

HP BladeSystem c7000 Enclosure Setup and Installation Guide



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Audience assumptions

This document is for the person who installs, administers, and troubleshoots servers and storage systems. HP assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels.

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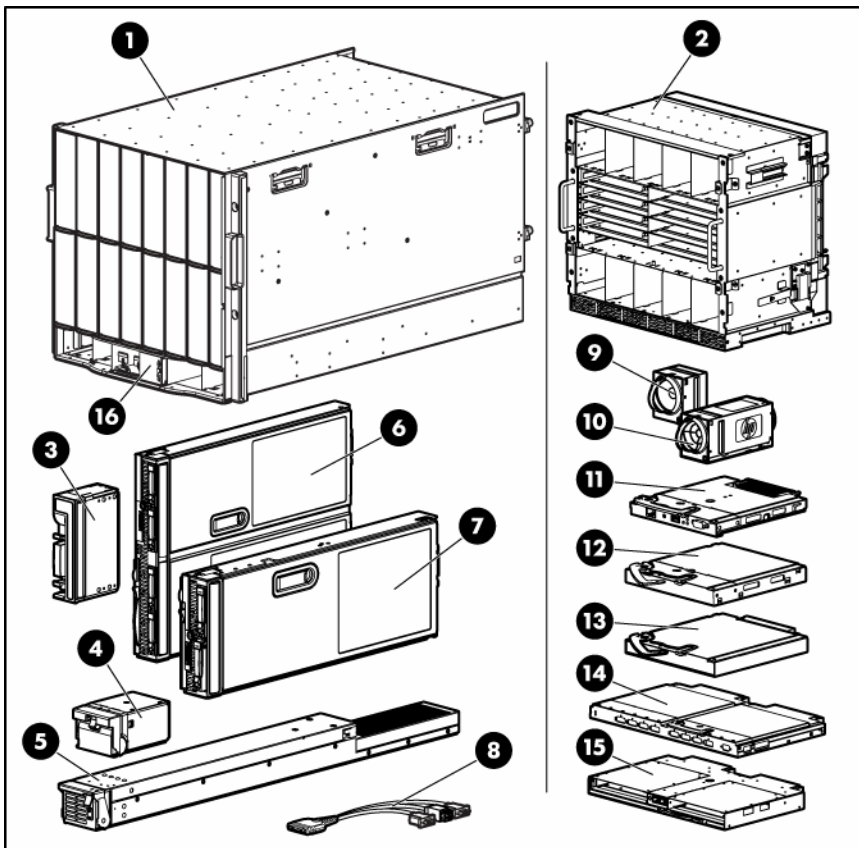
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Planning the installation

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Verifying the pallet contents



Item	Name	Description
1	HP BladeSystem c7000 Enclosure	The HP BladeSystem enclosure
2	Rear cage	The rear section of the enclosure
3	Device bay blank	A mandatory insert installed in any unused device bay

Item	Name	Description
4	Power supply blank	A mandatory insert installed in any unused power supply bay
5	Enclosure hot-plug power supply (quantity as ordered)	The power supply for the enclosure
6	Full-height device (quantity as ordered)	The full-height server or storage blade
7	Half-height device (quantity as ordered)	The half-height server or storage blade
8	Local I/O cable	A cable with serial, USB, and video connectors that connects to the I/O connector on the front of a server blade
9	Fan blank	A mandatory insert installed in any unused fan bay
10	HP Active Cool Fan (quantity as ordered)	A fan used to cool the components installed in the enclosure
11	Onboard Administrator module	An optional module used to manage the components installed in the enclosure
12	Onboard Administrator blank	A mandatory cover installed in any unused Onboard Administrator bay
13	Interconnect blank	A mandatory insert installed in any unused interconnect bay
14	Interconnect module (quantity and type as ordered)	Any of several components, such as pass-throughs or switches that enable communication between the server blade and the enclosure
15	Onboard Administrator tray	A tray that contains the entire management subsystem of the enclosure (this tray should be removed only by a qualified technician)
16	HP BladeSystem Insight Display	A display that provides information about the health and operation of the enclosure
17*	Power retention ties (single-phase enclosures only; in the bag, taped to the top of the enclosure)	Tie straps that help prevent single-phase power cables from disconnecting from the power connectors
18*	Documentation CD	The CD containing detailed documentation on using the enclosure
19*	SmartStart CD	A CD containing SmartStart software, a collection of software that optimizes single-server setup
20*	Hard copy installation instructions for blades, options and interconnects	The printed installation instructions
21*	Installation checklist	A checklist to guide you through installation of the enclosure and its components

* Not shown

Rack requirements

The enclosure is compatible with the following racks:

- All HP 10000 and 10000G2 Series racks except the HP 10614 rack.

