or 200 to 240 V ac power modules, 950-watt/1450-watt, model dependent. These standard power modules support blade servers bays one through six with power redundancy.

Switches (maximum of three)

A combination of up to three Gb Ethernet switches, or one Gb Ethernet switch and up to two Fibre Channel switches, or one Gb Ethernet switch and up to two SAS switch modules can be installed.

- Gigabit Ethernet switch modules from Nortel/Blade Network Technologies
 - Nortel 10 Gb Uplink Ethernet Switch Module for IBM BladeCenter (#3210)
 - Nortel Networks L2/L3 Copper Gb Ethernet Switch Module for IBM BladeCenter (#3212)
 - Nortel Networks L2/L3 Fiber Gb Ethernet Switch Module for IBM BladeCenter (#3213)
- IBM BladeCenter SAS Connectivity Module (#3267)
- Fibre Channel SAN switch modules from QLogic, Brocade, and Cisco
 - Brocade 4 Gb 10-port SAN Switch Module for IBM BladeCenter (#3207)

- Cisco Systems 4 Gb 10-port Fibre Channel Module (#3241)
- QLogic 10-port 4 Gb SAN Switch Module for IBM (#3243)
- QLogic 4 Gb Intelligent Pass-thru Module for IBM (#3245)

One of the following pass-thru modules can be used in I/O bay 1:

- BladeCenter Optical Pass-thru Module (#3218)
- BladeCenter Copper Pass-thru Module (#3219)

Contact your IBM representative or IBM Business Partner, or refer to the IBM Sales Manual for information on the compatibility of hardware and software for System x™ servers. The Sales Manual is updated periodically as new features and options are announced that support these servers.

Predefined storage configurations

Several predefined configurations are available to help in configuring the zoning for the IBM SAS Connectivity Module (SAS SM) (#3267). These feature numbers may be ordered with preload on the IBM BladeCenter JS12, JS21, or JS22 or stand-alone. If one or more JS12, JS21, or JS22 blade servers have preload (#5005) selected and no DASD on the server, then one of these predefined configurations must be selected for preload of either the AIX® operating system or Virtual I/O Server.

Each definition includes:

- Number of blades, IBM BladeCenter JS12, JS21, or JS22
- Number of drives, #3747, #3748, or #3749, and drives per blade
- Quantity of IBM BladeCenter S 6-Disk Storage Module (DSS) (#4545)
- Quantity of IBM BladeCenter SAS Connectivity Module (#3267)

Config	Blades			DSS #4545	SAS SM #3267
	JS12	JS21	JS22		
#5059	1-6	1-12	1-2	1-2	2
#5067	1-6	1-12	1-2	1-2	1
#5068	1	1-12	12	1-2	2
#5069	1	1-12	12	1-2	1
#5084	1-3	1-12	1-4	1-2	2
#5085	1-3	1-12	1-4	1-2	1
#5086	1-2	1-12	1-6	1-2	2
#5087	1-2	1-12	1-6	1-2	1

- #5059 — Stg Config2 (1-6 blades, 1-2 HDDs per blade, 1-2 DSSs, and 2 SAS SMs)
- #5067 — Stg Config3 (1-6 blades, 1-2 HDDs per blade, 1-2 DSSs, and 1 SAS SM)
- #5068 — Stg Config4 (1 blade, 1-12 HDDs per blade, 1-2 DSSs, and 2 SAS SMs)
- #5069 — Stg Config5 (1 blade, 1-12 HDDs per blade, 1-2 DSSs, and 1 SAS SM)
- #5084 — Stg Config6 (1-3 blades, 1-4 HDDs per blade, 1-2 DSSs, and 2 SAS SMs)
- #5085 — Stg Config7 (1-3 blades, 1-4 HDDs per blade, 1-2 DSSs, and 1 SAS SM)
- #5086 — Stg Config8 (1-2 blades, 1-6 HDDs per blade, 1-2 DSSs, and 2 SAS SMs)
- #5087 — Stg Config9 (1-2 blades, 1-6 HDDs per blade, 1-2 DSSs, and 1 SAS SM)

