

Schooner Appliances for Memcached and
MySQL Enterprise Type 7838



Installation and User's Guide

Schooner Appliances for Memcached and
MySQL Enterprise Type 7838



Installation and User's Guide

Note: Before using this information and the product it supports, read the information in Appendix B, “Notices,” on page 21, and the *IBM Safety Information* and *Environmental Notices and User Guide* documents on the *Documentation CD*, and the *Warranty Information* document that comes with your appliance.

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Safety

قبل تركيب هذا المنتج، يجب قراءة الملاحظات الأمنية

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

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

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Ennen kuin asennat tämän tuotteen, lue turvaohjeet kohdasta Safety Information.

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

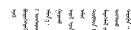
לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza.

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Пред да се инсталира овој продукт, прочитајте информацијата за безбедност.

Bu ürünü kurmadan önce güvenlik bilgilerini okuyun.



མོན་ལམ་འདི་པེ་ཡོད་ཅན་ལྟམ་མོན། མོན་མེ་འི་དྲ་མཐམ་
ལ་འདྲ་མིན་འོད་པ་འཛོམ་མེས་པ་ལྟར་མོན།

مە:كۆر مەھسۇلاتنى ئۈنۈملۈك ئىشلىتىش بۇرۇن سىزگە تەلىملىك ئۇچۇرلارنى ئوقۇي چىققىڭىز.

Youq mwngz yungh canjbinj neix gaxgonq, itdingh aeu doeg aen canjbinj soengq cunqj vahqanq ancien siusik.

Les sikkerhetsinformasjonen (Safety Information) før du installerer dette produktet.

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Antes de instalar este produto, leia as Informações sobre Segurança.

Перед установкой продукта прочтите инструкции по технике безопасности.

Pred inštaláciou tohto zariadenia si pečítajte Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

Antes de instalar este producto, lea la información de seguridad.

Läs säkerhetsinformationen innan du installerar den här produkten.

Important:

Each caution and danger statement in this document is labeled with a number. This number is used to cross reference an English-language caution or danger statement with translated versions of the caution or danger statement in the *Safety Information* document.

For example, if a caution statement is labeled “Statement 1,” translations for that caution statement are in the *Safety Information* document under “Statement 1.”

Be sure to read all caution and danger statements in this document before you perform the procedures. Read any additional safety information that comes with the server or optional device before you install the device.

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 procedures.**
- **Connect and disconnect cables as described in the following table when installing, moving, or opening covers on this product or attached devices.**

To Connect:

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

To Disconnect:

1. Turn everything OFF.
2. First, remove power cords from outlet.
3. Remove signal cables from connectors.
4. Remove all cables from devices.

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 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

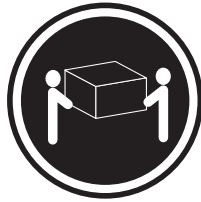
Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following.

Laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam.



Class 1 Laser Product
Laser Klasse 1
Laser Klass 1
Luokan 1 Laserlaite
Appareil À Laser de Classe 1

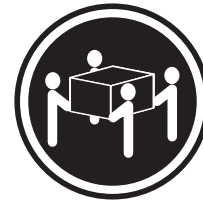
Statement 4:



≥ 18 kg (39.7 lb)



≥ 32 kg (70.5 lb)



≥ 55 kg (121.2 lb)

CAUTION:

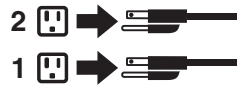
Use safe practices when lifting.

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 8:



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.

Statement 12:



CAUTION:

The following label indicates a hot surface nearby.



Statement 26:



CAUTION:

Do not place any object on top of rack-mounted devices.



This server is suitable for use on an IT power-distribution system whose maximum phase-to-phase voltage is 240 V under any distribution fault condition.

Important: This product is not suitable for use with visual display workplace devices according to Clause 2 of the German Ordinance for Work with Visual Display Units.

Schooner Memcached and MySQL Appliances

This *Installation and User's Guide* contains instructions for setting up and general information about your Schooner Appliances for Memcached and MySQL Type 7838. For diagnostic and troubleshooting information, see the *Problem Determination and Service Guide* that is on the *Documentation CD*. For configuration, management, and firmware diagnostic information, see the *Schooner Appliance Installation and Setup Guide* and *Application and Administration Guide* for your appliance on the *Documentation CD*.

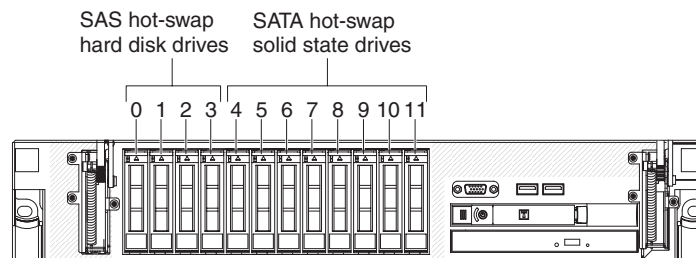
The appliance comes with a limited warranty. For information about the terms of the warranty see the *Warranty Information* document that comes with your appliance.

The appliance contains IBM® Enterprise X-Architecture® technologies, which help increase performance and reliability.

You can obtain up-to-date information about the appliances and other IBM products at <http://www.ibm.com/systems/x/>. At <http://www.ibm.com/support/mysupport/>, you can create a personalized support page by identifying IBM products that are of interest to you. From this personalized page, you can subscribe to weekly e-mail notifications about new technical documents, search for information and downloads, and access various administrative services.

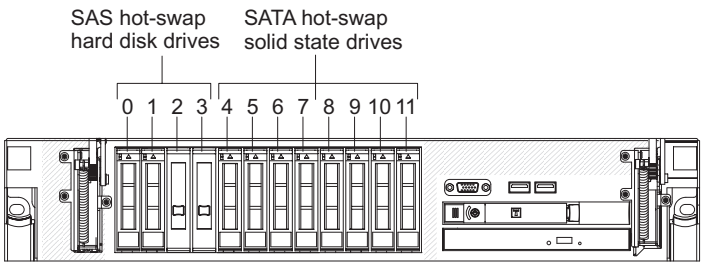
Note: The illustrations in this document might differ slightly from your hardware.

The following illustration shows a Schooner Appliance for MySQL Enterprise with four 2.5-inch SAS hot-swap hard disk drives in bays 0 through 3 and eight SATA hot-swap solid state drives in bays 4 through 11.



**Schooner Appliance
for MySQL Enterprise**

The following illustration shows a Schooner Appliance for Memcached with two SAS hot-swap hard disk drives in bays 0 and 1, and eight SATA hot-swap solid state drives in bays 4 through 7 and 8 through 11.



Schooner Appliance
for Memcached

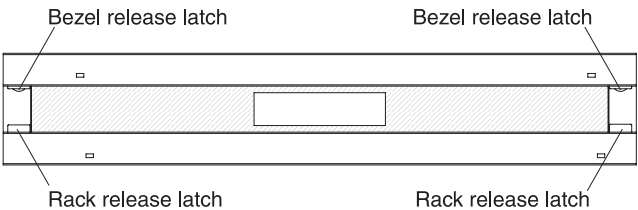
The ID for each bay is printed on the appliance front, above each bay.

