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ESCALA Power7



REFERENCE
86 A1 0H0A

ESCALA Models Reference

The ESCALA Power7 publications concern the following models:

Bull Escala E1-700 / E3-700	(31E/2B ,8231-E2B)
Bull Escala E1-705	(31E/1C, 8231-E1C)
Bull Escala E1-715	(31E/1D, 8231-E1D)
Bull Escala E3-705	(31E/2C, 8231-E2C)
Bull Escala E3-715	(31E/2D, 8231-E2D)
Bull Escala E2-700 / E2-700T	(02E/4B, 8202-E4B)
Bull Escala E2-705 / E2-705T	(02E/4C, 8202-E4C)
Bull Escala E2-715 / E2-715T	(02E/4D, 8202-E4D)
Bull Escala E4-700 / E4-700T	(05F/6B, 8205-E6B)
Bull Escala E4-705	(05E/6C, 8205-E6C)
Bull Escala E4-715	(05E/6D, 8205-E6D)
Bull Escala E5-700	(33E/8B, 8233-E8B)
Bull Escala E5-715	(08E/8D, 8408-E8D)
Bull Escala M5-715	(09R/MD, 9109-RMD)
Bull Escala M6-700	(17M/MB, 9117-MMB)
Bull Escala M6-705	(17M/MC, 9117-MMC)
Bull Escala M6-715	(17M/MD, 9117-MMD)
Bull Escala M7-700	(79M/HB, 9179-MHB)
Bull Escala M7-705	(79M/HC, 9179-MHC)
Bull Escala M7-715	(79M/HD, 9179-MHD)
Bull Escala H9-700	(19F/HB, 9119-FHB)

References to 8236-E8C models are irrelevant.

Hardware

February 2013

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FRANCE

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Safety notices

Safety notices may be printed throughout this guide.

- **DANGER** notices call attention to a situation that is potentially lethal or extremely hazardous to people.
- **CAUTION** notices call attention to a situation that is potentially hazardous to people because of some existing condition.
- **Attention** notices call attention to the possibility of damage to a program, device, system, or data.

World Trade safety information

Several countries require the safety information contained in product publications to be presented in their national languages. If this requirement applies to your country, a safety information booklet is included in the publications package shipped with the product. The booklet contains the safety information in your national language with references to the U.S. English source. Before using a U.S. English publication to install, operate, or service this product, you must first become familiar with the related safety information in the booklet. You should also refer to the booklet any time you do not clearly understand any safety information in the U.S. English publications.

Laser safety information

The servers can use I/O cards or features that are fiber-optic based and that utilize lasers or LEDs.

Laser compliance

The servers may be installed inside or outside of an IT equipment rack.

DANGER

When working on or around the system, observe the following precautions:

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the provided power cord. Do not use the provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- 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 procedures when installing, moving, or opening covers on this product or attached devices.

To Disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the signal cables from the connectors.
4. Remove all cables from the devices.

To Connect:

1. Turn off everything (unless instructed otherwise).
2. Attach all cables to the devices.
3. Attach the signal cables to the connectors.
4. Attach the power cords to the outlets.
5. Turn on the devices.

(D005a)

DANGER

Observe the following precautions when working on or around your IT rack system:

- Heavy equipment—personal injury or equipment damage might result if mishandled.
- Always lower the leveling pads on the rack cabinet.
- Always install stabilizer brackets on the rack cabinet.
- To avoid hazardous conditions due to uneven mechanical loading, always install the heaviest devices in the bottom of the rack cabinet. Always install servers and optional devices starting from the bottom of the rack cabinet.
- Rack-mounted devices are not to be used as shelves or work spaces. Do not place objects on top of rack-mounted devices.



- Each rack cabinet might have more than one power cord. Be sure to disconnect all power cords in the rack cabinet when directed to disconnect power during servicing.
- Connect all devices installed in a rack cabinet to power devices installed in the same rack cabinet. Do not plug a power cord from a device installed in one rack cabinet into a power device installed in a different rack cabinet.
- An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

CAUTION

- Do not install a unit in a rack where the internal rack ambient temperatures will exceed the manufacturer's recommended ambient temperature for all your rack-mounted devices.
- Do not install a unit in a rack where the air flow is compromised. Ensure that air flow is not blocked or reduced on any side, front, or back of a unit used for air flow through the unit.
- Consideration should be given to the connection of the equipment to the supply circuit so that overloading of the circuits does not compromise the supply wiring or overcurrent protection. To provide the correct power connection to a rack, refer to the rating labels located on the equipment in the rack to determine the total power requirement of the supply circuit.
- *(For sliding drawers.)* Do not pull out or install any drawer or feature if the rack stabilizer brackets are not attached to the rack. Do not pull out more than one drawer at a time. The rack might become unstable if you pull out more than one drawer at a time.
- *(For fixed drawers.)* This drawer is a fixed drawer and must not be moved for servicing unless specified by the manufacturer. Attempting to move the drawer partially or completely out of the rack might cause the rack to become unstable or cause the drawer to fall out of the rack.

(R001)

CAUTION:

Removing components from the upper positions in the rack cabinet improves rack stability during relocation. Follow these general guidelines whenever you relocate a populated rack cabinet within a room or building:

- Reduce the weight of the rack cabinet by removing equipment starting at the top of the rack cabinet. When possible, restore the rack cabinet to the configuration of the rack cabinet as you received it. If this configuration is not known, you must observe the following precautions:
 - Remove all devices in the 32U position and above.
 - Ensure that the heaviest devices are installed in the bottom of the rack cabinet.
 - Ensure that there are no empty U-levels between devices installed in the rack cabinet below the 32U level.
- If the rack cabinet you are relocating is part of a suite of rack cabinets, detach the rack cabinet from the suite.
- Inspect the route that you plan to take to eliminate potential hazards.
- Verify that the route that you choose can support the weight of the loaded rack cabinet. Refer to the documentation that comes with your rack cabinet for the weight of a loaded rack cabinet.
- Verify that all door openings are at least 760 x 230 mm (30 x 80 in.).
- Ensure that all devices, shelves, drawers, doors, and cables are secure.
- Ensure that the four leveling pads are raised to their highest position.
- Ensure that there is no stabilizer bracket installed on the rack cabinet during movement.
- Do not use a ramp inclined at more than 10 degrees.
- When the rack cabinet is in the new location, complete the following steps:
 - Lower the four leveling pads.
 - Install stabilizer brackets on the rack cabinet.
 - If you removed any devices from the rack cabinet, repopulate the rack cabinet from the lowest position to the highest position.
- If a long-distance relocation is required, restore the rack cabinet to the configuration of the rack cabinet as you received it. Pack the rack cabinet in the original packaging material, or equivalent. Also lower the leveling pads to raise the casters off of the pallet and bolt the rack cabinet to the pallet.

(R002)

(L001)



(L002)



(L003)



or



All lasers are certified in the U.S. to conform to the requirements of DHHS 21 CFR Subchapter J for class 1 laser products. Outside the U.S., they are certified to be in compliance with IEC 60825 as a class 1 laser product. Consult the label on each part for laser certification numbers and approval information.

CAUTION:

This product might contain one or more of the following devices: CD-ROM drive, DVD-ROM drive, DVD-RAM drive, or laser module, which are Class 1 laser products. Note the following information:

- 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 the controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.