BladeCenter Open Fabric Manager

BladeCenter Open Fabric Manager support on JS22 and JS12 blades requires system firmware level eFW 3.3, or later, to enable support on these blades. Also, if BladeCenter Open Fabric Manager is being run against the Emulex 4 Gb Fibre Channel Expansion card (#8251), then FCode firmware level 3.10, or later, is required on this adapter. Similarly, if BladeCenter Open Fabric Manager is being run against the QLogic 4 Gb Fibre Channel Expansion cards (#8248

and #8252), then FCode firmware level 2.00, or later, is required on these adapters. The latest system level and expansion card firmware can be found at the IBM Support site

<http://www-304.ibm.com/systems/support/>

Software requirements

- AIX 5.3 with the 5300-08 Technology Level, or later
- AIX 5.3 with the 5300-06 Technology Level and Service Pack 7, or later
- AIX 5.3 with the 5300-07 Technology Level and Service Pack 4, or later
- AIX 6.1 with the 6100-01 Technology Level, or later (Available June 10, 2008)
- AIX 6.1 with the 6100-00 Technology Level and Service Pack 5, or later
- SUSE Linux™ Enterprise Server 10 Service Pack 2 for POWER™, or later
- Red Hat Enterprise Linux 4.6 for POWER, or later
- Red Hat Enterprise Linux 5.1 for POWER, or later
- IBM i 6.1, or later

Note: For systems ordered with the Linux operating system, IBM ships the most current version available from the distributor. If you require a different version than that shipped by IBM, you must obtain it via download from the Linux distributor's Web site. Information concerning access to a distributor's Web site is located on the product registration card delivered to you as part of your Linux operating system order.

Disclaimer: Some information in this announcement addresses anticipated future capabilities and may be subject to change.

IBM Director and Storage Configuration Manager are available for easy installation and management of blades and HDDs for storage in a BladeCenter S Chassis. Downloads are available at

<http://www-03.ibm.com/systems/management/director/index.html>

Licensing: Every IBM BladeCenter unit comes with an IBM Director Server license. This license includes authorizations for the following installations:

- One installation of IBM Director Server
- Twenty installations of IBM Director Agent on non-IBM systems
- Unlimited installations of IBM Director Console

Planning information

Cable orders: Each BladeCenter S Chassis can contain several Gigabit Ethernet connections. The RJ-45 connectors provide a 10/100/1000 Base-T interface (either at half or full duplex) for connecting twisted-pair cable to the Ethernet network. Cabling is not included with the server. To connect the Ethernet controller to a repeater or switch, use a UTP cable with RJ-45 connectors at both ends. For 100 Mbps, or higher operation, Category 5 cabling must be used. For 10 Mbps operation, Category 3, or better, cabling must be used.

Installability: The BladeCenter S Chassis requires approximately 30 minutes for installation. Installation includes unpacking, setting up, and powering on the system. Additional time is required to install an operating system, additional options, or features.

Security, auditability, and control

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

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 credit corporation financing: Yes

Warranty period: Three years

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.

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 (NBD) 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 are shipped with the replacement CRU, you may be charged for the replacement CRU if IBM does not receive the defective CRU within 15 days of your receipt of the replacement.

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

- Media Tray
- Fan Pack
- Power Supply
- DVD-ROM
- Storage Module
- SAS Connectivity Module
- Ethernet Switch Modules
- Fibre Channel Switch Modules
- SAS 3.5 in Hard Drive
- Power Cord
- Management Module
- Front Bezel
- Filler, BBU
- Filler, PS
- Filler, Switch
- Filler, Blade
- HDD Filler, 3.5 inches
- SAS Filler (DSS Filler)

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.

Service level is

- 9 hours per day, Monday through Friday, excluding holidays, next business day response. Calls must be received by 5 p.m. local time in order to qualify for next-business-day response.

Non-IBM parts service

Warranty service: 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.

International Warranty Service: International Warranty Service (IWS) is available in selected countries or regions.

For example, the warranty service type, On-site repair and customer replaceable unit, and service level, 9 x 5 next-business-day and 24 x 7, provided in the servicing country may be different from that provided in the country in which the machine was purchased.