NOTE: The system is optimized for 10000 Series racks.

- Telco racks
- Third-party rack cabinets that meet the following requirements:
 - Width—48.3 cm (19 in)
 - Depth—88.9 cm (35 in) maximum clearance between front and rear RETMA rails; 62.7 cm (24.7 in) minimum clearance for round-hole racks and 63.5 cm (25 in) minimum clearance for square-hole racks
 - Clearance—7.6 cm (3 in) minimum clearance between rear RETMA rails and rear rack door to accommodate system cabling
 - Clearance—4.5 cm (1.75 in) minimum clearance between rack face and inside of front rack door
 - Open area—Minimum of 65 percent open area to provide adequate airflow through any rack front or rear doors

Rack-free environment requirements

The HP BladeSystem c7000 Enclosure (referred to as the enclosure) can be used in a rack-free environment. The following conditions must be met when performing a rack-free installation:

- A fully-populated enclosure can weigh up to 217.7 kg (480 lb). The object supporting the enclosure must be able to withstand this weight.
- The enclosure should be supported by a sturdy, flat surface.



WARNING: To reduce the risk of personal injury or damage to the equipment in a rack-free environment:

- Never stack an enclosure on top of another enclosure.
 - Never place equipment on top of an enclosure.
 - Never place an enclosure on a surface that cannot support up to 217.7 kg (480 lb).
-

Warning, caution, and important messages



WARNING: To reduce the risk of personal injury or damage to equipment, heed all warnings and cautions throughout the installation instructions.



WARNING: To reduce the risk of personal injury or damage to the equipment, be sure that:

- The leveling jacks are extended to the floor.
 - The full weight of the rack rests on the leveling jacks.
 - The stabilizing feet are attached to the rack if it is a single-rack installation.
 - The racks are coupled together in multiple-rack installations.
 - Only one component is extended at a time. A rack may become unstable if more than one component is extended for any reason.
-



WARNING: To reduce the risk of personal injury or equipment damage when unloading a rack:

- At least two people are needed to safely unload the rack from the pallet. An empty 42U rack can weigh as much as 115 kg (253 lb), can stand more than 2.1 m (7 ft) tall, and may become unstable when being moved on its casters.
 - Never stand in front of the rack when it is rolling down the ramp from the pallet. Always handle the rack from both sides.
-



WARNING: The enclosure is very heavy. To reduce the risk of personal injury or damage to the equipment:

- Observe local occupational health and safety requirements and guidelines for manual material handling.
 - Remove all installed enclosure components from their enclosures before installing or moving the enclosures.
 - Use caution and get help to lift and stabilize enclosures during installation or removal, especially when the enclosure is not fastened to the rack.
-



WARNING: To reduce the risk of personal injury or damage to the equipment, you must adequately support enclosures during installation and removal.



WARNING: Always use at least two people to lift an enclosure into the rack. If the enclosure is being loaded into the rack above chest level, a third person must assist with aligning the enclosure with the rails while the other two people support the weight of the enclosure.



WARNING: Before installing an enclosure in the rack, be sure that all hot-plug power supplies, server blades, and interconnects are removed from the enclosure. Blanks can be left in the enclosure.



WARNING: Be sure to install enclosures starting from the bottom of the rack and work your way up the rack.



These symbols, on power supplies or systems, indicate that the equipment is supplied by multiple sources of power.

WARNING: To reduce the risk of injury from electric shock, remove all power cords to completely disconnect power from the system.

- Each enclosure has two or more power supply cords. A single rack or cabinet may contain more than one enclosure. Power may be supplied in a redundant fashion. Removing any single source of power does not necessarily remove power from any portion of the system. When performing any service other than hot-plug module replacement, you must completely disconnect all power to that portion of the system.
- When performing service procedures on enclosures, shut off the circuit breakers to both A and B AC power feeds and then disconnect all power cords from the outlets before servicing.



WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.



WARNING: To reduce the risk of electric shock or damage to the equipment, enter enclosures or perform service on system components only as instructed in the user documentation.



WARNING: A risk of electric shock from high leakage current exists. Before connecting the AC supply to the power enclosures, be sure that the electrical outlets are properly grounded (earthed).



CAUTION: Always be sure that equipment is properly grounded and that you follow proper grounding procedures before beginning any installation procedure. Improper grounding can result in ESD damage to electronic components. For more information, refer to, "Electrostatic discharge (on page 93)."