(C026)

CAUTION:

Data processing environments can contain equipment transmitting on system links with laser modules that operate at greater than Class 1 power levels. For this reason, never look into the end of an optical fiber cable or open receptacle. (C027)

CAUTION:

This product contains a Class 1M laser. Do not view directly with optical instruments. (C028)

CAUTION:

Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following information: laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam. (C030)

CAUTION:

The battery contains lithium. To avoid possible explosion, do not burn or charge the battery.

Do Not:

- ___ Throw or immerse into water
- ___ Heat to more than 100°C (212°F)
- ___ Repair or disassemble

Exchange only with the approved part. Recycle or discard the battery as instructed by local regulations. (C003a)

Power and cabling information for NEBS (Network Equipment-Building System) GR-1089-CORE

The following comments apply to the servers that have been designated as conforming to NEBS (Network Equipment-Building System) GR-1089-CORE:

The equipment is suitable for installation in the following:

- Network telecommunications facilities
- Locations where the NEC (National Electrical Code) applies

The intrabuilding ports of this equipment are suitable for connection to intrabuilding or unexposed wiring or cabling only. The intrabuilding ports of this equipment *must not* be metallically connected to the interfaces that connect to the OSP (outside plant) or its wiring. These interfaces are designed for use as intrabuilding interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE) and require isolation from the exposed OSP cabling. The addition of primary protectors is not sufficient protection to connect these interfaces metallically to OSP wiring.

Note: All Ethernet cables must be shielded and grounded at both ends.

The ac-powered system does not require the use of an external surge protection device (SPD).

The dc-powered system employs an isolated DC return (DC-I) design. The DC battery return terminal *shall not* be connected to the chassis or frame ground.

Cabling your server

Learn how to cable your server to a console, terminal, or interface, such as the Advanced System Management Interface (ASMI), to an expansion unit, or to other adapters and peripheral equipment.

To learn more about the consoles, terminals, and interfaces that are available for your server, see the following descriptions.

Advanced System Management Interface (AIX®, , and Linux operating systems)

The Advanced System Management Interface (ASMI) is the interface to the service processor on your system. From the ASMI, you can perform tasks such as changing the firmware power-on settings, setting the time of day, and entering network configuration parameters. Set up access to the ASMI if your system will not be managed by Hardware Management Console (HMC).

Hardware Management Console (AIX, , and Linux operating systems)

The Hardware Management Console (HMC) is a dedicated workstation that runs integrated system management software. The HMC manages hardware tasks and configures logical partitions on managed systems, and acts as a focal point for hardware error detection and reporting.

Integrated Virtualization Manager (AIX or Linux operating system)

The Integrated Virtualization Manager (IVM) provides a Web-based system-management interface and a command-line interface that you can use to manage and configure servers or systems servers that run AIX or Linux and use the Virtual I/O Server. On the managed system, you can create logical partitions, manage the virtual storage and virtual Ethernet, and view service information related to the server. The Integrated Virtualization Manager is packaged with the Virtual I/O Server, but it is enabled only on certain platforms and when no Hardware Management Console (HMC) is available.

ASCII terminal (AIX or Linux operating system)

The ASCII terminal is connected to a server running AIX or Linux through a built-in system port. An ASCII terminal can only be connected to the service processor if the system is not managed by an HMC.

Graphics terminal (AIX or Linux operating system)

The graphics terminal is available to customers who want to attach a graphical user interface (GUI) to AIX or Linux servers. A graphics terminal can be attached to a managed system (a system connected to an HMC), as well as a stand-alone system (not connected to an HMC).

Cabling the 02E/4B, 02E/4C or 02E/4D

Learn how to cable your server to a console, terminal, or interface, such as the Advanced System Management Interface (ASMI), to an expansion unit, or to other adapters and peripheral equipment.

Before you begin

If you have hardware features that are not installed, install them now. For instructions, see *Installing and configuring the system and system devices*.

About this task

DANGER

When working on or around the system, observe the following precautions:

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the provided power cord. Do not use the provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- 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 procedures when installing, moving, or opening covers on this product or attached devices.

DANGER

To Disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the signal cables from the connectors.
4. Remove all cables from the devices

(D005a)

DANGER

To Connect:

1. Turn off everything (unless instructed otherwise).
2. Attach all cables to the devices.
3. Attach the signal cables to the connectors.
4. Attach the power cords to the outlets.
5. Turn on the devices.

(D005a)

To cable your server, complete the following steps:

Procedure

1. Connect a console, terminal or interface to your server. Use the location of instructions in the following table for information to connect applicable console, terminal or interface to the server.

- 2 Cabling your server

Console, terminal, or interface	Location of instructions
Advanced System Management Interface	Accessing the ASMI using the HMC or Accessing the ASMI without an HMC
Hardware Management Console	Cabling the HMC
Integrated Virtualization Manager	Integrated Virtualization Manager and Installing the Virtual I/O Server and client logical partitions
ASCII terminal	Cabling the server with an ASCII terminal
Operations Console	Setting up Operations Console
Graphics console	Accessing the graphics console

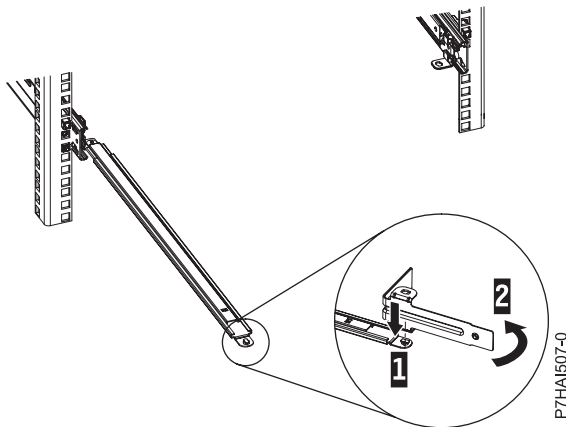
2. Optional: Cable the expansion units, if applicable, to your server.
 - For information about installing expansion units, see [Installing expansion units](#).
 - For information about connecting expansion units, see [Connecting your expansion units](#).
3. Optional: Connect all external cables to the appropriate adapter connectors on the rear of your server.

Note: You must provide the cable if it was not provided with your server.

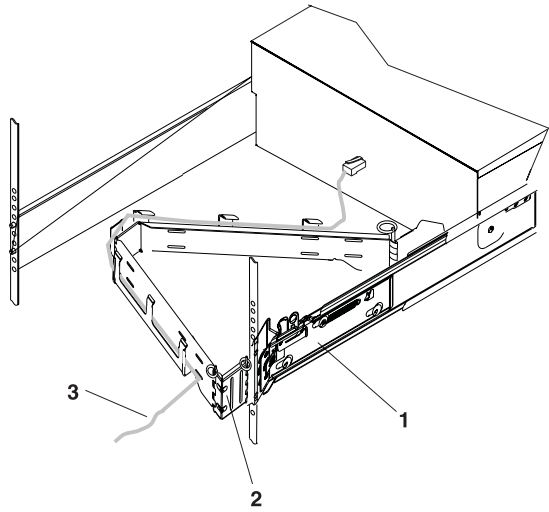
4. Optional: If you are attaching devices to a system serial port, be aware of the following conditions and follow these instructions:
 - If you are connecting the server to an uninterruptible power supply, see the documentation that is included with your uninterruptible power supply. You might need additional hardware.
 - To view locations of system serial ports, see [Locations](#).

Note: For the 7/50 server model, or any other application that uses a system serial port requires a system serial port adapter to be installed into a PCI slot.

