

New IBM BladeCenter E chassis models provide higher power and performance for multiple blade servers and blade options

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At a glance



These new BladeCenter® E chassis models can help reduce the cost of doing business.

They feature:

- New base model with optional optical disk drive.
- Two 2,000-watt power supplies for power redundancy on 8677-3T model and two 2,320-watt power supplies on the 8677-4T model for high-performance blades; two power supply options available for each model
- Two hot-swap blowers on models
- One advanced management module with built-in KVM support
- Ability to integrate Ethernet networking
- Support matrix for BladeCenter blades, featuring Intel® Xeon® DP and MP, AMD Opteron, and PowerPC® and Power6 processors

For ordering, contact your IBM® representative, an IBM Business Partner, or IBM Americas Call Centers at 800-IBM-CALL (Reference: YE001).

A rock-solid foundation for business-critical applications

Today's data centers are growing and becoming more complex than ever before, prompting enterprise organizations to look for innovative product solutions that combine extreme density with energy efficiency. IBM BladeCenter E delivers a powerful platform to meet these requirements; it integrates servers, storage, networking, and applications so organizations can build robust IT infrastructures. The result is a data center packed with more operating horsepower that helps leave a smaller carbon footprint.

Two new BladeCenter E (BCE) models, 8677-3Tx for U.S., Latin America, Canada, and Japan, and 8677-4Tx for worldwide use, offer a high-density, energy-efficient, and cost-efficient enterprise chassis with an Optical Disk Drive (ODD) as an available option.

Features include:

- New base models with optional optical disk drive
- A rack-optimized, 7U modular design enclosure for up to 14 hot-swap blades
- High-availability mid-plane that supports hot-swap of individual blades
 - 8677-3Tx, model features, two 2,000-watt, hot-swap power modules and support for two optional 2,000-watt power modules; redundancy and power for robust configurations (also available in Japan)
 - New base models with optional optical disk drive.
 - 8677-4Tx, features two 2,320-watt, hot-swap modules and support for two optional 2,320-watt power modules, extending support to a wider range of blades
 - New base model with optional optical disk drive.
- Real-time chassis power usage statistics for 8677-4Tx
- Two hot-swap blowers
- An Advanced Management Module (AMM) that provides chassis level solutions - simplifying installation and management of your installation
- Support for up to four network or storage switches or pass-through modules
- A light path diagnostic panel, and USB 2.0 port
- Support for UltraSlim Enhanced SATA DVD-ROM and Multi-Burner Drives
- IBM Systems Director and Remote Deployment Manager™ for easy installation and management
- Maximize productivity and reduces power usage through energy-efficient design and innovative features
- Delivers extreme density and integration to ease data center space constraints
- Helps protect your IT investment through IBM BladeCenter family longevity, compatibility, and innovation leadership in blades
- Supports latest generation of IBM BladeCenter blades, helping provide investment protection

IBM services and support

- ServerProven® compatibility testing and Web support
- Three-year, customer replaceable unit (CRU) and on-site¹ service, limited warranty²; optional warranty service upgrades available

¹IBM sends a technician after attempting to diagnose and resolve the problem remotely.

² For information on the IBM Statement of Limited Warranty, visit

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

Alternatively, this information is also available by contacting your IBM representative or reseller. Copies are available upon request.

Feature exchange

None

Key prerequisites

- BladeCenter blades
- Power source
- Monitor, USB keyboard, and USB mouse
- Network switch module
- Rack

Planned availability date

April 8, 2010

Description

Related options

- IBM BladeCenter E 2,000 W AC Power Supply Option (39M4675)
- IBM BladeCenter E 2,320 W AC Power Supply Option (46M0508)

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

Product positioning

The most energy-efficient, high-density chassis - ideal for space- and power-constrained data centers. BladeCenter E chassis offers 31% more density than blade competitors, and up to two times the density of rack servers. Additionally, it is over 11% more energy efficient than blade competitors, and up to 35% more energy efficient compared to rack servers. With these advantages, organizations can operate at full potential with lower energy costs, higher efficiency, and greener business practices.

The BladeCenter E Chassis in just 7U of rack space can hold up to 14 blade servers. It can also include up to four 2,320-watt power supplies to offer the necessary I/O network switching, power, cooling, and control panel information to support the individual servers. When compared to most Intel processor-based 1U-high servers, this BladeCenter E Chassis can support twice the number of processors in the same rack space. BladeCenter E supports latest generation of IBM BladeCenter blades, and offers a choice of 2,000-watt or 2,320-watt power supply to meet your IT infrastructure needs.

The IBM BladeCenter E is one of five chassis in the BladeCenter family. The BladeCenter E provides the maximum density and energy efficiency. BladeCenter H provides most I/O performance and flexibility for enterprise datacenters.