Under IWS, warranty service will be provided with the prevailing warranty service type and service level available for the IWS-eligible machine type in the servicing country and the warranty period observed will be that of the country in which the machine was purchased.

To determine the eligibility of your machine and to view a list of countries where service is available, visit

<http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/warrantyform?brandind=5000008>

For more information on IWS, refer to Services Announcement [601-034](#), dated September 25, 2001.

During the warranty period, warranty service upgrades provide an enhanced level of On-site

Service for an additional charge. Service levels are response-time objectives and are not guaranteed. Refer to the Warranty service section for additional details.

IBM will attempt to resolve your problem over the telephone or electronically by access to 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.

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 on-site response-time objectives are available as warranty service upgrades for your machine. Available offerings are:

- 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

Customer Replaceable Units (CRUs) may be provided as part of the machine's standard warranty CRU Service except that you may install a CRU yourself or request IBM installation, at no additional charge, under one of the On-site Service levels specified above. For additional information on the CRU Service, refer to the warranty information.

Maintenance services

If required, IBM provides repair or exchange service depending on the types of maintenance 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. Service levels are response-time objectives and are not guaranteed. The specified level of maintenance 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. The following service selections are available as maintenance options for your machine type.

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.

Service levels are:

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

Customer Replaceable Unit (CRU) Service: If your problem can be resolved with a CRU (for example, keyboard, mouse, speaker, memory, or hard disk drive), and depending upon the maintenance service offerings in your geography, IBM will ship the CRU to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM upon your request.

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, (1) return instructions and a container are shipped with the replacement CRU and (2) you may be charged for the replacement CRU if IBM does not receive the defective CRU within 15 days of your receipt of the replacement.

CRUs may be provided as part of the machine's standard maintenance service except that you may install a CRU yourself or request IBM installation, at no additional charge, under any of the On-site Service levels specified above.

Non-IBM parts service

Under certain conditions, IBM provides services for selected non-IBM parts at no additional charge for machines that are covered under warranty service upgrades or maintenance services.

This service includes hardware problem determination (PD) on the non-IBM parts (for example,

adapter cards, PCMCIA cards, disk drives, memory) installed within IBM machines 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.

International warranty service: International Warranty Service (IWS) is available in selected countries or regions.

The warranty service type, for example, on-site repair and customer replaceable unit, and service level, 9 x 5 next-business-day and 24x7, provided in the servicing country may be different from that provided in the country in which the machine was purchased.

Under IWS, warranty service will be provided with the prevailing warranty service type and service level available for the IWS-eligible machine type in the servicing country and the warranty period observed will be that of the country in which the machine was purchased.

To determine the eligibility of your machine and to view a list of countries where service is available, visit

<http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/warrantyform?brandind=5000008>

For more information on IWS, refer to Services Announcement 601-034, dated September 25, 2001.

IBM hourly service rate classification: One

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 C5.

Licensed Internal Code and Licensed Machine Code: This product does not contain Licensed Internal Code or Licensed Machine Code.

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

The educational allowance is 5% for the products in this announcement.

Prices

For current prices, contact us at 888-Shop-IBM (746-7426) or visit

<http://www-03.ibm.com/systems/x/>

Product charges: The following are newly announced features on the specific models of the BladeCenter 7779 machine type:

Description	Model	Feature number	Initial /		RP
			MES/	Support	
			Both/	CSU	MES
IBM BladeCenter S Chassis	BCS			Yes	
BladeCenter Chassis content specify -- 7998-60X	BCS	0285	Both	Yes	No
BladeCenter Chassis content specify -- 7988-J21	BCS	0291	Both	Yes	No
BladeCenter Chassis content specify -- 7998-61X	BCS	0292	Both	Yes	No
U. S. TAA Compliance Indicator	BCS	0983	Initial	NA	No
Cisco 3012 Catalyst Switch	BCS	3174	Both	Yes	No
Brocade 10-port 4 Gb SAN Switch Module for IBM BladeCenter	BCS	3207	Both	Yes	No
Nortel 10 Gigabit Uplink Ethernet Switch Module for IBM BladeCenter	BCS	3210	Both	Yes	No
Nortel Networks Layer 2/3 Copper Gigabit Ethernet Switch Modules for BladeCenter	BCS	3212	Both	Yes	No
Nortel Networks Layer 2/3 Fiber Gigabit Ethernet Switch Modules for BladeCenter	BCS	3213	Both	Yes	No
IBM BladeCenter Optical Passthru Module	BCS	3218	Both	Yes	No
IBM BladeCenter Copper Pass-Thru Module	BCS	3219	Both	Yes	No
Server Connectivity Module for BladeCenter	BCS	3220	Both	Yes	No
BladeCenter OPM SC Cable	BCS	3221	Both	Yes	No
BladeCenter OPM LC Cable	BCS	3222	Both	Yes	No
BladeCenter Copper Pass-thru Module Cable	BCS	3223	Both	Yes	No
IBM 10 Gb Ethernet 850nm Fiber XFP Transceiver	BCS	3231	Both	Yes	No
IBM 10 Gb Ethernet 1310nm Fiber XFP Transceiver	BCS	3232	Both	Yes	No
IBM Short Wave(R) SFP Module, 4 Gb	BCS	3238	Both	Yes	No
Cisco Systems 4 Gb 10 Port Fibre Channel Switch Module	BCS	3241	Both	Yes	No
QLogic 10-port 4 Gb SAN Switch Module for IBM BladeCenter	BCS	3243	Both	Yes	No
QLogic 4 Gb Intelligent Pass-Thru Module for IBM BladeCenter	BCS	3245	Both	Yes	No
1M SAS 4-Channel Cable	BCS	3260	Both	Yes	No

Cisco Systems 4 Gb Short-wave Length SFP Module	BCS	3261	Both	Yes	No
Cisco Systems 4 Gb Long-wave Length SFP Module	BCS	3262	Both	Yes	No
3M SAS 4-Channel Cable	BCS	3266	Both	Yes	No
IBM BladeCenter SAS Connectivity Module	BCS	3267	Both	Yes	No

Note: These features are subject to an \$8.00 electronic waste recycling fee (15-inch to 34-inch video device.)

IBM T119 Flat Panel Monitor	BCS	3644	Both	Yes	No
IBM T117 Flat Panel Monitor	BCS	3645	Both	Yes	No
Power Cord (2.5 M), BladeCenter to Wall (208V/15A)	BCS	3733	Both	Yes	No
Power Cord (2 M), BladeCenter to IBM PDU (100-250V/16A)	BCS	3744	Both	Yes	No
300 GB 15K RPM SAS Disk Drive	BCS	3747	Both	Yes	No
73 GB 15K RPM SAS Disk Drive	BCS	3748	Both	Yes	No
146 GB 15K RPM SAS Disk Drive	BCS	3749	Both	Yes	No
UltraSlim Enhanced CD-RW/DVD-ROM	BCS	4156	Initial	NA	No
LC-LC Fibre Channel Cable, 5-Meter	BCS	4380	Both	Yes	No
LC-LC Fibre Channel Cable, 25-Meter	BCS	4385	Both	Yes	No
CX4 Cable, 1.5-Meter	BCS	4540	Both	Yes	No
CX4 Cable, 3-Meter	BCS	4541	Both	Yes	No
Pluggable Optical Transceivers (4-Pack)	BCS	4542	Both	Yes	No
IBM BladeCenter S 6-Disk Storage Module	BCS	4545	Both	Yes	No
BladeCenter S Serial Pass-thru Module	BCS	4546	Both	Yes	
IBM BladeCenter S 950W/1450W Auto-Sensing Power Supply (Optional)	BCS	4548	Both	Yes	No
Power Cord (2.5 M), BladeCenter to Wall (200-240V)	BCS	4549	Both	Yes	No
Power Cord (2.5 M), To Wall (220-240V)	BCS	4550	Both	Yes	No
Power cord (2.5 M), To Wall (220-240V)	BCS	4551	Both	Yes	No
Power Cord (2.5 M), To Wall (220-240V)	BCS	4552	Both	Yes	No
Power Cord (2.5 M), To Wall (220-240V)	BCS	4553	Both	Yes	No
Power Cord (2.5 M), To Wall (220-240V)	BCS	4554	Both	Yes	No
Power Cord (2.5 M), To Wall (220-240V)	BCS	4555	Both	Yes	No
Power Cord (2.5 M), To Wall (230V/16A)	BCS	4556	Both	Yes	No
Power Cord (2.5 M), To Wall (220-240V)	BCS	4557	Both	Yes	No
Power Cord (2.5 M), To PDU/UPS (100-240V/16A)	BCS	4558	Both	Yes	No
Power Cord (4.3 M), To Wall (120V/16A)	BCS	4559	Both	Yes	No

