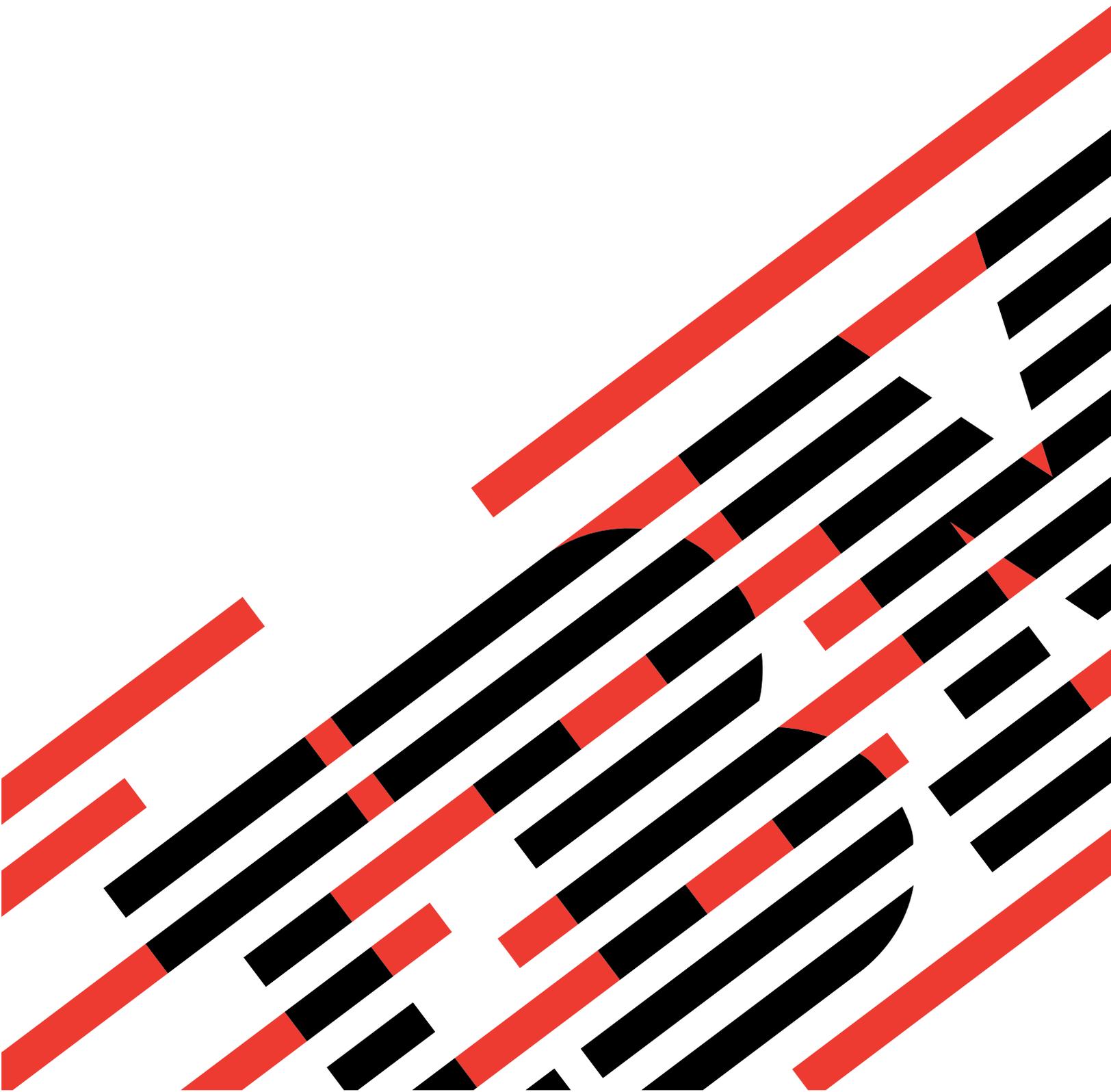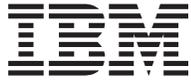**IBM**

@server

Hardware Maintenance Manual

xSeries RXE-100

IBM

@server

Hardware Maintenance Manual

xSeries RXE-100

> **Note:**
>
> Before using this information and the product it supports, be sure to read the general information under "Notices" on page 102

About this manual

This manual contains diagnostic information, a Symptom-to-FRU index, service information, error codes, error messages, and configuration information for the IBM@server RXE-100 Remote Expansion Enclosure.

Important: This manual is intended for trained servicers who are familiar with IBM® PC Server products.

Important safety information

Be sure to read all caution and danger statements in this book before performing any of the instructions.

Leia todas as instruções de cuidado e perigo antes de executar qualquer operação.

在安装本产品之前，请仔细阅读 Safety Information
（安全信息）。

安裝本產品之前，請先閱讀「安全資訊」。

Prenez connaissance de toutes les consignes de type Attention et

Danger avant de procéder aux opérations décrites par les instructions.

Lesen Sie alle Sicherheitshinweise, bevor Sie eine Anweisung ausführen.

Accertarsi di leggere tutti gli avvisi di attenzione e di pericolo prima di effettuare qualsiasi operazione.

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Lea atentamente todas las declaraciones de precaución y peligro ante de llevar a cabo cualquier operación.

WARNING: Handling the cord on this product or cords associated with accessories sold with this product, will expose you to lead, a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm. *Wash hands after handling.*

ADVERTENCIA: El contacto con el cable de este producto o con cables de accesorios que se venden junto con este producto, pueden exponerle al plomo, un elemento químico que en el estado de California de los Estados Unidos está considerado como un causante de cancer y de defectos congénitos, además de otros riesgos reproductivos. *Lávese las manos después de usar el producto.*

Online support

You can download the most current diagnostic, BIOS flash, and device driver files from http://www.ibm.com/pc/support on the World Wide Web.

Contents

General checkout

The enclosure diagnostic programs are stored in upgradable read-only memory (ROM) on the system board on the server the enclosure is connected to. These programs are the primary method of testing the major components of the enclosure.

Also, if you cannot determine whether a problem is caused by the hardware or by the software, you can run the diagnostic programs to confirm that the hardware is working properly.

When you run the diagnostic programs, a single problem might cause several error messages. When this occurs, work to correct the cause of the first error message. After the cause of the first error message is corrected, the other error messages might not occur the next time you run the test.

General Information

The IBM RXE-100 Remote Expansion Enclosure attaches to a xseries 360 server, providing expanded PCI adapter capacity. The enclosure consists of one to two expansion I/O systems called system A and system B. Each system contains six hot -swap PCI adapter slots. A single server can control both systems, giving it a total of 12 adapter slots. Two servers can control the systems independently, giving each of them six adapter slots.

Performance, ease of use, reliability, and expansion capabilities were key considerations in the design of this enclosure. These design features make it possible to add PCI adapter capacity, and provide expansion capabilities for the future.

You can obtain up-to-date information about the RXE-100 Remote Expansion Enclosure and other IBM server products by clicking **Upgrade Center** at http://www.ibm.com/eserver/xseries on the World Wide Web

Note: The illustrations in this document might differ slightly from your hardware.

1

Features and specifications

The following table provides a summary of the features and specifications for the RXE-100 Remote Expansion Enclosure.

Table 1. Features and Specifications

Active PCI™ expansion slots:	Acoustical noise emissions:	Electrical input:

• 12 MHz/64-bit PCI-X
• Four 66 MHz/64-bit PCI-X
 	
Hot-swap power supplies:
 	
370 W (115-230 V ac)
• Minimum: One
• Maximum: Two
 	
Hot-swap cooling:
 	
Four hot-swap fans
 	
Size (3 U)
• Height: 133 mm (5.25 in.)
• Depth: 660 mm (26 in.)
• Width: 440 mm (17.3 in.)
• Weight: 14.9 kg (40 lb) to 20.9 kg (56 1b) depending upon configuration
 	
Integrated functions:
 	
Light path diagnostics
	• Sound power, idling: 5.9 bel maximum
	• Sound power, operating: 5.9 bel maximum
	
	Environment:
	• Air temperature:
	  – Enclosure on: 10° to 35°C (50° to 95°F). Altitude: 0 to 914 m (3000 ft)
	  – Enclosure on: 10° to 32°C (50° to 89.6°F). Altitude: 914 m (3000 ft) to 2133 m (7000 ft)
	  – Enclosure off: 10° to 43°C (50° to 110F). Maximum altitude: 2133 m (7000 ft)
	• Humidity:
	  – Enclosure on: 8% to 80%
	  – Enclosure off: 8% to 80%
	
	Heat output:
	
	Approximate heat output in British thermal units (Btu) per hour
	• Minimum Configuration: 119 Btu (0.03488 kilowatts)
	• Maximum Configuration: 1125 Btu (0.3649 kilowatts)
		• Sine-wave input (50-60 Hz) required
		• Input voltage low range:
		  – Minimum: 90 V ac
		  – Maximum: 127 V ac
		• Input voltage high range:
		  – Minimum: 200 V ac
		  – Maximum: 240 V ac
		• Input kilovolt-amperes (kVA) approximately:
		  – Minimum: 0.01 kVA (ac power connected, Enclosure off)
		  – Minimum: 0.05 kVA (dc power on, enclosure idle)
		  – Maximum: 0.53 kVA

Notices and statements used in this book

The Caution statements and the Danger statements also appear in the multilingual safety information book provided on the *IBM xSeries® Documentation* CD. Each statement is numbered for easy reference to the corresponding statement in the safety book.

The notice and statement definitions are as follows:

- **Notes:** These notices provide important tips, guidance, or advice.
- **Important:** These notices provide information or advice that might help you avoid inconvenient or problem situations.
- **Attention:** These notices indicate possible damage to programs, devices, or data. An attention notice is placed just before the instruction or situation in which damage could occur.
- **Caution:** These statements indicate situations that can be potentially hazardous to you. A caution statement is placed just before the description of a potentially hazardous procedure step or situation.
- **Danger:** These statements indicate situations that can be potentially lethal or extremely hazardous to you. A danger statement is placed just before the description of a potentially lethal or extremely hazardous procedure step or situation.

What the RXE-100 Remote Expansion enclosure offers

The RXE-100 enclosure is designed to be cost-effective, powerful, and flexible. It uses peripheral component interconnect (PCI) bus architecture to provide compatibility with a wide range of existing hardware devices and software applications. The enclosure combines:

- Active PCI (hot-plug) adapter capabilities

  The enclosure can contain up to twelve *hot-plug* slots for PCI adapters. Failing hot-plug PCI adapters may be replaced without turning off the enclosure. PCI adapters may also be added in these slots without turning off the enclosure.

- Redundant hot-swap cooling and redundant hot-swap power capabilities

  The fans in the enclosure can operate at variable speeds so that if one fan fails, the remaining fans increase in speed to enable continued operation until the failing fan is replaced. Failing fans may be replaced without turning off the enclosure.

  The enclosure comes with two 370-watt power supplies. The second hot-swap 370-watt power supply ensures redundancy and hot-swap capability for a typical configuration.

- Systems-management capabilities

  The enclosure comes with a device management controller installed. This controller, in conjunction with the systems-management capabilities in the server, enables you to record enclosure events and monitor the enclosure for problems.

The enclosure meets stringent worldwide certifications for power, electromagnetic compatibility (EMC), and safety. See the *Safety Information* document on the *Documentation* CD for additional information.

Reliability, availability, and serviceability

Three of the most important features in server design are reliability, availability, and serviceability (RAS). These RAS features help to ensure the integrity of the data stored on the enclosure; that the enclosure is available when needed; and that should a failure occur, the problem can be easily diagnosed and the failure repaired with minimal inconvenience.

The following is an abbreviated list of the RAS features that the enclosure supports:
- Built-in temperature, fan, and voltage monitoring
- Hot-swap cooling with fan speed-sensing capability
- Hot-swap and redundant power supplies
- Hot-plug (Active) PCI adapter slots
- Information LED panel and light path diagnostics
- Cable presence detection for standard internal cables
- Vital product data (VPD) for the PCI-X expansion assembly, power supplies, and power supply backplane

Enclosure controls and Indicators

Figure 1 shows the indicators and location of internal devices on the front of the enclosure.

Front View
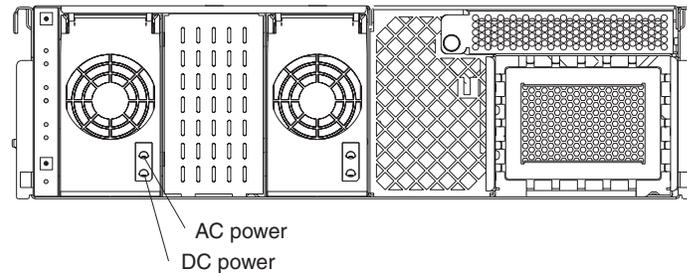
AC power
DC power

Figure 1. Front panel of enclosure

Power supply ac power lights: Each hot-swap power supply has an ac power light to indicate that ac power is being supplied to the power supply.

Power supply dc power lights: Each hot-swap power supply has a dc power light to indicate that the power supply is active.

Rear View

Figure 2 shows the location of internal devices on the rear of the enclosure.

RXE Management A (in) Port
RXE Management A (out) Port
RXE Management B (in) Port
RXE Management B (out) Port
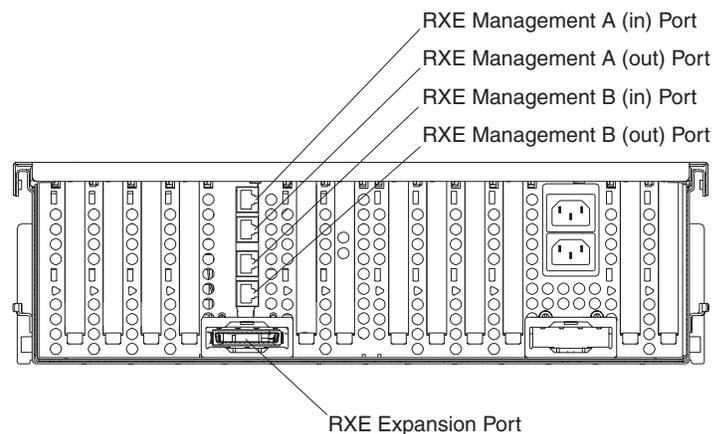
RXE Expansion Port

Figure 2. Indicators on rear panel of enclosure

RXE Expansion Port: This connector enables you to connect the enclosure to the RXE Expansion Port of the server.

DMC Port: The DMC Ports enable you to connect the enclosure to the PCI Expansion Port of the server.

Operator information panel

Figure 3 shows the controls and indicators on the operator information panel.

Locate button

Expansion kit A locator LED
Expansion kit A activity LED

Expansion kit B locator LED
Expansion kit B activity LED

Information LED
Fault LED

Remind button
Power LED
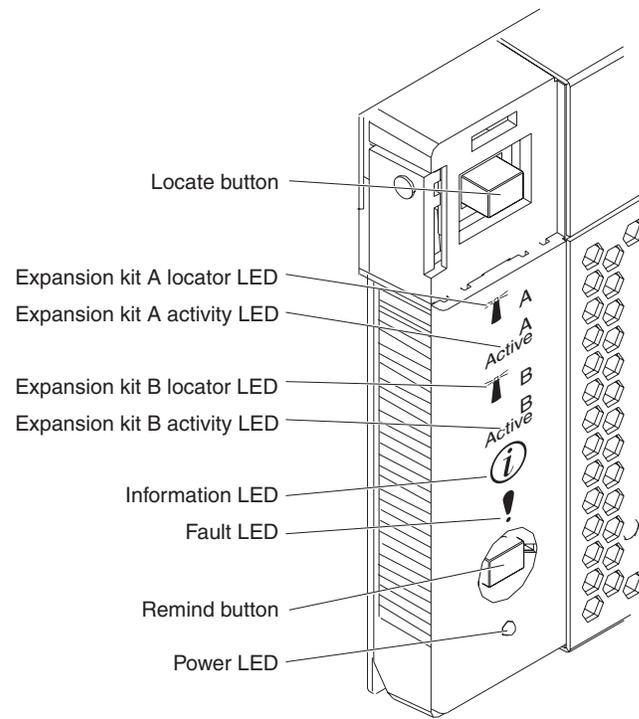
Figure 3. Operator information panel

Locate button: This button, when pushed, will activate LEDs on all servers it is connected to.

System A ID LED: This blue light is on if the server that is controlling system A has issued an ID request.

System A activity LED: This green light is on if activity is taking place in system A.

System B ID LED: This blue light is on if the server that is controlling system B has issued an ID request.

System B activity LED: This green light is on if activity is taking place in system B.

System information LED: This amber light is on if the enclosure power supplies are nonredundant or if some other noncritical event has occurred. See the lights on the Level 2 diagnostic LED panel or the error log on your server for specific error information.

Drawer fault LED: This amber light is on if an enclosure error has occurred. See the lights on the Level 2 diagnostic LED panel or the error log on your server for specific error information.

Remind button: You can use the Remind button to put the drawer fault light on the front panel into the Remind mode (blinks every 2 seconds). By pressing the button,

you acknowledge the failure but indicate that you will not take immediate action. If a new failure occurs, the drawer fault light turns on again.

The Fault light stays in Remind mode until one of the following condition occurs:
- All known problems are resolved
- The enclosure is powered off and then powered on
- A new problem occurs

You can use the Remind button to delay enclosure maintenance until a later time. Also, resetting the Fault light enables it to indicate any subsequent error. If the light is still blinking from the first error, it is unable to indicate subsequent errors.

Power LED: This green light is on if ac and dc power are present in the enclosure. If this light is off, either a power supply or the light has failed, or ac power is not present.

Note: If this light is off, it does not mean that there is no electrical power present in the enclosure. The light might be burned out. To remove all electrical current from the enclosure, you must unplug the enclosure power cords from the electrical outlets.

Turning on the enclosure

Turning on the enclosure refers to the act of plugging the enclosure power cords into the power source and pressing the power-control button on a server that is connected to the enclosure and configured to identify the enclosure. Typically, this causes the operating system of the server to start and causes the server to issue a power-on request to the enclosure.

Turning off the enclosure

Turning off the enclosure only occurs if each connected server issues a power-off request, and you have disconnected the enclosure power cords from the power source. You cannot turn off the enclosure manually.

Statement 5

CAUTION:
The power control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.
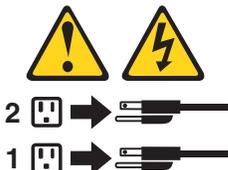
You can disconnect the enclosure power cords from the power source to shut off all power immediately without damaging the enclosure, but it may cause an unrecoverable error and loss of data on all connected servers.

Configuring the remote expansion enclosure

This section contains information on how to configure the RXE-100 remote expansion enclosure.

Configuring

The following configuration programs provided with your server to configure the expansion enclosure:

- **Configuration/Setup Utility program**

  This program is part of the basic input/output system (*BIOS*) that comes with the server. Among other things, you can use this program to configure the connected I/O devices, including the enclosure. For detailed information about using this utility, see the configuration chapter in the *User's Reference* for the server on the server *IBM xSeries Documentation* CD.

- **ServerGuide™ CDs**

  The ServerGuide CDs include software setup and installation tools that are specifically designed for your server. You can use these CDs during the initial installation of the server to configure the server hardware, including the enclosure. For detailed information about using the ServerGuide CDs, see the ServerGuide CD chapter in the server *User's Reference* on the server *Documentation* CD.

xSeries 360 configuration guidelines

The xSeries 360 configuration guidelines contain information to help you configure an xSeries 360 server with the enclosure.

Adapter support

Use the following table to determine the maximum number of supported adapters.

Table 2. Adapter limitations

Family	Type	IBM Part Number	Description	Maximum number of adapters	Option ROM size
LAN	Fast Ethernet	06P3601	IBM @server xSeries 10/100 Ethernet Adapter	10	
Controller	Fibre Channel	19K1246	2 GB Fibre Channel PCI Adapter	17	
Controller	Fibre Channel	00N6881	Netfinity® FAST Host Adapter	12	
LAN	GB Ethernet	06P3701	IBM Gigabit Ethernet SX Server Adapter	10	
LAN	GB Ethernet	22P6801	Intel™ 100/100/1000 PCI-X Server NIC (Copper PRO/1000XT)	14	
Controller	LVDS	37L6080	IBM ServeRAID™-4M Ultra 160 SCSI Controller	12	32K
Controller	LVDS	37L6889	IBM ServeRAID-H Ultra160 SCSI Controller	12	32K
Controller	LVDS	37L6091	IBM ServeRAID-4L Ultra160 SCSI Controller	12	32K

Table 2. Adapter limitations (continued)

Family	Type	IBM Part Number	Description	Maximum number of adapters	Option ROM size
Controller	LVDS	06P5738	IBM ServeRAID-4Mx Ultra160 SCSI Controller (Japan)	12	32K
Controller	LVDS	06P5736	IBM ServeRAID-4Mx Ultra160 SCSI Controller	12	32K
LAN	Token Ring	32L5201	IBM High Speed 100/16/4 Token-Ring PCI Management Adapter	10	20K
LAN	Token Ring	34L5001	IBM 16/4 Token Ring PCI management Adapter	10	20K

Notes:

1. The information in this table applies to adapters with the same part number and manufacturer. It does not apply to adapters with the same IBM part number but another manufacturer.

2. The maximum number of adapters assumes no other adapters are loaded. Your results might vary depending on device driver implementation and other factors, such as the operating system installed, other adapters loaded, and the adapter slot order.

3. The option ROM size was obtained by either collecting data from the adapter developer or by direct measurement. Please note that there is a difference between option ROM size and the amount of option ROM space utilized by the adapter after it is configured. For example, the integrated SCSI controller requires 50 KB of option ROM space to load, and occupies only 22 KB after the controller has been configured. Similarly, the integrated Ethernet controller requires 54 KB of option ROM space to load, and occupies only 6 KB after the controller has been configured. The integrated video controller requires 32 KB to install, and occupies all 32 KB after the controller is configured.

4. The xSeries 360 server scans slots in the following sequence: the integrated devices, then slots 3, 4, 5, 6, 1, and 2. If an enclosure is attached, the scan continues in sequence with slots 11, 12, 9, 10, 7, 8, 17, 18, 15, 16, 13, and 14. The Configuration/Setup program allows you to redefine the scan order of one of the first six slots to be higher than the integrated devices. You cannot redefine the scan order of the enclosure slots.

5. Attaching an enclosure to the xSeries 360 server increases the complexity of configuring adapters. The difficulty arises because there are only two segments (128 KB) of memory space available for all option ROM loading and configuration. The likelihood of successfully configuring adapters can be improved by installing adapters in the order of the slot scan sequence, and by starting with the largest option ROM size first. Therefore, the last populated slot scanned should have the adapter with the smallest option ROM size.

6. The xSeries 360 server provides less than 64 KB of I/O space for allocation to devices. The first 8 KB of I/O space is reserved for legacy devices and the integrated devices. The remaining 56 KB of I/O space is available for use by PCI/PCI-X adapters. For most configurations, this enough I/O space for all adapters.

   Some configurations can consume all available I/O space before all adapters have been allocated a range of addresses. These configurations usually contain PCI/PCI-X to PCI/PCI-X bridges. This is due to the method these bridges use to define address space allocated to them. The PCI specification states that

bridges must be allocated I/O space in increments of 4 KB. Therefore, it is possible to exhaust all of the available I/O space in the system by inserting 14 adapters, each containing only one PCI/PCI-X to PCI/PCI-X bridge (14 * 4 KB = 56 KB). In practice, an allocation failure can occur with considerably fewer bridge adapters. This is due to several factors, including: I/O space requirements for non-bridge devices, chipset requirements for address space alignment, and requirements for hot-plugging of adapters.

