BladeCenter E
Product Guide (withdrawn product)

Lenovo BladeCenter® remains an innovative solution to running business solutions. BladeCenter E efficiently integrates servers, storage, networking, I/O, and applications, enabling organizations to build flexible IT infrastructures by using common building blocks. In 7U of rack space, the BladeCenter E chassis can contain up to 14 blade servers, four switch modules, and four power supplies to provide the necessary I/O network switching, power, and cooling to support the individual servers.

Figure 1 shows the BladeCenter E.

Figure 1. The BladeCenter E

Did you know?

BladeCenter E delivers extreme density, energy efficiency, and reliability for space- and power-constrained enterprise IT environments.

The chassis supports up to four traditional fabrics by using networking switches, storage switches, or pass-through devices. The chassis offers light path diagnostics, one front USB input, and an optical drive.

Key features

This section lists the key features of the BladeCenter E chassis.

Scalability and performance

The BladeCenter E chassis offers numerous features to boost performance and improve scalability:

- Up to 14 servers with support for the latest generation of BladeCenter blades, which helps provide performance and investment protection.
- IBM Virtual Fabric offers up to four I/O ports on a single-wide blade and up to four I/O modules in a single chassis, with the choice of Ethernet, Fibre Channel, iSCSI, and SAS connectivity.
- BladeCenter E supports port speeds up to 8 Gbps.
- BladeCenter E provides up to 288 Gbps of external uplink bandwidth (full-duplex) with up to four IBM 1/10Gb Uplink Ethernet switches.
- A flexible and scalable architecture with integrated servers and networking, storage, and management infrastructure supports your growing business needs.

Manageability and security

Powerful systems management features simplify local and remote management of the BladeCenter E chassis:

- The high degree of integration in the BladeCenter E chassis reduces the need for server components, replacing numerous fans, KVM and Ethernet cables, power supplies, external switches, and other components.
- The BladeCenter E chassis includes the Advanced Management Module (AMM). The AMM boosts administrator productivity and reduces skill level requirements, which can help reduce costs, improve overall productivity, and make administration easier by providing a single point of control for the solution. The AMM supports many industry-standard open protocols.
- The AMM provides extensive security features, including role-based user authentication and access control, LDAP support, and SSH and SSL protocols for secure remote systems management.
- IBM Systems Director remains a powerful and intelligent solution to manage BladeCenter systems along side rack mount and tower servers. Systems Director uses the hardware's capabilities by surfacing pertinent information about your blade server. The easy-to-use wizards provide step-by-step instructions and offer automated deployment capabilities.
- IBM Fabric Manager simplifies the deployment of infrastructure connections by managing network and storage address assignments.

Availability and serviceability

The BladeCenter E chassis provides many features to simplify serviceability and increase system uptime:

- BladeCenter reduces the number of parts that are required to run the system. By sharing fans, power supplies, systems management, and ports, there are fewer parts to buy and maintain, and fewer components that can fail and cause downtime.
- Hot-swap components, such as the server, switches, power modules, and blowers, ensure maximum uptime.
- Redundant components, such as blowers and power modules, ensure that systems can remain available even during hardware maintenance windows and failures.
- The Predictive Failure Analysis (PFA) detects when the system components operate outside of the standard thresholds and generates proactive alerts in advance of possible failure, therefore increasing uptime.
- Dual independent power and signal connectors to the BladeCenter E chassis midplane provide fault tolerance to increase uptime.

- The light path diagnostics panel and individual light path LEDs quickly lead the technician to failed (or failing) components. These features simplify servicing, speed up problem resolution, and improve system availability.
- Three-year customer replaceable unit and onsite limited warranty, with next business day 9x5, provides an additional peace of mind.

Energy efficiency

The BladeCenter E chassis offers the following energy-efficient features to save energy, reduce operational costs, increase energy availability, and contribute to a green environment:

- Energy-efficient components and the component-sharing design of the BladeCenter chassis provides ultimate power and cooling savings.
- The BladeCenter E helps reduce energy costs with high-efficiency power supplies.
- The BladeCenter E uses hexagonal ventilation holes, a part of the IBM Calibrated Vectored Cooling™ technology. Hexagonal holes can be grouped more densely than round holes, providing a more efficient airflow through the system, which helps reduce cooling costs.
- IBM Systems Director Active Energy Manager™ provides advanced power management features with actual real-time energy monitoring, reporting, and capping features.

Locations of key components

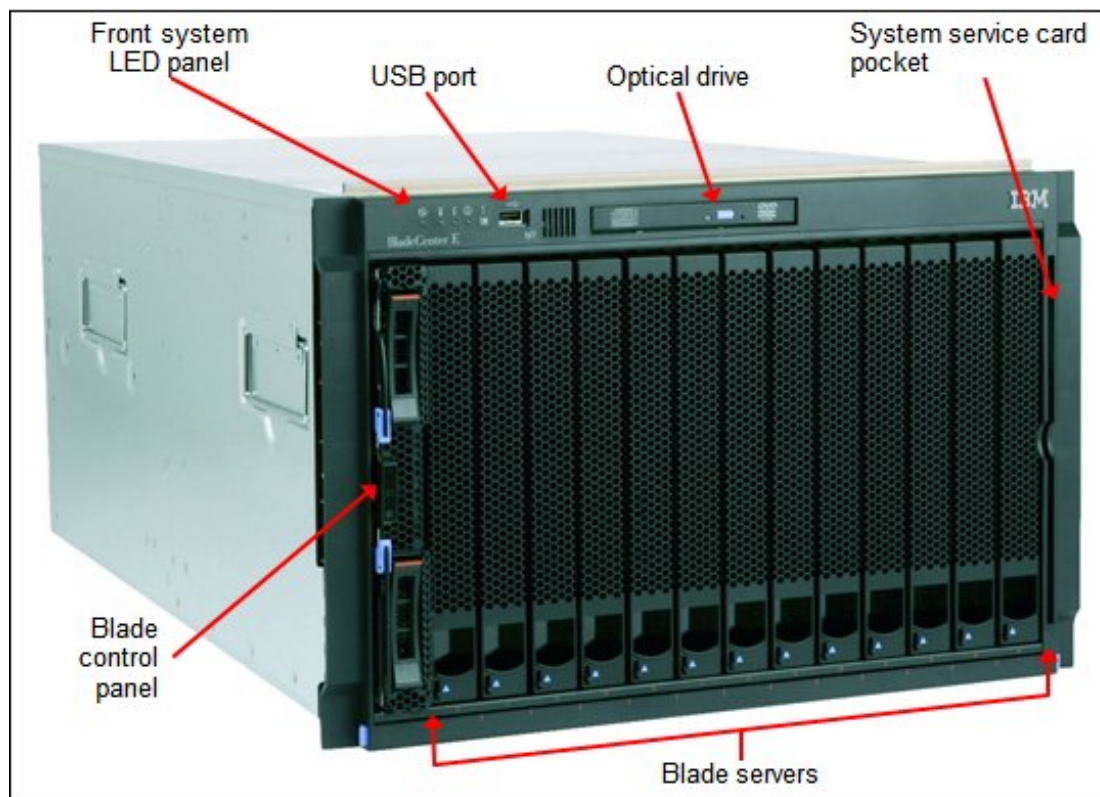Figure 2 shows the front of the BladeCenter E chassis.