BladeCenter S combines servers, switches and shared storage in a small form factor to provide a data center in a box for distributed office environment. BladeCenter T and HT provide ultimate combination of high performance (HT) and rugged design (HT, T) for customers looking to run the most demanding applications in the most demanding conditions. All five chassis share a common set of blades and switches.

Product number

Single Entity Offerings (SEOs)

Description	SEO number
BladeCenter E	86773TU
BladeCenter E	86774TU

Model conversions

None

Feature conversions

None

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=110-044>

Publications

An installation and user's guide, safety, and warranty publications are shipped with each BladeCenter E Chassis.

To order, contact your IBM representative.

Displayable softcopy publications

Publications are offered in displayable softcopy form.

These displayable manuals can be used with the BookManager® READ licensed programs in any of the supported environments. Terms and conditions for use of the machine-readable files are shipped with the files.

Source file publications

None

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.

System x and BladeCenter support services

Recommended core technical support

When you buy IBM System x® technology, include the support services you need to help keep both your hardware and software working for you, day after day, at peak performance. It's your first step toward helping to protect your investment and sustain high levels of system availability. We offer service-level and response-time options to fit your business needs. And we'll help you get started with a core support package that includes:

- **Continuous system monitoring**

Electronic monitoring that helps speed up problem-solving with automated, early detection of potential problems and system errors.

- **Hardware maintenance**

World-class remote and on-site hardware problem determination and repair services.

- **Software technical support**

Access to help line calls for fast, accurate answers to your questions during installation and throughout ongoing operations.

For more information, visit

<http://www.ibm.com/servers/eserver/xseries/services.html>

Technical information

Specified operating environment

Physical specifications

BladeCenter E Chassis

	8677-3Tx ³	8677-4Tx
Blade server bays (type) -	High-availability mid-plane (each model)	
Blades server standard -	0	0
Blades server maximum -	14	14
PCI slots -	0	0
I/O module bays -	4	4
Management modules -	1	1

Standard -	1	1
Additional -	1	1
UltraSlim Enhanced SATA00		
Multi-Burner	0	0
USB port - Front	1	1
Diskette drive -	0	0
Power supply modules -	2x 2,000 w	2x 2,320 w
Hot-swap -	Yes	Yes
Redundant power -	Standard	Standard
Auto restart -	Yes	Yes
Cooling -	2 blowers	2 blowers
Redundant -	Yes	Yes
Hot-swap -	Yes	Yes

³ US, LA, CAN = 8677-3TU and Japan - 8677-3TE, 3TJ

Operating environment

- Temperature:
 - 10.0° to 35.0° C (50° to 95° F) at 0 to 914 m (0 to 3,000 ft)
 - 10.0° to 32.0° 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 - BladeCenter E

- 200 to 240 (nominal) V ac; 50 to 60 Hz; 35.0 A (maximum)
- Input kilovolt-amperes (kVA) (approximately):
 - Minimum configuration: 0.44 kVA
 - Maximum configuration: 7.00 kVA
- Btu output:
 - Ship configuration - 1365 Btu/hr (400 watts)
 - Full configuration - 23727 Btu/hr (6958 watts)
- Supported machine - MT 8677

Hardware requirements

None

Software requirements

Programming requirements

The following network operating systems have been tested for compatibility with the BladeCenter blades:

- Microsoft®
 - Microsoft Windows® Server 2003/2003 R2, Enterprise Edition
 - Microsoft Windows Server 2003/2003 R2, Standard Edition
 - Microsoft Windows Server 2008/2008 R2, Enterprise Edition
 - Microsoft Windows Server 2008/2008 R2, Standard Edition

For additional information support, certification, and versions information on network operating systems, access

<http://www.ibm.com/us/compat>

Compatibility

These new model BladeCenter chassis 8677-3Tx and 4Tx supports:

- IBM BladeCenter HC10 blades
- IBM BladeCenter HS12 blades
- IBM BladeCenter HS20 blades
- IBM BladeCenter HS21 blades
- IBM BladeCenter HS21 XM blades
- IBM BladeCenter HS22 blades (with limitations in a chassis with 2000 W supplies)
- IBM BladeCenter HS22V blades (with limitations in a chassis with 2000 W supplies)
- IBM BladeCenter HS40 blades
- IBM BladeCenter LS20 blades
- IBM BladeCenter LS21/LS41 blades
- IBM BladeCenter JS12 blades
- IBM BladeCenter JS20 blades
- IBM BladeCenter JS21 blades
- IBM BladeCenter LS22/LS42 blades
- IBM BladeCenter QS20 blades
- IBM BladeCenter QS22 blades
- IBM BladeCenter S Expansion Units - BSE-1, BSE-2
- IBM BladeCenter PCI Expansion Units - PEU-1, PEU-2

Switches (maximum of four):

- Gigabit Ethernet Switch Modules from Cisco or Nortel
- Fibre Channel SAN Switch Modules from QLogic, Brocade, and McData
- Cisco TopSpin Infiniband Switch Module
- BladeCenter Optical Pass-thru Module
- BladeCenter Copper Pass-thru Module
- Cisco Fibre Switches
- BNT Ethernet Switch

For detailed information about IBM and non-IBM devices, adapters, software, and network operating systems supported with System x servers, visit

<http://www.ibm.com/us/compat>

Contact your IBM representative, 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.