7. Only the odd-numbered slot of a bus pair is able to run at 133 MHz, if the even-numbered slot of the pair is not populated. The even-numbered slots run at 100 MHz, maximum. If both slots of a pair are populated, they both run at 100 MHz.

If an odd-numbered slot is populated and running at 133 MHz, and an adapter is hot-added to the even-numbered slot, the system generates an error message. If an even-numbered slot of a pair is running at 100 MHz, and an adapter is hot-added to the odd-numbered slot, the adapter will run at 100 MHz, maximum.

POST error message

The following describes a memory resource POST error message that can appear during startup.

Table 3. POST error message

POST message	Description
00180100	A PCI/PCI-X adapter has requested memory resources that are not available. **Action:** 1. If the PCI/PCI-X adapter that is requesting the memory resources is the start (boot) device, change the order of the adapters in the PCI-X slots. Memory is allocated to devices in the order that is specified in the Boot Priority option from the Start Options menu in the Configuration/Setup Utility program. Ensure that the adapter is early in the boot priority order so that it is allocated the necessary memory resources. 2. Make sure that the PCI/PCI-X adapter and all other adapters are set correctly in the Configuration/Setup Utility program. If the memory resource settings are not correct, change the settings. 3. If all memory resources are being used and either the integrated SCSI controller or integrated Ethernet controller are not being used, you can make more memory resource available by disabling the integrated SCSI, integrated Ethernet, or both, using the Configuration/Setup Utility program. 4. If all memory resources are being used, disable the network boot option for network cards. Press CTRL+S during startup to access the SCSISelect Utility and select Local Boot Disk to disable the network boot option. 5. If all memory resources are being used, remove an adapter to make the memory available to the PCI/PCI-X adapter. Disabling the adapter BIOS on the adapter might correct the error. Refer to the documentation that comes with the adapter.

Operating system support

Use the following table to determine the installation requirements for your operating system.

Table 4. Operating system support

Operating system	Installation requirements
Windows® 2000 Server Windows 2000 Advanced Server	No limitations.
Windows NT® 4.0 Windows NT 4.0 Enterprise Edition	Modified HAL required.
Netware 5.1 Netware 6.0	Hot-plug code update required. Microprocessor code update required.
Linux Red Hat 7.2	Installer must force into APIC mode. Select SMP kernel for uni-microprocessor system. Supports an enclosure with one expansion kit installed only.
Linux SuSe 7.3	Supports an enclosure with one expansion kit installed only.

Notes:

1. You must install the latest service processor device driver when installing the following operating systems:
   - Windows NT 4.0
   - Windows NT 4.0 Enterprise Edition
   - Netware 5.1
   - Netware 6.0
   - Linux Red Hat 7.2
   - Linux SuSe 7.3

   You can download the service processor device driver and many other code updates for your enclosure and server at http://www.ibm.com/pc/support on the World Wide Web.

2. **Windows 2000 Server and Windows 2000 Advanced Server** operating systems have no installation limitations. These operating system versions will install to a disk via the first SCSI or RAID adapter encountered in either the server or in the enclosure.

3. **Windows NT 4.0 and Windows NT 4.0 Enterprise Edition** require a special HAL to support an xSeries 360 server with an enclosure attached. The HAL must be installed with the enclosure attached, otherwise the normal install process may fail, and adapters may not function properly in an enclosure.

   You can download the HAL and many other code updates for your enclosure and server at http://www.ibm.com/pc/support on the World Wide Web. The HAL is listed with other downloadable code for your enclosure.

   Windows NT 4.0 and Windows NT 4.0 Enterprise Edition will install to a disk via the first SCSI or RAID adapter encountered in either the server or enclosure.

4. **Netware 5.1 and Netware 6.0** will install to a disk via the first SCSI or RAID adapter encountered in either the server or enclosure. Novell supplies the following code updates:

   - **Hot-plug code update**

     Note: Both Netware 5.1 and Netware 6.0 require the installation of the hot-plug code update.

     See step 4 on page 8 for information on the server scan order. Complete the following steps to install the hot-plug code update:

     a. Obtain the NBIUP1.EXE code update from the Novell Support site at: http://support.novell.com/filefinder on the World Wide Web.

        Note: Install the Netware Support Pack before you install the hot-plug code update.

     b. From the DOS prompt on the xSeries 360 server, rename the NBI.NLM file to NBI.OLD, if the NBI.NLM file exists. The NBI.NLM file is located in the C:\NWSERVER directory.

     c. Copy the NBI.NLM file from the code update to the C:\NWSERVER directory.

        Note: The code update contains a NBI.NLM file for each Novell operating system version.

     d. Start the server.

   - **Microprocessor code update**

     Note: Only Netware 5.1 requires the installation of the microprocessor code update.

     Obtain the 4PENT.EXE code update from the Novell Support site at: http://support.novell.com/filefinder on the World Wide Web. This microprocessor code update is a self-extracting file.

5. **Red Hat Linux 7.2** supports an xSeries 360 server attached to an enclosure with one expansion kit installed. Red Hat 7.2 will not support an xSeries 360 server attached to an enclosure with two expansion kits installed. The operating system will install to a disk via the first SCSI or RAID adapter encountered in either the server or enclosure.

   Red Hat Linux 7.2 does not automatically install with APIC mode. If APIC mode is not used, the operating system will not recognize the slots in the enclosure after installation. To force the installer program to use APIC mode, specify *linux apic* during installation.

   Note: The command to force Red Hat 7.2 to use APIC mode is case-sensitive.

   The Red Hat 7.2 installer program will automatically install the uni-microprocessor kernel on systems with uni-microprocessor installed. However, the uni-microprocessor kernel does not support APIC mode. Install the SMP kernel for a uni-microprocessor system to override the installer program and install the SMP kernel. The installer program will automatically select the SMP kernel for multi-microprocessor systems.

6. **SuSe Linux 7.3** supports an xSeries 360 server attached to an enclosure with one expansion enclosure installed. SuSe Linux 7.3 does not support an xSeries 360 server attached to an enclosure with two expansion kits installed.

   The operating system will install to a disk via the first SCSI or RAID adapter encountered in either the server or enclosure. SuSe Linux 7.3 always installs in APIC mode.

Startup considerations

Windows 2000, Windows NT 4.0, and Netware 5.1 support system startup from a SCSI or RAID adapter installed in the enclosure. Be sure that the operating system is installed to the proper hard disk drive when multiple SCSI or RAID adapters are present in the server and enclosure.

To install an operating system to a hard disk drive attached to a specific adapter in the enclosure, ensure that no other loadable adapters or devices in the slot scan sequence are installed before the adapter or device. Also, to avoid startup failure, ensure that no other loadable adapters or devices in the slot scan sequence are installed before the startup device. You can install other types of adapters in the slot scan sequence before the startup adapter or device.

Note: During startup, it might appear that the system is unresponsive for an unusual length of time (30 seconds to several minutes). This condition is due to the complexity of the configuration. Allow several minutes for the system to complete the startup procedure.

Software utilities support

Use the following information to help you determine the support provided by the software utilities.

ServerGuide   The ServerGuide program will not configure SCSI or RAID adapters installed in your enclosure. To use ServerGuide to configure your system, you must remove the adapters from the slots or raise the adapter-retention latch to disable the slots.

UpdateXpress

The UpdateXpress program will not recognize SCSI or RAID adapters installed in your enclosure. You can download code updates for your SCSI or RAID adapters at http://www.ibm.com/pc/support on the World Wide Web and apply the updates manually.

xSeries 440 configuration guidelines

The xSeries 440 configuration guidelines contain information to help you configure an xSeries 440 server with the enclosure.

Adapter support

Use the following table to determine the maximum number of supported adapters.

Table 5. Adapter limitations

Family	Type	IBM Part Number	Description	Maximum number of adapters	Option ROM size
LAN	Fast Ethernet	06P3601	IBM @server xSeries 10/100 Ethernet Adapter	10	
Controller	Fibre Channel	19K1246	2 GB Fibre Channel PCI Adapter	17	
Controller	Fibre Channel	00N6881	Netfinity FAST Host Adapter	12	
LAN	GB Ethernet	06P3701	IBM Gigabit Ethernet SX Server Adapter	10	
LAN	GB Ethernet	22P6801	Intel 100/100/1000 PCI-X Server NIC (Copper PRO/1000XT)	14	
Controller	LVDS	37L6080	IBM ServeRAID-4M Ultra 160 SCSI Controller	12	32K
Controller	LVDS	37L6889	IBM ServeRAID-H Ultra160 SCSI Controller	12	32K
Controller	LVDS	37L6091	IBM ServeRAID-4L Ultra160 SCSI Controller	12	32K
Controller	LVDS	06P5738	IBM ServeRAID-4Mx Ultra160 SCSI Controller (Japan)	12	32K
Controller	LVDS	06P5736	IBM ServeRAID-4Mx Ultra160 SCSI Controller	12	32K
LAN	Token Ring	32L5201	IBM High Speed 100/16/4 Token-Ring PCI Management Adapter	10	20K
LAN	Token Ring	34L5001	IBM 16/4 Token Ring PCI management Adapter	10	20K

Notes:

1. The information in this table applies to adapters with the same part number and manufacturer. It does not apply to adapters with the same IBM part number but another manufacturer.

2. The maximum number of adapters assumes no other adapters are loaded. Your results might vary depending on device driver implementation and other factors, such as the operating system installed, other adapters loaded, and the adapter slot order.

3. The option ROM size was obtained by either collecting data from the adapter developer or by direct measurement. Please note that there is a difference between option ROM size and the amount of option ROM space utilized by the adapter after it is configured. For example, the integrated SCSI controller requires 50 KB of option ROM space to load, and occupies only 22 KB after the controller has been configured. Similarly, the integrated Ethernet controller

requires 54 KB of option ROM space to load, and occupies only 6 KB after the controller has been configured. The integrated video controller requires 32 KB to install, and occupies all 32 KB after the controller is configured.

4. The xSeries 440 server scans slots in the following sequence: the integrated devices, then slots 1, 2, 6, 5, 3, and 4. If an enclosure is attached, the scan continues in sequence with slots 11, 12, 9, 10, 7, 8, 17, 18, 15, 16, 13, and 14. The Configuration/Setup program allows you to redefine the scan order of one of the first six slots to be higher than the integrated devices. You cannot redefine the scan order of the enclosure slots.

5. Attaching an enclosure to the xSeries 440 server increases the complexity of configuring adapters. The difficulty arises because there are only two segments (128 KB) of memory space available for all option ROM loading and configuration. The likelihood of successfully configuring adapters can be improved by installing adapters in the order of the slot scan sequence, and by starting with the largest option ROM size first. Therefore, the last populated slot scanned should have the adapter with the smallest option ROM size.

6. The xSeries 440 server provides less than 64 KB of I/O space for allocation to devices. The first 8 KB of I/O space is reserved for legacy devices and the integrated devices. The remaining 56 KB of I/O space is available for use by PCI/PCI-X adapters. For most configurations, this is enough I/O space for all adapters.

   Some configurations can consume all available I/O space before all adapters have been allocated a range of addresses. These configurations usually contain PCI/PCI-X to PCI/PCI-X bridges. This is due to the method these bridges use to define address space allocated to them. The PCI specification states that bridges must be allocated I/O space in increments of 4 KB. Therefore, it is possible to exhaust all of the available I/O space in the system by inserting 14 adapters, each containing only one PCI/PCI-X to PCI/PCI-X bridge (14 * 4 KB = 56 KB). In practice, an allocation failure can occur with considerably fewer bridge adapters. This is due to several factors, including: I/O space requirements for non-bridge devices, chipset requirements for address space alignment, and requirements for hot-plugging of adapters.

7. Only the odd-numbered slot of a bus pair is able to run at 133 MHz, if the even-numbered slot of the pair is not populated. The even-numbered slots run at 100 MHz, maximum. If both slots of a pair are populated, they both run at 100 MHz.

   If an odd-numbered slot is populated and running at 133 MHz, and an adapter is hot-added to the even-numbered slot, the system generates an error message. If an even-numbered slot of a pair is running at 100 MHz, and an adapter is hot-added to the odd-numbered slot, the adapter will run at 100 MHz, maximum.

POST error message

The following describes a memory resource POST error message that can appear during startup.

Table 6. POST error message

POST message	Description
00180100	A PCI/PCI-X adapter has requested memory resources that are not available. Action: 1. If the PCI/PCI-X adapter that is requesting the memory resources is the start (boot) device, change the order of the adapters in the PCI-X slots. Memory is allocated to devices in the order that is specified in the Boot Priority option from the Start Options menu in the Configuration/Setup Utility program. Ensure that the adapter is early in the boot priority order so that it is allocated the necessary memory resources. 2. Make sure that the PCI/PCI-X adapter and all other adapters are set correctly in the Configuration/Setup Utility program. If the memory resource settings are not correct, change the settings. 3. If all memory resources are being used and either the integrated SCSI controller or integrated Ethernet controller are not being used, you can make more memory resource available by disabling the integrated SCSI, integrated Ethernet, or both, using the Configuration/Setup Utility program. 4. If all memory resources are being used, disable the network boot option for network cards. Press CTRL+S during startup to access the SCSISelect Utility and select Local Boot Disk to disable the network boot option. 5. If all memory resources are being used, remove an adapter to make the memory available to the PCI/PCI-X adapter. Disabling the adapter BIOS on the adapter might correct the error. Refer to the documentation that comes with the adapter.

Operating system support

Use the following table to determine the installation requirements for your operating system.

Table 7. Operating system support

Operating system	Installation requirements
Windows 2000 Server Windows 2000 Advanced Server	Modified HAL required.
Windows NT 4.0 Windows NT 4.0 Enterprise Edition	Modified HAL required.
Netware 5.1 Netware 6.0	Hot-plug code update required. Microprocessor code update required.
Linux Red Hat 7.2	Installer must force into APIC mode. Select SMP kernel for uni-microprocessor system. Supports an enclosure with one expansion kit installed only.
Linux SuSe 7.3	Supports an enclosure with one expansion kit installed only.

Notes:

1. You must install the latest service processor device driver when installing the following operating systems:

   Windows NT 4.0
   Windows NT 4.0 Enterprise Edition
   Netware 5.1
   Netware 6.0
   Linux Red Hat 7.2
   Linux SuSe 7.3

   You can download the service processor device driver and many other code updates for your enclosure and server at http://www.ibm.com/pc/support on the World Wide Web.

2. **Windows 2000 Server and Windows 2000 Advanced Server** require a special HAL to support an xSeries 440 server with an enclosure attached. The HAL can be added during the operating system installation, or later. Copy the HAL to the winnt/system32 directory. Edit the following code: boot.ini:hal=*"name of HAL"*. These operating system versions will install to a disk via the first SCSI or RAID adapter encountered in either the server or in the enclosure.

3. **Windows NT 4.0 and Windows NT 4.0 Enterprise Edition** require a special HAL to support an xSeries 440 server with an enclosure attached. The HAL must be installed with the enclosure attached, otherwise the normal install process may fail, and adapters may not function properly in an enclosure.

   You can download the HAL and many other code updates for your enclosure and server at http://www.ibm.com/pc/support on the World Wide Web. The HAL is listed with other downloadable code for your enclosure.

   Windows NT 4.0 and Windows NT 4.0 Enterprise Edition will install to a disk via the first SCSI or RAID adapter encountered in either the server or enclosure.

4. **Netware 5.1 and Netware 6.0** will install to a disk via the first SCSI or RAID adapter encountered in either the server or enclosure. Novell supplies the following code updates:

   - **Hot-plug code update**

     Note: Both Netware 5.1 and Netware 6.0 require the installation of the hot-plug code update.

     See step 4 on page 8 for information on the server scan order. Complete the following steps to install the hot-plug code update:

     a. Obtain the NBIUP1.EXE code update from the Novell Support site at: http://support.novell.com/filefinder on the World Wide Web.

        Note: Install the Netware Support Pack before you install the hot-plug code update.

     b. From the DOS prompt on the xSeries 440 server, rename the NBI.NLM file to NBI.OLD, if the NBI.NLM file exists. The NBI.NLM file is located in the C:\NWSERVER directory.

     c. Copy the NBI.NLM file from the code update to the C:\NWSERVER directory.

        Note: The code update contains a NBI.NLM file for each Novell operating system version.

     d. Start the server.

   - **Microprocessor code update**

Note: Only Netware 5.1 requires the installation of the microprocessor code update.

Obtain the 4PENT.EXE code update from the Novell Support site at: http://support.novell.com/filefinder on the World Wide Web. This microprocessor code update is a self-extracting file.

5. **Red Hat Linux 7.2** supports an xSeries 440 server attached to an enclosure with one expansion kit installed. Red Hat 7.2 will not support an xSeries 440 server attached to an enclosure with two expansion kits installed. The operating system will install to a disk via the first SCSI or RAID adapter encountered in either the server or enclosure.

Red Hat Linux 7.2 does not automatically install with APIC mode. If APIC mode is not used, the operating system will not recognize the slots in the enclosure after installation. To force the installer program to use APIC mode, specify *linux apic* during installation.

Note: The command to force Red Hat 7.2 to use APIC mode is case-sensitive.

The Red Hat 7.2 installer program will automatically install the uni-microprocessor kernel on systems with uni-microprocessor installed. However, the uni-microprocessor kernel does not support APIC mode. Install the SMP kernel for a uni-microprocessor system to override the installer program and install the SMP kernel. The installer program will automatically select the SMP kernel for multi-microprocessor systems.

6. **SuSe Linux 7.3** supports an xSeries 440 server attached to an enclosure with one expansion enclosure installed. SuSe Linux 7.3 does not support an xSeries 440 server attached to an enclosure with two expansion kits installed.

The operating system will install to a disk via the first SCSI or RAID adapter encountered in either the server or enclosure. SuSe Linux 7.3 always installs in APIC mode.

Startup considerations

Windows 2000, Windows NT 4.0, and Netware 5.1 support system startup from a SCSI or RAID adapter installed in the enclosure. Be sure that the operating system is installed to the proper hard disk drive when multiple SCSI or RAID adapters are present in the server and enclosure.

To install an operating system to a hard disk drive attached to a specific adapter in the enclosure, ensure that no other loadable adapters or devices in the slot scan sequence are installed before the adapter or device. Also, to avoid startup failure, ensure that no other loadable adapters or devices in the slot scan sequence are installed before the startup device. You can install other types of adapters in the slot scan sequence before the startup adapter or device.

Note: During startup, it might appear that the system is unresponsive for an unusual length of time (30 seconds to several minutes). This condition is due to the complexity of the configuration. Allow several minutes for the system to complete the startup procedure.

Software utilities support

Use the following information to help you determine the support provided by the software utilities.

ServerGuide   The ServerGuide program will not configure SCSI or RAID adapters installed in your enclosure. To use ServerGuide to configure your system, you must remove the adapters from the slots or raise the adapter-retention latch to disable the slots.

UpdateXpress

The UpdateXpress program will not recognize SCSI or RAID adapters installed in your enclosure. You can download code updates for your SCSI or RAID adapters at http://www.ibm.com/pc/support on the World Wide Web and apply the updates manually.

Updating the RXE-100's Integrated Drawer Management Controller code

To update the RXE-100 Expansion Enclosure it must be properly connected to a host system. The update is performed from the host. The code update utility is supplied on a bootable floppy diskette.

Insert the floppy containing the utility into the host system's floppy drive. If the host is powered off, turn on host power. If the host is already powered on, exit the operating system and restart the system. The host will boot, the RXE-100 will be configured for operation and the utility will run presenting its main menu: **IBM Remote Supervisor Utility**. From here you may select the following options:

- Hardware Status and Information
- Configuration Settings
- Update System Management Firmware

1) To determine the firmware levels on the host and the Enclosure: Highlight the first option **Hardware Status and Information** and press enter. The **Current Hardware Status** screen will be displayed. You can see the levels of code for both the host and RXE-100.

The enclosure levels are indicated as follows: - - - RXE-100 Remote Expansion Enclosure Number: 1

RXE-100 Remote Expansion Enclosure Code Revision: #

Power back-plane code revision: # (Where #= the code revision number.)

To exit this screen and return to the main menu press **Esc**.

2) To update the code from the main menu select **Update System Management Firmware**A warning screen will be presented indicating you are about to update the firmware. Pressing **esc** will return you to the main menu. Press **Enter** to continue.

- The **Firmware Update Option Menu** will be presented.
- Select **Normal Flash - All subsystems**.
- The **Firmware Update Status** panel will be displayed.
- The utility will now update any down-level supervisory firmware for both the host and the RXE-100. If any of the code levels on the floppy disk are found to be the same or a lower level you will be presented with a warning pop-up. If the warning pop-up is presented press **enter** to continue with the code update anyway or press **esc** to skip the particular update.

Once all code updates are completed you will be returned to the main menu.

From the main menu you may verify the code levels just updated using the **Hardware Status and Information** option as detailed in part (I), or you may exit by pressing **esc** and follow the exit menus.

Diagnostics

This chapter provides basic troubleshooting information to help you resolve some common problems that might occur while setting up the enclosure.

If you cannot locate and correct the problem using the information in this chapter, see "Symptom-to-FRU index" on page 57 for more information.

Diagnostic tools overview

The following tools are available to help you identify and resolve hardware-related problems:

- **Level 2 light path diagnostics**

  The enclosure has light-emitting diodes (LEDs) to help you identify problems with enclosure components. By following the path of lights, you can quickly identify the type of problem that occurred. The light path begins with the LEDs on the operator information panel. See "Level 2 light path diagnostics" on page 22 for more information.

- **Diagnostic error codes**

  Although diagnostic programs must be run from the host server, certain diagnostic error codes that are specific to the RXE-100 Remote Expansion Enclosure have been listed at "Diagnostic error codes" on page 63.

Level 2 light path diagnostics

The Level 2 light path diagnostics LEDs help you to identify problems with enclosure components. By following the light path, you can quickly identify and correct the type of problem that occurred. The light path begins with the LEDs on the operator information panel. If the enclosure encounters a problem, it lights either the system information LED or the drawer fault LED.

To isolate the source of the trouble, examine the Level 2 light path diagnostics LEDs through the special cutout on the server top cover.

FAN

PCI

TEMP

PS

VRM
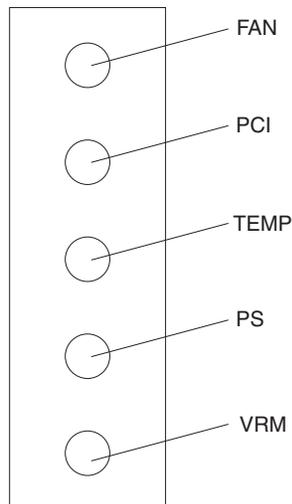
These LEDs can indicate a problem with a single component, or a problem with one of several similar components. In the latter case, to isolate the specific failing component, remove the server top cover and look for a lit LED on the PCI expansion board.