Power cord (4.3 M), To Wall (208V/16A)	BCS	4560	Both	Yes	No
Power Cord (4.3 M), To Wall (230V/16A)	BCS	4561	Both	Yes	No
Power Cord (4.3 M), To Wall (230V/16A)	BCS	4562	Both	Yes	No
Power Cord (4.3 M), To Wall (230V/13A)	BCS	4563	Both	Yes	No
Power Cord (4.3 M), To Wall (230V/16A)	BCS	4564	Both	Yes	No
Power Cord (4.3 M), To Wall (230V/16A)	BCS	4565	Both	Yes	No
Power Cord (4.3 M), To Wall (230V/16A)	BCS	4566	Both	Yes	No
Power Cord (4.3 M), To Wall (220V/16A)	BCS	4567	Both	Yes	No
Power Cable (4.3 M), To Wall (240V/16A)	BCS	4568	Both	Yes	No
Power Cord (4.3 M), To Wall (125V/15A)	BCS	4569	Both	Yes	No
Power Cord (4.3 M), To Wall (220V/16A)	BCS	4570	Both	Yes	No
Power Cord (4.3 M), To Wall (230V/15A)	BCS	4571	Both	Yes	No
Power Cord (4.3 M), To Wall (125V/16A)	BCS	4572	Both	Yes	No
Power Cord (4.3 M), To Wall (250V/16A)	BCS	4573	Both	Yes	No
Power Cable (4.3 M), To Wall (250V/15A)	BCS	4574	Both	Yes	No
Power Cord (4.3 M), To Wall (100V/15A)	BCS	4575	Both	Yes	No
Power Cord (4.3 M), To Wall (200V/15A)	BCS	4576	Both	Yes	No
Power Cord (2.5 M), To Wall (120V/15A)	BCS	4578	Both	Yes	No
Power Cord (2.5 M), To Wall (120V/16A)	BCS	4579	Both	Yes	No
Rack Integrati on Services: BP only	BCS	4648	Both	Yes	No
Rack Integrati on Services	BCS	4649	Both	Yes	No

One and only one rack indicator features is required on all orders (#4650 to #4666).

Rack Indicator -- Not Factory Integrated	BCS	4650	Initial	NA	No
Rack Indicator, Rack #1	BCS	4651	Initial	NA	No
Rack Indicator, Rack #2	BCS	4652	Initial	NA	No
Rack Indicator, Rack #3	BCS	4653	Initial	NA	No
Rack Indicator, Rack #4	BCS	4654	Initial	NA	No
Rack Indicator, Rack #5	BCS	4655	Initial	NA	No
Rack Indicator, Rack #6	BCS	4656	Initial	NA	No
Rack Indicator, Rack #7	BCS	4657	Initial	NA	No
Rack Indicator, Rack #8	BCS	4658	Initial	NA	No
Rack Indicator, Rack #9	BCS	4659	Initial	NA	No
Rack Indicator, Rack #10	BCS	4660	Initial	NA	No
Rack Indicator, Rack #11	BCS	4661	Initial	NA	No
Rack Indicator, Rack #12	BCS	4662	Initial	NA	No
Rack Indicator, Rack #13	BCS	4663	Initial	NA	No