5. Optional: If you have a PCI Cryptographic coprocessor card to install, install it now.
6. After you connect other devices to your server, route the server power cord through the retention bracket as follows:
 - a. Route the power cord through the retention bracket before you plug the cord into the rear of the server. See the directional arrows in the following figure.



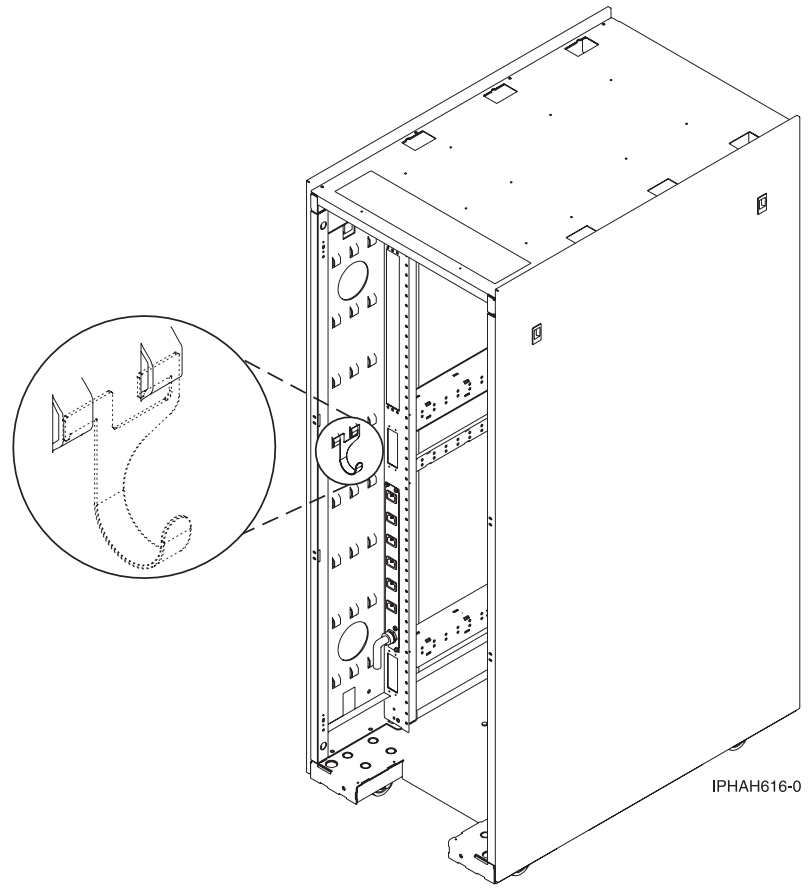
- b. If your server is installed in a rack, route the cables through the cable-management arm. Follow these steps:
 - Place the rack-mounted system in the service position. For instructions, see [Placing an 02E/4B, 02E/4C, or 02E/4D in the service position](#).
 - Route the cables through the hooks that are located along the cable-management arm, and secure them with the straps that are provided, as shown in the following figure.



- 1 System rail
- 2 Cable management arm
- 3 Cable

IPHAH615-0

- After you attach the cables to the cable-management arm, go to the front of the rack and move the system drawer in and out. Observe the cables and cable-management-arm movement to verify that the cables are not binding.
7. Optional: If you have a cable hook for your rack, slide the cable hook into the slots, which are located on the rear of the rack, as shown in the following figure.



IPHAH616-0

The cable hook helps manage the server cables in the rear of the rack.

Cabling the 05F/6B, 05E/6C or 05E/6D

Learn how to cable your server to a console, terminal, or interface, such as the Advanced System Management Interface (ASMI), to an expansion unit, or to other adapters and peripheral equipment.

Before you begin

If you have hardware features that are not installed, install them now. For instructions, see *Installing and configuring the system and system devices*.

About this task

DANGER

When working on or around the system, observe the following precautions:

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the provided power cord. Do not use the provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- 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 procedures when installing, moving, or opening covers on this product or attached devices.

DANGER

To Disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the signal cables from the connectors.
4. Remove all cables from the devices

(D005a)

DANGER

To Connect:

1. Turn off everything (unless instructed otherwise).
2. Attach all cables to the devices.
3. Attach the signal cables to the connectors.
4. Attach the power cords to the outlets.
5. Turn on the devices.

(D005a)

To cable your server, complete the following steps:

Procedure

1. Connect a console, terminal or interface to your server. Use the location of instructions in the following table for information to connect applicable console, terminal or interface to the server.

Console, terminal, or interface	Location of instructions
Advanced System Management Interface	Accessing the ASMI using the HMC or Accessing the ASMI without an HMC
Hardware Management Console	Cabling the HMC
Integrated Virtualization Manager	Integrated Virtualization Manager and Installing the Virtual I/O Server and client logical partitions
ASCII terminal	Cabling the server with an ASCII terminal
Operations Console	Setting up Operations Console
Graphics console	Accessing the graphics console

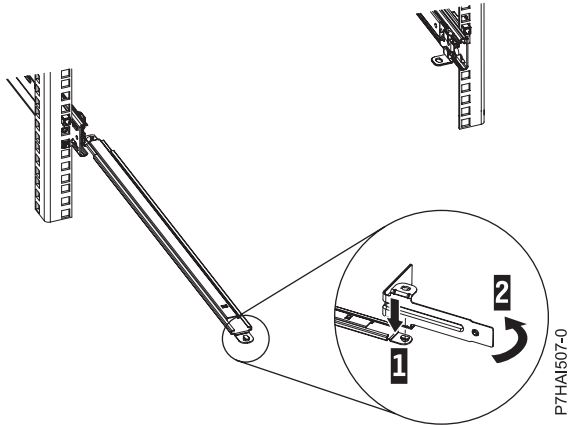
2. Optional: Cable the expansion units, if applicable, to your server.
 - For information about installing expansion units, see Installing expansion units.
 - For information about connecting expansion units, see Connecting your expansion units.
3. Optional: Connect all external cables to the appropriate adapter connectors on the rear of your server.

Note: You must provide the cable if it was not provided with your server.

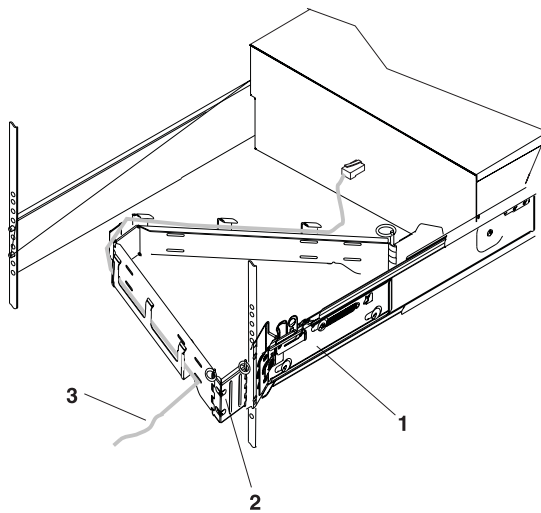
4. Optional: If you are attaching devices by using a system serial port, be aware of the following conditions and follow these instructions:
 - If you are connecting the server to an uninterruptible power supply, see the documentation that is included with your uninterruptible power supply. You might need additional hardware.
 - To view locations of system serial ports, see Locations.

Note: For the 7/50 server model, or any other application that uses a system serial port requires a system serial port adapter to be installed into a PCI slot.