Power supply LEDs

The ac and dc power LEDs on a power supply provide status information about the power supply. Figure 4 shows the location of the ac and dc power LEDs.
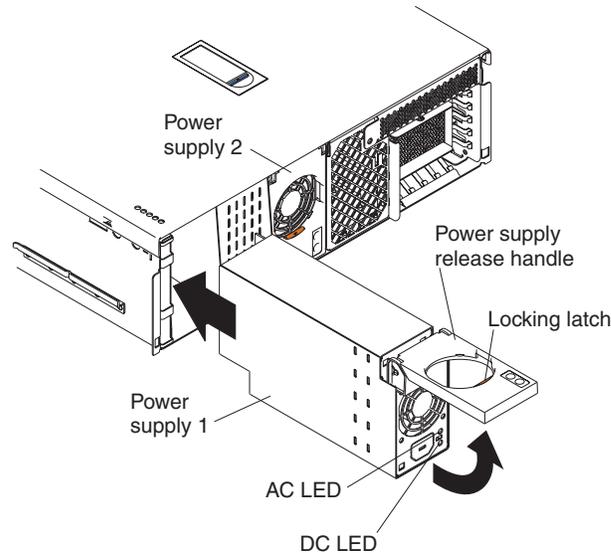
Power supply 2

Power supply release handle

Locking latch

Power supply 1

AC LED

DC LED

Figure 4. Power supply LEDs

The following table describes the ac and dc power LEDs on a power supply.

AC power LED	DC power LED	Description and action
On	On	The power supply is on and operating correctly.

On	Off	Either the host server has not issued a power-on, or there is a dc power problem.
		
		Possible causes:
		• The enclosure is not turned on (the power LED is blinking on the operator information panel).
		  Action: Cause the host server to issue a power-on.
		• The power supply has failed.
		  Action: Replace the power supply.

Off	Off	There is an ac power problem.
		
		Possible causes:
		• There is no ac power to the power supply.
		  Actions: Verify that:
		  – The electrical cord is properly connected to the enclosure.
		  – The electrical outlet functions properly.
		  – The internal ac connectors are docked correctly.
		• The power supply has failed.
		  Actions:
		  – Verify that the power sup[ply is good by plugging ac power into the power supply.
		  – Replace the power supply.
		  – Remove the power backplane. If this corrects the error, check the DMC card, boards, and the power backplane.

Level 2 diagnostic panel LEDs

Figure 5 shows the location of the Level 2 diagnostic panel LEDs, visible through a special cutout area on the top cover. See "Level 2 light path diagnostics troubleshooting" on page 26 for information about using them to identify problems. Figure 5 identifies the diagnostic panel LEDs.
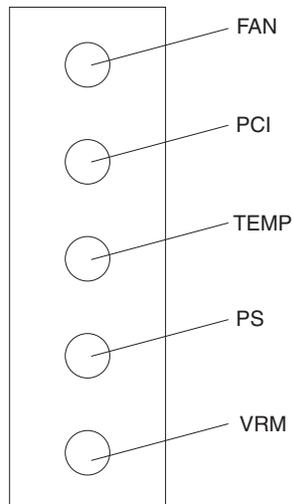
Figure 5. Diagnostic panel LED usage

The meanings of these LEDs are as follows:

FAN   Fan failure

PCI   PCI failure

TEMP   System over temperature condition

PS   Power failure

VRM   VRM failure

Notes:

1. The enclosure supports replaceable voltage regulator modules (VRMs).
2. The enclosure supports a maximum of two power supplies.

   The light path diagnostics feature might direct you to look for an Led on the PCI-X expansion assembly that identifies the specific failing component. Figure 6 on page 25 identifies the LEDs on the PCI-X expansion assembly.

PCI-X card error LED (CR13)

Switch error LED (CR14)

PCI attention LEDs
(CR1, CR2, CR3,
CR4, CR5, CR6)

PCI power LEDs
(CR7, CR8, CR9,
CR10, CR11, CR12)

RS485 card error LED
(CR15)

VRM error LED (CR16)

Status error LEDs
(CR17, CR18)

DMC error LED (CR11)

Operator panel
error LED (CR10)
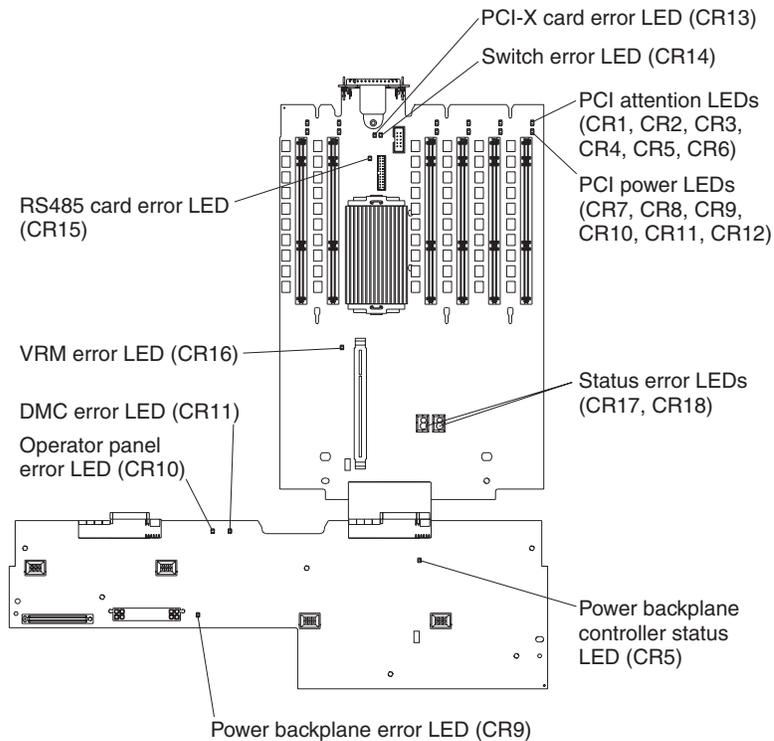
Power backplane
controller status
LED (CR5)

Power backplane error LED (CR9)

Figure 6. PCI-X expansion assembly LEDs

Remind button

The Remind button is located on the operator information panel (see Figure 3 on page 5). You can use it to place the drawer fault light on the front panel into the Remind mode (blinks every 2 seconds). By pressing the button, you acknowledge the failure but indicate that you will not take immediate action. If a new failure occurs, the drawer fault light turns on again.

The drawer fault light stays in Remind mode until one of the following conditions occurs:

• All known problems are resolved.
• The system is restarted.
• A new problem occurs.

You can use the Remind button to delay server maintenance until a later time. Also, resetting the drawer fault light enables it to indicate any subsequent error. If the light is still blinking from the first error, it is unable to indicate subsequent errors.

Level 2 light path diagnostics troubleshooting

You can use the Level 2 light path diagnostics feature built into your enclosure to quickly identify the type of error that occurred. The LEDs remain illuminated when the enclosure shuts down, provided that the power supplies are operating properly. This feature helps you to isolate the problem if an error causes the enclosure to shut down.

If the Level 2 light path diagnostics indicate a problem that does not require immediate action, you can press the Remind button on the operator information panel. This enables normal operations to continue, possibly using redundant components, until reduced enclosure activity enables you to correct the problem. The LED for the component causing the problem stays lit until you make repairs.

Table 8. Level 2 light path diagnostics

Drawer fault LED (on the operator information panel)	Level 2 diagnostic panel LED on	Cause	Action
On	Fan	One of the fans has failed or is operating too slowly.	Remove the top cover. The LED on the failing fan will be lit. Replace the fan.
On	PCI	An error occurred on a PCI adapter.	1. Check the error log on the server for additional information. 2. If you cannot correct the problem from the information error log, remove the top cover and try to determine the failing adapter by removing one adapter at a time and restarting the enclosure after each adapter is removed.
On	TEMP	The system temperature has exceeded the maximum rating.	1. Remove the top cover. If the fan LED is on, replace the fan. 2. Make sure the room temperature is not too high. (See, "Features and specifications" on page 2).
On	PS	A power supply has failed.	1. Check the power supply LEDs to identify the failing power supply. See "Power supply LEDs" on page 23 2. Replace the failing power supply.
On	VRM	A voltage regulator module has failed.	1. Remove the top cover, and check the VRM error LEDs. 2. Replace the VRM indicated by the lit VRM error LED.
Off	None	The light path diagnostics feature has not detected a system error.	None

Installing options

This chapter provides instructions to help you add options to the server.

Major components of the RXE-100 Remote Expansion Enclosure

The orange color on components and labels in the enclosure identifies hot-swap components. You can install or remove these components while the enclosure is running under the control of a server. For complete information about installing or removing a hot-swap component, see the detailed information in this chapter.

The blue color on components and labels indicates touch points where a component can be gripped, a latch moved, and so on.

Figure 7 shows the major components of the enclosure.
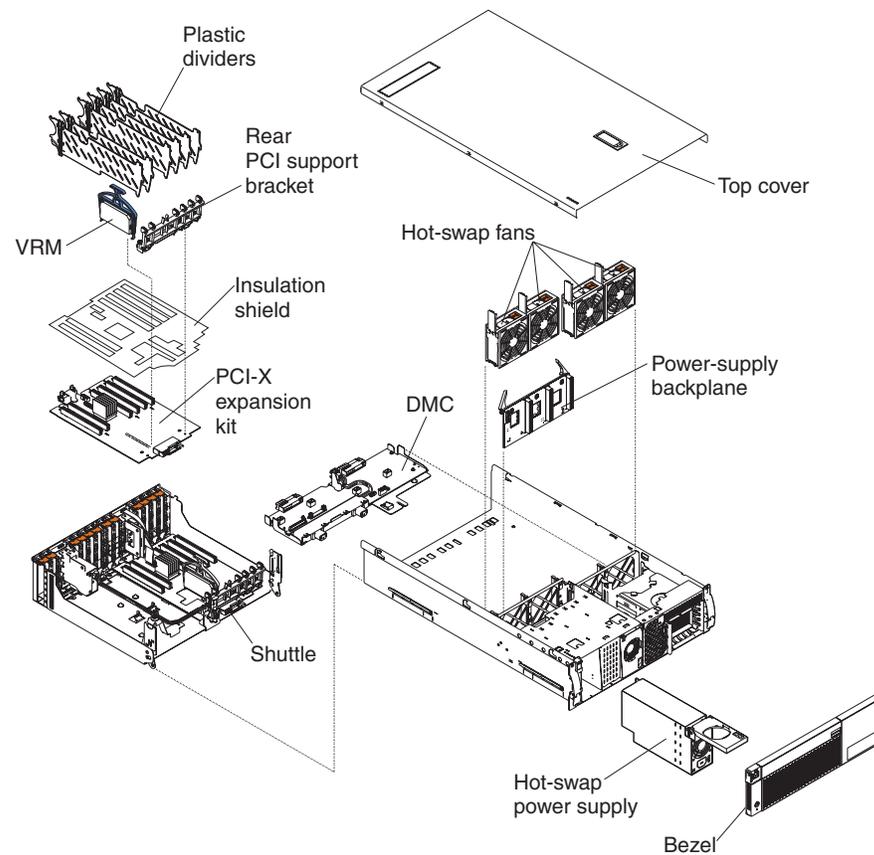
Figure 7. Major enclosure components

Component locations

This section shows the locations of components on the PCI-X expansion board assembly and level 2 diagnostic LED panel.

PCI-X expansion assembly component locations

Figure 8 shows the location of the connectors on the PCI-X expansion assembly for pluggable components.

Figure 8. PCI-X expansion assembly components connectors

Figure 9 on page 29 shows the location of the internal connectors on the Drawer management controller.

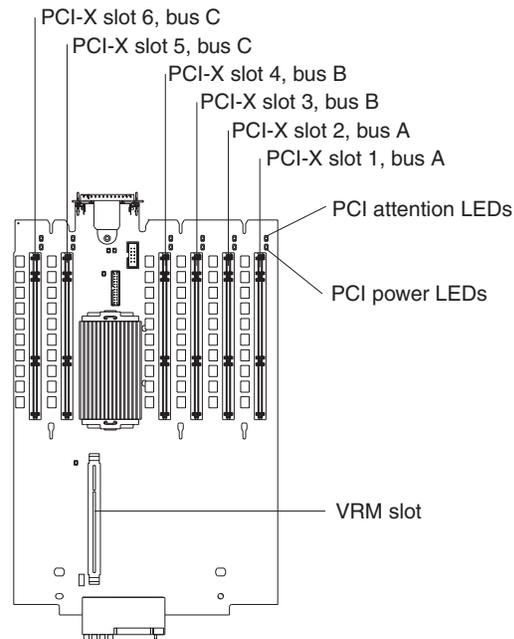Figure 9 shows the location of the internal connectors on the Drawer management controller.

DMC interface connector (expansion kit A) (J6)

DMC interface connector (expansion kit B) (J5)

Fan 4 connector (J9)

Fan 1 connector (J13)

Power backplane connector (J2)

Fan 3 connector (J10)

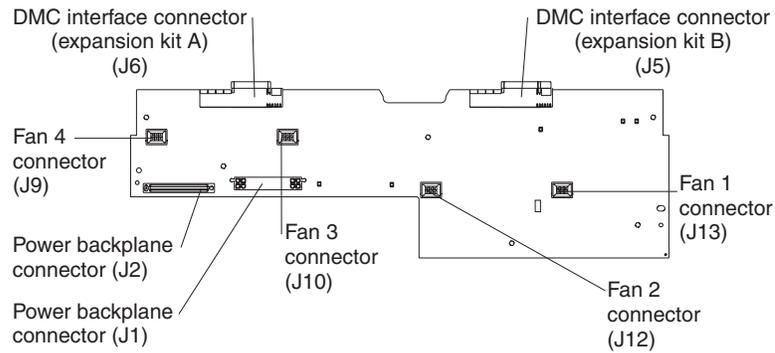Power backplane connector (J1)

Fan 2 connector (J12)

Figure 9. Drawer management controller internal connectors

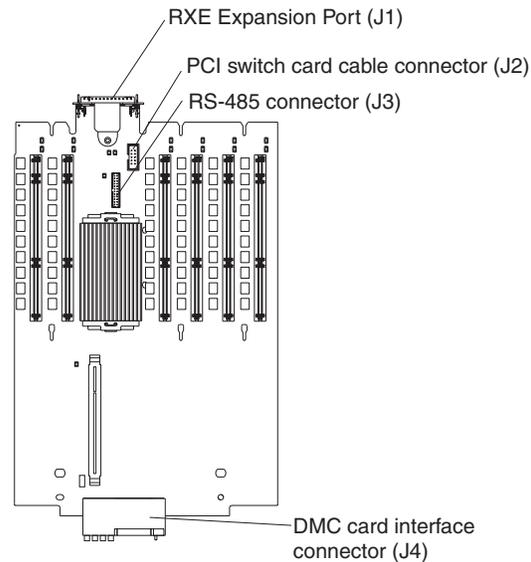Figure 10 shows the location of the external and internal connectors on the PCI-X expansion board.

RXE Expansion Port (J1)

PCI switch card cable connector (J2)

RS-485 connector (J3)

DMC card interface connector (J4)

Figure 10. PCI-X expansion assembly external and internal connectors

Level 2 diagnostic LED panel and PCI-X expansion assembly LED

Figure 11 shows the LEDs on the level 2 diagnostic panel. You can view the diagnostic panel LEDs through a special cutout area on the top cover at the front left of the top cover. However, to determine the exact source of the error condition in your enclosure, you might need to remove the top cover to view the location of a specific error LED on the PCI-X expansion assembly.

FAN

PCI

TEMP

PS

VRM
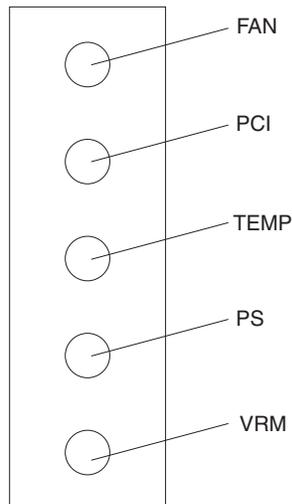
Figure 11. Diagnostic panel LEDs

The meanings of these LEDs are as follows:

FAN   Fan failure

PCI   PCI failure

OT   System over temperature condition

PS   Power failure

VRM   VRM failure

Notes:

1. The enclosure supports one replaceable voltage regulator module (VRM).
2. The enclosure supports a maximum of two power supplies.
3. See "Level 2 light path diagnostics troubleshooting" on page 26 for a detailed description of these LEDs.

Figure 12 shows the location of the LEDs on the PCI-X expansion assembly and Drawer management controller. You might need to refer to this illustration when solving problems with the enclosure.

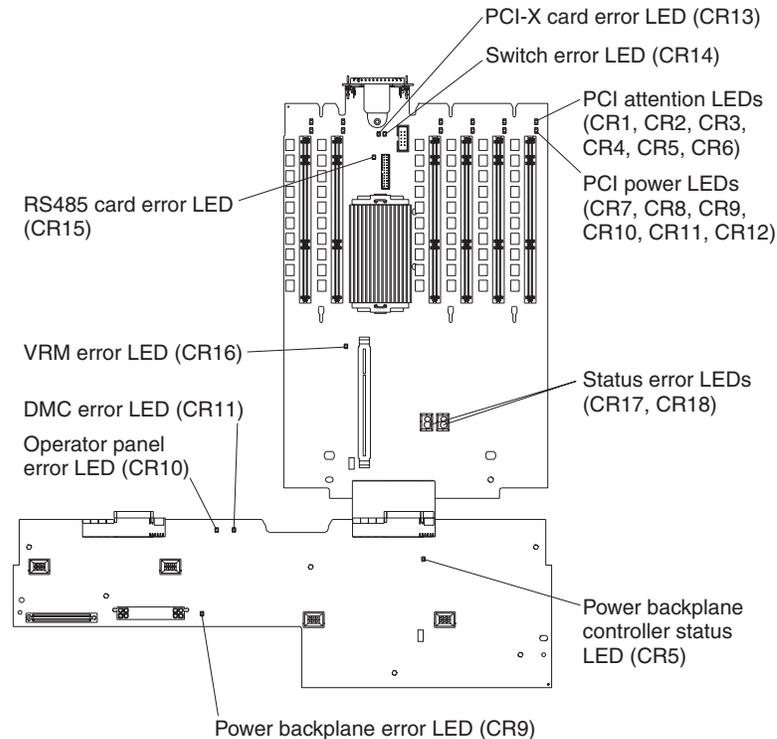**Note:** The illustrations in this document might differ slightly from your hardware.

Figure 12. PCI-X expansion assembly and Drawer management controller LEDs

Before you begin

Before you begin to install options in the enclosure, read the following information:

- Become familiar with the safety and handling guidelines specified under "Safety information" on page 67 These guidelines will help you work safely with the enclosure or options.
- You do not need to turn off the enclosure to install or replace hot-swap power supplies, hot-swap drives, hot-swap fans, or Active PCI (hot-plug) adapters.
- The orange color on components and labels in the server identifies hot-swap or hot-plug components. You can install or remove these components while the system is running, provided that your system is configured to support this function.
- The blue color on components and labels identifies touch points where you can grip a component, move a latch, and so on.
- Make sure that you have an adequate number of properly grounded electrical outlets for the server, monitor, and any other options that you intend to install.
- Back up all important data before you make changes to disk drives.
- For a list of supported options for the xSeries 352 server, refer to `http://www.ibm.com/pc/us/compat` on the World Wide Web.

Removing the enclosure top cover and bezel

Complete the following steps to remove the enclosure top cover and bezel:

1. Read the information in "Before you begin" on page 31
2. Lift the plastic cover-release latch on the top cover, as shown in figure 16.
3. Slide the top cover toward the rear of the enclosure approximately one inch, then lift it off the enclosure and set it aside.

   Attention: For proper cooling and airflow, replace the top cover before turning on the enclosure. Operating the enclosure for extended periods of time (over 30 minutes) with the top cover removed might damage enclosure components.

4. Press the bezel release latches at the top edge of the bezel, and pull the top of the bezel slightly away from the enclosure.
5. Pull the bezel up to release the two tabs at the bottom edge of the bezel. Store the bezel in a safe place. Store the bezel in a safe place.
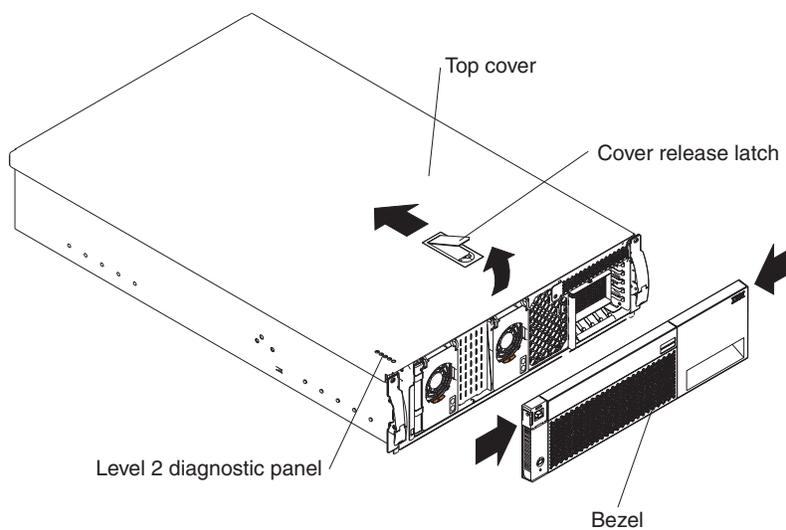

Figure 13. Removing the top cover and bezel

Installing a hot-plug adapter

Figure 14 shows the location of the six hot-plug PCI-adapter expansion slots, and their related components on the PCI-X expansion board.

PCI-X slot 6, bus C
PCI-X slot 5, bus C
PCI-X slot 4, bus B
PCI-X slot 3, bus B
PCI-X slot 2, bus A
PCI-X slot 1, bus A
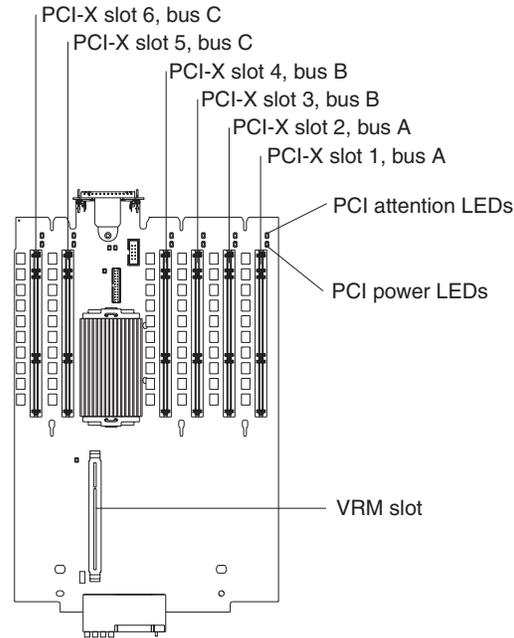
PCI attention LEDs

PCI power LEDs

VRM slot

Figure 14. Hot-plug PCI slot locations

This enclosure supports the following adapter configurations:
- Bus A (hot-plug)
  - One 133 MHz 64-bit PCI-X adapters (slots 1 or slot 2)
  - Two 100 MHz 64-bit PCI-X adapters (slots 1 and 2)
- Bus B (hot-plug)
  - One 133 MHz 64-bit PCI-X adapter (slot 3 or slot 4)
  - Two 100 MHz 64-bit PCI-X adapters (slots 3 and 4)
- Bus C (hot-plug)
  - One 133 MHz 64-bit PCI-X adapter (slot 5 or slot 6)
  - Two 100 MHz 64-bit PCI-X adapters (slots 5 and 6)

Notes:

1. If only one slot of a pair is populated, the PCI-X adapter will support the 133 MHz speed.
2. If both slots of a pair of populated, the PCI-X adapter will support the 100 MHz speed.