CAUTION: When performing non-hot-plug operations, you must power down the server blade and/or the system. Use caution when performing other operations, such as hot-plug installations or troubleshooting.



CAUTION: Protect the equipment from AC power fluctuations and temporary interruptions with a regulating facility UPS device. This device protects the hardware from damage caused by power surges and voltage spikes and keeps the system in operation during a power failure.



IMPORTANT: Data on the dimensions and weights of HP BladeSystem c-Class components can be found in the *HP BladeSystem c-Class Maintenance and Service Guide*. The same data can be determined by using the online HP BladeSystem c-Class Sizing Utility.

Space and airflow requirements

To enable servicing and ensure adequate airflow, observe the following spatial requirements when deciding where to install an HP branded, Compaq branded, telco, or third-party rack:

- Leave a minimum clearance of 63.5 cm (25 in) in front of the rack.
- Leave a minimum clearance of 76.2 cm (30 in) in back of the rack.

- Leave a minimum clearance of 121.9 cm (48 in) from the back of the rack to the rear of another rack or row of racks.

HP BladeSystem servers draw cool air in through the front and expel warm air through the rear of the enclosure. Therefore, the front of the rack enclosure must be adequately ventilated to enable ambient room air to enter the enclosure, and the rear of the enclosure must be adequately ventilated to enable the warm air to escape from the enclosure.



IMPORTANT: Do not block the ventilation openings.

If the front of the rack is not completely filled with components, the remaining gaps between the components can cause changes in the airflow, which can adversely affect cooling within the rack. Cover these gaps with blanking panels.



CAUTION: Always use blanking panels to fill empty vertical spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.

HP 10000 Series and 10000 G2 Series racks provide proper server cooling from flow-through perforations in the front and rear doors that provide 65 percent open area for ventilation.



CAUTION: Always use blanks to fill empty spaces in enclosures. This arrangement ensures proper airflow. Using an enclosure without the proper blanks results in improper cooling that can lead to thermal damage.

Temperature requirements

To ensure continued safe and reliable equipment operation, install or position the rack in a well ventilated, climate-controlled environment.

The operating temperature inside the rack is always higher than the room temperature and is dependent on the configuration of equipment in the rack. Check the TMRA for each piece of equipment before installation.



CAUTION: To reduce the risk of damage to the equipment when installing third-party options:

- Do not permit optional equipment to impede airflow around the enclosure or to increase the internal rack temperature beyond the maximum allowable limits.
 - Do not exceed the manufacturer's TMRA.
-

Power requirements

Installation of this equipment must comply with local and regional electrical regulations governing the installation of IT equipment by licensed electricians. This equipment is designed to operate in installations covered by NFPA 70, 1999 Edition (National Electric Code) and NFPA-75, 1992 (code for Protection of Electronic Computer/Data Processing Equipment). For electrical power ratings on options, refer to the product rating label or the user documentation supplied with that option.



WARNING: To reduce the risk of personal injury, fire, or damage to the equipment, do not overload the AC supply branch circuit that provides power to the rack. Consult the electrical authority having jurisdiction over wiring and installation requirements of your facility.



CAUTION: Protect the enclosure from power fluctuations and temporary interruptions with a regulating UPS. This device protects the hardware from damage caused by power surges and voltage spikes and keeps the enclosure in operation during a power failure.

Grounding requirements

This equipment must be grounded properly for proper operation and safety. In the United States, you must install the equipment in accordance with NFPA 70, 1999 Edition (National Electric Code), Article 250, as well as any local and regional building codes.

In Canada, you must install the equipment in accordance with Canadian Standards Association, CSA C22.1, Canadian Electrical Code.

In all other countries, you must install the equipment in accordance with any regional or national electrical wiring codes, such as the International Electrotechnical Commission (IEC) Code 364, parts 1 through 7. Furthermore, you must be sure that all power distribution devices used in the installation, such as branch wiring and receptacles, are listed or certified grounding-type devices.