5. Optional: If you have a PCI Cryptographic coprocessor card to install, install it now.
6. After you connect other devices to your server, route the server power cord through the retention bracket as follows:
 - a. Route the power cord through the retention bracket before you plug the cord into the rear of the server. See the directional arrows in the following figure.



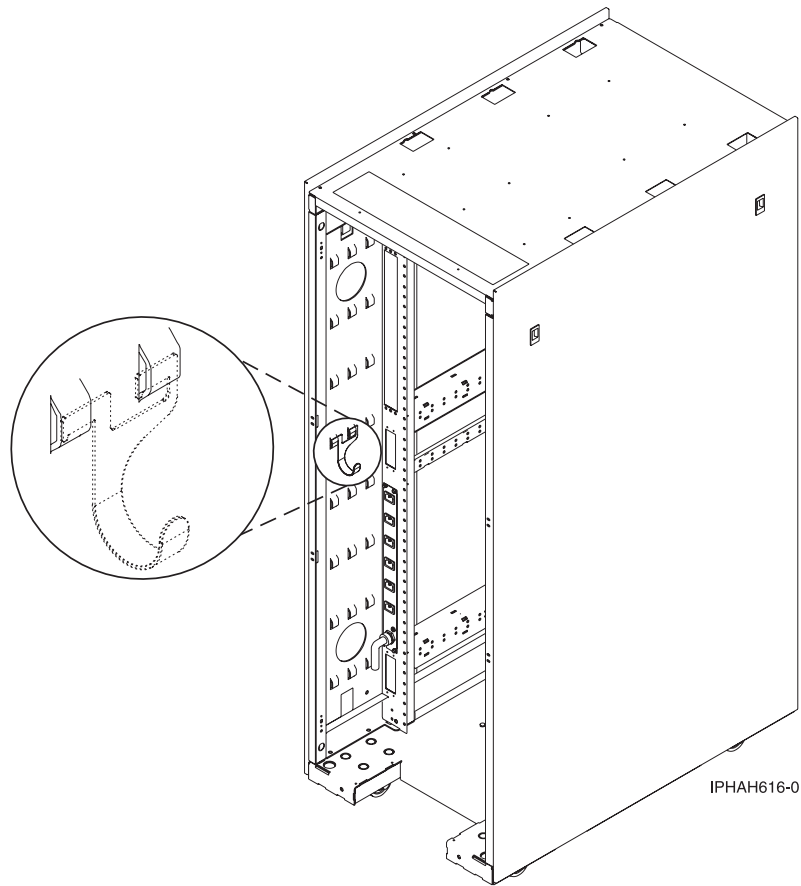
- b. If your server is installed in a rack, route the cables through the cable-management arm. Follow these steps:
- Place the rack-mounted system in the service position. For instructions, see Placing an 05F/6B, 05E/6C or 05E/6D in the service position.
 - Route the cables through the hooks that are located along the cable-management arm, and secure them with the straps that are provided, as shown in the following figure.



- 1 System rail
- 2 Cable management arm
- 3 Cable

IPHAH615-0

- After you attach the cables to the cable-management arm, go to the front of the rack and move the system drawer in and out. Observe the cables and cable-management-arm movement to verify that the cables are not binding.
7. Optional: If you have a cable hook for your rack, slide the cable hook into the slots, which are located on the rear of the rack, as shown in the following figure.



The cable hook helps manage the server cables in the rear of the rack.

Cabling the 31E/2B, 31E/1C, 31E/1D, 31E/2C or 31E/2D

Learn how to cable your 31E/2B, 31E/1C, 31E/1D, 31E/2C or 31E/2D to a console, terminal, or interface, such as the Advanced System Management Interface (ASMI), to an expansion unit, or to other adapters and peripheral equipment.

Before you begin

If you have hardware features that are not installed, install them now. For instructions, see *Installing and configuring the system and system devices*.

About this task

DANGER

When working on or around the system, observe the following precautions:

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the provided power cord. Do not use the provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- 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 procedures when installing, moving, or opening covers on this product or attached devices.

DANGER

To Disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the signal cables from the connectors.
4. Remove all cables from the devices

(D005a)

DANGER

To Connect:

1. Turn off everything (unless instructed otherwise).
2. Attach all cables to the devices.
3. Attach the signal cables to the connectors.
4. Attach the power cords to the outlets.
5. Turn on the devices.

(D005a)

To cable your server, complete the following steps:

Procedure

1. Connect a console, terminal or interface to your server. Use the location of instructions in the following table for information to connect applicable console, terminal or interface to the server.

Console, terminal, or interface	Location of instructions
Advanced System Management Interface	Accessing the ASMI using the HMC or Accessing the ASMI without an HMC
Hardware Management Console	Cabling the HMC
Integrated Virtualization Manager	Integrated Virtualization Manager and Installing the Virtual I/O Server and client logical partitions
ASCII terminal	Cabling the server with an ASCII terminal
Operations Console	Setting up Operations Console
Graphics console	Accessing the graphics console

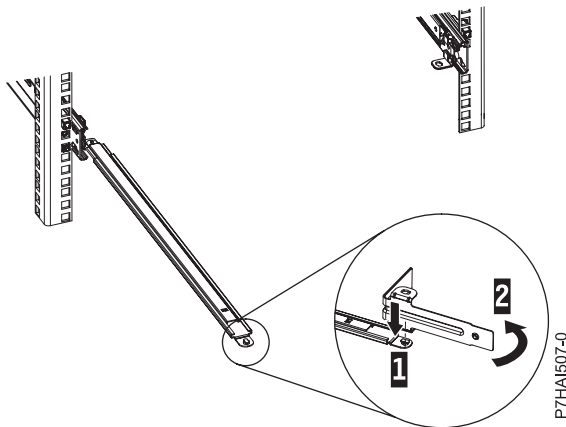
2. Optional: Cable the expansion units, if applicable, to your server.
 - For information about installing expansion units, see *Installing expansion units*.
 - For information about connecting expansion units, see *Connecting your expansion units*.
3. Optional: Connect all external cables to the appropriate adapter connectors on the rear of your server.

Note: You must provide the cable if it was not provided with your server.

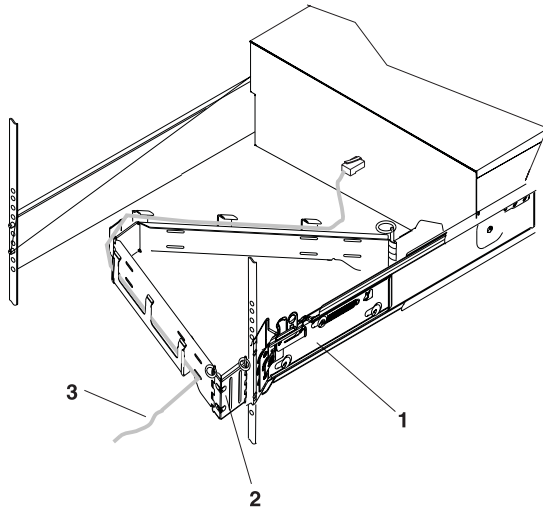
4. If you are attaching devices by using a system serial port, be aware of the following conditions and follow these instructions:
 - If you are connecting the server to an uninterruptible power supply, see the documentation that is included with your uninterruptible power supply. You might need additional hardware.
 - To view locations of system serial ports, see *Locations*.