The following lights are provided for monitoring adapter status:
- Power-on lights for hot-plug PCI slots
- Internal attention lights for hot-plug PCI slots

If the operating system supports hot-plug PCI adapters, you can replace a failing hot-plug PCI adapter with a new adapter of the same type without turning off power to the enclosure. If the operating system and adapter also support the hot-add feature, you can install a new adapter without turning off the power to the enclosure.

Attention: Do not remove a hot-plug PCI adapter before performing the server's operating-system-defined procedure for disabling the hot-plug PCI slot that contains the adapter. Doing so might cause the server to lock up. Refer to the operating-system documentation.

Installing a hot-plug PCI adapter

Complete the following steps to install a hot-plug PCI adapter:

1. Read the documentation that comes with the adapter for any special requirements or restrictions, and read the documentation that comes with the server's operating system.
2. Read the information in "Safety information" on page 67
3. Remove the top cover (see "Removing the enclosure top cover and bezel" on page 32).
4. Determine which PCI expansion slot you will use for the adapter.

   Note: All six PCI slots support hot-plug PCI adapters.
5. Disable the selected PCI slot through the operating system. (See the documentation that comes with the operating system for information about disabling a hot-plug PCI slot.)

   Important: Make sure that the power-on light for the hot-plug PCI slot is off before you continue with the next step.
6. Using Figure 15 on page 35 as a reference for the rest of this procedure, slide the adapter-retention tab toward the rear of the enclosure and lift the adapter-retention latch.
7. Slide the expansion-slot cover up out of the enclosure.
8. Move the PCI-adapter locking lever (across the rear of the PCI adapters) to the left (as viewed from the front) to permit insertion of the new adapter.
9. Remove the adapter from the static-protective package.

   Attention: Avoid touching the components and gold-edge connectors on the adapter.
10. Install the adapter:
    a. Press the adapter *firmly* into the slot.

       Attention: When you install an adapter in the enclosure, be sure that it is completely and correctly seated in the PCI-X expansion assembly slot. Incomplete insertion might cause damage to the PCI-X expansion assembly or the adapter.
    b. Move the PCI-adapter locking lever to the left (as viewed from the front) to secure the adapter.
    c. Close the adapter-retention latch over the top corner of the adapter. The adapter-retention tab snaps into place.

Adapter

Adapter
retention
latch

Attention
LED

Power
LED

Adapter
retention
tab
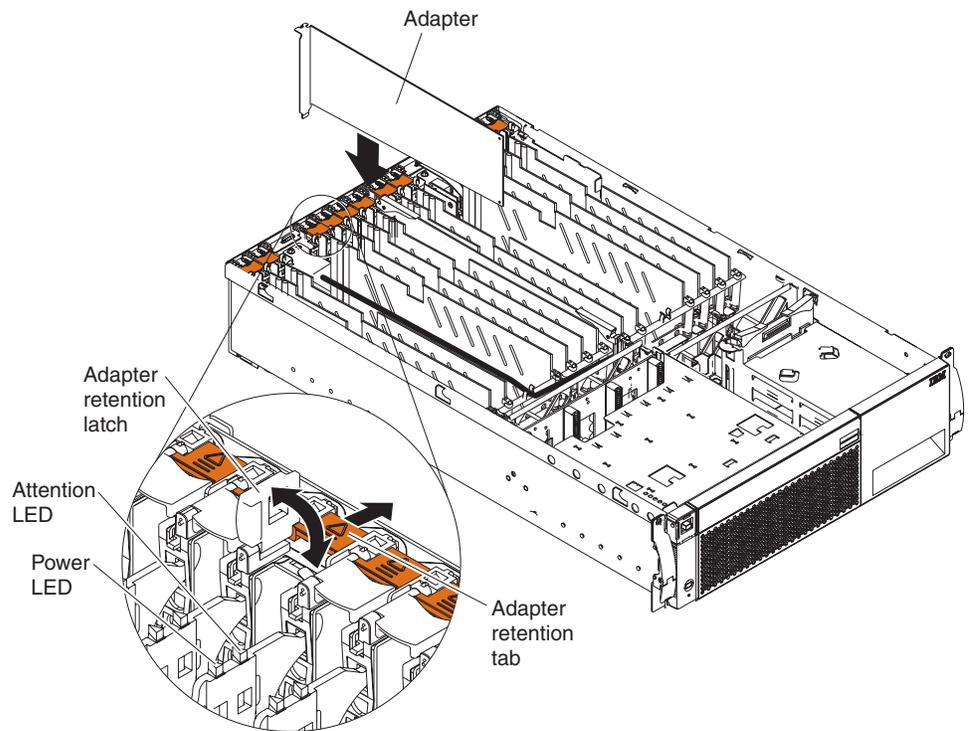
Figure 15. Installing an adapter

11. Connect any needed cables to the adapter.

12. Enable the PCI slot from your server operating system. (Refer to the documentation that comes with your operating system for information about enabling a hot-plug PCI slot.) Make sure that the power-on light for the hot-plug PCI slot comes on.

13. If you have other options to install or remove, do so now; otherwise, go to "Completing the installation" on page 44

Installing an xSeries Remote I/O PCI-X 6-slot Expansion Kit

You can install an xSeries PCI-X Expansion Kit in your enclosure to support six additional PCI adapter slots.

Complete the following steps to install a PCI-X Expansion Kit.

1. Read the documentation that comes with your server's operating system.
2. Read the information in "Before you begin" on page 31
3. Remove the top cover (see "Removing the enclosure top cover and bezel" on page 32).
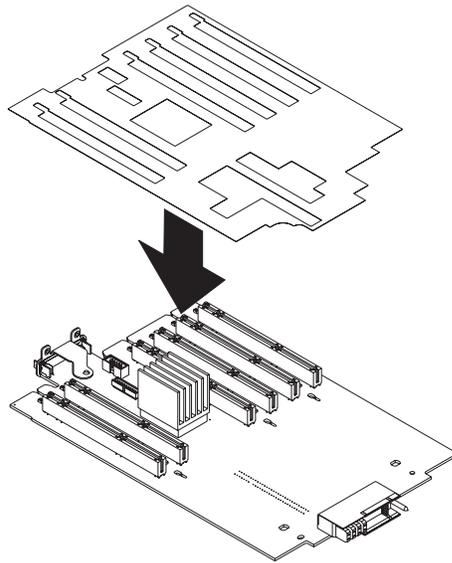4. Install the insulation shield on the PCI-X expansion assembly.

Figure 16. Installing the insulation shield

5. Slide the shuttle release levers towards the rear of the enclosure as shown in the following illustration.
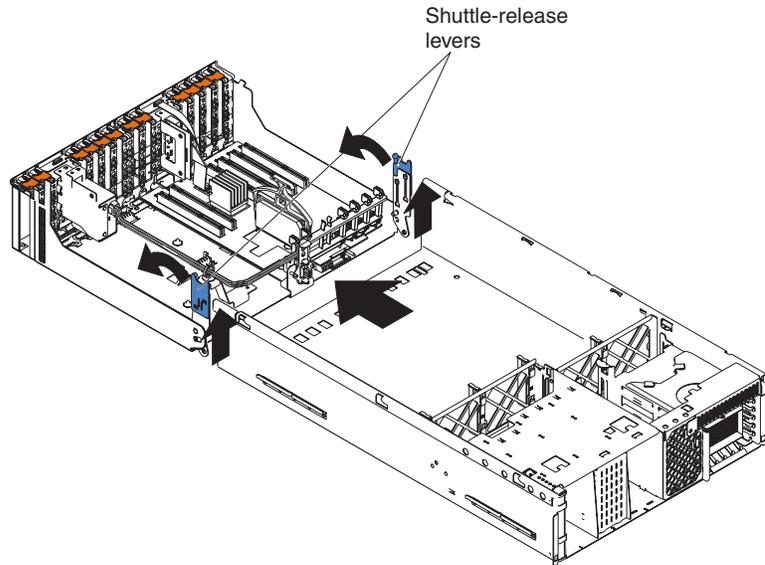
Figure 17. Sliding the shuttle release levers toward the rear

6. Using Figure 18 as a reference align the PCI-X expansion board with the guide tabs of the shuttle; then, slide the PCI-X expansion board toward the rear, making sure that the tabs on the enclosure fit into the slots on the rear of the shuttle.
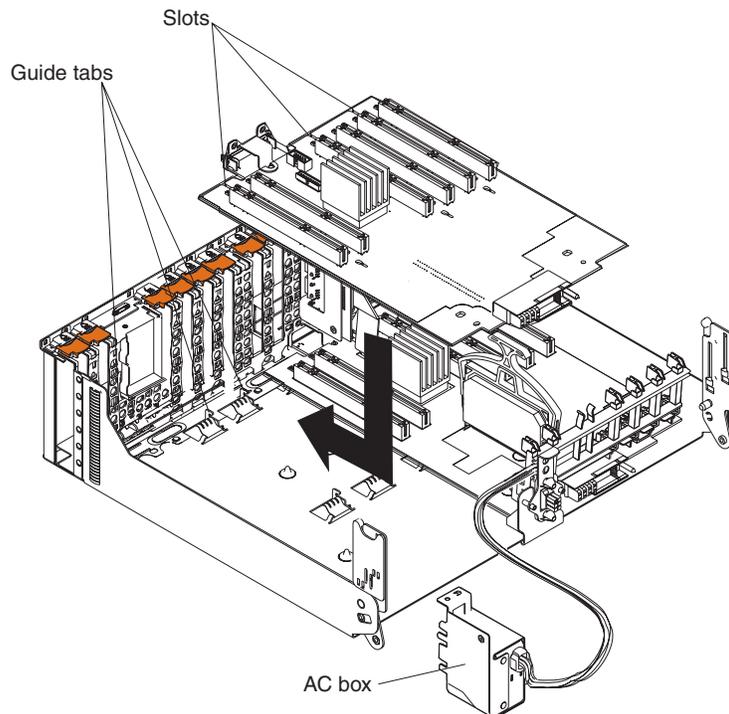
Figure 18. Installing a PCI-X expansion board

> **Note:** Carefully spread the power cables to ensure that the PCI-X expansion board fits into the RXE port connector.

7. Install the new rear support PCI holder as shown in the following illustration:
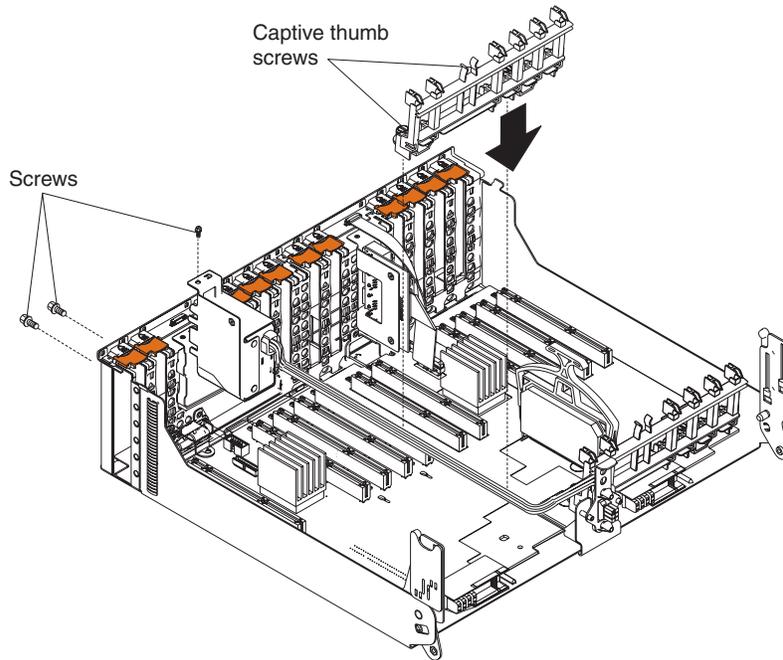
Figure 19. Installing the new rear support PCI holder

8. Slide shuttle-release levers towards the front of the enclosure as shown in the following illustration.
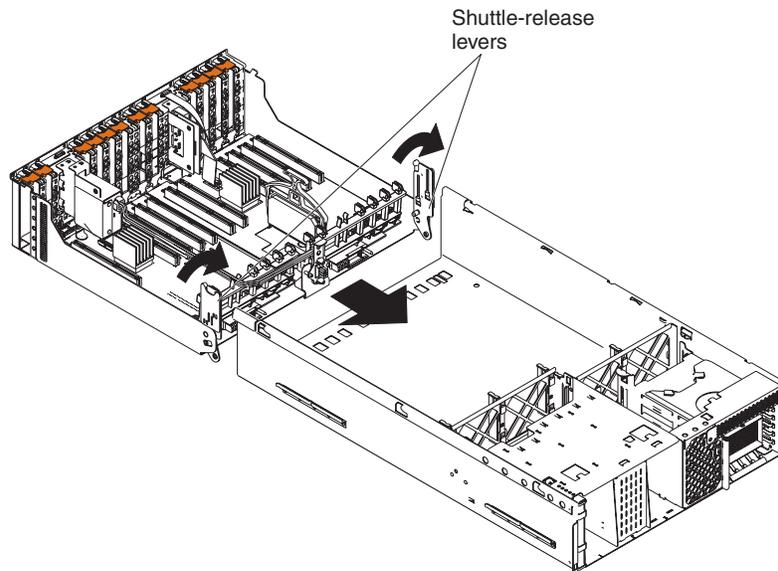
Figure 20. Sliding the shuttle release levers toward the front

9. Using Figure 21 on page 39 as a reference, install the PCI-X expansion assembly ribbon power cable to the connectors. The connectors for ribbon power cables are different and can be connected in only one way.
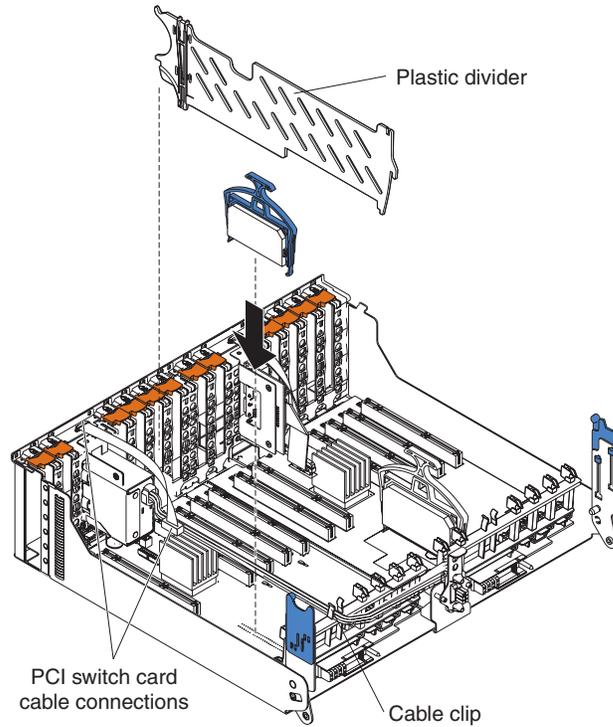
Figure 21. Installing a PCI-X expansion board ribbon power cables

10. Plug the VRM firmly into the slot.

11. Secure the RXE Expansion Port connector in place with two of the screws that comes with this kit.

12. Install the plastic divider in place by hooking the divider onto the rear support PCI holder and rotating it into position, then pressing down firmly.

13. If you have other options to install or remove, do so now; otherwise, go to "Completing the installation" on page 44

Installing a hot-swap power supply

If you install or remove a power supply, observe the following precautions.

CAUTION:
If you install a strain-relief bracket option over the end of the power cord that is connected to the device, you must connect the other end of the power cord to an easily accessible power source.

CAUTION:
Never remove the cover on a power supply or any part that has the following label attached.

Hazardous voltage, current, and energy levels are present inside any component that has this label attached. There are no serviceable parts inside these components. If you suspect a problem with one of these parts, contact a service technician.

Complete the following steps to install a hot-swap power supply:

1. Read the information in "Before you begin" on page 31
2. Remove the front bezel. See "Removing the enclosure top cover and bezel" on page 32
3. Remove the appropriate power-supply filler panel (see Figure 22) by inserting a finger into the hole and pulling the panel forward. The panel pivots at the top.

   Note: The power supplies are numbered from left to right (1 and 2) as viewed from the front of the enclosure. Power supplies do not have to be installed in a particular sequence.

   Attention: To ensure proper system cooling, do not leave the filler panel off the server for more than 30 minutes.
4. Press down on the latch at the lower front of the power supply and move the locking handle on the power supply to the open position.
5. Slide the power supply into the chassis, and close the handle.
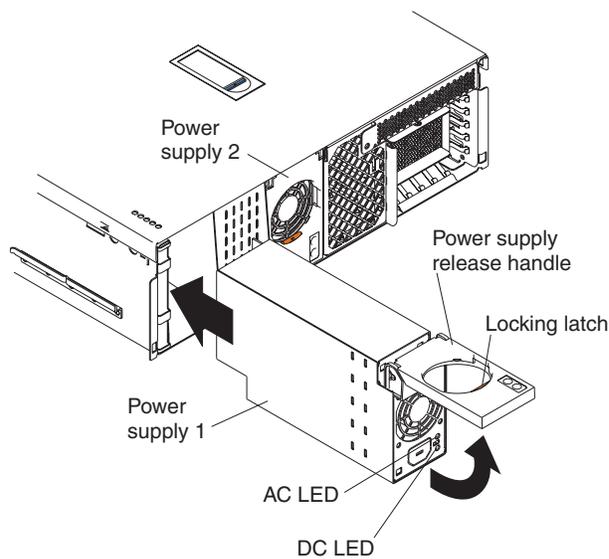
Figure 22. Installing a hot-swap power supply

6. Plug one end of the power cord for the new power supply into the corresponding connector on the back of the enclosure (connectors are numbered 1 and 2 from top to bottom). Plug the other end of the power cord into a properly grounded electrical outlet.

7. Verify that the dc power and ac power lights on the front of the power supply are lit, indicating that the power supply is operating properly.

8. If you have other options to install or remove, do so now; otherwise, go to "Completing the installation" on page 44

Replacing a hot-swap fan

Your enclosure comes with four hot-swap fans. You do not need to turn off the power to the enclosure to replace a hot-swap fan.

Attention: If a fan fails, replace it within 48 hours to help ensure proper cooling.

Complete the following steps to replace a hot-swap fan:

1. Read the information at "Before you begin" on page 31
2. Remove the top cover (see "Removing the enclosure top cover and bezel" on page 32).

   Attention: To ensure proper system cooling, do not leave the top cover off the server for more than 30 minutes.
3. Lift up the free end of the fan-locking handle (see Figure 23) and pull upward on the handle to lift the fan out of the enclosure.
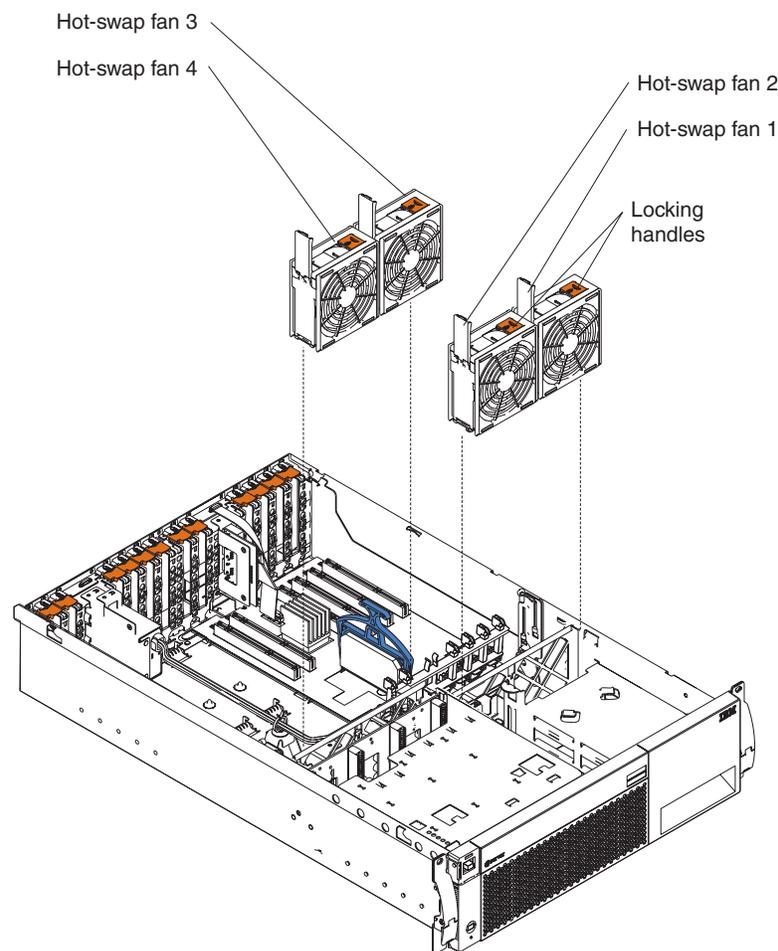
Figure 23. Replacing a hot-swap fan

4. Open the locking handle on the replacement fan, lower the fan into its socket, and rotate the handle to the locked position.
5. If you have other options to install or remove, do so now; otherwise, go to "Completing the installation" on page 44

Replacing a VRM

Your enclosure comes with one pluggable voltage regulator module (VRM) for the PCI slots.

Complete the following steps to replace the PCI-slot VRM:

1. Read the information in "Before you begin" on page 31

2. Using the procedure in "Turning off the enclosure" on page 6 turn off the enclosure. Disconnect all external cables, and remove the top cover (see "Removing the enclosure top cover and bezel" on page 32).

3. Grasp the blue tab and lift the VRM out of its slot (see Figure 24).

Figure 24. Replacing a VRM

4. Holding the replacement VRM by the blue tab, plug it firmly into the slot.

5. If you have other options to install or remove, do so now; otherwise, go to "Completing the installation" on page 44

Completing the installation

To complete your installation, you must reinstall the top cover, reinstall the bezel, reconnect any cables that you disconnected earlier and, for certain options, run the Configuration/Setup Utility program on all connected servers. Follow the instructions in this section.

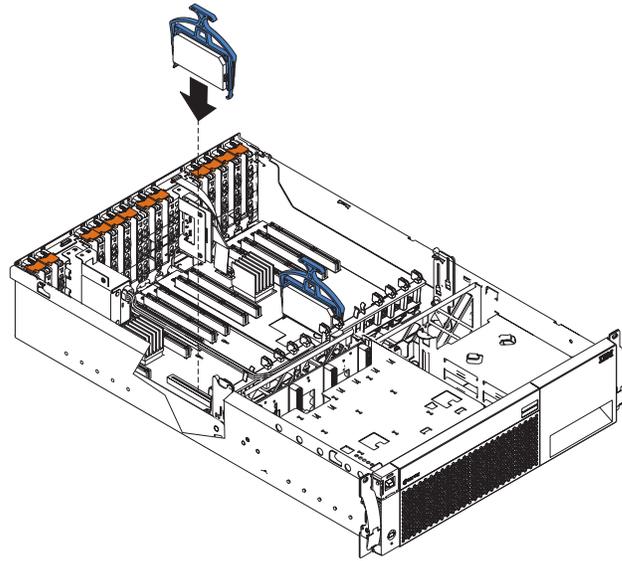**Attention:** To maintain proper cooling and airflow, install the top cover before turning on the enclosure. Operating the enclosure for extended periods of time (over 30 minutes) with the top cover removed might damage enclosure components.