Record information about the appliance in the following table.

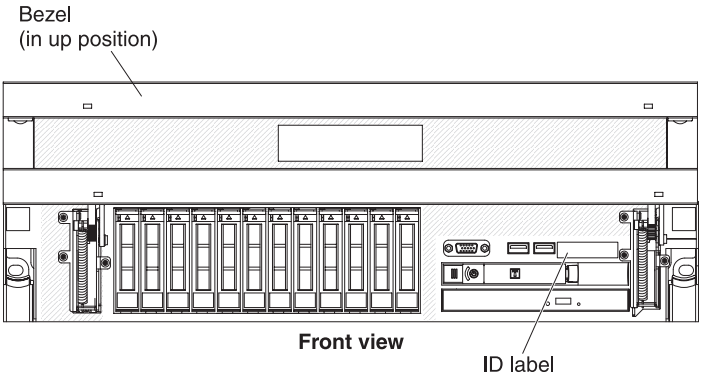
Product name	Schooner Memcached or MySQL Enterprise Appliance
Machine type	7838
Model number	
Serial number	

The model number and serial number are on the ID label under the bezel. To view the label, press the bezel release latches up and then slide the bezel to the up position.

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



The ID label is on the front of the appliance, as shown in the following illustration.



See the *Rack Installation Instructions* document on the *Documentation CD* for complete rack installation and removal instructions.

Note: Do not install this appliance in the top 2U's in a rack. If the appliance is installed in the top 2U's, you will not be able to put the bezel in the up position.

The Documentation CD

The *Documentation* CD contains documentation for your appliance in Portable Document Format (PDF) and includes the IBM Documentation Browser to help you find information quickly.

Hardware and software requirements

The *Documentation* CD requires the following minimum hardware and software:

- Microsoft Windows XP, Windows 2000, or Red Hat Linux
- 100 MHz microprocessor
- 32 MB of RAM
- Adobe Acrobat Reader 3.0 (or later) or xpdf, which comes with Linux operating systems

Using the Documentation Browser

Use the Documentation Browser to browse the contents of the CD, read brief descriptions of the documents, and view documents, using Adobe Acrobat Reader or xpdf. The Documentation Browser automatically detects the regional settings in use in your appliance and displays the documents in the language for that region (if available). If a document is not available in the language for that region, the English-language version is displayed.

Use one of the following procedures to start the Documentation Browser:

- If Autostart is enabled, insert the CD into the CD or DVD drive. The Documentation Browser starts automatically.
- If Autostart is disabled or is not enabled for all users, use one of the following procedures:
 - If you are using a Windows operating system, insert the CD into the CD or DVD drive and click **Start --> Run**. In the **Open** field, type
`e:\win32.bat`
where *e* is the drive letter of the CD or DVD drive, and click **OK**.
 - If you are using Red Hat Linux, insert the CD into the CD or DVD drive; then, run the following command from the `/mnt/cdrom` directory:
`sh runlinux.sh`

Select your appliance from the **Product** menu. The **Available Topics** list displays all the documents for your appliance. Some documents might be in folders. A plus sign (+) indicates each folder or document that has additional documents under it. Click the plus sign to display the additional documents.

When you select a document, a description of the document appears under **Topic Description**. To select more than one document, press and hold the Ctrl key while you select the documents. Click **View Book** to view the selected document or documents in Acrobat Reader or xpdf. If you selected more than one document, all the selected documents are opened in Acrobat Reader or xpdf.

To search all the documents, type a word or word string in the **Search** field and click **Search**. The documents in which the word or word string appears are listed in order of the most occurrences. Click a document to view it, and press Ctrl+F to use the Acrobat search function, or press Alt+F to use the xpdf search function within the document.

Click **Help** for detailed information about using the Documentation Browser.

Related documentation

This *Installation and User's Guide* contains general information and how to set up and configure the appliance. The following documentation also comes with the appliance:

- *Warranty Information*

This printed document contains information about the terms of the warranty.

- *Safety Information*

This document is in PDF on the *Documentation* CD. It contains translated caution and danger statements. Each caution and danger statement that appears in the documentation has a number that you can use to locate the corresponding statement in your language in the *Safety Information* document.

- *Rack Installation Instructions*

This printed document contains instructions for installing the appliance in a rack.

- *Problem Determination and Service Guide*

This document is in PDF on the *Documentation* CD. It contains information to help you solve problems yourself, and it contains information for service technicians.

- *Schooner Appliance for MySQL Enterprise Installation and Setup Guide*

This document is in PDF on the *Documentation* CD. It contains information to help you configure your appliance and add nodes.

- *Schooner Appliance for Memcached Installation and Setup Guide*

This document is in PDF on the *Documentation* CD. It contains information to help you configure your appliance and add nodes.

- *Schooner Appliance for MySQL Enterprise Application and Administration Guide*

This document is in PDF on the *Documentation* CD. It contains information to help you manage and monitor your appliance.

- *Schooner Appliance for Memcached Application and Administration Guide*

This document is in PDF on the *Documentation* CD. It contains information to help you manage and monitor your appliance.

- *Schooner Appliance for Memcached Release Notes*

This document is in PDF on the *Documentation* CD and contains information about the Appliance for Memcached.

- *Schooner Appliance for MySQL Enterprise Release Notes*

This document is in PDF on the *Documentation* CD and contains information about the Appliance for MySQL Enterprise.

- *Environmental Notices and User Guide*

This document is in PDF on the *Documentation* CD. It contains translated environmental notices.

- *IBM License Agreement for Machine Code*

This document is in PDF on the *Documentation* CD. It provides translated versions of the *IBM License Agreement for Machine Code* for your product.

- *Licenses and Attributions Document*

This document is in PDF on the *Documentation* CD. It provides information about the open-source notices.

- *Open Source Licenses for Schooner Appliance for Memcached*

This document is in PDF on the Documentation CD and contains the terms of use for the various software licenses associated with the Schooner Appliance for Memcached.

- *Open Source Licenses for Schooner Appliance for MySQL Enterprise*

This document is in PDF on the Documentation CD and contains the terms of use for the various software licenses associated with the Schooner Appliance for MySQL Enterprise.

Depending on the appliance, additional documentation might be included on the *Documentation CD*.

The appliance might have features that are not described in the documentation that comes with it. The documentation might be updated occasionally to include information about those features, or technical updates might be available to provide additional information that is not included in the appliance documentation. These updates are available from the IBM Web site. To check for updated documentation and technical updates, complete the following steps.

Note: Changes are made periodically to the IBM Web site. The actual procedure might vary slightly from what is described in this document.

1. Go to <http://www.ibm.com/systems/support/>.
2. Under **Product support**, click **System x**.
3. Under **Popular links**, click **Publications lookup**.
4. From the **Product family** menu, select **Schooner Appliances** and click **Continue**.

Notices and statements in this document

The caution and danger statements in this document are also in the multilingual *Safety Information* document, which is on the *Documentation CD*. Each statement is numbered for reference to the corresponding statement in your language in the *Safety Information* document.