Note: For the 7/50 server model, or any other application that uses a system serial port requires a system serial port adapter to be installed into a PCI slot.

5. Optional: If you have a PCI Cryptographic coprocessor card to install, install it now.
6. After you connect other devices to your server, route the server power cord through the retention bracket as follows:
 - a. Route the power cord through the retention bracket before you plug the cord into the rear of the server. See the directional arrows in the following figure.



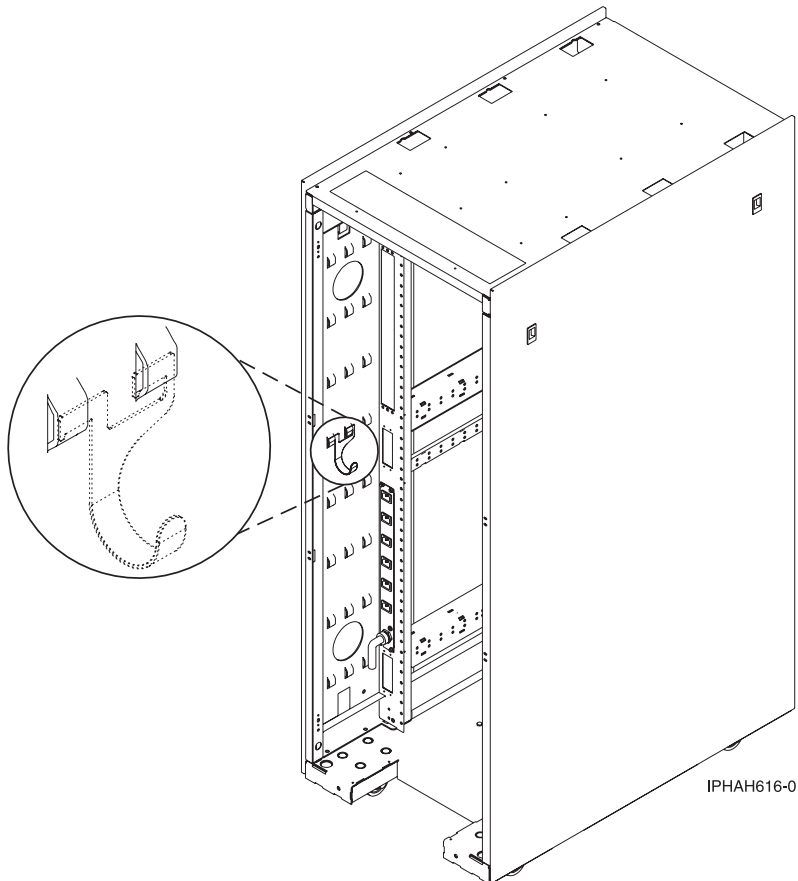
- b. If your server is installed in a rack, route the cables through the cable-management arm. Follow these steps:
 - Place the rack-mounted system in the service position. For instructions, see *Placing an 31E/2B, 31E/1C, 31E/1D, 31E/2C or 31E/2D in the service position*.
 - Route the cables through the hooks that are located along the cable-management arm, and secure them with the straps that are provided, as shown in the following figure.



- 1 System rail
- 2 Cable management arm
- 3 Cable

IPHAH615-0

- After you attach the cables to the cable-management arm, go to the front of the rack and move the system drawer in and out. Observe the cables and cable-management-arm movement to verify that the cables are not binding.
7. Optional: If you have a cable hook for your rack, slide the cable hook into the slots, which are located on the rear of the rack, as shown in the following figure.



The cable hook helps manage the server cables in the rear of the rack.

Cabling the 33E/8B

Learn how to cable your server to a console, terminal, or interface, such as the Advanced System Management Interface (ASMI), to an expansion unit, or to other adapters and peripheral equipment.

Before you begin

If you have hardware features that are not installed, install them now. For instructions, see *Installing and configuring the system and system devices*.

About this task

DANGER

When working on or around the system, observe the following precautions:

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the provided power cord. Do not use the provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- 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 procedures when installing, moving, or opening covers on this product or attached devices.

DANGER

To Disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the signal cables from the connectors.
4. Remove all cables from the devices

(D005a)

DANGER

To Connect:

1. Turn off everything (unless instructed otherwise).
2. Attach all cables to the devices.
3. Attach the signal cables to the connectors.
4. Attach the power cords to the outlets.
5. Turn on the devices.

(D005a)

To cable your server, complete the following steps:

Procedure

1. Connect a console, terminal or interface to your server. Use the location of instructions in the following table for information to connect applicable console, terminal or interface to the server.

Console, terminal, or interface	Location of instructions
Advanced System Management Interface	Accessing the ASMI using the HMC or Accessing the ASMI without an HMC
Hardware Management Console	Cabling the HMC
Integrated Virtualization Manager	Integrated Virtualization Manager and Installing the Virtual I/O Server and client logical partitions
ASCII terminal	Cabling the server with an ASCII terminal
Operations Console	Setting up Operations Console
Graphics console	Accessing the graphics console

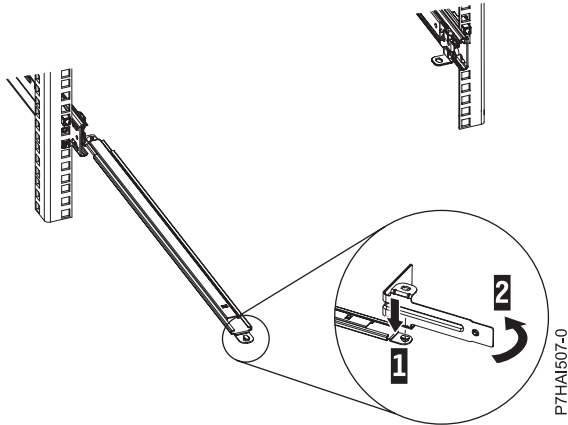
2. Optional: Cable the expansion units, if applicable, to your server.
 - For information about installing expansion units, see Installing expansion units.
 - For information about connecting expansion units, see Connecting your expansion units.
3. Optional: Connect all external cables to the appropriate adapter connectors on the rear of your server.

Note: You must provide the cable if it was not provided with your server.

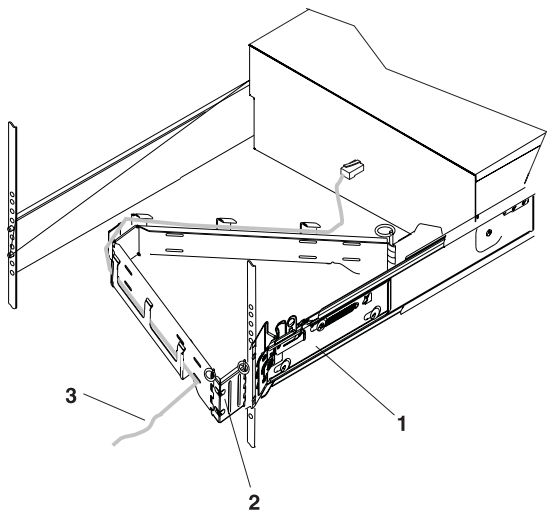
4. If you are attaching devices by using a system serial port, be aware of the following conditions and follow these instructions:
 - If you are connecting the server to an uninterruptible power supply, see the documentation that is included with your uninterruptible power supply. You might need additional hardware.
 - To view locations of system serial ports, see Locations.

Note: For the 7/50 server model, or any other application that uses a system serial port requires a system serial port adapter to be installed into a PCI slot.