Limitations

The BladeCenter E chassis uses 200 - 240 V ac power.

User group requirements

This announcement satisfies or partially satisfies requirements from one or more of the worldwide user group communities. Groups include COMMON, COMMON Europe, Guide Share Europe (GSE), InterAction (Australia/New Zealand), Japan Guide Share (JGS), and SHARE Inc.

Planning information

BladeCenter E Chassis

This product is designated as customer setup. Customer setup instructions are shipped with the product.

Configuration information

BladeCenter E Chassis configuration

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

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

Two bays and a USB port are available at the top to the right of the control panel; the bays contain a filler panel. An optional USB-attached 1.44 MB diskette drive is available.

The rear housing contains:

- Two hot-swap, redundant blower assemblies in the center, mounted one on top of the other
- Two standard 2,000-watt power supply modules or two standard 2,320-watt power supply modules, model dependent, and module bays for two optional power supply modules on each side of the blower assemblies
- One standard management module for KVM/Management

Rack installations

The BladeCenter E 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 NetBAY42 ER, IBM S2 42U SR, IBM S2 25U SR, or NetBAY11.

If you choose not to use an IBM rack, the cabinet must meet the following specifications:

- 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 mm to 762 mm (27.5 and 30 inches).
- 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 rack 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 able to support the maximum rack configuration, including all servers, external cables, and 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 E Chassis comes with two 2,000-watt 200 - 240 V ac power modules, or two 2,320-watt 200 - 240 V ac power modules, model dependent. The standard power modules support blade server bays one through six with power redundancy.

Cable orders

Each BladeCenter E 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 E 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.

Packaging

BladeCenter E Chassis

Product	Shipment group	Number of Boxes
BladeCenter	System Unit Carton	1
	Contents:	
	BladeCenter Unit	1
	Publications/CD Package	1
	Rack kit:	1
	Rails Cable management hardware	
	9-foot 200-240 V intra-rack cables	2
BladeCenter	Publications/CD Package	1
	Contents:	
	Installation Guide	
	Safety, Contents, and About Your Documentation Flyers	
	ServerGuide™ Coupon	
	Documentation CD-ROM	
	Device driver CD-ROM	
	Installation Template	

Supplies

For end users: IBM BladeCenter E chassis can be purchased through dealers around the world.

Security, auditability, and control

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

The BladeCenter E Chassis has no security intrusion detection; therefore, they should be installed in a rack environment that provides security through lockable doors or other security measures. It is a customer's responsibility to ensure that the server is secure to protect sensitive data.

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

IBM Global Financing

Yes

To obtain copies of the IBM Statement of Limited Warranty, contact your reseller or IBM.

In the United States, call 800-IBM-SERV (426-7378), or write to:

Warranty Information
P.O. Box 12195
Research Triangle Park, NC 27709
Attn: Dept JDJA/B203

Warranty period

Three years.

Optional IBM features initially installed in an IBM machine carry the same warranty period as the machine. If installed after the initial machine installation, they carry the balance of the machine warranty or the optional feature warranty, whichever is greater.

The following have been designated as consumables or supply items and are, therefore, not covered by this warranty:

None

Warranty service

If required, IBM provides repair or exchange service, depending on the type of warranty service specified below for the machine. IBM will attempt to resolve your problem over the telephone or electronically by access to an IBM Web site. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM. You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines On-site Service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts. 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.

The type of service is Customer Replaceable Unit (for example, keyboard, mouse, speaker, memory, or hard disk drive) Service and On-site Service.

Customer Replaceable Unit (CRU) Service

IBM provides a replacement CRU to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM at any time on your request. A CRU is designated as being either a Tier 1 (mandatory) or a Tier 2 (optional) CRU. Installation of Tier 1 CRUs, as specified in this announcement, is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation. You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge, under the type of warranty service specified below, On-site Service.

Based upon availability, a CRU 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, and 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 CRUs:

- Blank filler
- Cable-management arm
- Hot-swap fan
- Hot-swap power supply
- Power cord
- Service label
- Service processor
- System label

On-site Service

This provides On-site Repair, 9 hours per day, Monday through Friday excluding holidays, NBD response. IBM or your reseller 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. On-site Service is not available in all countries, and some countries have kilometer or mileage limitations from an IBM service center. In those locations where On-site Service is not available, the normal in-country service delivery is used.