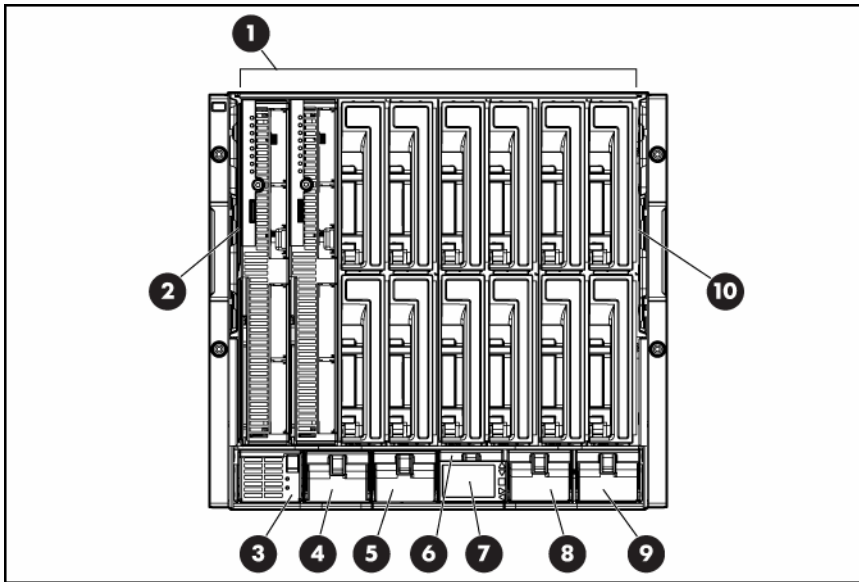
Because of the high ground-leakage currents associated with this equipment, HP recommends the use of a PDU that is either permanently wired to the building's branch circuit or includes a nondetachable cord that is wired to an industrial-style plug. NEMA locking-style plugs or those complying with IEC 60309 are considered suitable for this purpose. Using common power outlet strips to supply power to this equipment is not recommended.

Component and LED identification

In this section

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 Enclosure rear components 16

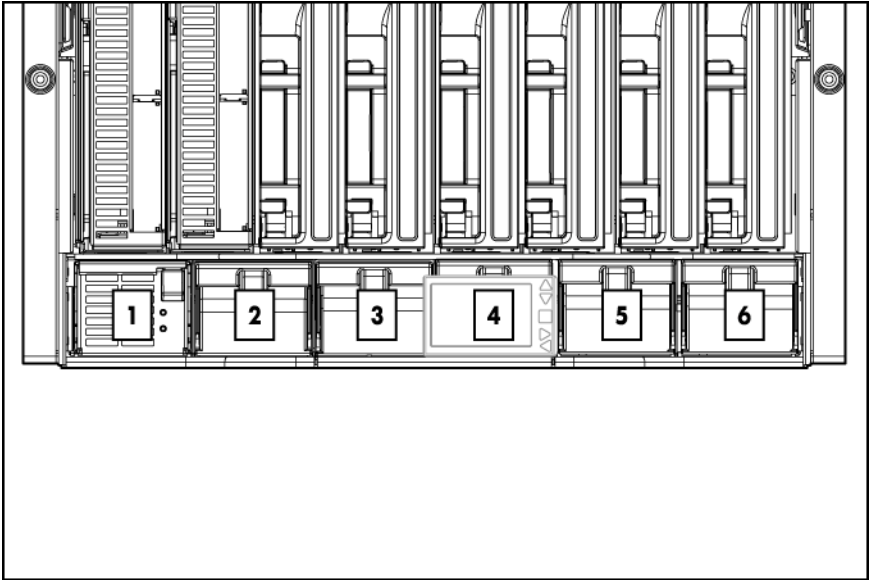
Enclosure front components



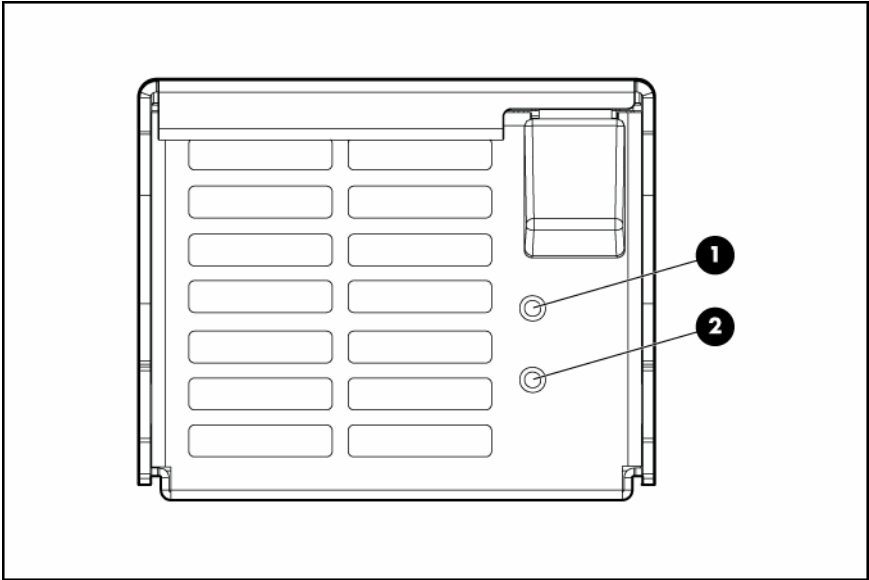
Item	Description
1	Device bays*
2	Air intake slot (Do not block.)
3	Power supply bay 1
4	Power supply bay 2
5	Power supply bay 3
6	Power supply bay 4
7	Insight Display
8	Power supply bay 5
9	Power supply bay 6
10	Air intake slot (Do not block.)