Figure 2. Front of the BladeCenter E chassis

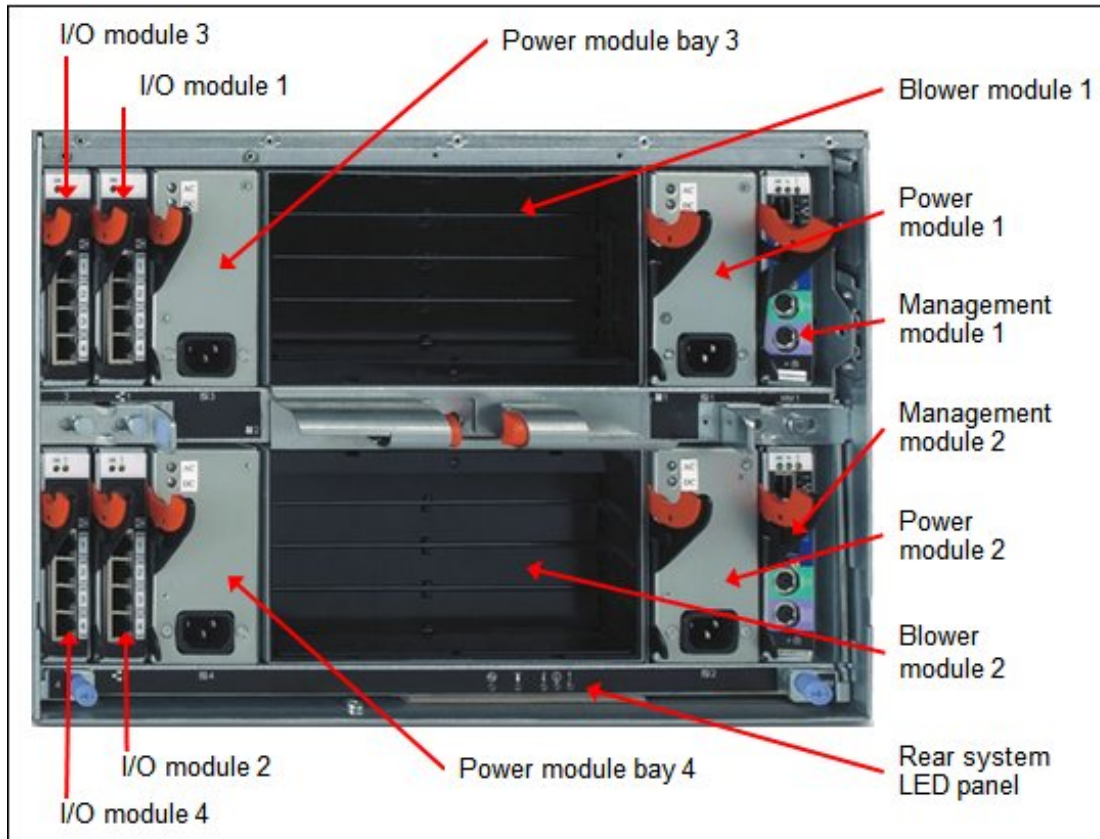Figure 3 shows the rear of the BladeCenter E chassis.

Figure 3. Rear of the BladeCenter E chassis

Standard specifications

Table 1 lists the standard specifications of the BladeCenter E chassis.

Table 1. Standard specifications

Components	Specification
Machine type	x-config: 8677.
Form factor	7U rack-mounted unit.
Server bays	14.
Servers supported	Intel Xeon processor-based HS12, HS22, HS22V, HS23, and HS23E servers IBM POWER® processor-based PS700 servers Certain older BladeCenter servers
Standard I/O bays	Four (Bays 1 - 4). Support for 1 Gb Ethernet, 4 Gb and 8 Gb Fibre Channel, and 3 Gb SAS I/O modules.
Connectivity type	Ethernet, Fibre Channel, iSCSI, and SAS.
Management modules	Up to two redundant hot-swap Advanced Management Modules (AMM): One AMM standard, the second AMM optional.
Optical drive bays	One. Support for an optional DVD-ROM or multi-burner.
Ports	AMM: One DB-15 video port, two USB 2.0 ports for keyboard and mouse, one RJ-45 serial port, one RJ-45 10/100 Mb Ethernet port for remote management. Front: One USB 2.0 port.
Cooling	IBM Calibrated Vectored Cooling with two redundant hot-swap blower modules.
Power modules	Up to four redundant hot-swap 2000 W or 2320 W power modules support two power domains; redundancy is provided within a pair in the same power domain. Power modules 1 and 2 supply power to server bays 1 - 6; power modules 3 and 4 supply power to server bays 7 - 14. (See the "Power modules" section for details.)
Hot-swap parts	Servers, I/O modules, management modules, power modules, and blowers.
Systems management	AMM, light path diagnostics, Predictive Failure Analysis, IBM Systems Director, and IBM Systems Director Active Energy Manager. Remote presence (graphics, keyboard and mouse, and virtual media) through AMM.
Security features	Role-based user security, LDAP, SSH, and SSL.
Limited warranty	Three-year customer-replaceable unit and onsite limited warranty with 9x5/next business day response time.
Service and support	Optional service upgrades are available through IBM ServicePacs: 9x5 or 24x7 4-hour or 2-hour response time, 1-year or 2-year warranty extension, remote technical support for IBM hardware and selected IBM and third-party (Microsoft, Linux, VMware) software.
Dimensions	Height: 304 mm (12.0 in.), width: 444 mm (17.5 in.), depth: 711 mm (28.0 in.).
Weight	Minimum: 39 kg (85 lb), maximum 102 kg (225 lb).

Models

Table 2 lists the specifications of the standard BladeCenter E models.

Table 2. BladeCenter E standard models

Feature	Specifications	
Machine type/model	8677-3Tx†*	8677-4Tx†
Server bays (total / open)	14 / 14	14 / 14
Management modules (std. / max.)	1 / 2	1 / 2
Standard I/O bays (total / open)	4 / 4	4 / 4
I/O modules standard	None	None
Power supplies (std. / max.)	2x 2000 W / 4	2x 2320 W / 4
Blowers (std. / max.)	2 / 2	2 / 2
Optical drive	Optional	Optional

† x is a region-specific letter (for example, EMEA MTM is 86774TG, and the US MTM is 86774TU).
* The model 3Tx is not available in EMEA.

Supported servers

Table 3 lists the blade servers that are supported in the BladeCenter E. The table also lists the maximum number of installable servers based on the thermal design power (TDP) of the Intel Xeon processor that is installed in the servers.