The following notices and statements are used in this document:

- **Note:** 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 potential damage to programs, devices, or data. An attention notice is placed just before the instruction or situation in which damage might 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.

Features and specifications

The following information is a summary of the features and specifications of the appliance. Depending on the model, some features might not be available, or some specifications might not apply.

Racks are marked in vertical increments of 4.45 cm (1.75 inches). Each increment is referred to as a unit, or “U.” A 1-U-high device is 1.75 inches tall.

Notes:

1. Power consumption and heat output vary depending on the number and type of optional features that are installed and the power-management optional features that are in use.
2. The sound levels were measured in controlled acoustical environments according to the procedures specified by the American National Standards Institute (ANSI) S12.10 and ISO 7779 and are reported in accordance with ISO 9296. Actual sound-pressure levels in a given location might exceed the average values stated because of room reflections and other nearby noise sources. The declared sound-power levels indicate an upper limit, below which a large number of computers will operate.

Table 1. Features and specifications

Microprocessors: <ul style="list-style-type: none">• Two quad-core Intel Xeon microprocessors, with integrated memory controller and Quick Path Interconnect (QPI) architecture• 32 KB instruction cache, 32 KB data cache, and 8 MB cache that is shared between the microprocessors Memory: <ul style="list-style-type: none">• 64 GB DRAM• Type: PC3-10600-999 (single-rank or double-rank) 1333 MHz, ECC, DDR3 registered SDRAM DIMMs Drives (MySQL Enterprise): <ul style="list-style-type: none">• One Ultra Slim Enhanced SATA Multi-Burner Optical Drive• Four hot-swap hard disk drives• Eight hot-swap solid state drives Drives (Memcached): <ul style="list-style-type: none">• One Ultra Slim Enhanced SATA Multi-Burner Optical Drive• One hot-swap hard disk drive• Eight hot-swap solid state drives	Size (2U): <ul style="list-style-type: none">• Height: 85.2 mm (3.346 in.)• Depth: EIA flange to rear - 698 mm (27.480 in.); overall - 729 mm (28.701 in.)• Width: With top cover - 443.6 mm (17.465 in.); with front bezel - 482.0 mm (18.976 in.)• Weight: approximately 21.8 kg (48 lb) Hot-swap fans: <p>Three. Provide redundant cooling.</p> Hot-swap power supplies: <p>Two 675 watts (100 - 240 V ac) power supplies provide redundant power</p> Electrical input with hot-swap ac power supplies: <ul style="list-style-type: none">• Sine-wave input (50 - 60 Hz) required• Input voltage range automatically selected• Input voltage low range:<ul style="list-style-type: none">– Minimum: 100 V ac– Maximum: 240 V ac• Input voltage high range:<ul style="list-style-type: none">– Minimum: 200 V ac– Maximum: 240 V ac• Input kilovolt-amperes (kVA) approximately:<ul style="list-style-type: none">– Minimum: 0.12 kVA– Maximum: 0.78 kVA	Environment: <ul style="list-style-type: none">• Air temperature:<ul style="list-style-type: none">– Appliance on: 10°C to 35°C (50.0°F to 95.0°F); altitude: 0 to 914.4 m (3000 ft). Decrease system temperature by 0.75°C for every 1000-foot increase in altitude.– Appliance off: 10°C to 43°C (50.0°F to 109.4°F); maximum altitude: 2133 m (7000 ft)– Shipment: -40°C to +60°C (-40°F to 140°F); maximum altitude: 2133 m (7000 ft)• Humidity:<ul style="list-style-type: none">– Appliance on/off: 8% to 80%– Shipment: 5% to 100%• Particulate contamination: Attention: Airborne particulates and reactive gases acting alone or in combination with other environmental factors such as humidity or temperature might pose a risk to the server. For information about the limits for particulates and gases, see “Particulate contamination” on page 23. Acoustical noise emissions: <ul style="list-style-type: none">• Declared sound power, idle: 6.3 bel• Declared sound power, operating: 6.5 bel Heat output: <p>Approximate heat output with a maximum configuration: 2662 Btu per hour (675 watts)</p>
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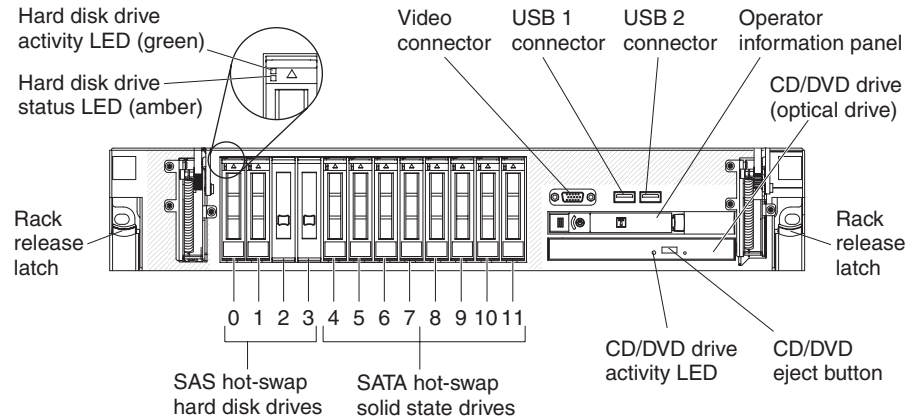
Appliance controls, LEDs, and power

This section describes the controls and light-emitting diodes (LEDs) and how to turn the appliance on and off.

Front view

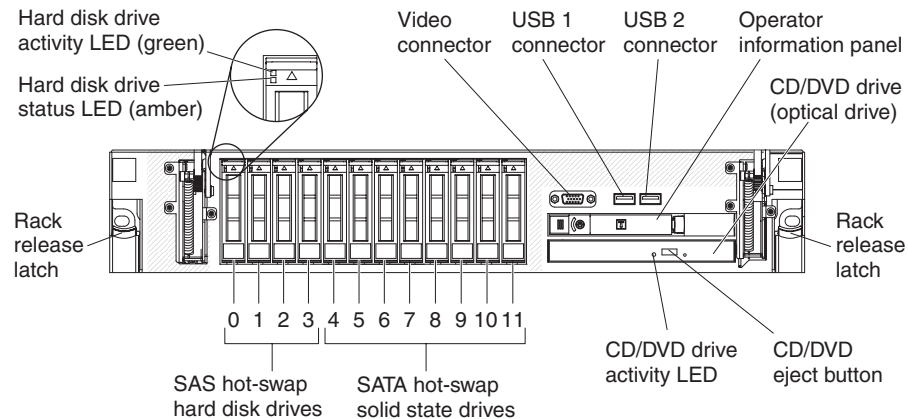
The following illustration shows the controls, connectors, and drive bays on the front of the Schooner Appliance for Memcached system.

Schooner Appliance for Memcached



The following illustration shows the controls, connectors, and drive bays on the front of the Schooner Appliance for MySQL Enterprise system.