Rack Indicator, Rack #14	BCS	4664	Initial	NA	No
Rack Indicator, Rack #15	BCS	4665	Initial	NA	No
Rack Indicator, Rack #16	BCS	4666	Initial	NA	No
BladeCenter chassis specify, Chassis #1	BCS	4681	Initial	NA	No
BladeCenter chassis specify, Chassis #2	BCS	4682	Initial	NA	No
BladeCenter chassis specify, Chassis #3	BCS	4683	Initial	NA	No
BladeCenter chassis specify, Chassis #4	BCS	4684	Initial	NA	No
BladeCenter chassis specify, Chassis #5	BCS	4685	Initial	NA	No
BladeCenter chassis specify, Chassis #6	BCS	4686	Initial	NA	No
BladeCenter chassis specify, Chassis #7	BCS	4687	Initial	NA	No
BladeCenter chassis specify, Chassis #8	BCS	4688	Initial	NA	No
BladeCenter chassis specify, Chassis #9	BCS	4689	Initial	NA	No
IBM BladeCenter Open Fabric Manager	BCS	4941	Both	Yes	No
IBM BladeCenter Open Fabric Manager Advanced Upgrade	BCS	4942	Both	Yes	No
IBM BladeCenter Open Fabric Manager Advanced Upgrade for IBM Director	BCS	4943	Both	Yes	No
Custom Service Specify, Off-Site	BCS	5001	Both	Yes	No
Custom Service Specify, On-Site	BCS	5039	Both	Yes	No
Storage Configuration 2	BCS	5059	Initial	NA	No
Storage Configuration 3	BCS	5067	Initial	NA	No
Storage Configuration 4	BCS	5068	Initial	NA	No
Storage Configuration 5	BCS	5069	Initial	NA	No
Storage Configuration 6	BCS	5084	Initial	NA	No
Storage Configuration 7	BCS	5085	Initial	NA	No
Storage Configuration 8	BCS	5086	Initial	NA	No
Storage Configuration 9	BCS	5087	Initial	NA	No
IBM BladeCenter Office Enablement Kit	BCS	5129	Both	Yes	No
Power Cord (2.5 M), BladeCenter to Wall (208V/16A)	BCS	5811	Both	Yes	No
Power Cord (2.5 M), BladeCenter to Wall (200V/15A)	BCS	5812	Both	Yes	No
Power Cord (2.5 M), BladeCenter to Wall (100V/15A)	BCS	5813	Both	Yes	No
Power Cord (2.5 M), BladeCenter to Wall (220V/16A)	BCS	5814	Both	Yes	No
Power Cord (2.5 M), BladeCenter to Wall (220V/15A)	BCS	5815	Both	Yes	No
Power Cord (2.5 M), BladeCenter to Wall (110V/15A)	BCS	5816	Both	Yes	No

Power Cord (2.5M), BladeCenter to Wall (220V/15A)	BCS	5817	Both	Yes No
Power Cord (4.3 M), BladeCenter to Wall (220V/16A)	BCS	5818	Both	Yes No
Power Cord (2.5 M), BladeCenter to Wall (110V/15A)	BCS	5819	Both	Yes No
Power Cord (2.5 M), BladeCenter to Wall (220V/16A)	BCS	5820	Both	Yes No
Power Cord (2.5 M), BladeCenter to Wall (230V/16A)	BCS	5821	Both	Yes No
Power Cord (4.3 M), BladeCenter to Wall (230V/16A)	BCS	5822	Both	Yes No
BC-S System Documentation and Software -- U. S. English	BCS	5832	Both	Yes No
BC-S System Documentation and Software -- French	BCS	5833	Both	Yes No
BC-S System Documentation and Software -- Spanish	BCS	5834	Both	Yes No
BC-S System Documentation and Software -- German	BCS	5835	Both	Yes No
BC-S System Documentation and Software -- Italian	BCS	5836	Both	Yes No
BC-S System Documentation and Software -- Brazilian Portuguese	BCS	5838	Both	Yes No
BC-S System Documentation and Software -- Japanese	BCS	5839	Both	Yes No
BC-S System Documentation and Software -- Japanese English	BCS	5840	Both	Yes No
BC-S System Documentation and Software -- Korean	BCS	5841	Both	Yes No
BC-S System Documentation and Software -- Korean English	BCS	5842	Both	Yes No
BC-S System Documentation and Software -- Simplified Chinese	BCS	5843	Both	Yes No
BC-S System Documentation and Software -- Traditional Chinese (Hong Kong)	BCS	5844	Both	Yes No
BC-S System Documentation and Software -- Traditional Chinese (Taiwan)	BCS	5845	Both	Yes No
BC-S System Documentation and Software -- U. K. English	BCS	5846	Both	Yes No
Full Width Keyboard -- USB, U. S. English, #103P	BCS	5951	Both	Yes No
Full Width Keyboard	BCS	5952	Both	Yes No