Table 3. Supported blade servers and maximum quantities

Blade server	CPU TDP	Maximum number of server per BladeCenter E chassis	
		2000 W power supplies	2320 W power supplies
BladeCenter HS12 (8028)	All	14	14
BladeCenter HS22 (7870) BladeCenter HS22V (7871)	130 W	None	None
	95 W	5+6	14
	80 W	5+7	14
	60 W	6+7	14
	40 W	14	14
BladeCenter HS23 (7875, E5-2600 v2)	Up to 130 W (excl. 80 W)†	None	None
	80 W†	6+7*	14*
	95 W#	5+7*§	14*§
	70 W#	14*	14*
	50 W#	14	14
BladeCenter HS23 (7875, E5-2600)	Up to 130 W (excl. 80 W)††	None	None
	80 W††	6+7	14
	95 W##	5+7	14
	70 W##	14	14
BladeCenter HS23E (8038)	95 W	5+6	14
	80 W	5+7	14
	Up to 70 W	14	14
BladeCenter HX5 (7872 and 7873)	All	None	None
BladeCenter PS700	All	14**	14**
BladeCenter PS701	All	None	None
BladeCenter PS702	All	None	None
BladeCenter PS703	All	None	None
BladeCenter PS704	All	None	None

† The support that is shown is for Intel Xeon standard thermal profile processors (all except Intel Xeon E5-2618L v2, E5-2628L v2, E5-2648L v2, and E5-2658 v2).
* When one blower fails, the HS23 (7875, E5-2600 v2) with specified processor TDP only supports ambient temperature of up to 28 °C when installed in the BladeCenter E chassis.
§ The HS23 (7875, E5-2600 v2) with the Intel Xeon processor E5-2658 v2 (95 W) only supports one DIMM per channel when installed in the BladeCenter E chassis.
†† The support that is shown is for Intel Xeon standard thermal profile processors (all except Intel Xeon E5-2648L and E5-2658).
# The support that is shown is for Intel Xeon robust thermal profile processors: Intel Xeon E5-2618L v2 (50 W), E5-2628L v2 (70 W), E5-2648L v2 (70 W), and E5-2658 v2 (95 W).
The support that is shown is for Intel Xeon robust thermal profile processors: Intel Xeon E5-2648L (70 W) and E5-2658 (95 W).
** Only specific models of the BladeCenter E are supported by the PS700: 8677-3Sx, 4Sx, 3Tx, 4Tx.

For the latest information about the servers that are supported in the BladeCenter E chassis, see IBM ServerProven® at the following web address:
http://ibm.com/servers/eserver/serverproven/compat/us/

I/O architecture

The BladeCenter E chassis provides connection paths between the server blade bays and I/O bays through a hardwired dual redundant midplane.

Each blade bay has four dedicated I/O connections (two per midplane) linked to four I/O bays (one blade bay connection to one I/O bay). Thus, each I/O bay has a total of 14 I/O connections (to 14 blade bays). Figure 4 shows the I/O topology.
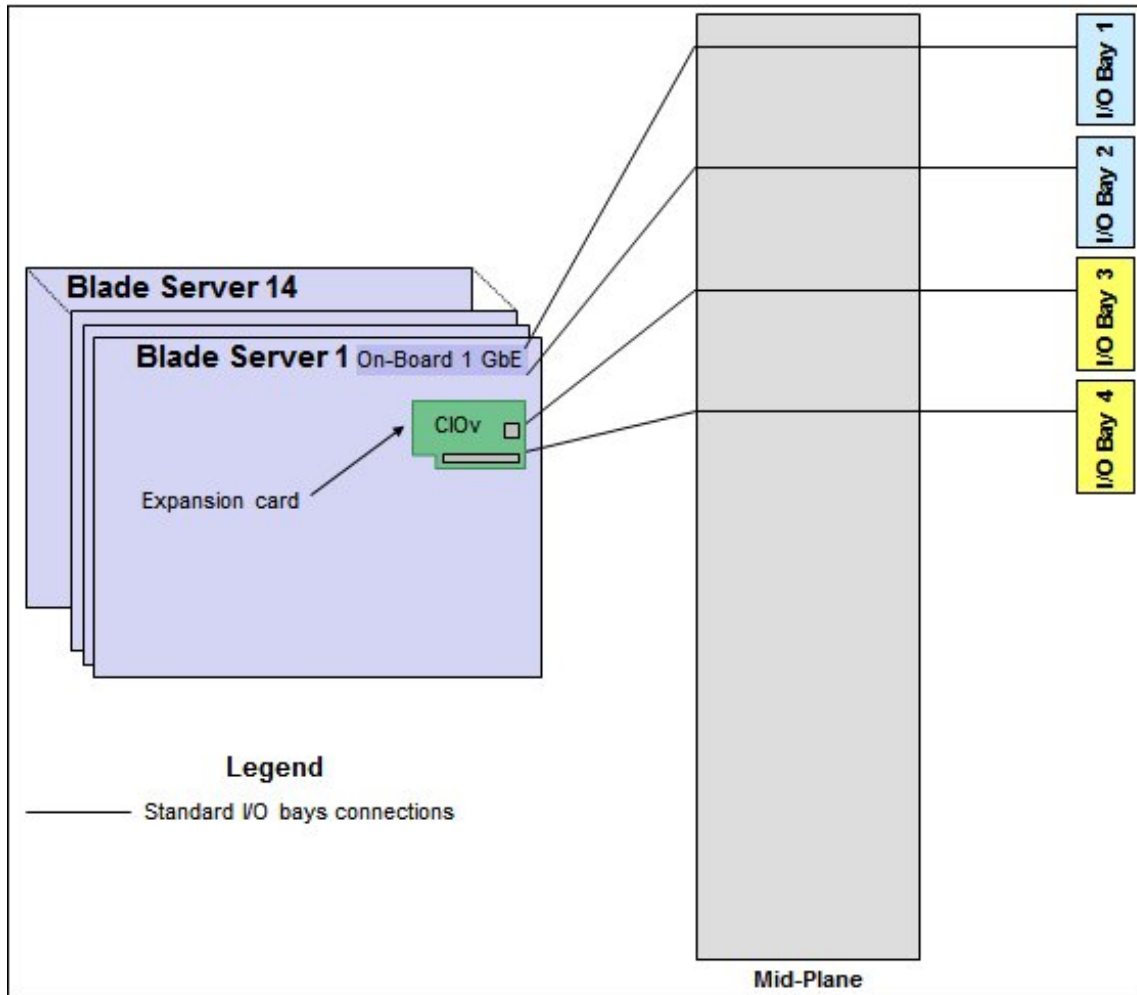
Figure 4. BladeCenter E I/O topology

Each blade server has at least two integrated Gigabit Ethernet ports (Ethernet 1 and Ethernet 2). Ethernet 1 is routed to I/O bay 1 and Ethernet 2 is routed to I/O bay 2, which means that only Ethernet-capable I/O modules can be used in I/O bays 1 and 2.

I/O expansion cards that you optionally install in blade servers have two ports, which are routed to I/O bays 3 and 4. Thus, depending on the expansion card that is installed, compatible I/O modules must be chosen for those I/O bays. Unless an expansion card is installed in one or more processor blades, there is no need for I/O modules 3 and 4.

The I/O modules must be compatible with the I/O interfaces present in the blade servers. For example, when a Fibre Channel expansion card is installed in a blade server, I/O modules 3 and 4 must also be Fibre Channel-based (that is, an FC switch module), and vice versa. If you install FC switches in bays 3 and 4, then any expansion cards that are installed in all other blade servers in the same chassis must be Fibre Channel.

Table 4 shows the connections between adapter slots in the compute nodes to the switch bays in the chassis.

Table 4. Adapter to I/O bay correspondence

I/O adapter in each server	Port on the adapter	Corresponding I/O module bay in the chassis
Onboard 1 Gb Ethernet	Port 1	I/O bay 1
	Port 2	I/O bay 2
CIOv adapter	Port 1	I/O bay 3
	Port 2	I/O bay 4

Supported I/O modules

Tables 5 through 7 list the I/O modules that are supported by the BladeCenter E chassis and the corresponding I/O bay into which the I/O module can be installed.