*For more information, see "Device bay numbering (on page 15)."

Power supply bay numbering



Power supply LEDs



Power LED 1 (green)	Fault LED 2 (amber)	Condition
Off	Off	No AC power to the power supply
On	Off	Normal
Off	On	Power supply failure

For power supply configuration information, see Installing a power supply (on page 29).

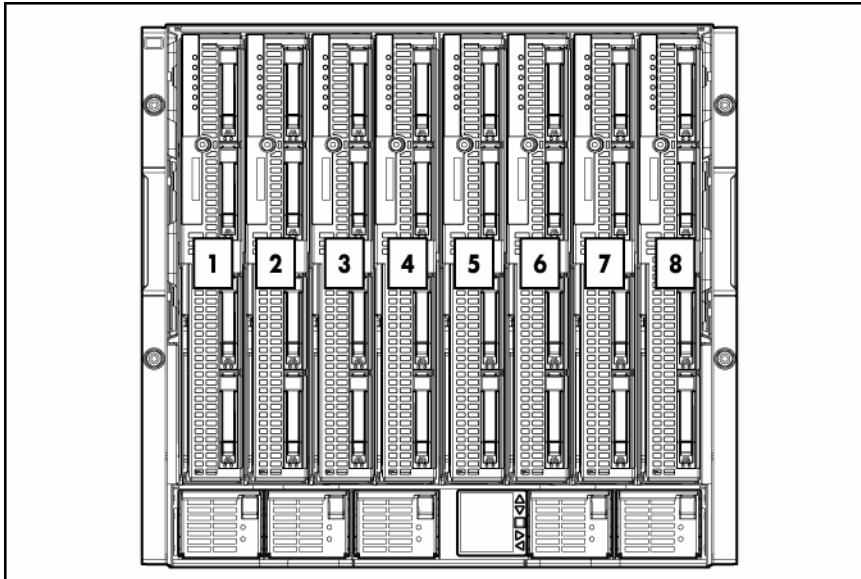
Device bay numbering

Each enclosure requires interconnects to provide network access for data transfer. Interconnects reside in bays located on the rear of the enclosure. Be sure to review device bay numbering to determine which external network connections on the interconnects are active.

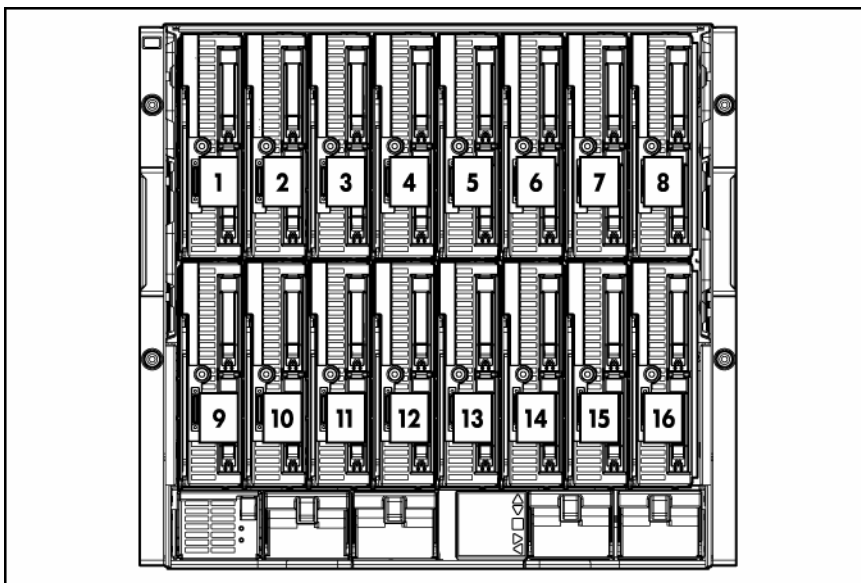


IMPORTANT: When looking at the rear of the enclosure, device bay numbering is reversed.