5. Optional: If you have a PCI Cryptographic coprocessor card to install, install it now.
6. After you connect other devices to your server, route the server power cord through the retention bracket as follows:
 - a. Route the power cord through the retention bracket before you plug the cord into the rear of the server. See the directional arrows in the following figure.



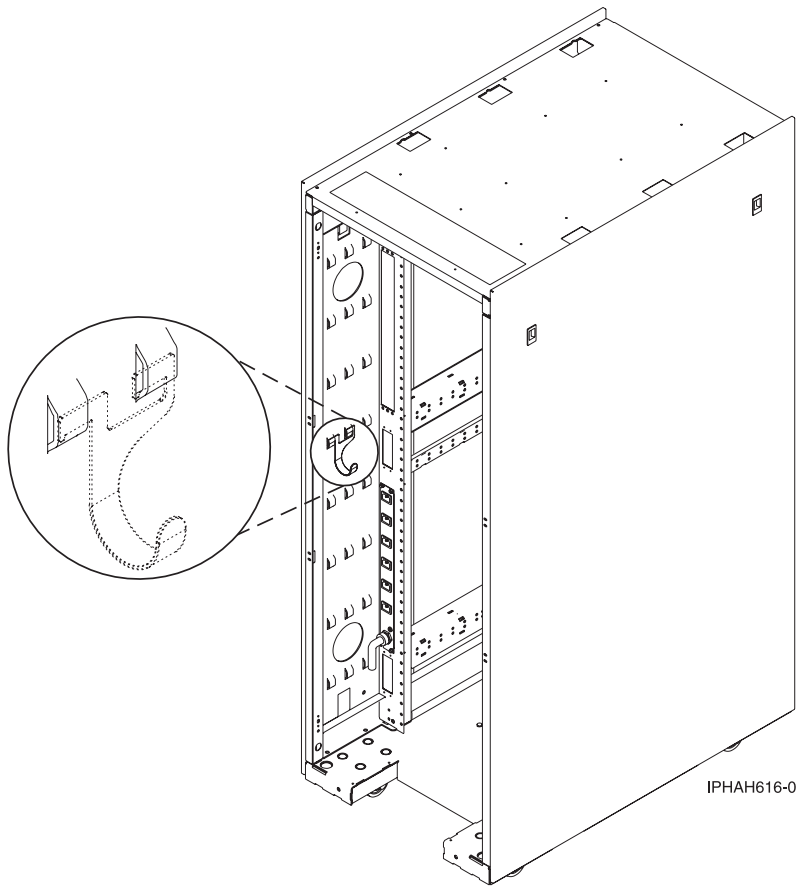
- b. If your server is installed in a rack, route the cables through the cable-management arm. Follow these steps:
- Place the rack-mounted system in the service position. For instructions, see Placing an 33E/8B or 36E/8C in the service position.
 - Route the cables through the hooks that are located along the cable-management arm, and secure them with the straps that are provided, as shown in the following figure.



- 1 System rail
- 2 Cable management arm
- 3 Cable

IPHAH615-0

- After you attach the cables to the cable-management arm, go to the front of the rack and move the system drawer in and out. Observe the cables and cable-management-arm movement to verify that the cables are not binding.
7. Optional: If you have a cable hook for your rack, slide the cable hook into the slots, which are located on the rear of the rack, as shown in the following figure.



The cable hook helps manage the server cables in the rear of the rack.

Cabling the 36E/8C

Learn how to cable your server to a console, terminal, or interface, such as the Advanced System Management Interface (ASMI), to an expansion unit, or to other adapters and peripheral equipment.

Before you begin

If you have hardware features that are not installed, install them now. For instructions, see *Installing and configuring the system and system devices*.

About this task

DANGER

When working on or around the system, observe the following precautions:

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the provided power cord. Do not use the provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- 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 procedures when installing, moving, or opening covers on this product or attached devices.

DANGER

To Disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the signal cables from the connectors.
4. Remove all cables from the devices

(D005a)

DANGER

To Connect:

1. Turn off everything (unless instructed otherwise).
2. Attach all cables to the devices.
3. Attach the signal cables to the connectors.
4. Attach the power cords to the outlets.
5. Turn on the devices.

(D005a)

To cable your server, complete the following steps:

Procedure

1. Connect a console, terminal or interface to your server. Use the location of instructions in the following table for information to connect applicable console, terminal or interface to the server.

Console, terminal, or interface	Location of instructions
Advanced System Management Interface	Accessing the ASMI using the HMC or Accessing the ASMI without an HMC
Hardware Management Console	Cabling the HMC
Integrated Virtualization Manager	Integrated Virtualization Manager and Installing the Virtual I/O Server and client logical partitions
ASCII terminal	Cabling the server with an ASCII terminal
Operations Console	Setting up Operations Console
Graphics console	Accessing the graphics console

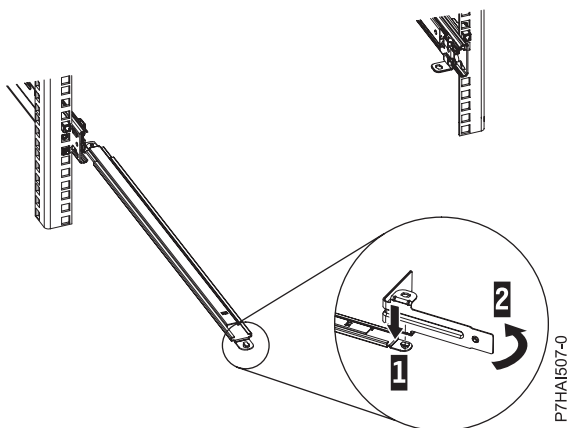
2. Optional: Cable the expansion units, if applicable, to your server.
 - For information about installing expansion units, see [Installing expansion units](#).
 - For information about connecting expansion units, see [Connecting your expansion units](#).
3. Optional: Connect all external cables to the appropriate adapter connectors on the rear of your server.

Note: You must provide the cable if it was not provided with your server.

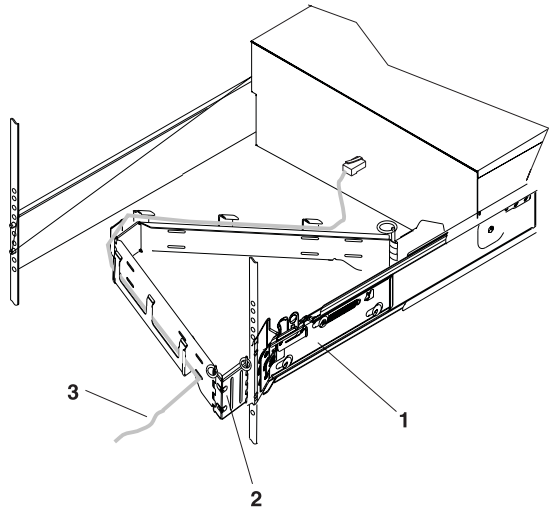
4. Optional: If you are attaching devices by using a system serial port, be aware of the following conditions and follow these instructions:
 - If you are connecting the server to an uninterruptible power supply, see the documentation that is included with your uninterruptible power supply. You might need additional hardware.
 - To view locations of system serial ports, see [Locations](#).

Note: For the 7/50 server model, or any other application that uses a system serial port requires a system serial port adapter to be installed into a PCI slot.