Table 5. Supported Ethernet I/O modules

I/O module	Part number	Feature code	I/O bay number			
			1	2	3	4
Gigabit Ethernet						
Cisco Catalyst Switch Module 3012*	43W4395	5450	Y	Y	Y	Y
Cisco Catalyst Switch Module 3012	46C9272	A3FE	Y	Y	Y	Y
Cisco Catalyst Switch Module 3110G*	41Y8523	2989	Y	Y	Y	Y
Cisco Catalyst Switch Module 3110G	00Y3254	A3FD	Y	Y	Y	Y
Cisco Catalyst Switch Module 3110X*	41Y8522	2988	Y	Y	Y	Y
Cisco Catalyst Switch Module 3110X	00Y3250	A3FC	Y	Y	Y	Y
IBM 1/10Gb Uplink Ethernet Switch Module	44W4404	1590	Y	Y	Y	Y
IBM L2/3 Copper GbE Switch Module	32R1860	1495	Y	Y	Y	Y
IBM L2/3 Fiber GbE Switch Module	32R1861	1496	Y	Y	Y	Y
IBM L2-7 Gb Ethernet Switch Module	32R1859	1494	Y	Y	Y	Y
IBM Server Connectivity Module	39Y9324	1484	Y	Y	Y	Y

* Withdrawn, not available for ordering.

Table 6. Supported Fibre Channel I/O modules

I/O module	Part number	Feature code	I/O bay number			
			1	2	3	4
4 Gb Fibre Channel						
Cisco 4Gb 20 port FC Switch Module*	39Y9280	2983	N	N	Y	Y
Cisco 4Gb 20 port FC Switch Module	44E5696	A3FH	N	N	Y	Y
Cisco 4Gb 10 port FC Switch Module*	39Y9284	2984	N	N	Y	Y
Cisco 4Gb 10 port FC Switch Module	44E5692	A3FG	N	N	Y	Y
8 Gb Fibre Channel						
Brocade Enterprise 20-port 8Gb SAN Switch	42C1828	5764	N	N	Y	Y
Brocade 20-port 8Gb SAN Switch Module	44X1920	5481	N	N	Y	Y
Brocade 10-port 8Gb SAN Switch Module	44X1921	5483	N	N	Y	Y
QLogic 20-Port 8Gb SAN Switch Module	44X1905	5478	N	N	Y	Y
QLogic 20-Port 4/8Gb SAN Switch Module	88Y6406	A24C	N	N	Y	Y
QLogic 8Gb Intelligent Pass-thru Module	44X1907	5482	N	N	Y	Y
QLogic 4/8Gb Intelligent Pass-thru Module	88Y6410	A24D	N	N	Y	Y

* Withdrawn, not available for ordering.

Table 7. Supported SAS and pass-through I/O modules

I/O module	Part number	Feature code	I/O bay number			
			1	2	3	4
SAS modules						
SAS Connectivity Module	39Y9195	2980	N	N	Y	Y
Pass-through modules						
Intelligent Copper Pass-thru Module	44W4483	5452	Y	Y	Y	Y

For more information, see the following Lenovo Press Product Guides:

- Ethernet switches:
  https://lenovopress.com/servers/blades/networkmodule
- Fibre Channel switches:
  https://lenovopress.com/servers/blades/storagemodule

Optical drives

The BladeCenter E supports one optical drive. The optical drive and USB port are available to any one blade server in the chassis. The drive and USB port cannot be shared among multiple servers. The drive and USB port can be used to install operating systems, update drivers, or to copy data to recordable media.

Table 8 lists the supported optical drives.

Table 8. Supported optical drives

Part number	Feature code	Description	Maximum supported	Standard models where used
46M0901	4161	IBM UltraSlim Enhanced SATA DVD-ROM	1	-
46M0902	4163	IBM UltraSlim Enhanced SATA Multi-Burner	1	-

IBM UltraSlim Enhanced SATA DVD-ROM (part number 46M0901) supports the following media and speeds for reading:

- CD-ROM 24X
- CD-R 24X
- CD-RW 24X
- DVD-ROM (4.7 GB) 8X
- DVD-ROM (dual layer, 8.5 GB) 8X
- DVD-R (4.7 GB) 8X
- DVD-R (dual layer, 8.5 GB) 8X
- DVD+R (4.7 GB) 8X
- DVD+R (dual layer, 8.5 GB) 8X
- DVD-RW (4.7 GB) 8X
- DVD+RW (4.7 GB) 8X
- DVD-RAM (4.7 GB) 5X

IBM UltraSlim Enhanced SATA Multi-Burner (46M0902) supports the same media and speeds for reading as DVD-ROM (46M0901). This drive also supports the following media and speeds for writing:

- CD-R 24X
- CD-RW 4X
- High Speed CD-RW 10X
- Ultra Speed CD-RW 24X
- Ultra Speed Plus CD-RW 24X
- DVD-R (4.7 GB) 8X
- DVD-R (dual layer, 8.5 GB) 6X
- DVD+R (4.7 GB) 8X
- DVD+R (dual layer, 8.5 GB) 6X
- DVD-RW (4.7 GB) 6X
- DVD+RW (4.7 GB) 8X
- DVD-RAM (4.7 GB) 5X

Remote management

Remote management functionality is provided by the Advanced Management Module (AMM). The AMM is a hot-swap module that you use to configure and manage all installed BladeCenter components. The AMM provides system management functions and KVM multiplexing for all blade servers in the BladeCenter unit that support KVM. It controls a serial port for remote connection, the external keyboard, mouse, and video connections for use by a local console, and a 10/100 Mbps Ethernet remote management connection.

The BladeCenter E chassis comes standard with at least one AMM, and it supports up to two redundant hot-swap AMMs in an active/standby configuration. Table 9 shows the AMM ordering information.

Table 9. Advanced Management Module

Part number	Feature code	Description
2019A1X	1604	Advanced Management Module for BladeCenter

Important: Older BladeCenter E chassis were shipped with the Standard Management Module. If your existing BladeCenter E chassis has the Standard Management Module, then you might need to replace it with the AMM to support newer blades, I/O modules, and software functions that are used in this chassis.

Figure 5 shows the Advanced Management Module.

Figure 5. Advanced Management Module
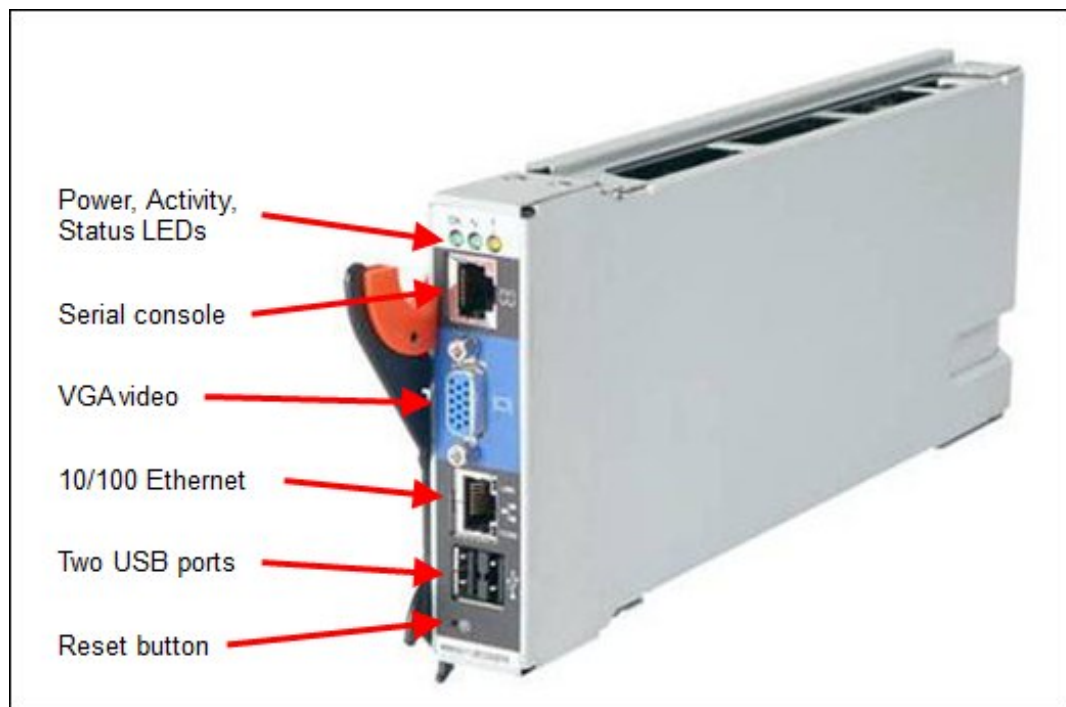
The following tasks can be performed with AMM:

- Defining the login IDs and passwords
- Configuring security settings, such as data encryption and user account security
- Selecting recipients for alert notification about specific events
- Monitoring the status of the BladeCenter unit, blade servers, and other BladeCenter components:
    - Event log
    - LEDs
    - Hardware and firmware VPD

- Fan speeds
  - Temperatures
  - Power usage
- Discovering other BladeCenter units in the network and enabling access to them through their management-module web interfaces
- Controlling the BladeCenter unit, blade servers, and other BladeCenter components:
  - Power on/off
  - Firmware update
  - Configuration settings
  - Serial over LAN
- Configuring power management for BladeCenter unit
- Accessing the I/O modules to configure them
- Changing the startup sequence in a blade server
- Setting the date and time
- Using a remote console for the blade servers
- Mounting remote virtual media for the blade servers
- Changing ownership of the keyboard, video, and mouse
- Changing ownership of the removable-media drives and USB ports (The removable-media drives in the BladeCenter unit are viewed as USB devices by the blade server operating system.)
- Using IBM Fabric Manager functions
- Using Service Advisor functions to autonomously inform IBM Support about any critical events that happen

AMM supports the following management methods:

- Web-based interface with SSL support
- CLI through Telnet/SSH
- SMASH Command Line Protocol
- SNMP

For more information about AMM, see the following product documentation:

- *BladeCenter Advanced Management Module Installation Guide* , found at:
  http://ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5073392
- *BladeCenter Advanced Management Module User's Guide* , found at:
  http://ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5073887
- *Advanced Management Module Command Line Interface Reference Guide* , found at:
  http://ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-54667

Power modules

The BladeCenter E unit comes with one pair of 2000 W or 2320 W (model-dependent) hot-swap power modules in power module bays 1 and 2, and with two IEC 320-C19 to C20 power cables. Each power module has its own IEC 320-C20 power connector.

The power modules in bays 1 and 2 provide power to all the I/O and management modules and to blade bays 1 - 6. The power modules in bays 3 and 4 provide power to blade bays 7 - 14.

Table 10 shows the ordering information for power modules (each part number contains two power modules and two IEC 320-C19 to C20 power cables).

Table 10. Power modules ordering part number and feature code

Part number	Feature code	Description
39M4675	2105	BladeCenter E 2000 W Power Supply Modules
46M0508	2106	BladeCenter E 2320 W Power Supply Option*

* This option requires the AMM.

Important:

- Because the existing chassis might have lower capacity power supplies (1200, 1400, 1800, or 2000 W), ensure that the pair of power modules in the same power domain has the same capacity.

- When you use 2320 W power modules in a BladeCenter E Type 8677 unit, all power modules must be 2320 W modules.
  - 2320 W power module field replaceable units (FRUs) may be listed as either 2320 W or 2500 W part on the power supply label and in the AMM. These power supplies can be used interchangeably in the same power domain.

Acoustic attenuation module

The Acoustic Attenuation Module is an option for BladeCenter E that you can install over the blower modules in the rear of the chassis to reduce decibels in sound-sensitive environments. BladeCenter E generates 74 decibels (7.4 bels) at maximum performance levels. The Acoustic Attenuation Module reduces the decibel level to 69 decibels by using a T-shaped baffle.

Table 11 lists the optional acoustic attenuation module that can be ordered for the BladeCenter E chassis.

Table 11. Acoustic attenuation module ordering part number and feature code

Part number	Feature code	Description
39M4674	0965	BladeCenter Acoustic Attenuation Module

Physical and electrical specifications

Dimensions and weight (approximate):

- Height: 304 mm (12.0 in.)
- Width: 444 mm (17.5 in.)
- Depth: 711 mm (28.0 in.)
- Weight:
    - Minimum configuration: 39 kg (85 lb)
    - Maximum configuration: 102 kg (225 lb)

Supported environment:

- Temperature and humidity:
    - 10.0 - 35.0 degrees C (50 - 95 degrees F) at 0 - 914 m (0 - 3,000 ft)
    - 10.0 - 32.0 degrees C (50 - 90 degrees F) at 914 - 2,133 m (3,000 - 7,000 ft)
    - Relative humidity: 8% - 80%
    - Maximum altitude: 2,133 m (7,000 ft)
- Supported electrical input:
    - 200 - 240 (nominal) V ac; 50 Hz or 60 Hz
- Input kilovolt-amperes (kVA) (approximately):
    - Minimum configuration: 0.4 kVA
    - Maximum configuration:
        - 2000 W power supplies: 6.0 kVA
        - 2320 W power supplies: 7.0 kVA
- BTU output:
    - Minimum configuration: 1365 Btu/hr (400 watts)
    - Maximum configuration:
        - 2000 W power supplies: 20094 Btu/hr (5889 watts)
        - 2320 W power supplies: 23672 Btu/hr (6938 watts)
- Acoustical noise emissions:
    - Declared sound power level without acoustic attenuation module: 7.4 bels
    - Declared sound power level with acoustic attenuation module: 6.9 bels

Warranty options

The BladeCenter E has a three-year onsite warranty with 9x5 next-business-day terms. IBM offers the warranty service upgrades through IBM ServicePac®, which is described in this section. The IBM ServicePac is a series of prepackaged warranty maintenance upgrades and post-warranty maintenance agreements with a well-defined scope of services, including service hours, response time, term of service, and service agreement terms and conditions.

IBM ServicePac offerings are country-specific. That is, each country might have its own service types, service levels, response times, and terms and conditions. Not all covered types of ServicePac might be available in a particular country. For more information about the IBM ServicePac offerings that are available in your country, see the IBM ServicePac Product Selector at https://www-304.ibm.com/sales/gss/download/spst/servicepac.

Table 12 explains warranty service definitions in more detail.

Table 12. Warranty service definitions

Term	Description
IBM onsite repair (IOR)	A service technician comes to the server's location for equipment repair.
24x7x2 hour	A service technician is scheduled to arrive at your client's location within two hours after remote problem determination is completed. We provide 24-hour service, every day, including IBM holidays.
24x7x4 hour	A service technician is scheduled to arrive at your client's location within four hours after remote problem determination is completed. We provide 24-hour service, every day, including IBM holidays.
9x5x4 hour	A service technician is scheduled to arrive at your client's location within four business hours after remote problem determination is completed. We provide service from 8:00 a.m. to 5:00 p.m. in the client's local time zone, Monday through Friday, excluding IBM holidays. If it is after 1:00 p.m., and it is determined that onsite service is required, the client can expect the service technician to arrive the morning of the following business day. For noncritical service requests, a service technician will arrive by the end of the following business day.
9x5 next business day	A service technician is scheduled to arrive at your client's location on the business day after we receive your call, following remote problem determination. We provide service from 8:00 a.m. to 5:00 p.m. in the client's local time zone, Monday through Friday, excluding IBM holidays.