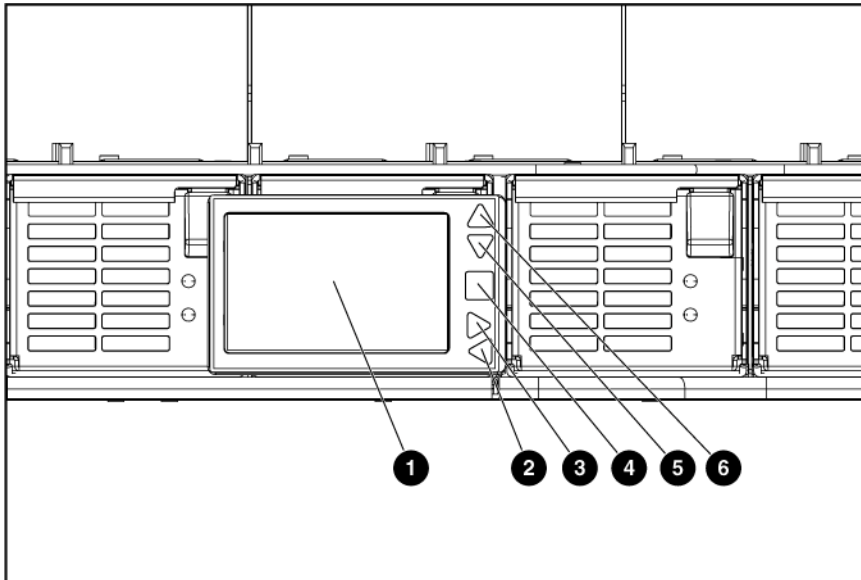
Full-height device bay numbering



Half-height device bay numbering

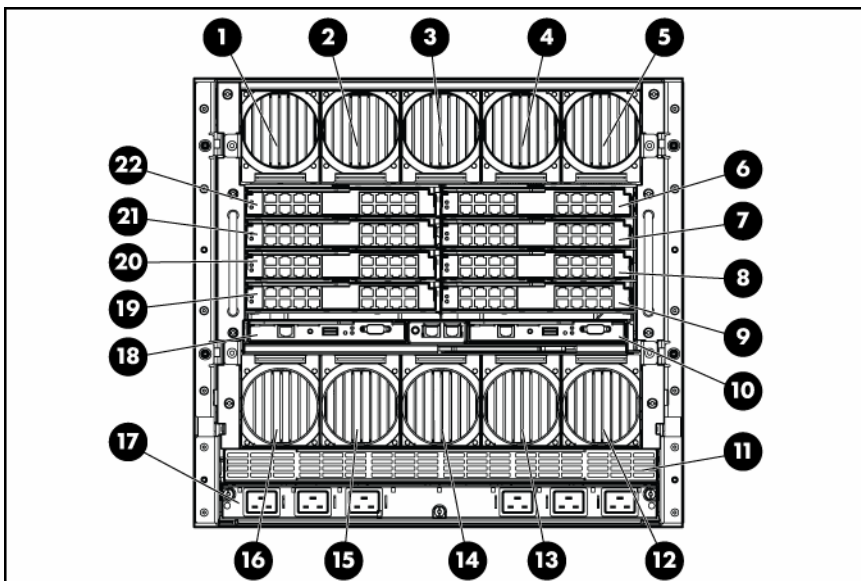


HP BladeSystem Insight Display components



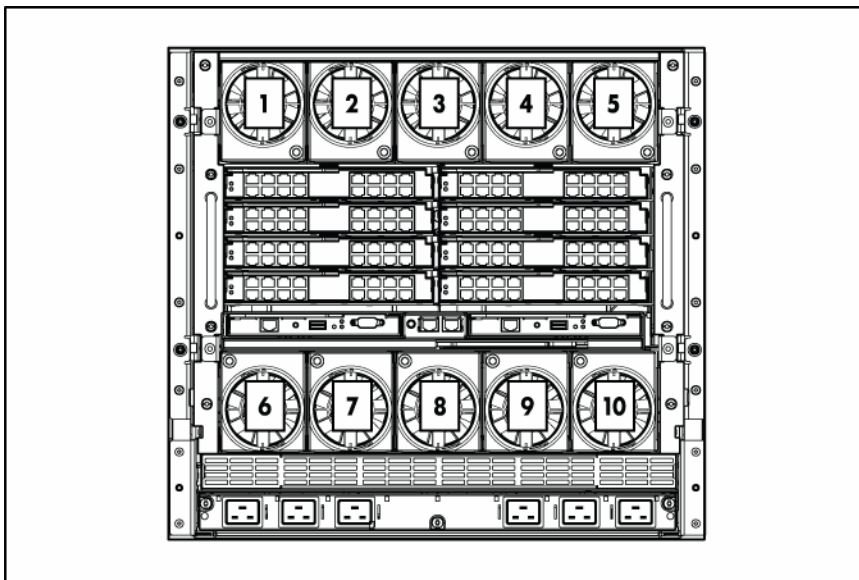
Item	Description	Function
1	Insight Display screen	Displays Main Menu error messages and instructions
2	Left arrow button	Moves the menu or navigation bar selection left one position
3	Right arrow button	Moves the menu or navigation bar selection right one position
4	OK button	Accepts the highlighted selection and navigates to the selected menu
5	Down arrow button	Moves the menu selection down one position
6	Up arrow button	Moves the menu selection up one position