Schooner Appliance for MySQL Enterprise



Hard disk drive activity LED: Each hot-swap hard disk drive has an activity LED. When this LED is flashing, it indicates that the drive is in use.

Hard disk drive status LED: Each hot-swap hard disk drive has a status LED. When this LED is lit, it indicates that the drive has failed. When this LED is flashing slowly (one flash per second), it indicates that the drive is being rebuilt as part of a RAID configuration. When the LED is flashing rapidly (three flashes per second), it indicates that the controller is identifying the drive.

Video connector: Connect a monitor to this connector. The video connectors on the front and rear of the appliance can be used simultaneously.

USB connectors: Connect a USB device, such as USB mouse, keyboard, or other USB device to either of these connectors.

Operator information panel: This panel contains controls, light-emitting diodes (LEDs), and connectors. For information about the controls and LEDs on the operator information panel, see “Operator information panel.”

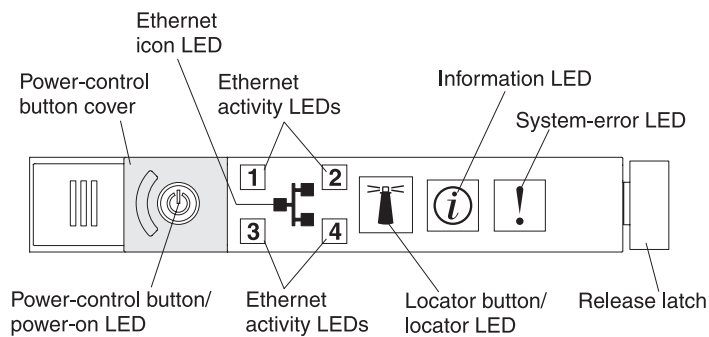
Rack release latches: Press these latches to release the appliance from the rack.

CD/DVD-eject button: Press this button to release a CD or DVD from the CD-RW/DVD drive.

CD/DVD drive activity LED: When this LED is lit, it indicates that the CD-RW/DVD drive is in use.

Operator information panel

The following illustration shows the controls and LEDs on the operator information panel.



The following controls and LEDs are on the operator information panel:

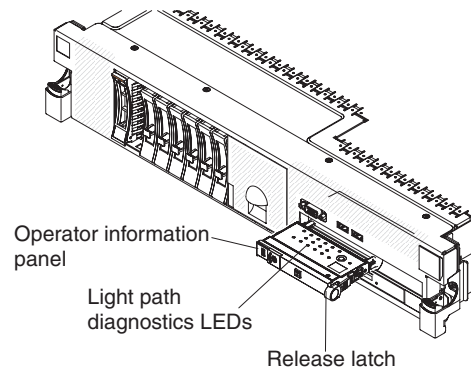
- **Power-control button and power-on LED:** Press this button to turn the appliance on and off manually or to wake the appliance from a reduced-power state. The states of the power-on LED are as follows:
 - Off:** AC power is not present, or the power supply or the LED itself has failed.
 - Flashing rapidly (4 times per second):** The appliance is turned off and is not ready to be turned on. The power-control button is disabled. Approximately 3 minutes after the appliance is connected to ac power, the power-control button becomes active.
 - Flashing slowly (once per second):** The appliance is turned off and is ready to be turned on. You can press the power-control button to turn on the appliance.
 - Lit:** The appliance is turned on.
 - Fading on and off:** The appliance is in a reduced-power state. To wake the appliance, press the power-control button or use the integrated management module (IMM) Web interface.
- **Ethernet icon LED:** This LED lights the Ethernet icon.
- **Ethernet activity LEDs:** When any of these LEDs is lit, it indicates that the appliance is transmitting to or receiving signals from the Ethernet LAN that is connected to the Ethernet port that corresponds to that LED.
- **Information LED:** When this LED is lit, it indicates that a noncritical event has occurred. An LED on the light path diagnostics panel is also lit to help isolate the error.
- **System-error LED:** When this LED is lit, it indicates that a system error has occurred. An LED on the light path diagnostics panel is also lit to help isolate the error.

- **Release latch:** Slide this latch to the left to access the light path diagnostics panel, which is behind the operator information panel.
- **Locator button and locator LED:** Use this LED to visually locate the appliance among other appliances. Press this button to turn on or turn off this LED locally. You can use IBM Systems Director to light this LED remotely.

Light path diagnostics panel

The light path diagnostics panel is on the top of the operator information panel.

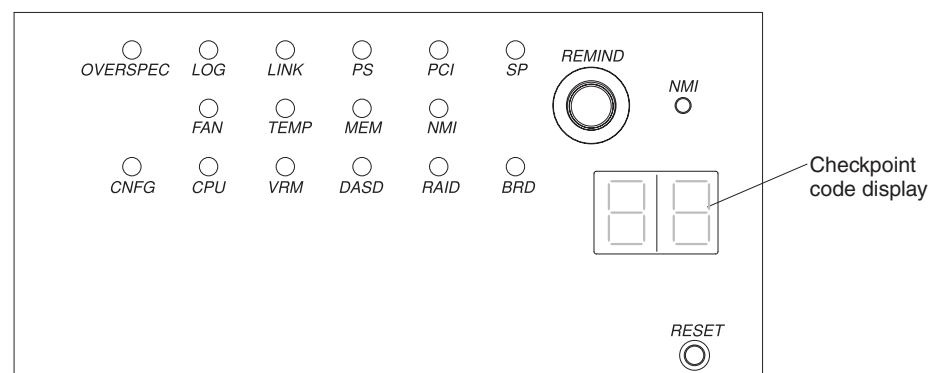
To access the light path diagnostics panel, slide the blue release button on the operator information panel to the left. Pull forward on the operator information panel until the hinge of the panel is free of the appliance chassis. Then pull down on the operator information panel so that you can view the light path diagnostics panel information.



The following illustration shows the controls and LEDs on the light path diagnostics panel.

Notes:

1. Do not run the appliance for an extended period of time while the light path diagnostics panel is pulled out of the appliance.
2. Light path diagnostics LEDs remain lit only while the appliance is connected to power.



- **Remind button:** This button places the system-error LED on the front panel into Remind mode. In Remind mode, the system-error LED flashes once every 2 seconds until the problem is corrected, the appliance is restarted, or a new problem occurs.

By placing the system-error LED indicator in Remind mode, you acknowledge that you are aware of the last failure but will not take immediate action to correct the problem. The remind function is controlled by the IMM.

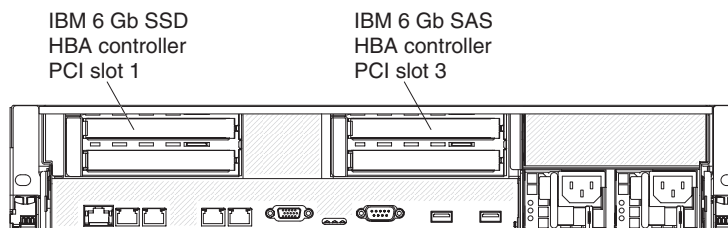
- **NMI button:** Press this button to force a nonmaskable interrupt to the microprocessor, if you are directed to do so by IBM service and support.
- **Reset button:** Press this button to reset the appliance and run the power-on self-test (POST). You might have to use a pen or the end of a straightened paper clip to press the button. The reset button is in the lower-right corner of the light path diagnostics panel.