Installing the enclosure top cover and bezel

Complete the following steps to install the enclosure top cover and bezel:

1. Before installing the cover, check that all internal cables, adapters, and other components are installed and seated correctly and that you have not left loose tools or parts inside the enclosure.
2. Move the cover-release latch to the open (up) position.
3. Position the cover on the enclosure, inserting the tabs on the top cover into the matching slots in the enclosure chassis.
4. Close the cover-release latch to pull the top cover forward and lock the top cover in place.
5. Insert the two tabs on the bottom of the bezel into the matching holes on the enclosure chassis.
6. Push the top of the bezel toward the enclosure until the two tabs at the top of the bezel snap into place.
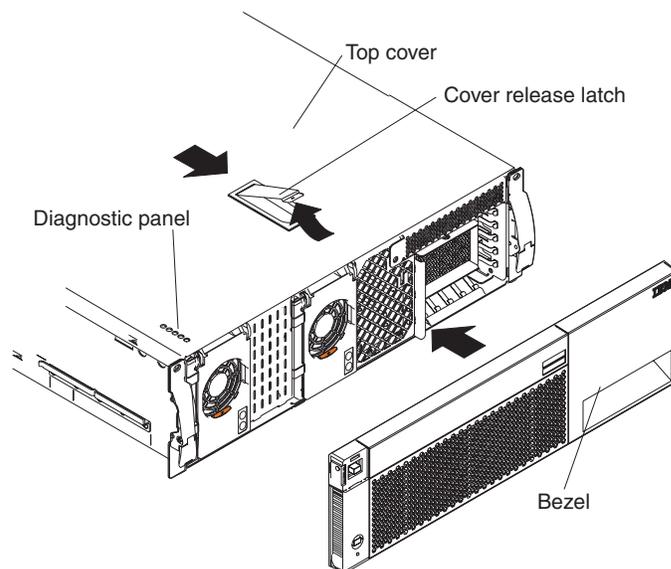
Figure 25. Installing the enclosure top cover and bezel

7. If you disconnected any external cables from the back of the enclosure, reconnect the cables; then, plug the power cords into properly grounded electrical outlets.

   Note: See, "Input/output ports" on page 46for connector locations.

Updating the server configuration

When you start a connected server for the first time after you add or remove an option to the enclosure, you might see a message telling you that the configuration has changed. The Configuration/Setup Utility program on the server automatically starts so that you can save the new configuration information. See "Configuring the remote expansion enclosure" on page 7

Some options have device drivers that you need to install. See the documentation that comes with the option for information about installing any required device drivers.

Connecting external options

You can attach external options and servers to the input/output (I/O) connectors on the rear of your enclosure. (See"Input/output ports" on page 46 for more information.)

Complete the following steps to attach an external device:

1. Read the information in "Before you begin" on page 31 and the documentation that comes with the options.
2. Turn off the enclosure and all attached devices.
3. Follow the instructions that come with the option to prepare it for installation and to connect it to the enclosure.

Input/output ports

This section provides information about the following input/output (I/O) ports on the rear panel of the enclosure:

- One input and one output DMC port for each PCI-X expansion assembly in the enclosure
- One RXE Expansion Port for each PCI-X expansion board in the enclosure

Figure 29 shows the I/O ports on the rear of the enclosure.

RXE Management A (in) Port
RXE Management A (out) Port
RXE Management B (in) Port
RXE Management B (out) Port
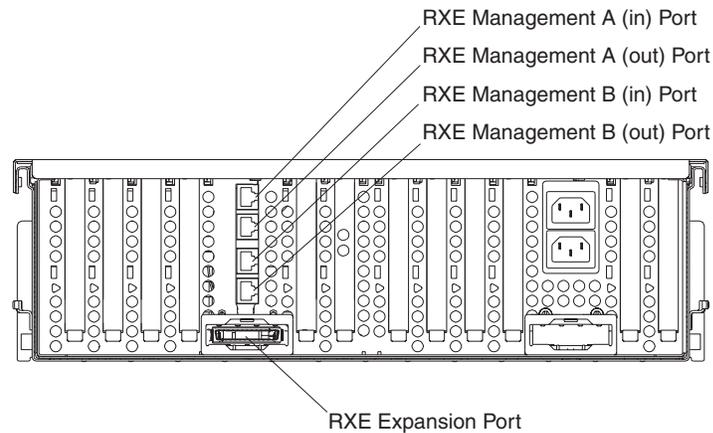
RXE Expansion Port

Figure 26. Input/output ports

RXE Expansion Port

Your enclosure comes with one 48-pin RXE Expansion Port on the rear of each PCI-X expansion board in the enclosure, to connect to the server.

The connector is shown here. The pin-numbering arrangement is not shown.

48   2

47   1
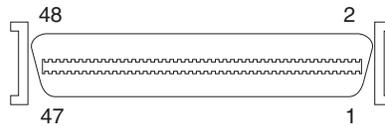
Drawer-management controller (DMC) port

Your enclosure comes with four DMC ports on the rear of the enclosure. The DMC ports (DMC-A and DMC-B) use dual RXE management connectors to interconnect each PCI-X expansion board.

Cabling the enclosure

See "Input/output ports" on page 46 for a description of the I/O ports on the rear your enclosure.

Attaching the enclosure to a server

You can attach your enclosure to a server to provide increased server PCI-adapter capacity. The PCI slots in the enclosure are divided into two 6-slot systems, which can be controlled independently of one another.

For example, one server can control system A, and another server can control system B or one server can control both system A and system B.

Complete the following steps to attach an expansion enclosure:

1. Read the information in "Before you begin" on page 31

2. Turn off the server and disconnect all its power cords and external cables.

3. Using the cabling diagrams at "Expansion enclosure cabling configurations" on page 48 as a reference for the rest of this procedure, connect the server and enclosure.

4. If the enclosure has only system A installed, use Figure 27 on page 48 and complete the following steps:

   a. Connect the interconnect management cable between the Remote supervisor Adapter port B on the rear panel of the server and the DMC A in port on the rear panel of the enclosure.

   b. Connect the remote I/O cable between the PCI Expansion Port on the rear of the server and the RXE Expansion Port on the rear of the server and the RXE Expansion Port on the rear panel of the enclosure.

5. If the enclosure has both an A and a B system installed and you want to control both systems from the same server, use Figure 28 on page 48 and complete the following steps:

   a. Connect the interconnect management cable between Remote Supervisor Adapter port B on the rear panel of the server and DMC A in Port on the rear panel of the enclosure.

   b. Connect the remote I/O cable between the PCI Expansion Port on the rear panel of the server and the RXE Expansion Port on the rear panel of the A system of the enclosure. (The connection between systems A and B is internal, so no further cabling is needed.)

6. Remove the top cover of the enclosure and install PCI adapters as needed, using the instructions that come with the adapters.

7. Plug the enclosure ac power cord into a power source. (If the enclosure has two power supplies, two ac power cords are needed.

8. Turn on all servers connected to the enclosure.

9. Configure the adapters in the enclosure, using the documentation that comes with the adapters.

10. If you have other options to install or remove, do so now; otherwise go to "Completing the installation" on page 44

Expansion enclosure cabling configurations

This section shows examples of the cabling between the server and the enclosure.

Figure 27 shows the connections between one server and an enclosure with only the A system installed. The server PCI expansion Port is connected to the enclosure DMC A in Port.
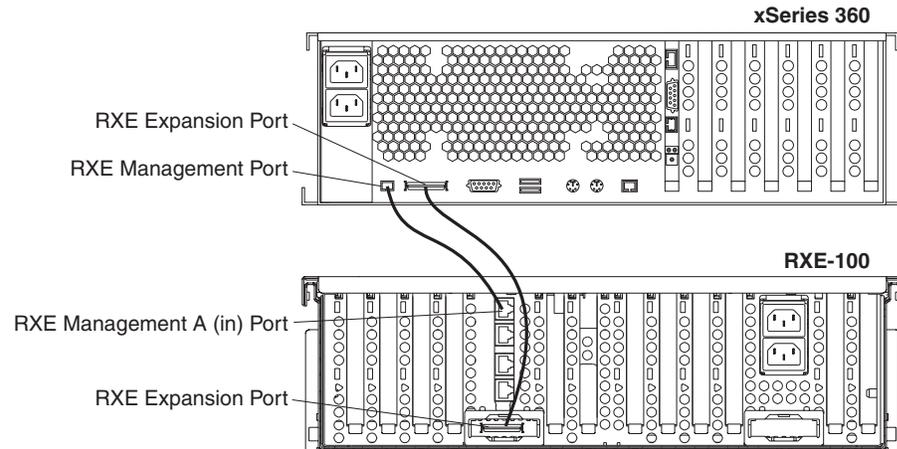
Figure 27. Server controlling one system in the enclosure

Figure 28 shows the connections between one server and an enclosure with two systems installed, where the server controls both systems. The PCI Expansion Port on the server is connected to DMC A in Port on the enclosure. See "Configuring the remote expansion enclosure" on page 7 Connect DMC A Out Port and the DMC B in Port on the server; this connection extends the control to system B of the enclosure.
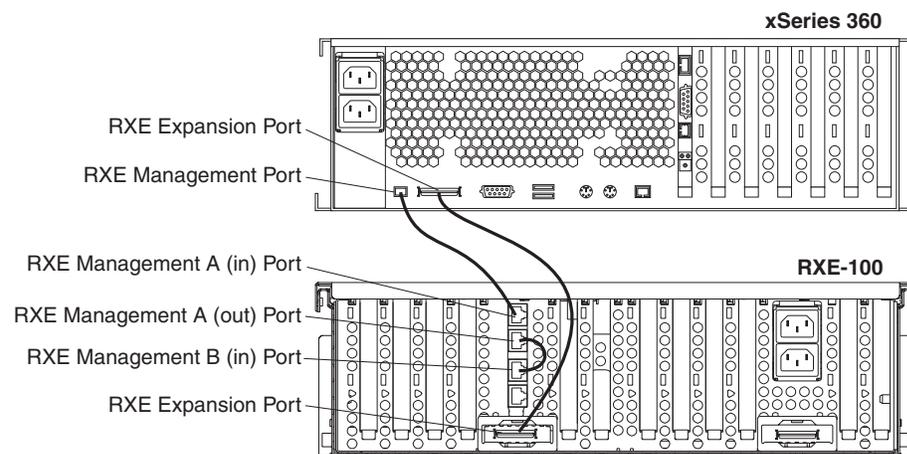
Figure 28. Server controlling two systems in the enclosure

Using the cable-management arm

Figure 29 shows the cable routing for a typical enclosure configuration. Detailed cabling instructions, including the use of the cable-management arm, are given in the Rack Mounting Instructions that come with the enclosure. See "Input/output ports" on page 46 for a description of the ports on the enclosure rear panel.

Notes:

1. The illustrations in this document might differ slightly from your hardware.

2. Refer to the documentation that comes with the options for additional cabling instructions. It might be easier for you to route any cables before you install certain options.

3. The cable-management arm does not come with the rack kit. It comes with the enclosure.
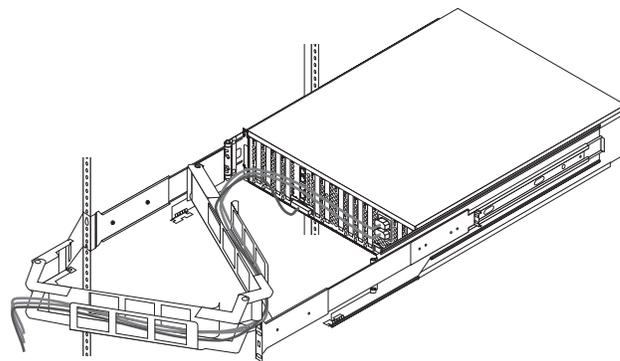
Figure 29. Routing the cables

FRU information (service only)

The following information describes procedures for removing and installing certain components inside the system. Only a qualified service technician is authorized to access the components described in this section.

Note: Before servicing this system, read "Before you begin" on page 31

Power supply backplane replacement

The enclosure comes with one power supply backplane, which accepts up to two power supplies.

To replace the power supply backplane:

1. Turn off the enclosure and disconnect all power cords and external cables; then, remove the top cover and bezel (see "Removing the enclosure top cover and bezel" on page 32).

2. Remove all power supplies by pressing the latches at the lower front of each power supply, pulling up on the locking handles, and sliding the power supplies out the front of the enclosure.

3. Unplug the cable from the operator panel card to the power supply backplane.

4. Lift up the two backplane locking latches and slide the backplane up out of the enclosure.
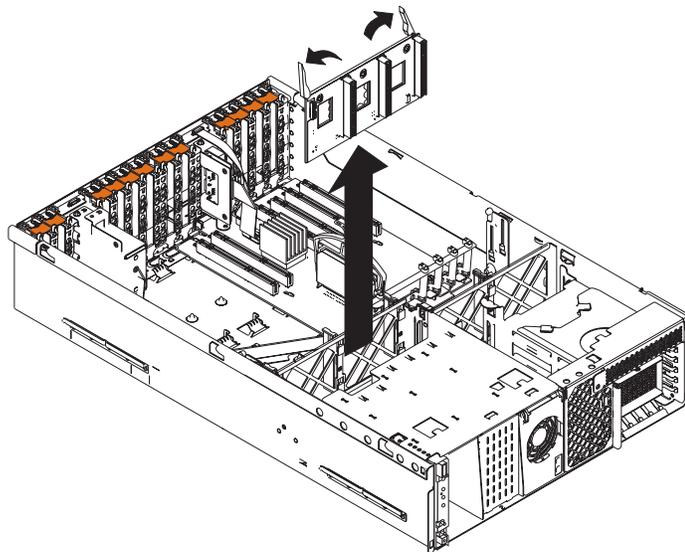
5. Open the locking latches on the replacement backplane, lower the backplane into its socket, and close the locking latches.

6. Plug the cable from the operator panel card into the socket on the backplane.

7. Replace the top cover and bezel (see "Installing the enclosure top cover and bezel" on page 44).

Operator panel card replacement

The enclosure comes with one operator panel card, which provides control buttons, indicators, and a USB port.

To replace the operator panel card:

1. Turn off the enclosure and disconnect all power cords and external cables; then, remove the top cover and bezel (see "Removing the enclosure top cover and bezel" on page 32).
2. Unplug the connector between the card and the power supply backplane, press the card locking button (in the hole in the frame above the operator panel card), and slide the card assembly out the front of the enclosure.

3. Slide the replacement card into the enclosure until the locking button snaps into place and plug in the connector to the power supply backplane.
4. Replace the top cover and bezel (see "Installing the enclosure top cover and bezel" on page 44).

Level 2 Light Path diagnostic card replacement

The enclosure comes with one Level 2 Light Path diagnostic card, which provides 5 diagnostic LED indicators and the Remind switch. The card is attached to the same subframe as the hot-swap drive backplane.

To replace the Light Path diagnostic card:

1. Turn off the enclosure and disconnect all power cords and external cables; then, remove the top cover (see "Removing the enclosure top cover and bezel" on page 32).
2. Detach the diagnostic card from the hot-swap drive backplane assembly (2 screws).
3. Attach the new diagnostic card to the hot-swap drive backplane assembly.
4. Reinstall the hot-swap drive backplane assembly and any hard drives removed earlier.
5. Replace the top cover (see "Installing the enclosure top cover and bezel" on page 44).

PCI adapter switch card replacement

The enclosure comes with one PCI adapter switch card, mounted on the top front of the enclosure frame adjacent to the PCI adapter cards. The switch card contains one switch for each of the six Active PCI adapters. This ensures that power is disconnected from the associated adapter if you attempt to open the adapter card latch and remove an adapter card.

To replace the PCI adapter switch card:

1. Turn off the enclosure and disconnect all power cords and external cables; then, remove the top cover (see "Removing the enclosure top cover and bezel" on page 32).

2. Release the two adapter switch card retaining clips, slide the card to the rear, and lift it out of the enclosure.

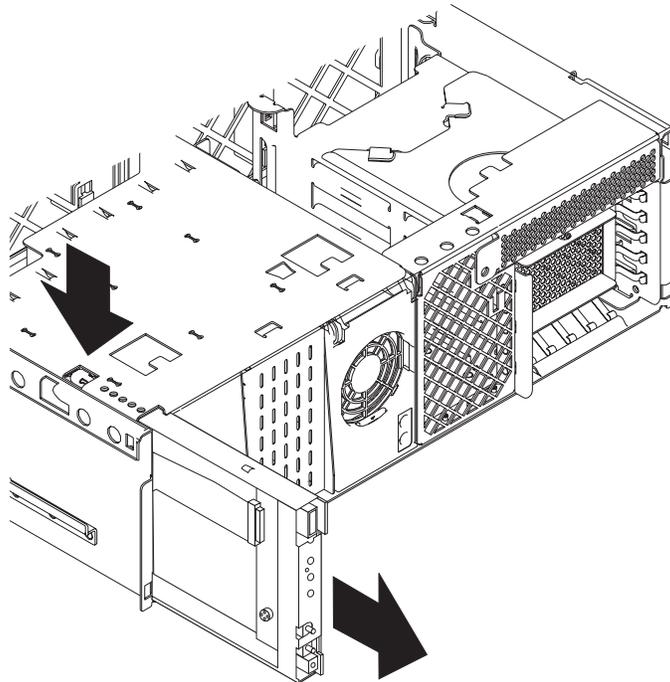3. Slide the replacement card into the enclosure until the retaining clips snap into place.

4. Replace the top cover (see "Installing the enclosure top cover and bezel" on page 44).

PCI expansion board replacement

The enclosure comes with one PCI expansion board.

To replace the expansion board:

1. Turn off the enclosure and disconnect all power cords and external cables; then, remove the top cover and bezel (see "Removing the enclosure top cover and bezel" on page 32).

2. Remove all pluggable components from the PCI expansion board. This includes:

   • All PCI adapter cards, including the service processor and ServeRaid adapter (if present)

   • All replaceable VRMs.

3. Release the locking latch that secures the front edge of the PCI expansion board to the bottom of the frame and slide the board out the rear of the enclosure.
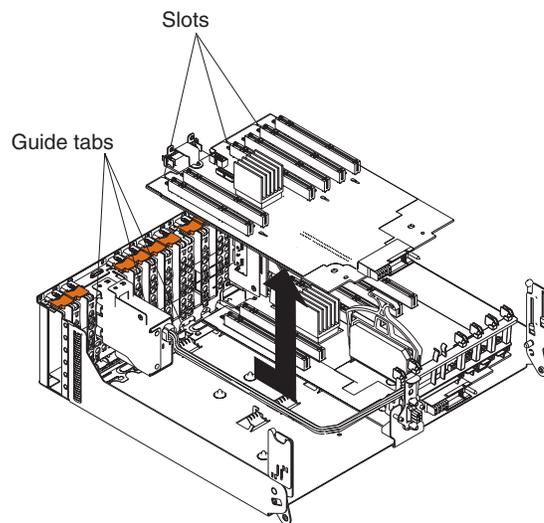
4. Slide the replacement PCI expansion board in from the rear of the enclosure and close the board locking latch.

5. Replace all components in the reverse order from which they were removed.

6. Replace the top cover and bezel (see "Installing the enclosure top cover and bezel" on page 44).

DMC replacement

The enclosure comes with one Drawer Management Controller card, which attaches to the board.
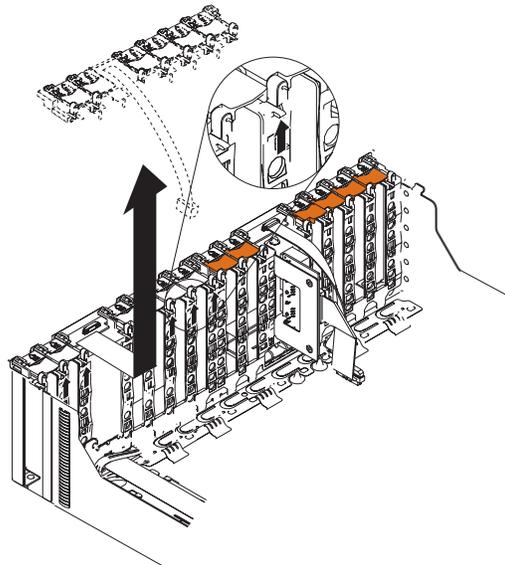
To replace the DMC card:

1. Turn off the enclosure and disconnect all power cords and external cables; then, remove the top cover and bezel (see "Removing the enclosure top cover and bezel" on page 32).

2. Remove the power supplies. See "Installing a hot-swap power supply" on page 39

3. Remove the power supply backplane. See "Power supply backplane replacement" on page 51

4. Remove the fans. See "Replacing a hot-swap fan" on page 42

5. Remove the I/O shuttle. See "Installing an xSeries Remote I/O PCI-X 6-slot Expansion Kit" on page 36

6. Disconnect the power cable from bracket and remove bracket.

7. Remove the 4 black fan brackets by pressing in on the retaining tab and lifting.

8. Remove the remaining 5 screws from the DMC.
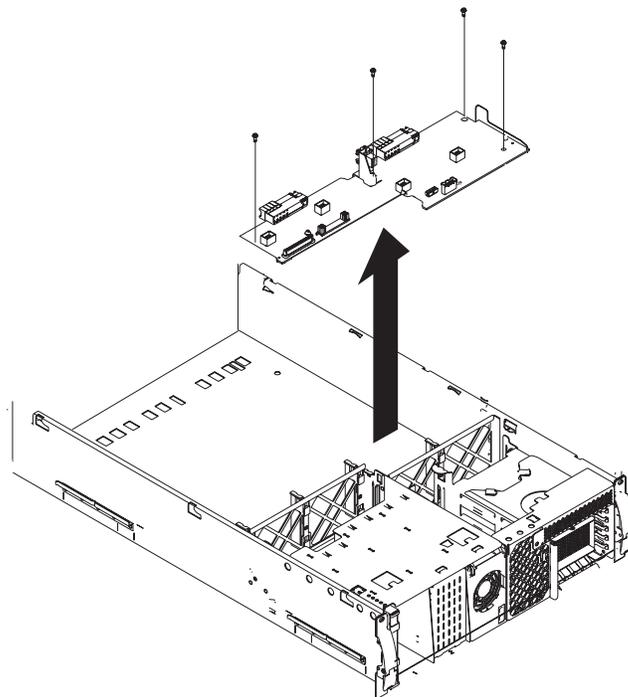
9. Lift the DMC off its holding pins and remove.

Symptom-to-FRU index

This index supports RXE-100 Expansion Unit enclosures. The Symptom-to-FRU lists symptoms, errors, and the possible causes. The most likely cause is listed first. Use this Symptom-to-FRU index to help you decide which FRUs to have available when servicing the computer.

The POST BIOS displays POST error codes and messages on the screen.

Front panel LED

Diagnostics Panel LED	FRU/Action
Information	1. **Check error log for failure.**
Fault	1. **Check error log for failure.**
Power	1. **None. Indicator use.**
Fan	1. Fan.
PCI	1. **Check error log for fault code.** 2. Find slot pair. Code P0 is slot pair 5,6. Code P1 is slot pair 4,3. Code P2 is slot pair 2,1. Code S0 is slot pair 5,6. Code S1 is slot pair 4,3. Code S2 is slot pair 2,1. 3. Replace one adapter at a time until error clears.
Temp	1. **Check Fans**
PS	1. **AC LED not lighted - check power cords and outlet.** 2. DC LED not lighted - power supply may not be fully docked. 3. Power Supply **Note:** If all both dc power sources fail and the VRMs fail at once, this indicates an ac fault. Check ac.
VRM	1. **Check VRM fault LEDs for failing VRM. Replace.**

DMC LEDs

LED	Indicates	FRU/Action
CR5	**Flashes to indicate operation.**	1. **If not flashing, card is faulty and should be replaced.**
CR11	**Card problem**	1. **Replace card.**
CR9	**Card is not plugged in or is faulty.**	1. **Check card for proper connection.** 2. Replace card.