5. After you connect other devices to your server, route the server power cord through the retention bracket as follows:
 - a. Route the power cord through the retention bracket before you plug the cord into the rear of the server. See the directional arrows in the following figure.



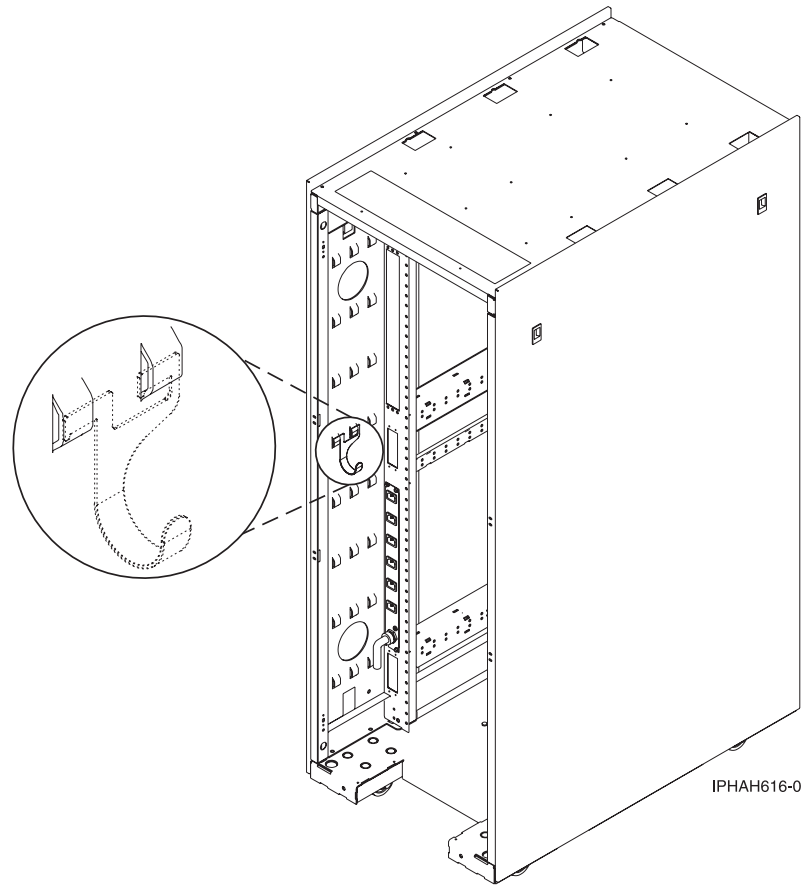
- b. If your server is installed in a rack, route the cables through the cable-management arm. Follow these steps:
 - Place the rack-mounted system in the service position. For instructions, see [Placing an 33E/8B or 36E/8C in the service position](#).
 - Route the cables through the hooks that are located along the cable-management arm, and secure them with the straps that are provided, as shown in the following figure.



- 1 System rail
- 2 Cable management arm
- 3 Cable

IPHAH615-0

- After you attach the cables to the cable-management arm, go to the front of the rack and move the system drawer in and out. Observe the cables and cable-management-arm movement to verify that the cables are not binding.
6. Optional: If you have a cable hook for your rack, slide the cable hook into the slots, which are located on the rear of the rack, as shown in the following figure.



IPHAH616-0

The cable hook helps manage the server cables in the rear of the rack.

Cabling the 08E/8D or 09R/MD

Learn how to cable your server to a console, terminal, or interface, such as the Advanced System Management Interface (ASMI), to an expansion unit, or to other adapters and peripheral equipment.

Before you begin

If you have hardware features that are not installed, install them now. For instructions, see *Installing and configuring the system and system devices*.

About this task

DANGER

When working on or around the system, observe the following precautions:

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the provided power cord. Do not use the provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- 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 procedures when installing, moving, or opening covers on this product or attached devices.

DANGER

To Disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the signal cables from the connectors.
4. Remove all cables from the devices

(D005a)

DANGER

To Connect:

1. Turn off everything (unless instructed otherwise).
2. Attach all cables to the devices.
3. Attach the signal cables to the connectors.
4. Attach the power cords to the outlets.
5. Turn on the devices.

(D005a)

Procedure

1. Optional: Cable the expansion units, if applicable, to your server.
 - For information about installing expansion units, see Installing expansion units.
 - For information about connecting expansion units, see Connecting your expansion units.
2. Optional: Connect all external cables to the appropriate adapter connectors on the rear of your server.

Note: You must provide the cable if it was not provided with your server.

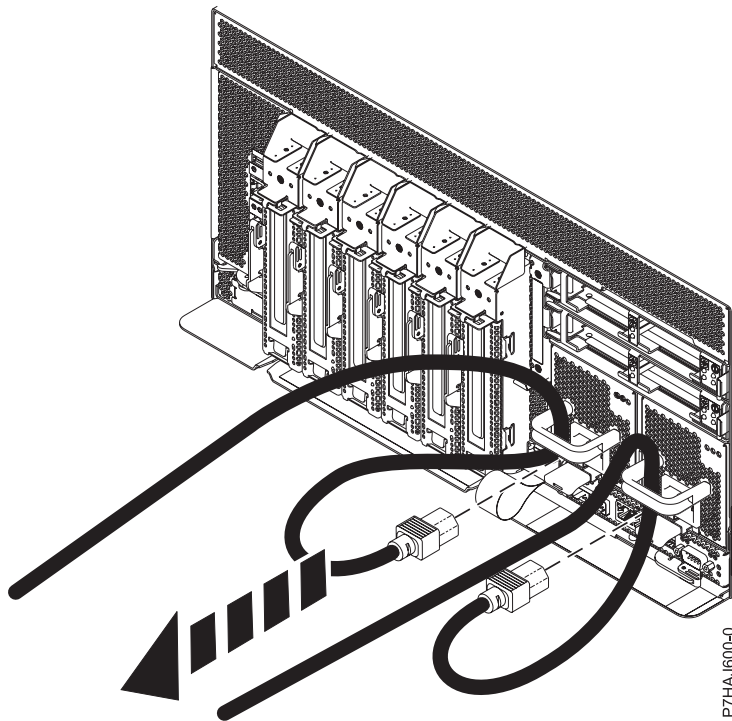
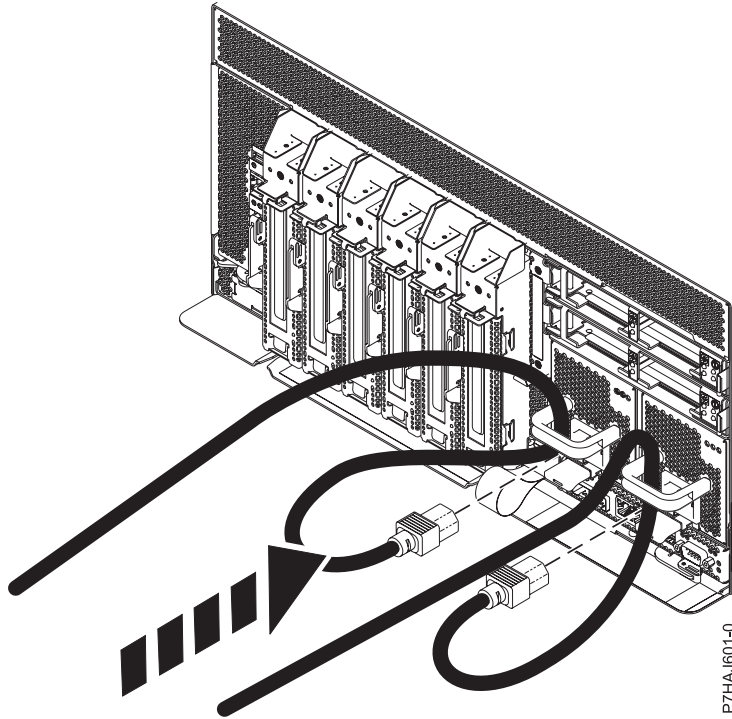
3. Connect a console, terminal or interface to your server. Refer to the Location of instructions in the following table for information on connecting applicable console, terminal or interface.