For more information about light path diagnostics, see the *Problem Determination and Service Guide* on the *Documentation CD*.

Rear view

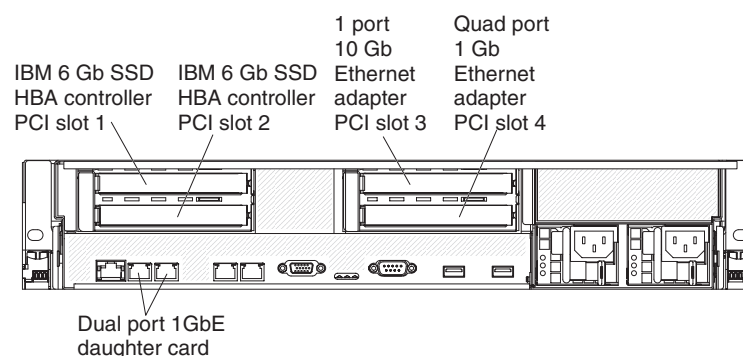
The following illustration shows the PCI connectors on the rear of the Schooner Appliance for MySQL Enterprise.

Schooner Appliance for MySQL Enterprise

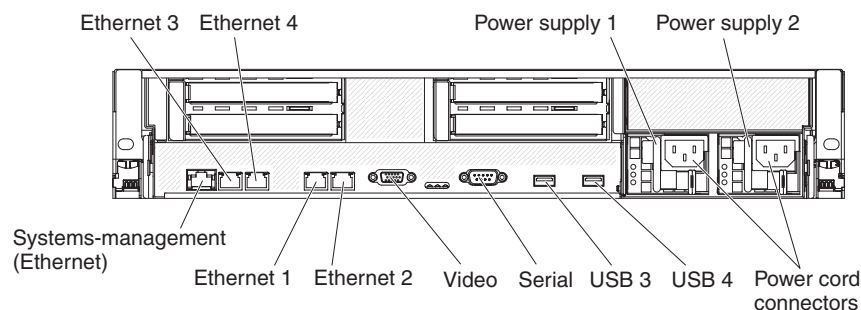


The following illustration shows the PCI connectors on the rear of the Schooner Appliance for Memcached.

Schooner Appliance for Memcached



The following illustration shows the additional connectors on the rear of the appliance.



Ethernet connectors: Ethernet connectors 3 and 4 are enabled for use in the Schooner Appliance for Memcached systems.

Power-cord connector: Connect the power cord to this connector.

USB connectors: Connect a USB device, such as USB mouse, keyboard, or other USB device, to any of these connectors.

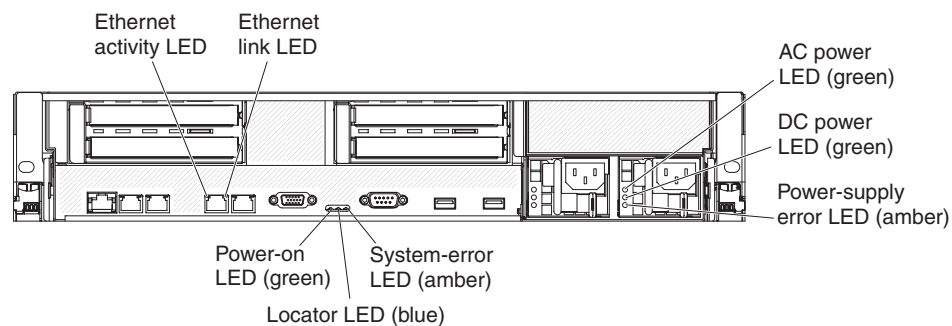
Serial connector: Connect a 9-pin serial device to this connector. The serial port is shared with the integrated management module (IMM). The IMM can take control of the shared serial port to perform text console redirection and to redirect serial traffic, using Serial over LAN (SOL).

Video connector: Connect a monitor to this connector. The video connectors on the front and rear of the appliance can be used simultaneously.

Note: The maximum video resolution is 1280 x 1024 at 75 Hz.

Systems-management Ethernet connector: Use this connector to connect the appliance to a network for systems-management information control. This connector is used only by the IMM.

The following illustration shows the LEDs on the rear of the appliance.



Ethernet activity LEDs: When either of these LEDs is lit, it indicates that the appliance is transmitting to or receiving signals from the Ethernet LAN that is connected to the associated Ethernet port.

Ethernet link LEDs: When either of these LEDs is lit, it indicates that there is an active link connection on the 10BASE-T, 100BASE-TX, or 1000BASE-TX interface for the associated Ethernet port.

AC power LED: Each hot-swap power supply has an ac power LED and a dc power LED. When the ac power LED is lit, it indicates that sufficient power is coming into the power supply through the power cord. During typical operation, both the ac and dc power LEDs are lit. For any other combination of LEDs, see the *Problem Determination and Service Guide* on the *Documentation CD*.

DC power LED: Each hot-swap power supply has a dc power LED and an ac power LED. When the dc power LED is lit, it indicates that the power supply is supplying adequate dc power to the system. During typical operation, both the ac and dc power LEDs are lit. For any other combination of LEDs, see the *Problem Determination and Service Guide* on the *Documentation CD*.

Power-supply error LED: When the power-supply error LED is lit, it indicates that the power supply has failed.

System-error LED: When this LED is lit, it indicates that a system error has occurred. An LED on the light path diagnostics panel is also lit to help isolate the error. This LED is the same as the system-error LED on the front of the appliance.

Locator LED: Use this LED to visually locate the appliance among other appliances. You can use IBM Systems Director to light this LED remotely. This LED is the same as the locator LED on the front of the appliance.

Power-on LED: Press this button to turn the appliance on and off manually or to wake the appliance from a reduced-power state. The states of the power-on LED are as follows:

Off: AC power is not present, or the power supply or the LED itself has failed.

Flashing rapidly (4 times per second): The appliance is turned off and is not ready to be turned on. The power-control button is disabled. Approximately 3 minutes after the appliance is connected to ac power, the power-control button becomes active.

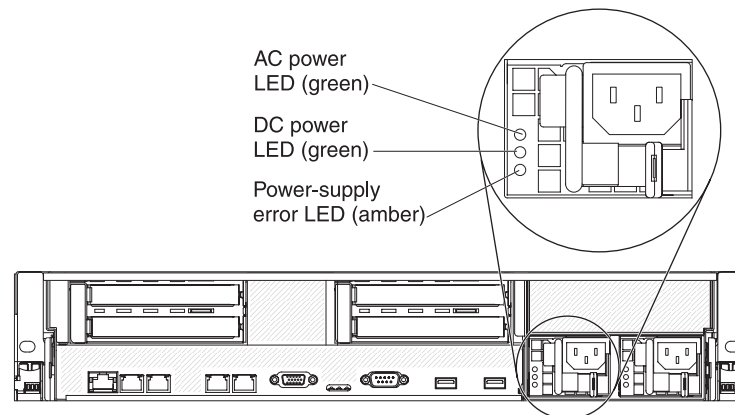
Flashing slowly (once per second): The appliance is turned off and is ready to be turned on. You can press the power-control button to turn on the appliance.