-- USB, French, #189					
Full Width Keyboard	BCS	5953	Both	Yes	No
-- USB, Italian, #142					
Full Width Keyboard	BCS	5954	Both	Yes	No
-- USB, German/ Austrian, #129					
Full Width Keyboard	BCS	5955	Both	Yes	No
-- USB, UK English, #166P					
Full Width Keyboard	BCS	5956	Both	Yes	No
-- USB, Spanish, #172					
Full Width Keyboard	BCS	5957	Both	Yes	No
-- USB, Japanese, #194					
Full Width Keyboard	BCS	5958	Both	Yes	No
-- USB, Brazilian Portuguese, #275					
Full Width Keyboard	BCS	5959	Both	Yes	No
-- USB, Hungarian, #208					
Full Width Keyboard	BCS	5960	Both	Yes	No
-- USB, Korean, #413					
Full Width Keyboard	BCS	5961	Both	Yes	No
-- USB, Chinese, #467					
Full Width Keyboard	BCS	5962	Both	Yes	No
-- USB, French Canadian, #445					
Full Width Keyboard	BCS	5963	Both	Yes	No
-- USB, Canadian French, #058					
Full Width Keyboard	BCS	5964	Both	Yes	No
-- USB, Belgian/UK, #120					
Full Width Keyboard	BCS	5965	Both	Yes	No
-- USB, Swedish/ Finnish, #153					
Full Width Keyboard	BCS	5966	Both	Yes	No
-- USB, Danish, #159					
Full Width Keyboard	BCS	5967	Both	Yes	No
-- USB, Bulgarian, #442					
Full Width Keyboard	BCS	5968	Both	Yes	No
-- USB, Swiss/ French/German, #150					
Full Width Keyboard	BCS	5969	Both	Yes	No
-- USB, Norwegian, #155					
Full Width Keyboard	BCS	5970	Both	Yes	No
-- USB, Dutch, #143					
Full Width Keyboard	BCS	5971	Both	Yes	No
-- USB, Portuguese, #163					
Full Width Keyboard	BCS	5972	Both	Yes	No
-- USB, Greek, #319					
Full Width Keyboard	BCS	5973	Both	Yes	No
-- USB, Hebrew, #212					
Full Width Keyboard	BCS	5974	Both	Yes	No
-- USB, Polish, #214					
Full Width Keyboard	BCS	5975	Both	Yes	No
-- USB, Slovakian, #245					
Full Width Keyboard	BCS	5976	Both	Yes	No
-- USB, Czech, #243					
Full Width Keyboard	BCS	5977	Both	Yes	No
-- USB, Turkish, #179					
Full Width Keyboard	BCS	5978	Both	Yes	No
-- USB, LA Spanish, #171					
Full Width Keyboard	BCS	5979	Both	Yes	No
-- USB, Arabic, #253					