Call IBM at 1-800-IBM-SERV (426-7378) to assist with problem isolation for hardware to determine if warranty service is required. Telephone support may be subject to additional charges, even during the limited warranty period.

Calls must be received by 5:00 p.m. local time in order to qualify for NBD service.

International Warranty Service

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

The warranty service type and the service level 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.

Licensing

Programs included with this product are licensed under the terms and conditions of the License Agreements that are shipped with the system.

Maintenance services

ServicePac , ServiceSuite , ServiceElect, and ServiceElite

ServicePac®, ServiceSuite™, ServiceElect, and ServiceElite provide hardware warranty service upgrades, maintenance, and selected support services in one agreement.

Warranty service upgrade

During the warranty period, a warranty service upgrade provides an enhanced level of On-site Service for an additional charge. A warranty service upgrade must be purchased during the warranty period and is for a fixed term (duration). It is not refundable or transferable and may not be prorated. If required, IBM will provide the warranty service upgrade enhanced level of On-site Service acquired by the customer. Service levels are response-time objectives and are not guaranteed.

IBM will attempt to resolve your problem over the telephone or electronically by access to an IBM Web site. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM. You must follow the problem determination and resolution procedures that

IBM specifies. Following problem determination, if IBM determines On-site Service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts.

CRUs will be provided as part of the machine's standard warranty CRU Service except that you may install a Tier 1 CRU yourself or request IBM installation, at no additional charge, under one of the On-site Service levels specified below.

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.

Maintenance service

If required, IBM provides repair or exchange service, depending on the type of maintenance service specified below for the machine. IBM will attempt to resolve your problem over the telephone or electronically by access to an IBM Web site. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM. You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines On-site Service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts. Service levels are response-time objectives and are not guaranteed.

CRU Service

If your problem can be resolved with a CRU (for example, keyboard, mouse, speaker, memory, or hard disk drive), 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 at any time on your request.

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, and 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.

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.

Maintenance service (ICA)

Maintenance services are available for ICA legacy contracts.

Alternative service (warranty service upgrades)

During the warranty period, a warranty service upgrade provides an enhanced level of On-site Service for an additional charge. A warranty service upgrade must be purchased during the warranty period and is for a fixed term (duration). It is not refundable or transferable and may not be prorated. If required, IBM will provide the warranty service upgrade enhanced level of On-site Service acquired by the customer. Service levels are response-time objectives and are not guaranteed.

IBM will attempt to resolve your problem over the telephone or electronically by access to an IBM Web site. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM. You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines On-site Service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts.

A CRU will be provided as part of the machine's standard warranty CRU Service except that you may install a Tier 1 CRU yourself or request IBM to install it, at no additional charge, under the type of warranty service specified below, 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.

Maintenance service

If required, IBM provides repair or exchange service, depending on the type of maintenance service specified below for the machine. IBM will attempt to resolve your problem over the telephone or electronically by access to an IBM Web site. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM. You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines On-site Service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts. Service levels are response-time objectives and are not guaranteed.

CRU Service

If your problem can be resolved with a CRU (for example, keyboard, mouse, speaker, memory, or hard disk drive), 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 at any time on your request.

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, and 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.

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.

Non-IBM parts support

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 its customers, and normal warranty service procedures for the IBM machine apply.

Warranty service upgrades and maintenance services

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

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

If IBM has a Technical Service Agreement with the manufacturer of the failing part, or if the failing part is an accommodations part (a part with an IBM FRU label), IBM may also source and replace the failing part at no additional charge. For all other

non-IBM parts, customers are responsible for sourcing the parts. Installation labor is provided at no additional charge, if the machine is covered under a warranty service upgrade or a maintenance service.

IBM hourly service rate classification

One

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

No

Licensed internal code

IBM Licensed Internal Code (LIC) is licensed for use by a customer on a specific machine, designated by serial number, under the terms and conditions of the IBM Agreement for Licensed Internal Code, to enable a specific machine to function in accordance with its specifications, and only for the capacity authorized by IBM and acquired by the customer. You can obtain the agreement by contacting your IBM representative or visiting

http://www-1.ibm.com/servers/support/machine_warranties/licensed_internal_code.html

IBM may release changes to the Licensed Internal Code. IBM plans to make the Licensed Internal Code changes available for download from the IBM BladeCenter technical support Web site

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

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

Educational allowance

None

Prices

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

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

Description	Machine Type	Model Number	SEO Number
IBM BladeCenter E Chassis	8677	3TU	86773TU
IBM BladeCenter E Chassis	8677	4TU	86774TU

Maintenance charges

For additional information on maintenance and pricing, please contact your IBM Sales Representative or your IBM Business Partner, or call 1-800-IBM-CALL (1-800-426-2255).

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Corrections

(Corrected on March 16, 2010)

Technical information section revised to include electrical specification for the BCE-R system.