Lit: The appliance is turned on.

Fading on and off: The system is in a reduced-power state. To wake the appliance, press the power-control button or use the IMM Web interface.

Power-supply LEDs

The following illustration shows the power-supply LEDs on the rear of the appliance. For more information about solving power-supply problems, see the *Problem Determination and Service Guide* on the *Documentation CD*.



The following table describes the problems that are indicated by various combinations of the power-supply LEDs and the power-on LED on the operator information panel and suggested actions to correct the detected problems.

Table 2. Power-supply LEDs

Power-supply LEDs			Description	Action	Notes
AC	DC	Error			
Off	Off	Off	No ac power to the appliance or a problem with the ac power source	<ol style="list-style-type: none"> 1. Check the ac power to the appliance. 2. Make sure that the power cord is connected to a functioning power source. 3. Turn the appliance off and then turn the appliance back on. 4. If the problem remains, replace the power supply. 	This is a normal condition when no ac power is present.
Off	Off	On	No ac power to the appliance or a problem with the ac power source and the power supply had detected an internal problem	<ol style="list-style-type: none"> 1. Replace the power supply. 2. Make sure that the power cord is connected to a functioning power source. 	This happens only when a second power supply is providing power to the appliance.
Off	On	Off	Faulty power supply	Replace the power supply.	
Off	On	On	Faulty power supply	Replace the power supply.	
On	Off	Off	Power supply not fully seated, faulty system board, or faulty power supply	<ol style="list-style-type: none"> 1. Reseat the power supply. 2. (Trained service technician only) If the 240V failure LED on the system board is lit, have the system board replaced. 3. If the 240V failure LED on the system board is not lit, replace the power supply. 	Typically indicates that a power supply is not fully seated.
On	Off or Flashing	On	Faulty power supply	Replace the power supply.	
On	On	Off	Normal operation		
On	On	On	Power supply is faulty but still operational	Replace the power supply.	

Appliance power features

See the *Schooner Installation and Setup Guide* for your specific appliance on the *Documentation* CD, and familiarize yourself with the information about creating a backup copy of the factory configuration settings. When you are ready to create your initial backup copy, see “Turning on the appliance” in this document for power-on instructions.

To update the firmware, see the *Schooner Memcached and MySQL Appliance Application and Administration Guides* on the *Documentation* CD.

Turning on the appliance

Approximately 3 minutes after the appliance is connected to power, the power-control button becomes active, and one or more fans might start running to provide cooling while the appliance is connected to power. You can turn on the appliance and start the operating system by pressing the power-control button.

The appliance can also be turned on in any of the following ways:

- If a power failure occurs while the appliance is turned on, the appliance will restart automatically when power is restored.
- If your operating system supports the Wake on LAN feature, the Wake on LAN feature can turn on the appliance.

Turning off the appliance

When you turn off the appliance and leave it connected to power, the appliance can respond to requests from the IMM, such as a remote request to turn on the appliance. While the appliance remains connected to power, one or more fans might continue to run. To remove all power from the appliance, you must disconnect it from the power source.

Important: To view the error LEDs on the system board, leave the appliance connected to a power source.

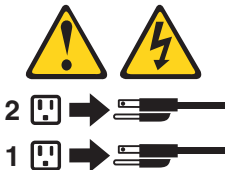
Some operating systems require an orderly shutdown before you turn off the appliance. See your operating-system documentation for information about shutting down the operating system.

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.



The appliance can be turned off in any of the following ways:

- You can turn off the appliance from the operating system, if your operating system supports this feature. After an orderly shutdown of the operating system, the appliance will be turned off automatically.
- You can press the power-control button to start an orderly shutdown of the operating system and turn off the appliance, if your operating system supports this feature.
- If the operating system stops functioning, you can press and hold the power-control button for more than 4 seconds to turn off the appliance.
- The IMM can turn off the appliance as an automatic response to a critical system failure.
- You can turn off the appliance through a request from the IMM.

Appendix A. Getting help and technical assistance

If you need help, service, or technical assistance or just want more information about IBM products, you will find a wide variety of sources available from IBM to assist you. Use this information to obtain additional information about IBM and IBM products, determine what to do if you experience a problem with your IBM system or optional device, and determine whom to call for service, if it is necessary.

Before you call

Before you call, make sure that you have taken these steps to try to solve the problem yourself:

- Check all cables to make sure that they are connected.
- Check the power switches to make sure that the system and any optional devices are turned on.
- Check for updated firmware and operating-system device drivers for your IBM product. The IBM Warranty terms and conditions state that you, the owner of the IBM product, are responsible for maintaining and updating all software and firmware for the product (unless it is covered by an additional maintenance contract). Your IBM service technician will request that you upgrade your software and firmware if the problem has a documented solution within a software upgrade.
- If you have installed new hardware or software in your environment, check <http://www.ibm.com/systems/info/x86servers/serverproven/compat/us/> to make sure that the hardware and software is supported by your IBM product.
- Go to <http://www.ibm.com/supportportal/> to check for information to help you solve the problem.
- Gather the following information to provide to IBM Support. This data will help IBM Support quickly provide a solution to your problem and ensure that you receive the level of service for which you might have contracted.
 - Hardware and Software Maintenance agreement contract numbers, if applicable
 - Machine type number (IBM 4-digit machine identifier)
 - Model number
 - Serial number
 - Current system UEFI and firmware levels
 - Other pertinent information such as error messages and logs
- Go to http://www.ibm.com/support/entry/portal/Open_service_request/ to submit an Electronic Service Request. Submitting an Electronic Service Request will start the process of determining a solution to your problem by making the pertinent information available to IBM Support quickly and efficiently. IBM service technicians can start working on your solution as soon as you have completed and submitted an Electronic Service Request.

You can solve many problems without outside assistance by following the troubleshooting procedures that IBM provides in the online help or in the documentation that is provided with your IBM product. The documentation that comes with IBM systems also describes the diagnostic tests that you can perform. Most systems, operating systems, and programs come with documentation that

contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, see the documentation for the operating system or program.

Using the documentation

Information about your IBM system and preinstalled software, if any, or optional device is available in the documentation that comes with the product. That documentation can include printed documents, online documents, readme files, and help files. See the troubleshooting information in your system documentation for instructions for using the diagnostic programs. The troubleshooting information or the diagnostic programs might tell you that you need additional or updated device drivers or other software. IBM maintains pages on the World Wide Web where you can get the latest technical information and download device drivers and updates. To access these pages, go to <http://www.ibm.com/supportportal/>. Also, some documents are available through the IBM Publications Center at <http://www.ibm.com/shop/publications/order/>.