Enclosure rear components

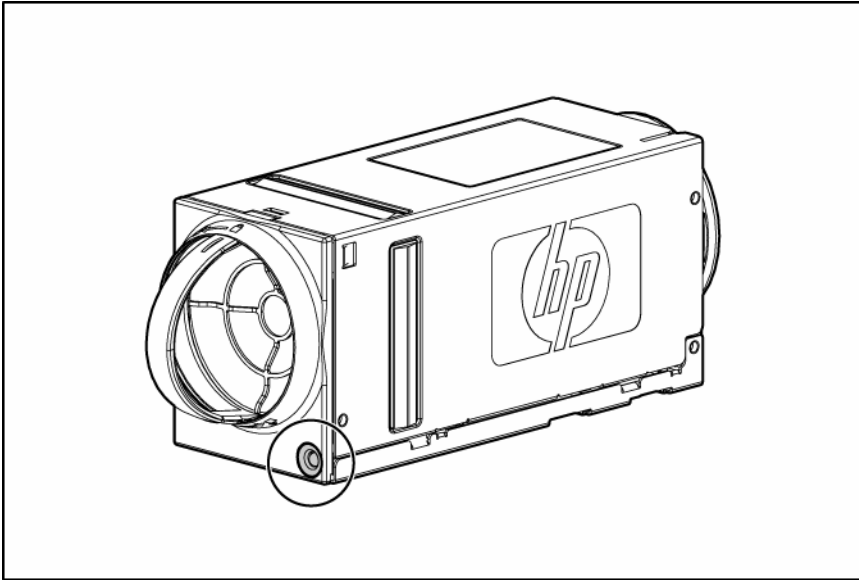


Item	Description
1	Fan bay 1
2	Fan bay 2
3	Fan bay 3
4	Fan bay 4
5	Fan bay 5
6	Interconnect bay 2
7	Interconnect bay 4
8	Interconnect bay 6
9	Interconnect bay 8
10	Onboard Administrator bay 2
11	Power supply exhaust vent (do not block)
12	Fan bay 10
13	Fan bay 9
14	Fan bay 8
15	Fan bay 7
16	Fan bay 6
17	AC power connectors
18	Onboard Administrator bay 1
19	Interconnect bay 7
20	Interconnect bay 5
21	Interconnect bay 3
22	Interconnect bay 1

Fan bay numbering

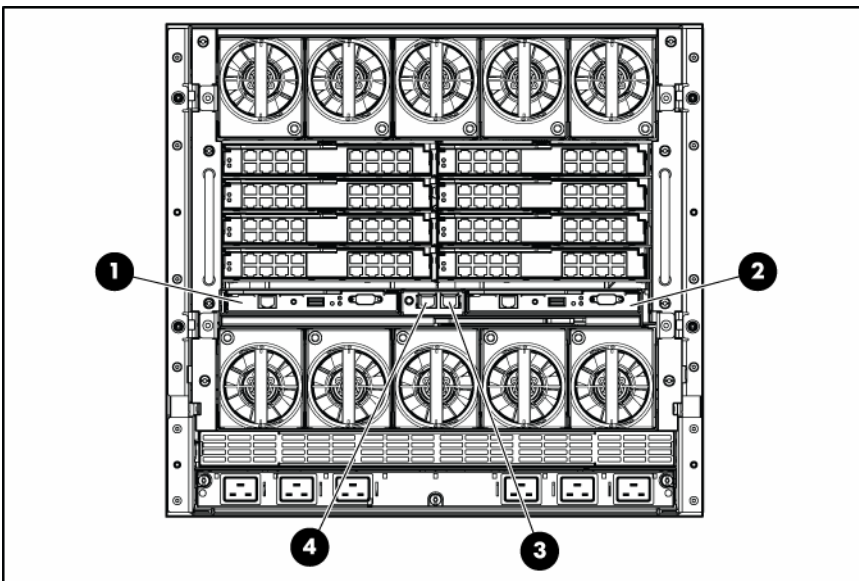


Fan LED



LED color	Fan status
Solid green	The fan is working.
Solid amber	The fan has failed.
Flashing amber	See the Insight Display screen.