LED	Indicates	FRU/Action
CR10	**Operator panel is not plugged in or is faulty.**	1. **Check panel-to-card cable for proper connection.** 2. Replace panel.

PCI Expansion board LEDs

LED	Indicates	FRU/Action
PCI power	**Power is applied to slot.**	1. **None**
PCI Attention	**Slot fault**	1. **Replace adapter**
PCI-X card error	**PCI expansion board fault**	1. **Replace board**
VRM error	**Missing or faulty VRM 40**	1. **Check to see if VRM is properly seated.** 2. Replace VRM.
Switch error	**Switch card not plugged in or faulty.**	1. **Check cable connections.** 2. Replace switch card.
RXE management card error	**Card not plugged in or faulty.**	1. **Check cable connections.** 2. Replace card and cable.

Error Messages

Message	FRU/Action
PCI Expansion Unit X: Fan X not detected	1. **Reseat fan X.** 2. Replace fan X.
PCI Expansion Unit X: Fan X failure	1. **Reseat fan X.** 2. Replace fan X.
PCI Expansion Unit X: Fan X outside recommended speed.	1. **Reseat fan X.** 2. Replace fan X.
PCI Expansion Unit X: Invalid fan configuration	1. Reseat fans. 2. Replace fans one at a time until error clears.
PCI Expansion Unit X: Invalid RXE management interconnect configuration	1. **Check cables.** 2. Check RXE Management port connections. 3. Board
PCI Expansion Unit X: Invalid PCI board/RXE management interconnect configuration	1. **Check cables.** 2. Check RXE management port connections. 3. Board
PCI Expansion Unit X: Resetting system due to unrecoverable error	1. **Refer to server diagnostics to check configuration.**
PCI Expansion Unit X: Power supply X fault	1. **Check ac power.** 2. If power supply dc LED is lighted, replace that power supply.

Message	FRU/Action
PCI Expansion Unit X: Power supply X ac power removed, early power off warning	1. **Check ac power.**
PCI Expansion Unit X: Power supply X removed	1. **Insert power supply X.** 2. Replace power backplane. 3. Power supply.
PCI Expansion Unit X: High ambient temperature, attempting power off	1. **Check fans.**
PCI Expansion Unit X: Expansion system over recommended ambient temperature	1. **Check fans.**
PCI Expansion Unit X: +2.5V over voltage, attempting power off	1. **Replace Board A or B as indicated.**
PCI Expansion Unit X: +2.5V over recommended voltage	1. **Replace Board A or B as indicated.**
PCI Expansion Unit X: +2.5V under recommended voltage	1. **Check for obvious shorts.** 2. Replace board A or B as indicated.
PCI Expansion Unit X: +2.5V under voltage, attempting power off	1. **Replace Board A or B as indicated.**
PCI Expansion Unit X: +3.3V over voltage, attempting power off	1. **Check ac power.** 2. Replace VRM40. 3. Replace dc power supply.
PCI Expansion Unit X: +3.3V over recommended voltage	1. **Check ac power.** 2. Replace VRM40. 3. Replace dc power supply.
PCI Expansion Unit X: +3.3V under recommended voltage	1. **Check ac power.** 2. Check for shorted adapter in slots 1,2,3, or 4. 3. Replace VRM40. 4. Replace dc power supply. 5. Replace board.
PCI Expansion Unit X: +3.3V under voltage, attempting power off	1. **Check ac power.** 2. Check for shorted adapter in slots 1,2,3, or 4. 3. Replace VRM40. 4. Replace dc power supply. 5. Replace board.
PCI Expansion Unit X: +3.3V PCI over voltage, attempting power off	1. **Replace Board.**
PCI Expansion Unit X: +3.3V PCI over recommended voltage	1. **Replace Board.**
PCI Expansion Unit X: +3.3V PCI over recommended voltage	1. **Replace adapter card as indicated.**

Message	FRU/Action
PCI Expansion Unit X: +3.3V PCI under recommended voltage	1. **Check ac power.** 2. Check for shorted adapter in slots 5 or 6. 3. Replace VRM40. 4. Replace dc power supply. 5. Replace board.
PCI Expansion Unit X: +3.3V PCI under voltage, attempting power off	1. **Replace Board as indicated.**
PCI Expansion Unit X: +1.8V over voltage, attempting power off	1. **Replace Board as indicated.**
PCI Expansion Unit X: +1.8V over recommended voltage	1. **Replace Board as indicated.**
PCI Expansion Unit X: +1.8V under recommended voltage	1. **Check for shorts on Boards.** 2. Replace Board as indicated.
PCI Expansion Unit X: +1.8V under voltage, attempting power off	1. **Replace adapter card as indicated.**
PCI Expansion Unit X: +5V over voltage, attempting power off	1. **Replace power supplies one at a time until error clears.**
PCI Expansion Unit X: +5V over recommended voltage	1. **Replace power supplies one at a time until error clears.**
PCI Expansion Unit X: +5V under recommended voltage	1. **Replace power supplies one at a time until error clears.**
PCI Expansion Unit X: +5V under recommended voltage	1. **Check slot 5 or 6 for short or bent pins.** 2. Power supply
PCI Expansion Unit X: +5V under voltage, attempting power off	1. **Check slot 5 or 6 for short. Check pins between PCI and DMC card.** 2. Power supply
PCI Expansion Unit X: +12V over voltage, attempting power off	1. **Power supply.**
PCI Expansion Unit X: +12V over recommended voltage	1. **Power supply.**
PCI Expansion Unit X: +12V under recommended voltage	1. **Check adapters for shorts.** 2. Check pins. 3. Power supply
PCI Expansion Unit X: +12V under voltage, attempting power off	1. **Check adapters for shorts.** 2. Check pins. 3. Power supply.
PCI Expansion Unit X: -12V over voltage, attempting power off	1. **Power supply.**
PCI Expansion Unit X: -12V over recommended voltage	1. **Power supply.**
PCI Expansion Unit X: -12V under recommended voltage	1. **Check pins between PCI and DMC card and all slots.** 2. Power supply

Message	FRU/Action
PCI Expansion Unit X: -12V under voltage, attempting power off	1. **Check pins between PCI and DMC card and all slots.** 2. Power supply
PCI Expansion Unit X: Continuous +5V over voltage, powering off	1. **Power supply.**
PCI Expansion Unit X: Continuous +5V over voltage	1. **Power supply.**
PCI Expansion Unit X: Continuous +5V under voltage	1. **Check pins between PCI and DMC card.** 2. Power supply
PCI Expansion Unit X: Continuous +5V under voltage, attempting power off	1. **Check pins between PCI and DMC card.** 2. Power supply
PCI Expansion Unit X: Continuous +3.3V over voltage, attempting power off	1. **Power supply.**
PCI Expansion Unit X: Continuous +3.3V over voltage	1. **Power supply.**
PCI Expansion Unit X: Continuous +3.3V under voltage	1. **Check pins between PCI and DMC card.** 2. Power supply
PCI Expansion Unit X: Continuous +3.3V under voltage, attempting power off	1. **Check pins between PCI and DMC card.** 2. Power supply.
PCI Expansion Unit X: PCI +5V over voltage, attempting power off	1. **Replace Boards one at a time until error clears.**
PCI Expansion Unit X: PCI +5V over voltage	1. **Replace Boards one at a time until error clears.**
PCI Expansion Unit X: PCI +5V under voltage	1. **Check slots 1,2,3, and 4 for shorts.** 2. Check pins between PCI and DMC card. 3. Power supply.
PCI Expansion Unit X: PCI +5V under voltage, attempting power off	1. **Check slots 1,2,3, and 4 for shorts.** 2. Check pins between PCI and DMC card. 3. Power supply.
PCI Expansion Unit X: PCI +5V fault	1. **Slot 1,2,3, or 4 is shorted. Check pins between PCI and DMC card.** 2. Power supply.
PCI Expansion Unit X: PCI +12V A bus fault	1. **Check all slots.** 2. Replace Board A 3. Replace DMC card. 4. Power backplane. 5. Power supply.
PCI Expansion Unit X: PCI +12V B bus fault	1. **Check all slots.** 2. Replace Board B. 3. Replace DMC card. 4. Power backplane 5. Power supply

| Message	FRU/Action
PCI Expansion Unit X: PCI +12V C bus fault	1. **Replace fans one at a time until error clears.** 2. Replace DMC card. 3. Power backplane 4. Power supply
PCI Expansion Unit X: PCI +12V D bus fault	1. **DMC card.** 2. Power backplane 3. Power supply
PCI Expansion Unit X: Failure reading an I2C device, possible bus failure	1. **Replace power backplane.** 2. Replace power supply. 3. Replace DMC card. 4. Board.
PCI Expansion Unit X: Hot plug switch cable not detected	1. **Check to see if hot plug switch card cable is plugged into Board (A or B, as indicated by LED) and the hot plug switch card.** 2. Hot plug switch card 3. PCI expansion board
PCI Expansion Unit X: Front control panel not present	1. **Reseat operator panel card cable connections.** 2. Reseat power backplane 3. Power backplane. 4. DMC card.
PCI Expansion Unit X: Power controller not present	1. **Reseat power backplane.** 2. Power backplane. 3. DMC card.
PCI Expansion Unit X: ISM processor encountered failures upon starting	1. **DMC card.**
PCI Expansion Unit X: Environmental Monitor Flash Update failed	1. **Check service processor on host server.** 2. Check External RXE management cables. 3. Replace RXE management card. 4. Replace Board. 5. DMC card.
PCI Expansion Unit X: Environmental Monitor ROM error	1. **DMC.**
PCI Expansion Unit X: Environmental Monitor RAM error	1. **DMC.**
PCI Expansion Unit X: System running non-redundant power	1. **Check power supplies for failure.** 2. Power supply
PCI Expansion Unit X: System approaching maximum power consumption	1. **An alert indicating that the PCI adapters in use are approaching maximum dc power limits.**
PCI Expansion Unit X: Power supply current exceeded max spec value	1. **Remove or use lower power PCI adapters.**

Diagnostic error codes

Diagnostic error programs cannot be run from the RXE-100 Remote Expansion Enclosure; they must be run from the host server. However, certain error codes specific to the RXE-100 Remote Expansion Enclosure are listed below.

Error code/symptom	FRU/action
166-201-100 (ISMP indicates I2C errors on RXE bus X)	• **RXE-100 backplane**
166-201-101 (ISMP indicates I2C errors on RXE bus P)	1. **RXE-100 power backplane** 2. RXE-100 operator panel cable 3. RXE-100 operator panel 4. RXE-100 backplane
166-201-102 (ISMP indicates I2C errors on RXE bus I_A)	1. **RXE-100 PCI-X backplane (Side A)** 2. RXE-100 backplane
166-201-103 (ISMP indicates I2C errors on RXE bus I_B)	1. **RXE-100 PCI-X backplane (Side B)** 2. RXE-100 backplane
166-201-104 (ISMP indicates I2C errors on RXE bus PCI_A)	1. **RXE-100 PCI-X backplane (Side A)** 2. RXE-100 backplane
166-201-105 (ISMP indicates I2C errors on RXE bus F)	• **RXE-100 backplane**
166-201-106 (ISMP indicates I2C errors on RXE bus PCI_B)	1. **RXE-100 PCI-X backplane (Side B)** 2. RXE-100 backplane
166-201-107 (ISMP indicates I2C errors on RXE bus PCI_A slot 1)	1. **Adapter in slot A1** 2. RXE-100 PCI-X backplane (Side A)
166-201-108 (ISMP indicates I2C errors on RXE bus PCI_A slot 2)	1. **Adapter in slot A2** 2. RXE-100 PCI-X backplane (Side A)
166-201-109 (ISMP indicates I2C errors on RXE bus PCI_A slot 3)	1. **Adapter in slot A3** 2. RXE-100 PCI-X backplane (Side A)
166-201-110 (ISMP indicates I2C errors on RXE bus PCI_A slot 4)	1. **Adapter in slot A4** 2. RXE-100 PCI-X backplane (Side A)
166-201-111 (ISMP indicates I2C errors on RXE bus PCI_A slot 5)	1. **Adapter in slot A5** 2. RXE-100 PCI-X backplane (Side A)
166-201-112 (ISMP indicates I2C errors on RXE bus PCI_A slot 6)	1. **Adapter in slot A6** 2. RXE-100 PCI-X backplane (Side A)
166-201-113 (ISMP indicates I2C errors on RXE bus PCI_B slot 1)	1. **Adapter in slot B1** 2. RXE-100 PCI-X backplane (Side B)
166-201-114 (ISMP indicates I2C errors on RXE bus PCI_B slot 2)	1. **Adapter in slot B2** 2. RXE-100 PCI-X backplane (Side B)
166-201-115 (ISMP indicates I2C errors on RXE bus PCI_B slot 3)	1. **Adapter in slot B3** 2. RXE-100 PCI-X backplane (Side B)
166-201-116 (ISMP indicates I2C errors on RXE bus PCI_B slot 4)	1. **Adapter in slot B4** 2. RXE-100 PCI-X backplane (Side B)

Error code/symptom	FRU/action
166-201-117 (ISMP indicates I2C errors on RXE bus PCI_B slot 5)	1. **Adapter in slot B5** 2. RXE-100 PCI-X backplane (Side B)
166-201-118 (ISMP indicates I2C errors on RXE bus PCI_B slot 6)	1. **Adapter in slot B6** 2. RXE-100 PCI-X backplane (Side B)
180-XXX-031 (Failed RXE PCI-X Backplane LED test)	1. **RS485 cable between server and RXE-100** 2. RXE-100 PCI-X backplane (Side A) 3. RXE-100 backplane
180-XXX-032 (Failed RXE Operator Panel LED test)	1. **RS485 cable between server and RXE-100** 2. RXE-100 operator panel cable 3. RXE-100 operator panel 4. RXE-100 backplane
180-XXX-033 (Failed RXE Fans LED test)	1. **RS485 cable between server and RXE-100** 2. RXE-100 fan 3. RXE-100 backplane
180-XXX-034 (Failed RXE Backplane LED test)	1. **RS485 cable between server and RXE-100** 2. RXE-100 backplane
180-XXX-035 (Failed RXE PCI-X Backplane LED test)	1. **RS485 cable between server and RXE-100** 2. RS485 cable between Side A and Side B 3. RXE-100 PCI-X backplane (Side B) 4. RXE-100 backplane

Parts listing, RXE-100

This parts listing supports the RXE-100 Expansion Unit.
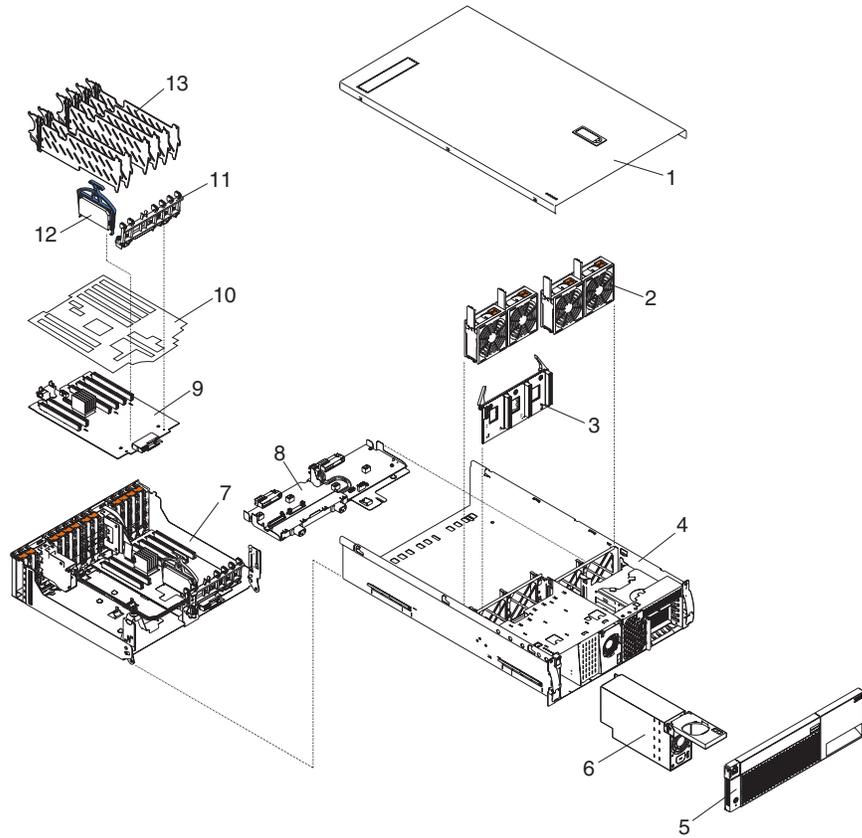
System

Index	System (xSeries 352)	FRU No.
1	Top cover (all models)	49P9476
2	Fan 92mm (all models)	09N9474
3	Power backplane (all models)	06P4192
4	Chassis base (all models)	31P6177
5	Bezel assembly (all models)	31P6034
6	Power supply with management, 370W (all models)	00N7708
7	I/O shuttle (all models)	59P6812
8	Drawer management controller (all models)	31P6053
9	System board (model 1RX)	31P6054
9	System board (model 2RX)	13N0080
10	System board insulator (all models)	31P6036
11	DWR retain bracket (all models)	31P6120
12	VRM - 12V/40A (all models)	00N7754
13	PCI spacer (all models)	03K9050
	Cable, 4M RIOG (all models)	31P6131
	Cable, 8M RIOG (all models)	31P6132
	Cable, 4M RXE management (all models)	31P6047
	Cable, 8M RXE management (all models)	31P6081
	Cable, 9″ RXE management (all models)	31P6085
	Cable arm assembly (all models)	31P6119
	Cable management plate (all models)	31P6121
	OP interface (all models)	31P6051
	PCI hotswitch (all models)	31P6052
	RXE management card (all models)	31P6049
	Cord, jumper (all models)	36L8886
	Cord, line (all models)	6952300
	Flange - left (all models)	00N7190
	Flange - right (all models)	00N7192
	Label (all models)	49P9409
	Label, system service (model 1RX)	31P6032
	Label, system service (model 2RX)	26K6722
	Miscellaneous parts (all models)	00N7193
	Retainer (all models)	31P6037
	Slide assembly, left (all models)	31P6117
	Slide assembly, right (all models)	73P9762
	VRM clip (all models)	31P6026

Related service information

Note: The service procedures are designed to help you isolate problems. They are written with the assumption that you have model-specific training on all computers, or that are familiar with the computers, functions, terminology, and service information provided in this manual.

Safety information

The following section contains the safety information that you need to be familiar with before servicing an IBM computer.

General safety

Follow these rules to ensure general safety:
- Observe good housekeeping in the area of the machines during and after maintenance.
- When lifting any heavy object:
    1. Ensure you can stand safely without slipping.
    2. Distribute the weight of the object equally between your feet.
    3. Use a slow lifting force. Never move suddenly or twist when you attempt to lift.
    4. Lift by standing or by pushing up with your leg muscles; this action removes the strain from the muscles in your back. *Do not attempt to lift any objects that weigh more than 16 kg (35 lb) or objects that you think are too heavy for you.*
- Do not perform any action that causes hazards to the customer, or that makes the equipment unsafe.
- Before you start the machine, ensure that other service representatives and the customer's personnel are not in a hazardous position.
- Place removed covers and other parts in a safe place, away from all personnel, while you are servicing the machine.
- Keep your tool case away from walk areas so that other people will not trip over it.
- Do not wear loose clothing that can be trapped in the moving parts of a machine. Ensure that your sleeves are fastened or rolled up above your elbows. If your hair is long, fasten it.
- Insert the ends of your necktie or scarf inside clothing or fasten it with a nonconductive clip, approximately 8 centimeters (3 inches) from the end.
- Do not wear jewelry, chains, metal-frame eyeglasses, or metal fasteners for your clothing.

    Remember: Metal objects are good electrical conductors.
- Wear safety glasses when you are: hammering, drilling soldering, cutting wire, attaching springs, using solvents, or working in any other conditions that might be hazardous to your eyes.
- After service, reinstall all safety shields, guards, labels, and ground wires. Replace any safety device that is worn or defective.
- Reinstall all covers correctly before returning the machine to the customer.

Electrical safety

CAUTION:
Electrical current from power, telephone, and communication cables can be hazardous. To avoid personal injury or equipment damage, disconnect the attached power cords, telecommunication systems, networks, and modems before you open the server covers, unless instructed otherwise in the installation and configuration procedures.

Observe the following rules when working on electrical equipment.

Important: Use only approved tools and test equipment. Some hand tools have handles covered with a soft material that does not insulate you when working with live electrical currents.

Many customers have, near their equipment, rubber floor mats that contain small conductive fibers to decrease electrostatic discharges. Do not use this type of mat to protect yourself from electrical shock.

* Find the room emergency power-off (EPO) switch, disconnecting switch, or electrical outlet. If an electrical accident occurs, you can then operate the switch or unplug the power cord quickly.
* Do not work alone under hazardous conditions or near equipment that has hazardous voltages.
* Disconnect all power before:
  – Performing a mechanical inspection
  – Working near power supplies
  – Removing or installing main units
* Before you start to work on the machine, unplug the power cord. If you cannot unplug it, ask the customer to power-off the wall box that supplies power to the machine and to lock the wall box in the off position.
* If you need to work on a machine that has exposed electrical circuits, observe the following precautions:
  – Ensure that another person, familiar with the power-off controls, is near you.
    Remember: Another person must be there to switch off the power, if necessary.
  – Use only one hand when working with powered-on electrical equipment; keep the other hand in your pocket or behind your back.
    Remember: There must be a complete circuit to cause electrical shock. By observing the above rule, you may prevent a current from passing through your body.
  – When using testers, set the controls correctly and use the approved probe leads and accessories for that tester.
  – Stand on suitable rubber mats (obtained locally, if necessary) to insulate you from grounds such as metal floor strips and machine frames.

  Observe the special safety precautions when you work with very high voltages; these instructions are in the safety sections of maintenance information. Use extreme care when measuring high voltages.
* Regularly inspect and maintain your electrical hand tools for safe operational condition.

- Do not use worn or broken tools and testers.
- *Never assume* that power has been disconnected from a circuit. First, *check* that it has been powered-off.
- Always look carefully for possible hazards in your work area. Examples of these hazards are moist floors, nongrounded power extension cables, power surges, and missing safety grounds.
- Do not touch live electrical circuits with the reflective surface of a plastic dental mirror. The surface is conductive; such touching can cause personal injury and machine damage.
- Do not service the following parts with the power on when they are removed from their normal operating places in a machine:
  - Power supply units
  - Pumps
  - Blowers and fans
  - Motor generators

  and similar units. (This practice ensures correct grounding of the units.)
- If an electrical accident occurs:
  - Use caution; do not become a victim yourself.
  - Switch off power.
  - Send another person to get medical aid.