Getting help and information from the World Wide Web

On the World Wide Web, up-to-date information about IBM systems, optional devices, services, and support is available at <http://www.ibm.com/supportportal/>. The address for IBM System x[®] information is <http://www.ibm.com/systems/x/>. The address for IBM BladeCenter[®] information is <http://www.ibm.com/systems/bladecenter/>. The address for IBM IntelliStation[®] information is <http://www.ibm.com/systems/intellistation/>.

How to send Dynamic System Analysis data to IBM

Use the IBM Enhanced Customer Data Repository to send diagnostic data to IBM. Before you send diagnostic data to IBM, read the terms of use at <http://www.ibm.com/de/support/ecurep/terms.html>.

You can use any of the following methods to send diagnostic data to IBM:

- **Standard upload:** http://www.ibm.com/de/support/ecurep/send_http.html
- **Standard upload with the system serial number:** http://www.ecurep.ibm.com/app/upload_hw
- **Secure upload:** http://www.ibm.com/de/support/ecurep/send_http.html#secure
- **Secure upload with the system serial number:** https://www.ecurep.ibm.com/app/upload_hw

Creating a personalized support web page

At <http://www.ibm.com/support/mynotifications/>, you can create a personalized support web page by identifying IBM products that are of interest to you. From this personalized page, you can subscribe to weekly email notifications about new technical documents, search for information and downloads, and access various administrative services.

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Through IBM Support Line, you can get telephone assistance, for a fee, with usage, configuration, and software problems with your IBM products. For information about which products are supported by Support Line in your country or region, see <http://www.ibm.com/services/supline/products/>.

For more information about Support Line and other IBM services, see <http://www.ibm.com/services/>, or see <http://www.ibm.com/planetwide/> for support telephone numbers. In the U.S. and Canada, call 1-800-IBM-SERV (1-800-426-7378).

Hardware service and support

You can receive hardware service through your IBM reseller or IBM Services. To locate a reseller authorized by IBM to provide warranty service, go to <http://www.ibm.com/partnerworld/> and click **Find Business Partners** on the right side of the page. For IBM support telephone numbers, see <http://www.ibm.com/planetwide/>. In the U.S. and Canada, call 1-800-IBM-SERV (1-800-426-7378).

In the U.S. and Canada, hardware service and support is available 24 hours a day, 7 days a week. In the U.K., these services are available Monday through Friday, from 9 a.m. to 6 p.m.

IBM Taiwan product service

台灣 IBM 產品服務聯絡方式：
台灣國際商業機器股份有限公司
台北市松仁路7號3樓
電話：0800-016-888

IBM Taiwan product service contact information:

IBM Taiwan Corporation
3F, No 7, Song Ren Rd.
Taipei, Taiwan
Telephone: 0800-016-888

Appendix B. Notices

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Important notes

Processor speed indicates the internal clock speed of the microprocessor; other factors also affect application performance.

CD or DVD drive speed is the variable read rate. Actual speeds vary and are often less than the possible maximum.

When referring to processor storage, real and virtual storage, or channel volume, KB stands for 1024 bytes, MB stands for 1 048 576 bytes, and GB stands for 1 073 741 824 bytes.

When referring to hard disk drive capacity or communications volume, MB stands for 1 000 000 bytes, and GB stands for 1 000 000 000 bytes. Total user-accessible capacity can vary depending on operating environments.

Maximum internal hard disk drive capacities assume the replacement of any standard hard disk drives and population of all hard disk drive bays with the largest currently supported drives that are available from IBM.

Maximum memory might require replacement of the standard memory with an optional memory module.

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Some software might differ from its retail version (if available) and might not include user manuals or all program functionality.

Particulate contamination

Attention: Airborne particulates (including metal flakes or particles) and reactive gases acting alone or in combination with other environmental factors such as humidity or temperature might pose a risk to the server that is described in this document. Risks that are posed by the presence of excessive particulate levels or concentrations of harmful gases include damage that might cause the server to malfunction or cease functioning altogether. This specification sets forth limits for particulates and gases that are intended to avoid such damage. The limits must not be viewed or used as definitive limits, because numerous other factors, such as temperature or moisture content of the air, can influence the impact of particulates or environmental corrosives and gaseous contaminant transfer. In the absence of specific limits that are set forth in this document, you must implement practices that maintain particulate and gas levels that are consistent with the protection of human health and safety. If IBM determines that the levels of particulates or gases in your environment have caused damage to the server, IBM may condition provision of repair or replacement of servers or parts on implementation of appropriate remedial measures to mitigate such environmental contamination. Implementation of such remedial measures is a customer responsibility.

Table 3. Limits for particulates and gases

Contaminant	Limits
Particulate	<ul style="list-style-type: none">• The room air must be continuously filtered with 40% atmospheric dust spot efficiency (MERV 9) according to ASHRAE Standard 52.2¹.• Air that enters a data center must be filtered to 99.97% efficiency or greater, using high-efficiency particulate air (HEPA) filters that meet MIL-STD-282.• The deliquescent relative humidity of the particulate contamination must be more than 60%².• The room must be free of conductive contamination such as zinc whiskers.
Gaseous	<ul style="list-style-type: none">• Copper: Class G1 as per ANSI/ISA 71.04-1985³• Silver: Corrosion rate of less than 300 Å in 30 days

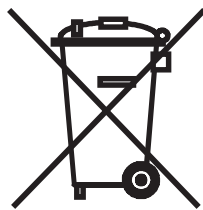
Table 3. Limits for particulates and gases (continued)

Contaminant	Limits
	¹ ASHRAE 52.2-2008 - <i>Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size</i> . Atlanta: American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
	² The deliquescent relative humidity of particulate contamination is the relative humidity at which the dust absorbs enough water to become wet and promote ionic conduction.
	³ ANSI/ISA-71.04-1985. <i>Environmental conditions for process measurement and control systems: Airborne contaminants</i> . Instrument Society of America, Research Triangle Park, North Carolina, U.S.A.

Product recycling and disposal

This unit must be recycled or discarded according to applicable local and national regulations. IBM encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. IBM offers a variety of product return programs and services in several countries to assist equipment owners in recycling their IT products. Information on IBM product recycling offerings can be found on IBM's Internet sites at <http://www.ibm.com/ibm/recycle/us/index.shtml> and <http://www.ibm.com/ibm/environment/products/index.shtml>.

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This appliance is labeled in accordance with European Directive 2002/96/EC concerning waste electrical and electronic equipment (WEEE). The Directive determines the framework for the return and recycling of used appliances as applicable throughout the European Union. This label is applied to various products to indicate that the product is not to be thrown away, but rather reclaimed upon end of life per this Directive.

注意: このマークは EU 諸国およびノルウェーにおいてのみ適用されます。

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L'étiquette du système respecte la Directive européenne 2002/96/EC en matière de Déchets des Equipements Electriques et Electroniques (DEEE), qui détermine les dispositions de retour et de recyclage applicables aux systèmes utilisés à travers l'Union européenne. Conformément à la directive, ladite étiquette précise que le produit sur lequel elle est apposée ne doit pas être jeté mais être récupéré en fin de vie.