In general, the following types are the types of IBM ServicePacs that are available for the BladeCenter E:

- Warranty and maintenance service upgrades:
  - One, two, three, four, or five years of 9x5 or 24x7 service coverage
  - Onsite repair from the next business day to four or two hours
  - One or two years of warranty extension

- Remote technical support services:
  - One or three years with 24x7 coverage (severity 1) or 9x5/next business day for all severities
  - Installation and startup support for System x® servers
  - Remote technical support for System x servers
  - Software support - Support Line:
    - Microsoft or Linux software
    - VMware
    - IBM Director

Regulatory compliance

The chassis conforms to the following regulations:

- FCC - Verified to comply with Part 15 of the FCC Rules, Class A
- Canada ICES-003, Class A
- UL 60950
- CSA C22.2 No. 60950
- NOM-019
- Japan VCCI, Class A
- EN55022 Class A
- CISPR 22, Class A

External disk storage systems

Lenovo offers the ThinkSystem DE Series, ThinkSystem DG Series and ThinkSystem DM Series external storage systems for high-performance storage. See the DE Series, DG Series and DM Series product guides for specific controller models, expansion enclosures and configuration options:

- ThinkSystem DE Series Storage
  https://lenovopress.com/storage/thinksystem/de-series#rt=product-guide
- ThinkSystem DM Series Storage
  https://lenovopress.com/storage/thinksystem/dm-series#rt=product-guide
- ThinkSystem DG Series Storage
  https://lenovopress.com/storage/thinksystem/dg-series#rt=product-guide

External backup units

The following table lists the external backup options that are offered by Lenovo.

Table 13. External backup options

Part number	Description
External RDX USB drives	
4T27A10725	ThinkSystem RDX External USB 3.0 Dock
External SAS tape backup drives	
6160S7E	IBM TS2270 Tape Drive Model H7S
6160S8E	IBM TS2280 Tape Drive Model H8S
6160S9E	IBM TS2290 Tape Drive Model H9S
External SAS tape backup autoloaders	
6171S7R	IBM TS2900 Tape Autoloader w/LTO7 HH SAS
6171S8R	IBM TS2900 Tape Autoloader w/LTO8 HH SAS
6171S9R	IBM TS2900 Tape Autoloader w/LTO9 HH SAS
External tape backup libraries	
6741A1F	IBM TS4300 3U Tape Library-Base Unit
6741A3F	IBM TS4300 3U Tape Library-Expansion Unit
Full High 8 Gb Fibre Channel for TS4300	
01KP938	LTO 7 FH Fibre Channel Drive
01KP954	LTO 8 FH Fibre Channel Drive
02JH837	LTO 9 FH Fibre Channel Drive
Half High 8 Gb Fibre Channel for TS4300	
01KP936	LTO 7 HH Fibre Channel Drive
01KP952	LTO 8 HH Fibre Channel Drive
02JH835	LTO 9 HH Fibre Channel Drive
Half High 6 Gb SAS for TS4300	
01KP937	LTO 7 HH SAS Drive
01KP953	LTO 8 HH SAS Drive
02JH836	LTO 9 HH SAS Drive

For more information, see the list of Product Guides in the Backup units category:
https://lenovopress.com/servers/options/backup

Top-of-rack Ethernet switches

The following table lists the Ethernet LAN switches that are offered by Lenovo.

Table 14. Ethernet LAN switches

Part number	Description
1 Gb Ethernet Rack switches	
7Y810011WW	Lenovo ThinkSystem NE0152T RackSwitch (Rear to Front)
7Z320O11WW	Lenovo ThinkSystem NE0152TO RackSwitch (Rear to Front, ONIE)
7159BAX	Lenovo RackSwitch G7028 (Rear to Front)
7159CAX	Lenovo RackSwitch G7052 (Rear to Front)
7159G52	Lenovo RackSwitch G8052 (Rear to Front)
7165H1X	Juniper EX2300-C PoE Switch
7165H2X	Juniper EX2300-24p PoE Switch
1 Gb Ethernet Campus switches	
7Z340011WW	Lenovo CE0128TB Switch (3-Year Warranty)
7Z360011WW	Lenovo CE0128TB Switch (Limited Lifetime Warranty)
7Z340012WW	Lenovo CE0128PB Switch (3-Year Warranty)
7Z360012WW	Lenovo CE0128PB Switch (Limited Lifetime Warranty)
7Z350021WW	Lenovo CE0152TB Switch (3-Year Warranty)
7Z370021WW	Lenovo CE0152TB Switch (Limited Lifetime Warranty)
7Z350022WW	Lenovo CE0152PB Switch (3-Year Warranty)
7Z370022WW	Lenovo CE0152PB Switch (Limited Lifetime Warranty)
10 Gb Ethernet switches	
7159A1X	Lenovo ThinkSystem NE1032 RackSwitch (Rear to Front)
7159B1X	Lenovo ThinkSystem NE1032T RackSwitch (Rear to Front)
7Z330O11WW	Lenovo ThinkSystem NE1064TO RackSwitch (Rear to Front, ONIE)
7159C1X	Lenovo ThinkSystem NE1072T RackSwitch (Rear to Front)
7159CRW	Lenovo RackSwitch G8272 (Rear to Front)
7159GR6	Lenovo RackSwitch G8296 (Rear to Front)
7159BR6	Lenovo RackSwitch G8124E (Rear to Front)
25 Gb Ethernet switches	
7159E1X	Lenovo ThinkSystem NE2572 RackSwitch (Rear to Front)
7Z210O21WW	Lenovo ThinkSystem NE2572O RackSwitch (Rear to Front, ONIE)
7Z330O21WW	Lenovo ThinkSystem NE2580O RackSwitch (Rear to Front, ONIE)
100 Gb Ethernet switches	
7159D1X	Lenovo ThinkSystem NE10032 RackSwitch (Rear to Front)
7Z210O11WW	Lenovo ThinkSystem NE10032O RackSwitch (Rear to Front, ONIE)

For more information, see the list of Product Guides in the following switch categories:

- 1 Gb Ethernet switches: http://lenovopress.com/networking/tor/1gb?rt=product-guide
- 10 Gb Ethernet switches: http://lenovopress.com/networking/tor/10gb?rt=product-guide
- 25 Gb Ethernet switches: http://lenovopress.com/networking/tor/25gb?rt=product-guide
- 40 Gb Ethernet switches: http://lenovopress.com/networking/tor/40gb?rt=product-guide
- 100 Gb Ethernet switches: https://lenovopress.com/networking/tor/100Gb?rt=product-guide

Power distribution units

The following table lists the power distribution units (PDUs) that are offered by Lenovo.