Safety inspection guide

The intent of this inspection guide is to assist you in identifying potentially unsafe conditions on these products. Each machine, as it was designed and built, had required safety items installed to protect users and service personnel from injury. This guide addresses only those items. However, good judgment should be used to identify potential safety hazards due to attachment of non-IBM features or options not covered by this inspection guide.

If any unsafe conditions are present, you must determine how serious the apparent hazard could be and whether you can continue without first correcting the problem.

Consider these conditions and the safety hazards they present:
- Electrical hazards, especially primary power (primary voltage on the frame can cause serious or fatal electrical shock).
- Explosive hazards, such as a damaged CRT face or bulging capacitor
- Mechanical hazards, such as loose or missing hardware

The guide consists of a series of steps presented in a checklist. Begin the checks with the power off, and the power cord disconnected.

Checklist:
1. Check exterior covers for damage (loose, broken, or sharp edges).
2. Power-off the computer. Disconnect the power cord.
3. Check the power cord for:
   a. A third-wire ground connector in good condition. Use a meter to measure third-wire ground continuity for 0.1 ohm or less between the external ground pin and frame ground.
   b. The power cord should be the appropriate type as specified in the parts listings.

      c. Insulation must not be frayed or worn.

4. Remove the cover.

5. Check for any obvious non-IBM alterations. Use good judgment as to the safety of any non-IBM alterations.

6. Check inside the unit for any obvious unsafe conditions, such as metal filings, contamination, water or other liquids, or signs of fire or smoke damage.

7. Check for worn, frayed, or pinched cables.

8. Check that the power-supply cover fasteners (screws or rivets) have not been removed or tampered with.

Handling electrostatic discharge-sensitive devices

Any computer part containing transistors or integrated circuits (ICs) should be considered sensitive to electrostatic discharge (ESD). ESD damage can occur when there is a difference in charge between objects. Protect against ESD damage by equalizing the charge so that the machine, the part, the work mat, and the person handling the part are all at the same charge.

Notes:

1. Use product-specific ESD procedures when they exceed the requirements noted here.

2. Make sure that the ESD protective devices you use have been certified (ISO 9000) as fully effective.

When handling ESD-sensitive parts:

- Keep the parts in protective packages until they are inserted into the product.
- Avoid contact with other people.
- Wear a grounded wrist strap against your skin to eliminate static on your body.
- Prevent the part from touching your clothing. Most clothing is insulative and retains a charge even when you are wearing a wrist strap.
- Use the black side of a grounded work mat to provide a static-free work surface. The mat is especially useful when handling ESD-sensitive devices.
- Select a grounding system, such as those listed below, to provide protection that meets the specific service requirement.

    Note: The use of a grounding system is desirable but not required to protect against ESD damage.

    – Attach the ESD ground clip to any frame ground, ground braid, or green-wire ground.

    – Use an ESD common ground or reference point when working on a double-insulated or battery-operated system. You can use coax or connector-outside shells on these systems.

    – Use the round ground-prong of the ac plug on ac-operated computers.

Grounding requirements

Electrical grounding of the computer is required for operator safety and correct system function. Proper grounding of the electrical outlet can be verified by a certified electrician.

Safety notices (multi-lingual translations)

The caution and danger safety notices in this section are provided in the following languages:

- English
- Brazilian/Portuguese
- Chinese
- French
- German
- Italian
- Japanese
- Korean
- Spanish

Important: All caution and danger statements in this IBM documentation begin with a number. This number is used to cross reference an English caution or danger statement with translated versions of the caution or danger statement in this section.

For example, if a caution statement begins with a number 1, translations for that caution statement appear in this section under statement 1.

Be sure to read all caution and danger statements before performing any of the instructions.

Statement 1

DANGER

Electrical current from power, telephone and communication cables is hazardous.

To avoid a shock hazard:

- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet.**
- **Connect to properly wired outlets any equipment that will be attached to this product.**
- **When possible, use one hand only to connect or disconnect signal cables.**
- **Never turn on any equipment when there is evidence of fire, water, or structural damage.**
- **Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedure**s.
- **Connect and disconnect cables as described in the following table when installing, moving, or opening covers on this product or attached devices.**

To Connect	To Disconnect
1. Turn everything OFF.	1. Turn everything OFF.
2. First, attach all cables to devices.	2. First, remove power cords from outlet.
3. Attach signal cables to connectors.	3. Remove signal cables from connectors.
4. Attach power cords to outlet.	4. Remove all cables from devices.
5. Turn device ON.	

Statement 2

⚠️

CAUTION:
When replacing the lithium battery, use only IBM Part Number 33F8354 or an equivalent type battery recommended by the manufacturer. If your system has a module containing a lithium battery, replace it only with the same module type made by the same manufacturer. The battery contains lithium and can explode if not properly used, handled, or disposed of.

Do not:
• **Throw or immerse into water**
• **Heat to more than 100°C (212°F)**
• **Repair or disassemble**

Dispose of the battery as required by local ordinances or regulations.

Statement 3

⚠️

CAUTION:
When laser products (such as CD-ROMs, DVD-ROM drives, fiber optic devices, or transmitters) are installed, note the following:
• **Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.**
• **Use of controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.**

⚠️

DANGER

> **Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following:**
>
> **Laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam.**

Statement 4
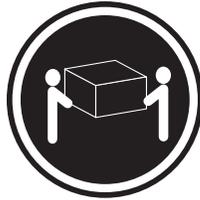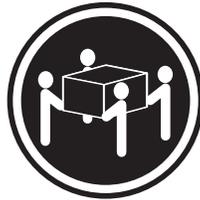
≥18 kg (39.7 lb)   ≥32 kg (70.5 lb)   ≥55 kg (121.2 lb)

CAUTION:
Use safe practices when lifting.

Statement 5

CAUTION:
The power control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.

Statement 10

CAUTION:
Do not place any object weighing more than 82 kg (180 lbs.) on top of rack-mounted devices.

Importante:

Todas as instruções de cuidado e perigo da IBM documentation começam com um número. Este número é utilizado para fazer referência cruzada de uma instrução de cuidado ou perigo no idioma inglês com as versões traduzidas das instruções de cuidado ou perigo encontradas nesta seção.

Por exemplo, se uma instrução de cuidado é iniciada com o número 1, as traduções para aquela instrução de cuidado aparecem nesta seção sob a instrução 1.

Certifique-se de ler todas as instruções de cuidado e perigo antes de executar qualquer operação.

Instrução 1

PERIGO

A corrente elétrica proveniente de cabos de alimentação, de telefone e de comunicações é perigosa.

Para evitar risco de choque:
- Não conecte ou desconecte cabos e não realize instalação, manutenção ou reconfiguração deste produto durante uma tempestade com raios.
- Conecte todos os cabos de alimentação a tomadas elétricas corretamente instaladas e aterradas.
- Conecte todos os equipamentos ao qual esse produto será conectado a tomadas corretamente instaladas.
- Sempre que possível, utilize apenas uma das mãos para conectar ou desconectar cabos de sinal.
- Nunca ligue qualquer equipamento quando existir evidência de danos por fogo, água ou na estrutura.
- Desconecte cabos de alimentação, sistemas de telecomunicação, redes e modems antes de abrir as tampas dos dispositivos, a menos que especificado de maneira diferente nos procedimentos de instalação e configuração.
- Conecte e desconecte cabos conforme descrito na seguinte tabela, ao instalar ou movimentar este produto ou os dispositivos conectados, ou ao abrir suas tampas.

Para Conectar:	Para Desconectar:
1. DESLIGUE Tudo.	1. DESLIGUE Tudo.
2. Primeiramente, conecte todos os cabos aos dispositivos.	2. Primeiramente, remova os cabos de alimentação das tomadas.
3. Conecte os cabos de sinal aos conectores.	3. Remova os cabos de sinal dos conectores.
4. Conecte os cabos de alimentação às tomadas.	4. Remova todos os cabos dos dispositivos.
5. LIGUE os dispositivos.	

Instrução 2

CUIDADO:

Ao substituir a bateria de lítio, utilize apenas uma bateria IBM, Número de Peça 33F8354 ou uma bateria de tipo equivalente, recomendada pelo fabricante. Se o seu sistema possui um móídulo com uma bateria de lítio, substitua-o apenas pelo mesmo tipo de mídulo, do mesmo fabricante. A bateria contém lítio e pode explodir se não for utilizada, manuseada e descartada de maneira correta.

Não:
• Jogue ou coloque na água
• Aqueça a mais de 100°C (212°F)
• Conserte nem desmonte

Para descartar a bateria, entre em contato com a área de atendimento a clientes IBM, pelo telefone (011) 889-8986, para obter informações sobre como enviar a bateria pelo correio para a IBM.

Instrução 3

PRECAUCIÓN:

Quando produtos a laser (unidades de CD-ROM, unidades de DVD, dispositivos de fibra ítica, transmissores, etc.) estiverem instalados, observe o seguinte:
• Não remova as tampas. A remoção das tampas de um produto a laser pode resultar em exposição prejudicial à radiação de laser. Nenhuma peça localizada no interior do dispositivo pode ser consertada.
• A utilização de controles ou ajustes ou a execução de procedimentos diferentes dos especificados aqui pode resultar em exposição prejudicial à radiação.

PERIGO

Alguns produtos a laser contêm um diodo laser da Classe 3A ou Classe 3B embutido. Observe o seguinte:

Radiação de laser quando aberto. Não olhe diretamente para o raio a olho nu ou com instrumentos íticos, e evite exposição direta ao raio.

Instrução 4
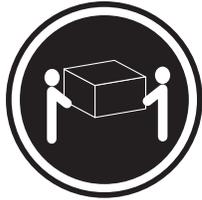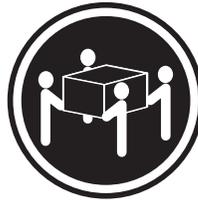
≥18 kg (39.7 lb)   ≥32 kg (70.5 lb)   ≥55 kg (121.2 lb)

CUIDADO:

Ao levantar a máquina, faça-o com segurança.

Instrução 5

CUIDADO:

Os botões Liga/Desliga localizados no dispositivo e na fonte de alimentação não desligam a corrente elétrica fornecida ao dispositivo. O dispositivo também pode ter mais de um cabo de alimentação. Para remover toda a corrente elétrica do dispositivo, assegure que todos os cabos de alimentação estejam desconectados da fonte de energia elétrica.

Instrução 10

CUIDADO:

Não coloque nenhum objeto com peso superior a 82 kg (180 lbs.) sobre dispositivos montados em rack.

重要：

       `Server Library` 中的所有提醒和危险条款前都有一个数字标识。该数字是用来交叉引用一个英文的提醒和危险条款及本部分中的与之对应的已翻译成其它文字的提醒和危险条款。

例如，如果一个提醒条款前的数字为 1，则本部分中相应的译文也带有标号 1。

在执行任何指示的操作之前，请确保您已经阅读了全部提醒和危险条款。

声明 1

⚠ ⚡

危险

> 电源、电话和通信电缆中带有危险电流。
>
> 为避免电击：
>
> 雷电期间不要拆接电缆或安装、维修及重新配置本产品。
>
> 将所有电源线连接至正确布线并已安全接地的电源插座上。
>
> 将应与本产品连接的所有设备连接至正确布线的插座上。
>
> 尽量只使用单手拆接信号电缆。
>
> 有水、火及结构损坏迹象时，请勿打开任何设备。
>
> 除非在安装配置过程中有明确指示，否则，打开设备机盖前应先断开与电源线、远程通信系统、网络和调制解调器的所有连接。
>
> 安装、移动或打开本产品及其附带设备的机盖时，应按下表所述连接和断开电缆。

> **连接时：**
>
> 1. 关闭所有设备。
>
> 2. 首先将所有电缆连接至设备。
>
> 3. 将信号电缆连接至接口。
>
> 4. 将电源线连接至插座。
>
> **断开连接时：**
>
> 1. 关闭所有设备。
>
> 2. 首先从插座中拔出电源线。
>
> 3. 从接口上拔下信号电缆。

声明 2

⚠️

警告:

更换锂电池时，只能使用 IBM 产品号 33F8354 或者是厂商推荐的等同
类型的电池。

如果系统模块中含有锂电池，则只能使用同一厂商制造的同一类型的模
块进行更换。电池中含有锂。如果使用、拿放或处理不当，可能会发生
爆炸。

请勿对电池进行下列操作：
扔入或浸入水电 　　　 。
加热超过 100 　（212 F）
进行修理或分解
请按本地法规要求处理电池。

声明 3

⚠️

警告:

安装激光产品（如 CD-ROM、DVD 驱动器、光纤设备或送话器）时，应注
意以下事项：

不要拆除外盖。拆除激光产品的外盖可能会导致激光辐射的危险，本设备中
没有用户可维修的部件。

非此处指定的其它控制、调整或与性能有关的操作都有可能导致激光辐射的
危险。

⚠️

危险

某些激光产品中包含内嵌的 3A 级或 3B 级激光二极管。请注意以下事项。

打开时会产生激光辐射。不要直视光束，不要使用光学仪器直接观看光束，
避免直接暴露于光束之下。

声明 4

⚠️

≥18 kg (37 磅)   ≥32 kg (70.5 磅)   ≥ 55 kg (121.2 磅)

警告：
抬起时请采用安全操作方法。

声明 5

⚠️   ⚡

警告：

使用设备上的电源控制按钮和电源上的开关都不能断开本设备上的电流。
另外，本设备可能带有多条电源线。如要断开设备上的所有电流，请确
保所有电源线均已与电源断开连接。

2 ⏻➡
1 ⏻➡

声明 6

⚠️

警告：

如果在电源线连接设备的一端安装了固定松紧夹，则必须将电源线的另一端连接至
使用方便的电源。

声明 7

警告：

如果设备带有外门，则在移动或抬起设备前应将其拆除或固定以避免造成人员伤害。外门支撑不了设备的重量。

声明 8

警告：
不要拆除电源外盖或贴有下列标签的任何部件。

贴有此标签的组件内部存在高电压、高电流的危险。这些组件中没有用户可维修的部件。如果怀疑其中的部件存在问题，应与服务技术人员联系。

声明 9

警告：

为避免人员伤害，拆除设备上的风扇前应拨下热插拨风扇电缆。

声明 10

警告：

机柜安装的设备上面不能放置重于 82kg（180 磅）的物品。

> 82 kg (180 磅)

声明 11

警告：

下面的标签表明附近有锋利的边、角或接头。

声明 12

警告：
下面的标签表明附近有高热表面。

重要資訊：

> *Server Library* 中所有「注意」及「危險」的聲明均以數字開始。此一數字是用來作為交互參考之用，英文「注意」或「危險」聲明可在本節中找到相同內容的「注意」或「危險」聲明的譯文。

> 例如，有一「危險」聲明以數字 1 開始，則該「危險」聲明的譯文將出現在本節的「聲明」1 中。

> 執行任何指示之前，請詳讀所有「注意」及「危險」的聲明。

聲明 1

危險

電源、電話及通信電纜上所產生的電流均有危險性。 欲避免電擊危險： —在雷雨期間，請勿連接或切斷本產品上的任何電纜線，或安裝、維修及重新架構本產品。 —請將電源線接至接線及接地正確的電源插座。 —請將本產品隨附的設備連接至接線正確的插座。 —儘可能使用單手來連接或切斷信號電纜線。 —當設備有火燒或泡水的痕跡，或有結構性損害時，請勿開啓該設備的電源。 —在安裝及架構之時，若非非常熟悉，在開啓裝置蓋子之前，請切斷電源線、電信系統、網路及數據機。 —在安裝、移動本產品或附加裝置，或開啓其蓋子時，請依照下表中「連接」及「切斷」電纜線的步驟執行。

連接：	切斷：
1. 關閉所有開關。	1. 關閉所有開關。
2. 先將所有電纜線接上裝置。	2. 先自電源插座拔掉電源線。
3. 將信號電纜接上接頭。	3. 拔掉接頭上的所有信號電纜。
4. 再將電源線接上電源插座。	4. 再拔掉裝置上的所有電纜線。
5. 開啓裝置的電源。	

聲明 2

注意：
更換鋰電池時，只可使用 IBM 零件編號 33F8354 的電池，或製造商建議之相當類型的電池。若系統中具有包含鋰電池的模組，在更換此模組時，請使用相同廠商製造的相同模組類型。如未正確使用、處理或丟棄含有鋰的電池時，可能會引發爆炸。

請勿將電池：
— 丟入或浸入水中
— 加熱超過 100 ℃ (212 ℉)
— 修理或拆開

請遵照當地法令規章處理廢棄電池。

聲明 3

注意：
安裝雷射產品 (如 CD-ROM、DVD 光碟機、光纖裝置或發射器) 時，請注意下列事項：
— 請勿移開蓋子。移開雷射產品的蓋子，您可能會暴露於危險的雷射輻射之下。裝置中沒有需要維修的組件。
— 不依此處所指示的控制、調整或處理步驟，您可能會暴露於危險的輻射之下。

危險

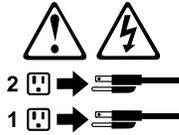| |
|---|
| 有些雷射產品含有內嵌式 Class 3A 或 Class 3B 雷射二極體。請注意下列事項：

開啓時會產生雷射輻射。請勿凝視光束，不要使用光學儀器直接觀察，且應避免直接暴露在光束下。 |

聲明 4

≥ 18 公斤 (37 磅) **≥** 32 公斤 (70.5 磅)　**≥** 55 公斤 (121.2 磅)

注意：

抬起裝置時，請注意安全措施。

聲明 5

注意：
裝置上的電源控制按鈕及電源供應器上的電源開關均無法關閉裝置上的電
流。
本裝置可能有一條以上的電源線。如要移除裝置上的所有電流，請確認所
有電源線已與電源分離。

2
1

聲明 10

注意：
請勿將任何重量超過 82 公斤 (180 磅) 的物品置於已安裝機架的裝置上方。

> 82 公斤 (180 磅)

Important:

Toutes les consignes Attention et Danger indiquées dans la bibliothèque IBM documentation sont précédées d'un numéro. Ce dernier permet de mettre en correspondance la consigne en anglais avec ses versions traduites dans la présente section.

Par exemple, si une consigne de type Attention est précédée du chiffre 1, ses traductions sont également précédées du chiffre 1 dans la présente section.

Prenez connaissance de toutes les consignes de type Attention et Danger avant de procéder aux opérations décrites par les instructions.

Notice n° 1

DANGER

Le courant électrique passant dans les câbles de communication, ou les cordons téléphoniques et d'alimentation peut être dangereux.

Pour éviter tout risque de choc électrique:
- Ne manipulez aucun câble et n'effectuez aucune opération d'installation, d'entretien ou de reconfiguration de ce produit au cours d'un orage.
- Branchez tous les cordons d'alimentation sur un socle de prise de courant correctement câblé et mis à la terre.
- Branchez sur des socles de prise de courant correctement câblés tout équipement connecté à ce produit.
- Lorsque cela est possible, n'utilisez qu'une seule main pour connecter ou déconnecter les câbles d'interface.
- Ne mettez jamais un équipement sous tension en cas d'incendie ou d'inondation, ou en présence de dommages matériels.
- Avant de retirer les carters de l'unité, mettez celle-ci hors tension et déconnectez ses cordons d'alimentation, ainsi que les câbles qui la relient aux réseaux, aux systèmes de télécommunication et aux modems (sauf instruction contraire mentionnée dans les procédures d'installation et de configuration).
- Lorsque vous installez ou que vous déplacez le présent produit ou des périphériques qui lui sont raccordés, reportez-vous aux instructions ci-dessous pour connecter et déconnecter les différents cordons.

Connexion	Déconnexion
1. Mettez les unités hors tension.	1. Mettez les unités hors tension.
2. Commencez par brancher tous les cordons sur les unités.	2. Débranchez les cordons d'alimentation des prises.
3. Branchez les câbles d'interface sur des connecteurs.	3. Débranchez les câbles d'interface des connecteurs.
4. Branchez les cordons d'alimentation sur des prises.	4. Débranchez tous les câbles des unités.
5. Mettez les unités sous tension.	

Notice n° 2

ATTENTION:

Remplacez la pile au lithium usagée par une pile de référence identique exclusivement - voir la référence IBM - ou par une pile équivalente recommandée par le fabricant. Si votre système est doté d'un module contenant une pile au lithium, vous devez le remplacer uniquement par un module identique, produit par le même fabricant. La pile contient du lithium et présente donc un risque d'explosion en cas de mauvaise manipulation ou utilisation.
- **Ne la jetez pas à l'eau.**
- **Ne l'exposez pas à une température supérieure à 100 °C.**
- **Ne cherchez pas à la réparer ou à la démonter.**

Pour la mise au rebut, reportez-vous à la réglementation en vigueur.

Notice n° 3

ATTENTION:

Si des produits laser sont installés (tels que des unités de CD-ROM ou de DVD, des périphériques contenant des fibres optiques ou des émetteurs-récepteurs), prenez connaissance des informations suivantes:
- **N'ouvrez pas ces produits pour éviter une exposition directe au rayon laser. Vous ne pouvez effectuer aucune opération de maintenance à l'intérieur.**
- **Pour éviter tout risque d'exposition au rayon laser, respectez les consignes de réglage et d'utilisation des commandes, ainsi que les procédures décrites dans le présent document.**
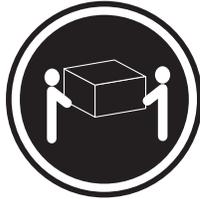

DANGER

Certains produits laser contiennent une diode laser de classe 3A ou 3B. Prenez connaissance des informations suivantes:

Rayonnement laser lorsque le carter est ouvert. évitez de regarder fixement le faisceau ou de l'observer à l'aide d'instruments optiques. évitez une exposition directe au rayon.

Notice n° 4

≥18 kg (39.7 lb)   ≥32 kg (70.5 lb)   ≥55 kg (121.2 lb)

ATTENTION:

Faites-vous aider pour soulever ce produit.

Notice n° 5

ATTENTION:

Le bouton de mise sous tension/hors tension de l'unité et l'interrupteur d'alimentation du bloc d'alimentation ne coupent pas l'arrivée de courant électrique à l'intérieur de la machine. Il se peut que votre unité dispose de plusieurs cordons d'alimentation. Pour isoler totalement l'unité du réseau électrique, débranchez tous les cordons d'alimentation des socles de prise de courant.

Notice n° 10

ATTENTION:

Ne posez pas d'objet dont le poids dépasse 82 kg sur les unités montées en armoire.

Wichtig:

Alle Sicherheitshinweise in dieser IBM documentation beginnen mit einer Nummer. Diese Nummer verweist auf einen englischen Sicherheitshinweis mit den übersetzten Versionen dieses Hinweises in diesem Abschnitt.

Wenn z. B. ein Sicherheitshinweis mit der Nummer 1 beginnt, so erscheint die übersetzung für diesen Sicherheitshinweis in diesem Abschnitt unter dem Hinweis 1.

Lesen Sie alle Sicherheitshinweise, bevor Sie eine Anweisung ausführen.

Hinweis 1

VORSICHT

Elektrische Spannungen von Netz-, Telefon- und Datenübertragungsleitungen sind gefährlich.