Full Width Keyboard -- USB, Thai, #191	BCS	5980	Both	Yes	No
Full Width Keyboard -- USB, Russian, #443	BCS	5981	Both	Yes	No
Full Width Keyboard -- USB, Slovenian, #234	BCS	5982	Both	Yes	No
Full Width Keyboard -- USB, U. S. English Euro, #103P	BCS	5983	Both	Yes	No
Power Cord (6-foot), To Wall (125V, 15A)	BCS	6470	Both	Yes	No
Power Cord (9-foot), To Wall/OEM PDU (125V, 15A)	BCS	6471	Both	Yes	No
Power Cord (9-foot), To Wall/OEM PDU (250V, 16A)	BCS	6472	Both	Yes	No
Power Cord (9-foot), To Wall/OEM PDU (250V, 10A)	BCS	6473	Both	Yes	No
Power Cord (9-foot), To Wall/OEM PDU (250V, 13A)	BCS	6474	Both	Yes	No
Power Cord (9-foot), To Wall/OEM PDU (250V, 16A)	BCS	6475	Both	Yes	No
Power Cord (9-foot), To Wall/OEM PDU (250V, 10A)	BCS	6476	Both	Yes	No
Power Cord (9-foot), To Wall/OEM PDU (250V, 16A)	BCS	6477	Both	Yes	No
Power Cord (9-foot), To Wall/OEM PDU (250V, 16A)	BCS	6478	Both	Yes	No
Power Cord (6-foot), To Wall (250V, 15A), United States	BCS	6487	Both	Yes	No
Power Cord (9-foot), To Wall/OEM PDU (125V, 15A or 250V, 10A)	BCS	6488	Both	Yes	No
Power Cord (9-foot), To Wall/OEM PDU (250V, 10A)	BCS	6493	Both	Yes	No
Power Cord (9-foot), To Wall/OEM PDU (250V, 10A)	BCS	6494	Both	Yes	No
Power Cord (9-foot), To Wall/OEM PDU (250V, 10A)	BCS	6495	Both	Yes	No
Power Cord (9-foot), To Wall/OEM PDU (250V, 10A)	BCS	6496	Both	Yes	No
Power Cord (9-foot), To Wall/OEM PDU (125V, 15A)	BCS	6651	Both	Yes	No
Power Cord (9-foot), To Wall/OEM PDU (250V, 15A)	BCS	6659	Both	Yes	No
Power Cord (6-foot), To Wall (125V, 15A)	BCS	6670	Both	Yes	No
Power Cord (9-foot), To Wall/OEM PDU (250V, 10A)	BCS	6680	Both	Yes	No
Power Cord (6-foot), To Wall (250V, 15A)	BCS	6687	Both	Yes	No
Mouse -- USB, with Keyboard Attachment Cable	BCS	8841	Both	Yes	No
Month Indicator	BCS	9461	Initial	NA	No
Day Indicator	BCS	9462	Initial	NA	No

Hour Indicator	BCS	9463	Initial	NA	No
Minute Indicator	BCS	9464	Initial	NA	No
Qty Indicator	BCS	9465	Initial	NA	No
Countable Member Indicator	BCS	9466	Initial	NA	No

The following are newly announced features on the specific models of the BladeCenter 7014, 7989 machine types:

Description machine type 7014	Model number	Feature number	Initial / MES/ Both/ Support	RP CSU	MES
Rack Content Specify:	7779-BCS - 7U B42	0329	Initial	NA	No

Description machine type 7989	Model	Feature number	Initial / MES/ Both/ Support	RP CSU	MES
BladeCenter Chassis content specify -- 7998-60X	BCH	0285	Initial	NA	No
Cisco 3110X Catalyst Switch	BCH	3171	Both	Yes	No
Cisco 3110G Catalyst Switch	BCH	3173	Both	Yes	No
Cisco 3012 Catalyst Switch	BCH	3174	Both	Yes	No
IP Services License for Cisco Catalyst Switch	BCH	3175	Both	Yes	No
Advanced IP Services License for Cisco Catalyst Switch	BCH	3176	Both	Yes	No
LC-LC Fibre Channel Cable, 5-Meter	BCH	4380	Both	Yes	No
LC-LC Fibre Channel Cable, 25-Meter	BCH	4385	Both	Yes	No
Pluggable Optical Transceivers (4-Pack)	BCH	4542	Both	Yes	No
IBM BladeCenter Open Fabric Manager	BCH	4941	Both	Yes	No
IBM BladeCenter Open Fabric Manager Advanced Upgrade	BCH	4942	Both	Yes	No
IBM BladeCenter Open Fabric Manager Advanced Upgrade for IBM Director	BCH	4943	Both	Yes	No

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