In accordance with the European WEEE Directive, electrical and electronic equipment (EEE) is to be collected separately and to be reused, recycled, or recovered at end of life. Users of EEE with the WEEE marking per Annex IV of the WEEE Directive, as shown above, must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to customers for the return, recycling, and recovery of WEEE. Customer participation is important to minimize any potential effects of EEE on the environment and human health due to the potential presence of hazardous substances in EEE. For proper collection and treatment, contact your local IBM representative.

Battery return program

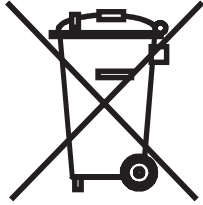
This product may contain a sealed lead acid, nickel cadmium, nickel metal hydride, lithium, or lithium ion battery. Consult your user manual or service manual for specific battery information. The battery must be recycled or disposed of properly. Recycling facilities may not be available in your area. For information on disposal of batteries outside the United States, go to <http://www.ibm.com/ibm/environment/products/index.shtml> or contact your local waste disposal facility.

In the United States, IBM has established a return process for reuse, recycling, or proper disposal of used IBM sealed lead acid, nickel cadmium, nickel metal hydride, and battery packs from IBM equipment. For information on proper disposal of these batteries, contact IBM at 1-800-426-4333. Have the IBM part number listed on the battery available prior to your call.

For Taiwan: Please recycle batteries.



For the European Union:



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Les batteries ou emballages pour batteries sont étiquetés conformément aux directives européennes 2006/66/EC, norme relative aux batteries et accumulateurs en usage et aux batteries et accumulateurs usés. Les directives déterminent la marche à suivre en vigueur dans l'Union Européenne pour le retour et le recyclage des batteries et accumulateurs usés. Cette étiquette est appliquée sur diverses batteries pour indiquer que la batterie ne doit pas être mise au rebut mais plutôt récupérée en fin de cycle de vie selon cette norme.

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In accordance with the European Directive 2006/66/EC, batteries and accumulators are labeled to indicate that they are to be collected separately and recycled at end of life. The label on the battery may also include a chemical symbol for the metal concerned in the battery (Pb for lead, Hg for mercury, and Cd for cadmium). Users of batteries and accumulators must not dispose of batteries and accumulators as unsorted municipal waste, but use the collection framework available to customers for the return, recycling, and treatment of batteries and accumulators. Customer participation is important to minimize any potential effects of batteries and accumulators on the environment and human health due to the potential presence of hazardous substances. For proper collection and treatment, contact your local IBM representative.

This notice is provided in accordance with Royal Decree 106/2008 of Spain: The retail price of batteries, accumulators, and power cells includes the cost of the environmental management of their waste.

For California:

Perchlorate material – special handling may apply. See <http://www.dtsc.ca.gov/hazardouswaste/perchlorate/>.

The foregoing notice is provided in accordance with California Code of Regulations Title 22, Division 4.5 Chapter 33. Best Management Practices for Perchlorate Materials. This product/part may include a lithium manganese dioxide battery which contains a perchlorate substance.

Electronic emission notices

When you attach a monitor to the equipment, you must use the designated monitor cable and any interference suppression devices that are supplied with the monitor.

Federal Communications Commission (FCC) statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Class A emission compliance statement

This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Australia and New Zealand Class A statement

Attention: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

European Union EMC Directive conformance statement

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a nonrecommended modification of the product, including the fitting of non-IBM option cards.

Attention: This is an EN 55022 Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Responsible manufacturer:

International Business Machines Corp.
New Orchard Road
Armonk, New York 10504
914-499-1900

European Community contact:

IBM Deutschland GmbH
Technical Regulations, Department M372
IBM-Allee 1, 71139 Ehningen, Germany
Telephone: +49 7032 15 2941
Email: lugi@de.ibm.com

Germany Class A statement

Deutschsprachiger EU Hinweis:

Hinweis für Geräte der Klasse A EU-Richtlinie zur Elektromagnetischen Verträglichkeit

Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie 2004/108/EG zur Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaaten und hält die Grenzwerte der EN 55022 Klasse A ein.

Um dieses sicherzustellen, sind die Geräte wie in den Handbüchern beschrieben zu installieren und zu betreiben. Des Weiteren dürfen auch nur von der IBM empfohlene Kabel angeschlossen werden. IBM übernimmt keine Verantwortung für die Einhaltung der Schutzanforderungen, wenn das Produkt ohne Zustimmung der IBM verändert bzw. wenn Erweiterungskomponenten von Fremdherstellern ohne Empfehlung der IBM gesteckt/eingebaut werden.

EN 55022 Klasse A Geräte müssen mit folgendem Warnhinweis versehen werden: "Warnung: Dieses ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funk-Störungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen zu ergreifen und dafür aufzukommen."

Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten

Dieses Produkt entspricht dem "Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG)". Dies ist die Umsetzung der EU-Richtlinie 2004/108/EG in der Bundesrepublik Deutschland.

Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) (bzw. der EMC EG Richtlinie 2004/108/EG) für Geräte der Klasse A

Dieses Gerät ist berechtigt, in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen.

Verantwortlich für die Einhaltung der EMV Vorschriften ist der Hersteller:

International Business Machines Corp.
New Orchard Road
Armonk, New York 10504
914-499-1900

Der verantwortliche Ansprechpartner des Herstellers in der EU ist:
IBM Deutschland GmbH
Technical Regulations, Abteilung M372
IBM-Allee 1, 71139 Ehningen, Germany
Telephone: +49 7032 15 2941
Email: lugi@de.ibm.com

Generelle Informationen:

**Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022
Klasse A.**

VCCI Class A statement

この装置は、クラス A 情報技術装置です。この装置を家庭環境で使用する
と電波妨害を引き起こすことがあります。この場合には使用者が適切な対策
を講ずるよう要求されることがあります。 VCCI-A

This is a Class A product based on the standard of the Voluntary Control Council for
Interference (VCCI). If this equipment is used in a domestic environment, radio
interference may occur, in which case the user may be required to take corrective
actions.

Japan Electronics and Information Technology Industries Association (JEITA) statement

高調波ガイドライン準用品

Japanese Electronics and Information Technology Industries Association (JEITA)
Confirmed Harmonics Guideline with Modifications (products greater than 20 A per
phase)

Korea Communications Commission (KCC) statement

이 기기는 업무용(A급)으로 전자파적합기기로서
판매자 또는 사용자는 이 점을 주의하시기
바라며, 가정외의 지역에서 사용하는 것을 목
적으로 합니다.

This is electromagnetic wave compatibility equipment for business (Type A). Sellers
and users need to pay attention to it. This is for any areas other than home.

Russia Electromagnetic Interference (EMI) Class A statement

ВНИМАНИЕ! Настоящее изделие относится к классу А.
В жилых помещениях оно может создавать радиопомехи, для
снижения которых необходимы дополнительные меры

People's Republic of China Class A electronic emission statement

中华人民共和国“A类”警告声明

声 明

此为A级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

Taiwan Class A compliance statement

警告使用者：
這是甲類的資訊產品，在
居住的環境中使用時，可
能會造成射頻干擾，在這
種情況下，使用者會被要
求採取某些適當的對策。

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