Aus Sicherheitsgründen:
- Bei Gewitter an diesem Gerät keine Kabel anschließen oder lösen. Ferner keine Installations-, Wartungs- oder Rekonfigurationsarbeiten durchführen.
- Gerät nur an eine Schutzkontaktsteckdose mit ordnungsgemäß geerdetem Schutzkontakt anschließen.
- Alle angeschlossenen Geräte ebenfalls an Schutzkontaktsteckdosen mit ordnungsgemäß geerdetem Schutzkontakt anschließen.
- Signalkabel möglichst einhändig anschließen oder lösen.
- Keine Geräte einschalten, wenn die Gefahr einer Beschädigung durch Feuer, Wasser oder andere Einflüsse besteht.
- Die Verbindung zu den angeschlossenen Netzkabeln, Telekommunikationssystemen, Netzwerken und Modems ist vor dem öffnen des Gehäuses zu unterbrechen. Es sei denn, dies ist in den zugehörigen Installations- und Konfigurationsprozeduren anders angegeben.
- Nur nach den nachfolgend aufgeführten Anweisungen arbeiten, die für Installation, Transport oder öffnen von Gehäusen von Personal Computern oder angeschlossenen Einheiten gelten.

Kabel anschlie*β*en:	Kabel lösen:
1. Alle Geräte ausschalten und Netzstecker ziehen. 2. Zuerst alle Kabel an Einheiten anschließen. 3. Signalkabel an Anschlußbuchsen anschließen. 4. Netzstecker an Steckdose anschließen. 5. Gerät einschalten.	1. Alle Geräte ausschalten. 2. Zuerst Netzstecker von Steckdose lösen. 3. Signalkabel von Anschlußbuchsen lösen. 4. Alle Kabel von Einheiten lösen.

Hinweis 2

ACHTUNG:

Eine verbrauchte Batterie nur durch eine Batterie mit der IBM Teilenummer 33F8354 oder durch eine vom Hersteller empfohlene Batterie ersetzen. Wenn Ihr System ein Modul mit einer Lithium-Batterie enthält, ersetzen Sie es immer mit dem selben Modultyp vom selben Hersteller. Die Batterie enthält Lithium und kann bei unsachgemäßer Verwendung, Handhabung oder Entsorgung explodieren.

Die Batterie nicht:
• mit Wasser in Berührung bringen.
• über 100 C erhitzen.
• reparieren oder zerlegen.

Die örtlichen Bestimmungen für die Entsorgung von Sondermüll beachten.

Hinweis 3

ACHTUNG:

Wenn ein Laserprodukt (z. B. CD-ROM-Laufwerke, DVD-Laufwerke, Einheiten mit Glasfaserkabeln oder Transmitter) installiert ist, beachten Sie folgendes.
• Das Entfernen der Abdeckungen des CD-ROM-Laufwerks kann zu gefährlicher Laserstrahlung führen. Es befinden sich keine Teile innerhalb des CD-ROM-Laufwerks, die vom Benutzer gewartet werden müssen. Die Verkleidung des CD-ROM-Laufwerks nicht öffnen.
• Steuer- und Einstellelemente sowie Verfahren nur entsprechend den Anweisungen im vorliegenden Handbuch einsetzen. Andernfalls kann gefährliche Laserstrahlung auftreten.
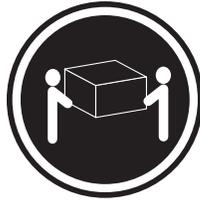

VORSICHT

Manche CD-ROM-Laufwerke enthalten eine eingebaute Laserdiode der Klasse 3A oder 3B. Die nachfolgend aufgeführten Punkte beachten.

Laserstrahlung bei geöffneter Tür. Niemals direkt in den Laserstrahl sehen, nicht direkt mit optischen Instrumenten betrachten und den Strahlungsbereich meiden.

Hinweis 4
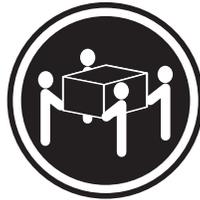
≥18 kg   ≥32 kg   ≥55 kg

ACHTUNG:

Beim Anheben der Maschine die vorgeschriebenen Sicherheitsbestimmungen beachten.

Hinweis 5

ACHTUNG:

Mit dem Betriebsspannungsschalter an der Vorderseite des Servers und dem Betriebsspannungsschalter am Netzteil wird die Stromversorgung für den Server nicht unterbrochen. Der Server könnte auch mehr als ein Netzkabel aufweisen. Um die gesamte Stromversorgung des Servers auszuschalten, muß sichergestellt werden, daß alle Netzkabel aus den Netzsteckdosen herausgezogen wurden.

Hinweis 10

ACHTUNG:

Keine Gegenstände, die mehr als 82 kg wiegen, auf Rack-Einheiten ablegen.

Importante:

Tutti gli avvisi di attenzione e di pericolo riportati nella pubblicazione IBM documentation iniziano con un numero. Questo numero viene utilizzato per confrontare avvisi di attenzione o di pericolo in inglese con le versioni tradotte riportate in questa sezione.

Ad esempio, se un avviso di attenzione inizia con il numero 1, la relativa versione tradotta è presente in questa sezione con la stessa numerazione.

Prima di eseguire una qualsiasi istruzione, accertarsi di leggere tutti gli avvisi di attenzione e di pericolo.

Avviso 1

PERICOLO

La corrente elettrica circolante nei cavi di alimentazione, del telefono e di segnale è pericolosa.

Per evitare il pericolo di scosse elettriche:
- Non collegare o scollegare i cavi, non effettuare l'installazione, la manutenzione o la riconfigurazione di questo prodotto durante i temporali.
- Collegare tutti i cavi di alimentazione ad una presa elettrica correttamente cablata e munita di terra di sicurezza.
- Collegare qualsiasi apparecchiatura collegata a questo prodotto ad una presa elettrica correttamente cablata e munita di terra di sicurezza.
- Quando possibile, collegare o scollegare i cavi di segnale con una sola mano.
- Non accendere qualsiasi apparecchiatura in presenza di fuoco, acqua o se sono presenti danni all'apparecchiatura stessa.
- Scollegare i cavi di alimentazione, i sistemi di telecomunicazioni, le reti e i modem prima di aprire i coperchi delle unità, se non diversamente indicato nelle procedure di installazione e configurazione.
- Collegare e scollegare i cavi come descritto nella seguente tabella quando si effettuano l'installazione, la rimozione o l'apertura dei coperchi di questo prodotto o delle unità collegate.

Per collegare:	Per scollegare:
1. SPEGNERE tutti i dispositivi. 2. Collegare prima tutti i cavi alle unità. 3. Collegare i cavi di segnale ai connettori. 4. Collegare i cavi di alimentazione alle prese elettriche. 5. ACCENDERE le unità.	1. SPEGNERE tutti i dispositivi. 2. Rimuovere prima i cavi di alimentazione dalle prese elettriche. 3. Rimuovere i cavi di segnale dai connettori. 4. Rimuovere tutti i cavi dalle unità.

Avviso 2

ATTENZIONE:

Quando si sostituisce la batteria al litio, utilizzare solo una batteria IBM con numero parte 33F8354 o batterie dello stesso tipo o di tipo equivalente consigliate dal produttore. Se il sistema di cui si dispone è provvisto di un modulo contenente una batteria al litio, sostituire tale batteria solo con un tipo di modulo uguale a quello fornito dal produttore. La batteria contiene litio e può esplodere se utilizzata, maneggiata o smaltita impropriamente.

Evitare di:
• Gettarla o immergerla in acqua
• Riscaldarla ad una temperatura superiore ai 100°C
• Cercare di ripararla o smontarla

Smaltire secondo la normativa in vigore (D.Lgs 22 del 5/2/9) e successive disposizioni nazionali e locali.

Avviso 3

ATTENZIONE:

Quando si installano prodotti laser come, ad esempio, le unità DVD, CD-ROM, a fibre ottiche o trasmettitori, prestare attenzione a quanto segue:
• Non rimuovere i coperchi. L'apertura dei coperchi di prodotti laser può determinare l'esposizione a radiazioni laser pericolose. All'interno delle unità non vi sono parti su cui effettuare l'assistenza tecnica.
• L'utilizzo di controlli, regolazioni o l'esecuzione di procedure non descritti nel presente manuale possono provocare l'esposizione a radiazioni pericolose.

PERICOLO

Alcuni prodotti laser contengono all'interno un diodo laser di Classe 3A o Classe 3B. Prestare attenzione a quanto segue:

Aprendo l'unità vengono emesse radiazioni laser. Non fissare il fascio, non guardarlo direttamente con strumenti ottici ed evitare l'esposizione diretta al fascio.

Avviso 5

ATTENZIONE:

Il pulsante del controllo dell'alimentazione situato sull'unità e l'interruttore di alimentazione posto sull'alimentatore non disattiva la corrente elettrica fornita all'unità. L'unità potrebbe disporre di più di un cavo di alimentazione. Per disattivare la corrente elettrica dall'unità, accertarsi che tutti i cavi di alimentazione siano scollegati dalla sorgente di alimentazione.

Avviso 10

ATTENZIONE:

Non poggiare oggetti che pesano più di 82 kg sulla parte superiore delle unità montate in rack.

重要：

Netfinity Server　ライブラリーにあるすべての注意および危険の記述は
数字で始まります。この数字は、英語版の注意および危険の記述と翻訳さ
れた注意および危険の記述を相互参照するために使用します。

例えば、もし注意の記述が数字の１で始まってる場合は、その注意の翻訳は、
記述１　の下にあります。

手順を実施する前に、すべての注意

・記述　1

⚠ 危険

感電を防止するため、雷の発生時には、いかなるケーブルの
取り付けまたは取り外しも行わないでください。また導入、
保守、再構成などの作業も行わないでください。

感電を防止するため：

　　－ 電源コードは正しく接地および配線が行われている
　　　電源に接続してください。

　　－ 本製品が接続されるすべての装置もまた正しく配線
　　　された電源に接続されている必要があります。

できれば、信号ケーブルに取り付けまたは取り外しのとき
は片方の手のみで行うようにしてください。これにより、
電位差がある二つの表面に触ることによる感電を防ぐことが
できます。

電源コード、電話ケーブル、通信ケーブルからの電流は身体に
危険を及ぼします。設置、移動、または製品のカバーを開けたり
装置を接続したりするときには、以下のようにケーブルの接続 、
取り外しを行ってください。

接続するには	取り外すには
1. すべての電源を切る	1. すべての電源を切る
2. まず、装置にすべての　ケーブルを接続する。	2. まず、電源コンセントから　電源コードを取り外す
3. 次に、通信ケーブルを　コネクターに接続する	3. 次に、通信ケーブルを　コネクターから取り外す。
4. その後、電源コンセントに　電源コードを接続する	4. その後、装置からすべての　ケーブルを取り外す
5. 装置の電源を入れる。	

・記述 2

⚠ 注意

本製品には、システム・ボード上にリチウム電池が使用されています。電池の交換方法や取り扱いを誤ると、発熱、発火、破裂のおそれがあります。
電池の交換には、IBM部品番号33F8354の電池またはメーカー推奨の同等の電池を使用してください。
交換用電池の購入については、お買い求めの販売店または弊社の営業担当までお問い合わせください。
電池は幼児の手の届かない所に置いてください。
万一、幼児が電池を飲み込んだときは、直ちに医師に相談してください。
以下の行為は絶対にしないでください。
－水にぬらすこと
－100度C 以上の過熱や焼却
－分解や充電
－ショート
電池を廃棄する場合、および保存する場合にはテープなどで絶縁してください。他の金属や電池と混ざると発火、破裂の原因となります。電池は地方自治体の条例、または規則に従って廃棄してください。ごみ廃棄場で処分されるごみの中に捨てないでください。

・記述 3

⚠ 注意

レーザー製品(CD-ROM、DVD、または光ファイバー装置または送信器など)が組み込まれている場合は、下記に御注意ください。

 － ここに記載されている制御方法、調整方法、または性能を超えて使用すると、危険な放射線を浴びる可能性があります。

 － ドライブのカバーを開けると、危険な放射線を浴びる可能性があります。ドライブの内部に修理のために交換可能な部品はありません。カバーを開けないでください。

⚠ 危険

一部 CD-ROM ドライブは、Class 3A または Class 3B レーザー・ダイオードを使用しています。次の点に注意してください。

CD-ROMドライブのカバーを開けるとレーザーが放射されます。光線をみつめたり、光学器械を使って直接見たりしないでください。また直接光線を浴びないようにしてください。

・記述 4

⚠ 注意

18Kg 以上   32Kg 以上   55Kg 以上
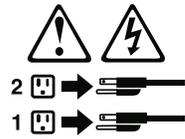
装置を持ち上げる場合は、安全に持ち上げる方法に従ってください。

・記述 5

⚠ 注意 ⚡

サーバーの前面にある電源制御ボタンは、サーバーに供給された
電流を遮断しません。
サーバーには、複数の電源コードが接続されているかもしれません。
サーバーから電流を完全に遮断するために、すべての電源コードが
電源から取り外されていることを確認してください。

・記述 10

⚠ 注意

ラック・モデルのサーバーの上に 82 Kg 以上の物を置かないで
ください。

중요:

본 *Server Library*에 있는 모든 주의 및 위험 경고문은 번호로
시작합니다. 이 번호는 영문 주의 혹은 위험 경고문과 이 절에 나오는
번역된 버전의 주의 혹은 위험 경고문을 상호 참조하는 데 사용됩니다.

예를 들어, 주의 경고문이 번호 1로 시작하면, 번역된 해당 주의
경고문을 본 절의 경고문 1에서 찾아볼 수 있습니다.

모든 지시사항을 수행하기 전에 반드시 모든 주의 및 위험 경고문을
읽으십시오.

경고문 1

위험

전원, 전화 및 통신 케이블로부터 흘러 나오는 전류는
위험합니다.

전기 충격을 피하려면:

- 뇌우를 동반할 때는 케이블의 연결이나 철수, 이 제품의
  설치, 유지보수 또는 재구성을 하지 마십시오.

- 모든 전원 코드를 적절히 배선 및 접지해야 합니다.

- 이 제품에 연결될 모든 장비를 적절하게 배선된 콘센트에
  연결하십시오.

- 가능한한 신호 케이블을 한 손으로 연결하거나
  끊으십시오.

- 화재, 수해 또는 구조상의 손상이 있을 경우 장비를 켜지
  마십시오.

- 설치 및 구성 프로시저에 다른 설명이 없는 한, 장치 덮개를
  열기 전에 연결된 전원 코드, 원거리 통신 시스템, 네트워크
  및 모뎀을 끊어 주십시오.

- 제품 또는 접속된 장치를 설치, 이동 및 덮개를 열 때
  다음 설명에 따라 케이블을 연결하거나 끊도록 하십시오.

연결하려면:	연결을 끊으려면:
1. 모든 스위치를 끕니다.	1. 모든 스위치를 끕니다.
2. 먼저 모든 케이블을 장치에 연결합니다.	2. 먼저 콘센트에서 전원 코드를 뽑습니다.
3. 신호 케이블을 커넥터에 연결합니다.	3. 신호 케이블을 커넥터에서 제거합니다.
4. 콘센트에 전원 코드를 연결합니다.	4. 장치에서 모든 케이블을 제거합니다.
5. 장치 스위치를 켭니다.	

경고문 2

주의:

리튬 배터리를 교체할 때는 IBM 부품 번호 33F8354 또는 제조업체에서
권장하는 동등한 유형의 배터리를 사용하십시오. 시스템에 리튬 배터리를
갖고 있는 모듈이 있으면 동일한 제조업체에서 생산된 동일한 모듈
유형으로 교체하십시오. 배터리에 리튬이 있을 경우 제대로 사용, 처리
또는 처분하지 않으면 폭발할 수 있습니다.

다음을 주의하십시오.

- 던지거나 물에 담그지 않도록 하십시오.
- 100°C(212°F) 이상으로 가열하지 마십시오.
- 수리하거나 분해하지 마십시오.

지역 법령이나 규정의 요구에 따라 배터리를 처분하십시오.

경고문 3

⚠

주의:
레이저 제품(**CD-ROMs, DVD** 드라이브, 광 장치 또는 트랜스미터 등과
같은)이 설치되어 있을 경우 다음을 유의하십시오.

- 덮개를 제거하지 마십시오. 레이저 제품의 덮개를 제거했을 경우
위험한 레이저 광선에 노출될 수 있습니다. 이 장치 안에는 서비스를
받을 수 있는 부품이 없습니다.

- 여기에서 지정하지 않은 방식의 제어, 조절 또는 실행으로 인해 위험한
레이저 광선에 노출될 수 있습니다.

⚠

위험

일부 레이저 제품에는 클래서 3A 또는 클래스 3B 레이저
다이오드가 들어 있습니다. 다음을 주의하십시오.

열면 레이저 광선에 노출됩니다. 광선을 주시하거나 광학 기계를
직접 쳐다보지 않도록 하고 광선에 노출되지 않도록 하십시오.

경고문 4

⚠

≥18 kg (37 lbs)   ≥ 32 kg (70.5 lbs)   ≥ 55 kg (121.2 lbs)

주의:
기계를 들 때는 안전하게 들어 올리십시오.

경고문 5

⚠   ⚡

주의:
장치의 전원 제어 버튼 및 전원 공급기의 전원 스위치는 장치에
공급되는 전류를 차단하지 않습니다. 장치에 둘 이상의 전원 코드가
연결되어 있을 수도 있습니다. 장치에서 모든 전류를 차단하려면
모든 전원 코드가 전원으로부터 차단되어 있는 지 확인하십시오.

⚠ ⚡

2

1

경고문 10

주의:
서랍형 모델의 장치 상단에 82 kg(180 lbs.)이 넘는 물체를 올려
놓지 마십시오.

> 82 kg (180 lbs)

Importante:

Todas las declaraciones de precauciín de esta IBM documentation empiezan con un número. Dicho número se emplea para establecer una referencia cruzada de una declaraciín de precauciín o peligro en inglés con las versiones traducidas que de dichas declaraciones pueden encontrarse en esta secciín.

Por ejemplo, si una declaraciín de peligro empieza con el número 1, las traducciones de esta declaraciín de precauciín aparecen en esta secciín bajo Declaraciín 1.

Lea atentamente todas las declaraciones de precauciín y peligro antes de llevar a cabo cualquier operaciín.

Declaración 1

PELIGRO

La corriente eléctrica de los cables telefínicos, de alimentaciín y de comunicaciones es perjudicial.

Para evitar una descarga eléctrica:
- No conecte ni desconecte ningún cable ni realice las operaciones de instalaciín, mantenimiento o reconfiguraciín de este producto durante una tormenta.
- Conecte cada cable de alimentaciín a una toma de alimentaciín eléctrica con conexiín a tierra y cableado correctos.
- Conecte a tomas de alimentaciín con un cableado correcto cualquier equipo que vaya a estar conectado a este producto.
- Si es posible, utilice una sola mano cuando conecte o desconecte los cables de sent.al.
- No encienda nunca un equipo cuando haya riesgos de incendio, de inundaciín o de daños estructurales.
- Desconecte los cables de alimentaciín, sistemas de telecomunicaciones, redes y mídems conectados antes de abrir las cubiertas del dispositivo a menos que se indique lo contrario en los procedimientos de instalaciín y configuraciín.
- Conecte y desconecte los cables tal como se describe en la tabla siguiente cuando desee realizar una operaciín de instalaciín, de traslado o de apertura de las cubiertas para este producto o para los dispositivos conectados.

Para la conexin	Para la desconexiín
1. APÁGUELO todo.	1. APÁGUELO todo.
2. En primer lugar, conecte los cables a los dispositivos.	2. En primer lugar, retire cada cable de alimentaciín de la toma de alimentaciín.
3. Conecte los cables de señal a los conectores.	3. Retire los cables de señal de los conectores.
4. Conecte cada cable de alimentaciín a la toma de alimentaciín.	4. Retire los cables de los dispositivos.
5. ENCIENDA el dispositivo.	

Declaración 2

⚠️

PRECAUCIÓN:

Cuando desee sustituir la batería de litio, utilice únicamente el número de pieza 33F8354 de IBM o cualquier tipo de batería equivalente que recomiende el fabricante. Si el sistema tiene un mídulo que contiene una batería de litio, sustitúyalo únicamente por el mismo tipo de mídulo, que ha de estar creado por el mismo fabricante. La batería contiene litio y puede explotar si el usuario no la utiliza ni la maneja de forma adecuada o si no se desprende de la misma como corresponde.

No realice las acciones siguientes:
• Arrojarla al agua o sumergirla
• Calentarla a una temperatura que supere los 100°C (212°F)
• Repararla o desmontarla

Despréndase de la batería siguiendo los requisitos que exija el reglamento o la legislaciín local.

Declaración 3

⚠️

PRECAUCIÓN:

Cuando instale productos láser (como, por ejemplo, CD-ROM, unidades DVD, dispositivos de fibra íptica o transmisores), tenga en cuenta las advertencias siguientes:
• No retire las cubiertas. Si retira las cubiertas del producto láser, puede quedar expuesto a radiaciín láser perjudicial. Dentro del dispositivo no existe ninguna pieza que requiera mantenimiento.
• El uso de controles o ajustes o la realizaciín de procedimientos que no sean los que se han especificado aquí pueden dar como resultado una exposiciín perjudicial a las radiaciones.
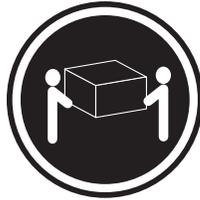
⚠️

PELIGRO

Algunos productos láser contienen un diodo de láser incorporado de Clase 3A o de Clase 3B. Tenga en cuenta la advertencia siguiente.

Cuando se abre, hay radiaciín láser. No mire fijamente el rayo ni lleve a cabo ningún examen directamente con instrumentos ípticos; evite la exposiciín directa al rayo.

Declaración 4

≥18 kg   ≥32 kg   ≥55 kg

PRECAUCIÓN:

Tome medidas de seguridad al levantar el producto.

Declaración 5

PRECAUCIÓN:

El botín de control de alimentaciín del dispositivo y el interruptor de alimentaciín de la fuente de alimentaciín no apagan la corriente eléctrica suministrada al dispositivo. Es posible también que el dispositivo tenga más de un cable de alimentaciín. Para eliminar la corriente eléctrica del dispositivo, asegúrese de desconectar todos los cables de alimentaciín de la fuente de alimentaciín.

Declaración 10

PRECAUCIÓN:

No coloque ningún objeto que pese más de 82 kg (180 libras) encima de los dispositivos montados en bastidor.

Problem determination tips

Due to the variety of hardware and software combinations that can be encountered, use the following information to assist you in problem determination. If possible, have this information available when requesting assistance from Service Support and Engineering functions.

- Machine type and model
- Processor or hard disk upgrades
- Failure symptom
    - Do diagnostics fail?
    - What, when, where, single, or multiple systems?
    - Is the failure repeatable?
    - Has this configuration ever worked?
    - If it has been working, what changes were made prior to it failing?
    - Is this the original reported failure?
- Reference/Diagnostics version
    - Type and version level
- Hardware configuration
    - Print (print screen) configuration currently in use
    - BIOS level
- Operating system software
    - Type and version level

Note: To eliminate confusion, identical systems are considered identical only if they:
1. Are the exact machine type and models
2. Have the same BIOS level
3. Have the same adapters/attachments in the same locations
4. Have the same address jumpers/terminators/cabling
5. Have the same software versions and levels
6. Have the same Reference/Diagnostics Diskette (version)
7. Have the same configuration options set in the system
8. Have the same setup for the operation system control files

Comparing the configuration and software set-up between ″working and non-working″ systems will often lead to problem resolution.

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GHz, MHz only measures microprocessor internal clock speed, not application performance. Many factors affect application performance.

When referring to hard disk drive capacity, GB equals one billion bytes. Total user-accessible capacity may vary depending on operating environments.

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