Console, terminal, or interface	Location of instructions
Advanced System Management Interface	Accessing the ASMI using the HMC or Accessing the ASMI without an HMC
Hardware Management Console	Cabling the HMC
Integrated Virtualization Manager	Integrated Virtualization Manager and Installing the Virtual I/O Server and client logical partitions
ASCII terminal	Cabling the server with an ASCII terminal
Operations Console	Setting up Operations Console
Graphics console	Accessing the graphics console

4. Optional: If you are attaching devices by using a system serial port, be aware of the following conditions and use these instructions:
 - If you are connecting the server to an uninterruptible power supply, see the documentation that is included with your uninterruptible power supply. You might need additional hardware.
 - To view locations of system serial ports, see Locations.

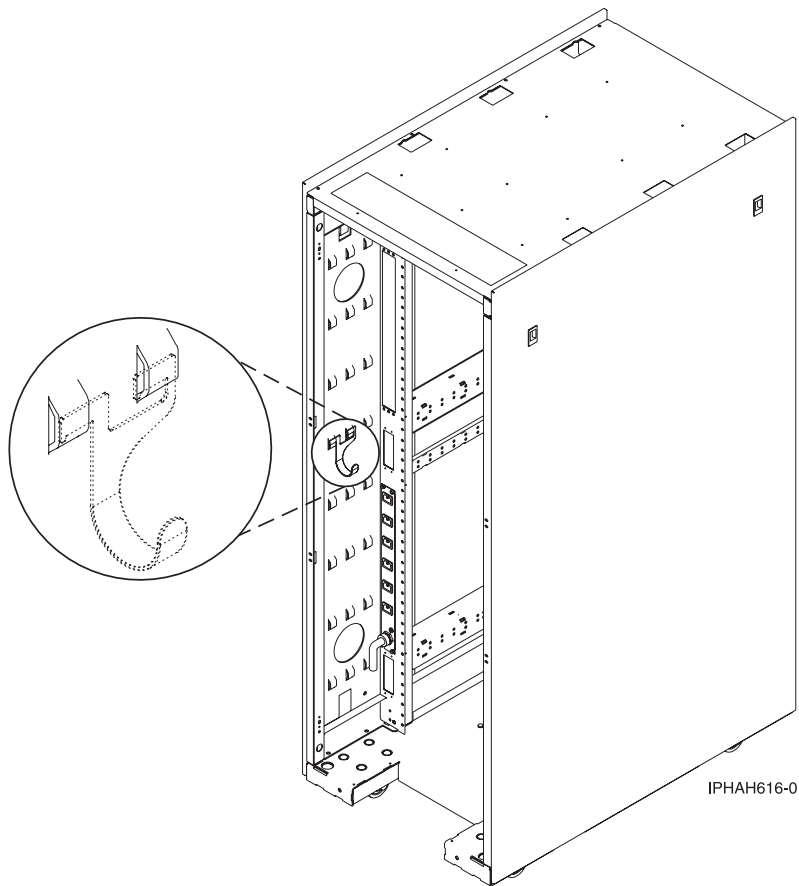
Note: For the 7/50 server model, or any other application that uses a system serial port requires a system serial port adapter to be installed into a PCI slot.

5. After you connect other devices to your server, route the server power cord through the retention bracket as follows:
 - a. Route the power cord through the retention bracket before you plug the cord into the rear of the server. See the directional arrows in the following figures.



- b. If your server is installed in a rack, route the cables through the stationary cable management bracket. Follow these steps:
- Fasten the drawer into the rack. For information about placing the rack-mounted system in the service position, see *Placing an 08E/8D or 09R/MD in the service position*.
 - Attach the cables to the stationary cable management bracket and ensure that the cables do not bind.
6. Plug the power cords into the system, the display, and any attached devices.

- Optional: If you have a cable hook for your rack, slide the cable hook into the slots, which are located on the rear of the rack, as shown in the following figure.



The cable hook helps manage the server cables in the rear of the rack.

Notices

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Homologation statement

This product may not be certified in your country for connection by any means whatsoever to interfaces of public telecommunications networks. Further certification may be required by law prior to making any such connection. Contact an IBM representative or reseller for any questions.

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Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Electronic emission notices

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

Class A Notices

The following Class A statements apply to the servers.

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 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.

European Community Compliance 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 non-recommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

European Community contact:
IBM Deutschland GmbH
Technical Regulations, Department M372
IBM-Allee 1, 71139 Ehningen, Germany
Tele: +49 7032 15 2941
email: lugi@de.ibm.com

Warning: 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.

VCCI Statement - Japan

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

The following is a summary of the VCCI Japanese statement in the box above:

This is a Class A product based on the standard of the VCCI Council. 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.

**Japanese Electronics and Information Technology Industries Association (JEITA)
Confirmed Harmonics Guideline (products less than or equal to 20 A per phase)**

高調波ガイドライン適合品

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

高調波ガイドライン準用品

Electromagnetic Interference (EMI) Statement - People's Republic of China

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。

Declaration: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may need to perform practical action.

Electromagnetic Interference (EMI) Statement - Taiwan

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。

The following is a summary of the EMI Taiwan statement above.

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

Electromagnetic Interference (EMI) Statement - Korea

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

Germany Compliance 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 von IBM verändert bzw. wenn Erweiterungskomponenten von Fremdherstellern ohne Empfehlung von 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

Tel: 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

Tel: +49 7032 15 2941

email: lugi@de.ibm.com

Generelle Informationen:

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

Electromagnetic Interference (EMI) Statement - Russia

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

Class B Notices

The following Class B statements apply to features designated as electromagnetic compatibility (EMC) Class B in the feature installation information.

Federal Communications Commission (FCC) statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an IBM-authorized dealer or service representative for help.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Proper cables and connectors are available from IBM-authorized dealers. IBM is not responsible for any radio or television interference caused by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate this 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 Compliance Statement

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

Avis de conformité à la réglementation d'Industrie Canada

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

European Community Compliance 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 non-recommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class B Information Technology Equipment according to European Standard EN 55022. The limits for Class B equipment were derived for typical residential environments to provide reasonable protection against interference with licensed communication equipment.

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VCCI Statement - Japan

この装置は、クラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。

取扱説明書に従って正しい取り扱いをして下さい。 VCCI-B

Japanese Electronics and Information Technology Industries Association (JEITA) Confirmed Harmonics Guideline (products less than or equal to 20 A per phase)

高調波ガイドライン適合品

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

高調波ガイドライン準用品

Electromagnetic Interference (EMI) Statement - Korea

이 기기는 가정용(B급)으로 전자파적합기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.

Germany Compliance Statement

Deutschsprachiger EU Hinweis: Hinweis für Geräte der Klasse B 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 B ein.

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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 B

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:
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Generelle Informationen:

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

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