Table 15. Power distribution units

Part number	Feature code	Description	ANZ	ASEAN	Brazil	EET	MEA	RUCIS	WE	HTK	INDIA	JAPAN	LA	NA	PRC
0U Basic PDUs															
4PU7A93176	C0QH	0U 36 C13 and 6 C19 Basic 32A 1 Phase PDU v2	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
4PU7A93169	C0DA	0U 36 C13 and 6 C19 Basic 32A 1 Phase PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
4PU7A93177	C0QJ	0U 24 C13/C15 and 24 C13/C15/C19 Basic 32A 3 Phase WYE PDU v2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4PU7A93170	C0D9	0U 24 C13/C15 and 24 C13/C15/C19 Basic 32A 3 Phase WYE PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
00YJ776	ATZY	0U 36 C13/6 C19 24A 1 Phase PDU	N	Y	Y	N	N	N	N	N	N	Y	Y	Y	N
00YJ779	ATZX	0U 21 C13/12 C19 48A 3 Phase PDU	N	N	Y	N	N	N	Y	N	N	Y	Y	Y	N
00YJ777	ATZZ	0U 36 C13/6 C19 32A 1 Phase PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y
00YJ778	AU00	0U 21 C13/12 C19 32A 3 Phase PDU	Y	Y	N	Y	Y	Y	Y	Y	Y	N	N	Y	Y
0U Switched and Monitored PDUs															
4PU7A93181	C0QN	0U 21 C13/C15 and 21 C13/C15/C19 Switched and Monitored 48A 3 Phase Delta PDU v2 (60A derated)	N	Y	N	N	N	N	N	Y	N	Y	N	Y	N
4PU7A93174	C0D5	0U 21 C13/C15 and 21 C13/C15/C19 Switched and Monitored 48A 3 Phase Delta PDU (60A derated)	N	Y	N	N	N	N	N	Y	N	N	N	Y	N
4PU7A93178	C0QK	0U 20 C13 and 4 C19 Switched and Monitored 32A 1 Phase PDU v2	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
4PU7A93171	C0D8	0U 20 C13 and 4 C19 Switched and Monitored 32A 1 Phase PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
4PU7A93182	C0QP	0U 18 C13/C15 and 18 C13/C15/C19 Switched and Monitored 63A 3 Phase WYE PDU v2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4PU7A93175	C0CS	0U 18 C13/C15 and 18 C13/C15/C19 Switched and Monitored 63A 3 Phase WYE PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
4PU7A93180	C0QM	0U 18 C13/C15 and 18 C13/C15/C19 Switched and Monitored 32A 3 Phase WYE PDU v2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4PU7A93173	C0D6	0U 18 C13/C15 and 18 C13/C15/C19 Switched and Monitored 32A 3 Phase WYE PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
4PU7A93179	C0QL	0U 16 C13/C15 and 16 C13/C15/C19 Switched and Monitored 24A 1 Phase PDU v2 (30A derated)	N	Y	N	N	N	N	N	Y	N	Y	N	Y	N

Part number	Feature code	Description	ANZ	ASEAN	Brazil	EET	MEA	RUCIS	WE	HTK	INDIA	JAPAN	LA	NA	PRC
4PU7A93172	C0D7	0U 16 C13/C15 and 16 C13/C15/C19 Switched and Monitored 24A 1 Phase PDU(30A derated)	N	Y	N	N	N	N	N	Y	N	N	N	Y	N
00YJ783	AU04	0U 12 C13/12 C19 Switched and Monitored 48A 3 Phase PDU	N	N	Y	N	N	N	Y	N	N	Y	Y	Y	N
00YJ781	AU03	0U 20 C13/4 C19 Switched and Monitored 24A 1 Phase PDU	N	N	Y	N	Y	N	Y	N	N	Y	Y	Y	N
00YJ782	AU02	0U 18 C13/6 C19 Switched and Monitored 32A 3 Phase PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y
00YJ780	AU01	0U 20 C13/4 C19 Switched and Monitored 32A 1 Phase PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y
1U Switched and Monitored PDUs															
4PU7A90808	C0D4	1U 18 C19/C13 Switched and monitored 48A 3P WYE PDU V2 ETL	N	N	N	N	N	N	N	Y	N	Y	Y	Y	N
4PU7A81117	BNDV	1U 18 C19/C13 switched and monitored 48A 3P WYE PDU - ETL	N	N	N	N	N	N	N	N	N	N	N	Y	N
4PU7A90809	C0DE	1U 18 C19/C13 Switched and monitored 48A 3P WYE PDU V2 CE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y
4PU7A81118	BNDW	1U 18 C19/C13 switched and monitored 48A 3P WYE PDU – CE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y
4PU7A90810	C0DD	1U 18 C19/C13 Switched and monitored 80A 3P Delta PDU V2	N	N	N	N	N	N	N	Y	N	Y	Y	Y	N
4PU7A77467	BLC4	1U 18 C19/C13 Switched and Monitored 80A 3P Delta PDU	N	N	N	N	N	N	N	N	N	Y	N	Y	N
4PU7A90811	C0DC	1U 12 C19/C13 Switched and monitored 32A 3P WYE PDU V2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4PU7A77468	BLC5	1U 12 C19/C13 switched and monitored 32A 3P WYE PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4PU7A90812	C0DB	1U 12 C19/C13 Switched and monitored 60A 3P Delta PDU V2	N	N	N	N	N	N	N	Y	N	Y	Y	Y	N
4PU7A77469	BLC6	1U 12 C19/C13 switched and monitored 60A 3P Delta PDU	N	N	N	N	N	N	N	N	N	N	N	Y	N
46M4002	5896	1U 9 C19/3 C13 Switched and Monitored DPI PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
46M4004	5894	1U 12 C13 Switched and Monitored DPI PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
46M4003	5897	1U 9 C19/3 C13 Switched and Monitored 60A 3 Phase PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
46M4005	5895	1U 12 C13 Switched and Monitored 60A 3 Phase PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1U Ultra Density Enterprise PDUs (9x IEC 320 C13 + 3x IEC 320 C19 outlets)															
71763NU	6051	Ultra Density Enterprise C19/C13 PDU 60A/208V/3PH	N	N	Y	N	N	N	N	N	N	Y	Y	Y	N
71762NX	6091	Ultra Density Enterprise C19/C13 PDU Module	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1U C13 Enterprise PDUs (12x IEC 320 C13 outlets)															

Part number	Feature code	Description	ANZ	ASEAN	Brazil	EET	MEA	RUCIS	WE	HTK	INDIA	JAPAN	LA	NA	PRC
39M2816	6030	DPI C13 PDU+	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
39Y8941	6010	Enterprise C13 PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1U C19 Enterprise PDUs (6x IEC 320 C19 outlets)															
39Y8948	6060	Enterprise C19 PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
39Y8923	6061	Enterprise C19 3 phase PDU (60a)	N	N	Y	N	N	N	Y	N	N	N	Y	Y	N
1U Front-end PDUs (3x IEC 320 C19 outlets)															
39Y8938	6002	DPI 30amp/125V Front-end PDU with NEMA L5-30P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
39Y8939	6003	DPI 30amp/250V Front-end PDU with NEMA L6-30P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
39Y8934	6005	DPI 32amp/250V Front-end PDU with IEC 309 2P+Gnd	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
39Y8940	6004	DPI 60amp/250V Front-end PDU with IEC 309 2P+Gnd connector	Y	N	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N
39Y8935	6006	DPI 63amp/250V Front-end PDU with IEC 309 2P+Gnd connector	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1U NEMA PDUs (6x NEMA 5-15R outlets)															
39Y8905	5900	DPI 100-127v PDU with Fixed Nema L5-15P line cord	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Line cords for 1U PDUs that ship without a line cord															
40K9611	6504	DPI 32a Cord (IEC 309 3P+N+G)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9612	6502	DPI 32a Cord (IEC 309 P+N+G)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9613	6503	DPI 63a Cord (IEC 309 P+N+G)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9614	6500	DPI 30a Cord (NEMA L6-30P)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9615	6501	DPI 60a Cord (IEC 309 2P+G)	N	N	Y	N	N	N	Y	N	N	Y	Y	Y	N
40K9617	6505	4.3m, 32A/230V, Souriau UTG to AS/NZS 3112 (Aus/NZ) Line Cord	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9618	6506	4.3m, 32A/250V, Souriau UTG Female to KSC 8305 (S. Korea) Line Cord	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

For more information, see the Lenovo Press documents in the PDU category:
https://lenovopress.com/servers/options/pdu

Uninterruptible power supply units

The following table lists the uninterruptible power supply (UPS) units that are offered by Lenovo.

Table 16. Uninterruptible power supply units

Part number	Description
Rack-mounted or tower UPS units - 100-125VAC	
7DD5A001WW	RT1.5kVA 2U Rack or Tower UPS-G2 (100-125VAC)
55941AX	RT1.5kVA 2U Rack or Tower UPS (100-125VAC)
55942AX	RT2.2kVA 2U Rack or Tower UPS (100-125VAC)
7DD5A003WW	RT3kVA 2U Rack or Tower UPS-G2 (100-125VAC)
55943AX	RT3kVA 2U Rack or Tower UPS (100-125VAC)
Rack-mounted or tower UPS units - 200-240VAC	
7DD5A002WW	RT1.5kVA 2U Rack or Tower UPS-G2 (200-240VAC)
55941KX	RT1.5kVA 2U Rack or Tower UPS (200-240VAC)
55942KX	RT2.2kVA 2U Rack or Tower UPS (200-240VAC)
7DD5A005WW	RT3kVA 2U Rack or Tower UPS-G2 (200-240VAC)
55943KX	RT3kVA 2U Rack or Tower UPS (200-240VAC)
7DD5A007WW	RT5kVA 3U Rack or Tower UPS-G2 (200-240VAC)
55945KX	RT5kVA 3U Rack or Tower UPS (200-240VAC)
7DD5A008WW	RT6kVA 3U Rack or Tower UPS-G2 (200-240VAC)
55946KX	RT6kVA 3U Rack or Tower UPS (200-240VAC)
55948KX	RT8kVA 6U Rack or Tower UPS (200-240VAC)
7DD5A00AWW	RT11kVA 6U Rack or Tower UPS-G2 (200-240VAC)
55949KX	RT11kVA 6U Rack or Tower UPS (200-240VAC)
55943KT†	ThinkSystem RT3kVA 2U Standard UPS (200-230VAC) (2x C13 10A, 2x GB 10A, 1x C19 16A outlets)
55943LT†	ThinkSystem RT3kVA 2U Long Backup UPS (200-230VAC) (2x C13 10A, 2x GB 10A, 1x C19 16A outlets)
55946KT†	ThinkSystem RT6kVA 5U UPS (200-230VAC) (2x C13 10A outlets, 1x Terminal Block output)
5594XKT†	ThinkSystem RT10kVA 5U UPS (200-230VAC) (2x C13 10A outlets, 1x Terminal Block output)
Rack-mounted or tower UPS units - 380-415VAC	
55948PX	RT8kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC)
55949PX	RT11kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC)

† Only available in China and the Asia Pacific market.

For more information, see the list of Product Guides in the UPS category:
https://lenovopress.com/servers/options/ups

Rack cabinets

The BladeCenter E chassis is supported in the rack cabinets that are listed in Table 18.

Table 17. Rack cabinets

Part number	Description
201886X	IBM 11U Office Enablement Kit
93072PX	IBM 25U Static S2 Standard Rack
93072RX	IBM 25U Standard Rack
93072SX	IBM 25U Standard Rack
93074EX	IBM 42U Standard Rack Extension
93074RX	IBM 42U Standard Rack
93074SX	IBM 42U Standard Rack
93074XX	IBM 42U Standard Rack Extension
930842E	NetBAY42 Enterprise Expansion Rack Cabinet (EX)
930842S	NetBAY42 Enterprise Rack Cabinet
93084EX	IBM 42U Enterprise Expansion Rack
93084PX	IBM 42U Enterprise Rack
93084RX	NetBAY42 Enterprise Rack Cabinet
93084XX	NetBAY42 Enterprise Expansion Rack Cabinet (EX)
93604EX	IBM 42U 1200mm Deep Dynamic Expansion Rack
93604PX	IBM 42U 1200mm Deep Dynamic Rack
93614EX	IBM 42U 1200mm Deep Static Expansion Rack
93614PX	IBM 42U 1200mm Deep Static Rack
93624EX	IBM 47U 1200mm Deep Static Expansion Rack
93624PX	IBM 47U 1200mm Deep Static Rack
93634CX	IBM PureFlex™ System 42U Rack
93634DX	IBM PureFlex System 42U Expansion Rack
93634EX	IBM 42U 1100mm Dynamic Expansion Rack
93634PX	IBM 42U 1100mm Dynamic Rack
99564RX	IBM S2 42U Dynamic Standard Rack
99564XX	IBM S2 42U Dynamic Standard Expansion Rack

For more information, see the list of Lenovo Press Product Guides in the Rack cabinets and options category at https://lenovopress.com/servers/options/racks

Rack options

The BladeCenter E chassis supports the rack console switches and monitor kits that are listed in Table 19.

Table 18. Rack options

Part number	Description
Monitor kits and keyboard trays	
172317X	1U 17in Flat Panel Console Kit
172319X	1U 19in Flat Panel Console Kit
Console switches	
1754D2X	IBM Global 4x2x32 Console Manager (GCM32)
1754D1X	IBM Global 2x2x16 Console Manager (GCM16)
1754A2X	IBM Local 2x16 Console Manager (LCM16)
1754A1X	IBM Local 1x8 Console Manager (LCM8)
Rack conversion options	
46M5382	IBM Serial Conversion Option (SCO)
46M5383	IBM Virtual Media Conversion Option Gen2 (VCO2)
39M2895	IBM USB Conversion Option (UCO)

For more information, see the list of Lenovo Press Product Guides in the KVM Switches & Consoles category at https://lenovopress.com/servers/options/kvm

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Related publications and links

For more information, see the following resources:

- BladeCenter home page
  http://shop.lenovo.com/us/en/systems/servers/blades/bladecenter/
- IBM US Announcement Letter - BladeCenter E
  http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS110-044
- BladeCenter Information Center
  http://publib.boulder.ibm.com/infocenter/bladectr/documentation/
- Installation and User's Guide - BladeCenter E
  http://ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-45152
- Problem Determination and Service Guide - BladeCenter E
  http://ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-50053
- *BladeCenter Products and Technology*, SG24-7523
  http://lenovopress.com/sg247523
- *BladeCenter Interoperability Guide*
  http://lenovopress.com/bcig
- *BladeCenter Power Guide*
  http://ibm.com/support/entry/portal/docdisplay?lndocid=LNVO-POWINF
- *Configuration and Option Guide*
  http://www.ibm.com/systems/xbc/cog/
- *xREF: System x Server Reference*
  http://lenovopress.com/xref
- System x Support Portal
  http://ibm.com/support/entry/portal/
- IBM System Storage Interoperation Center
  http://www.ibm.com/systems/support/storage/ssic

Related product families

Product families related to this document are the following:

- Blade Chassis

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