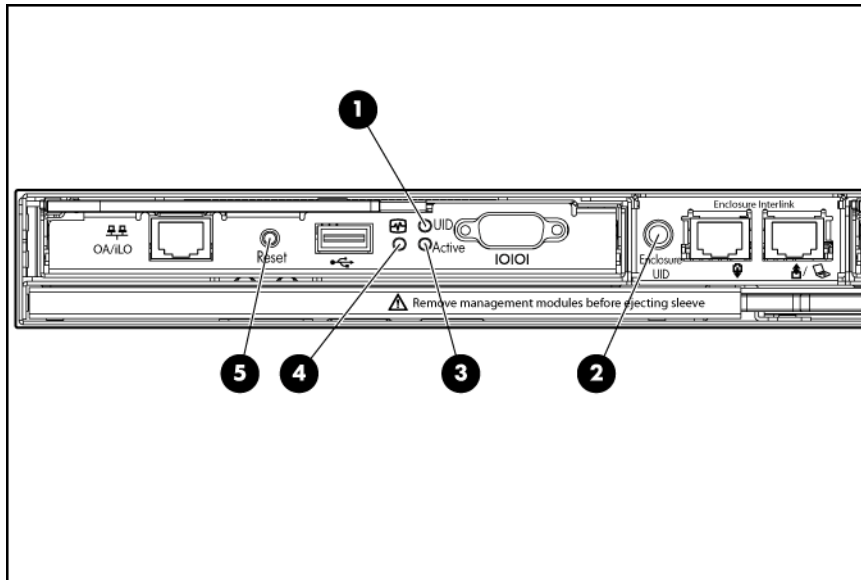
Onboard Administrator components



Item	Description
1	Onboard Administrator bay 1
2	Onboard Administrator bay 2 (redundant, if used)
3	Enclosure link-up port

Item	Description
4	Enclosure link-down port

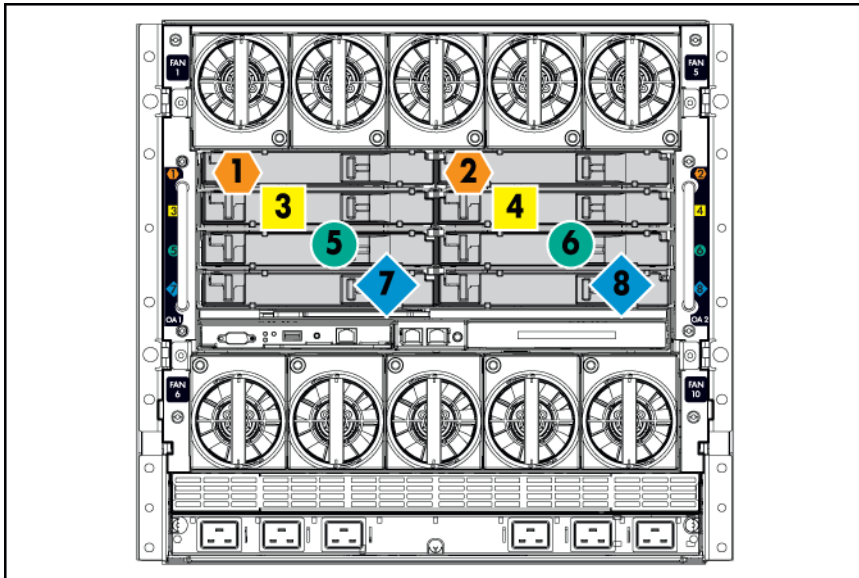
Onboard Administrator LEDs and buttons



Item	Description
1	Onboard Administrator UID LED
2	Enclosure UID LED
3	Onboard Administrator Active LED
4	Onboard Administrator Health LED
5	Onboard Administrator reset button

Interconnect bay numbering

To support network connections for specific signals, install the interconnect module into the appropriate bay.



Server blade signal	Interconnect bay number	Interconnect bay label
NICs 1, 2, 3, and 4 (embedded)	1, 2	⬡
Mezzanine 1	3, 4	■
Mezzanine 2	5, 6 and then 7, 8	● ◆
Mezzanine 3	7, 8 and then 5, 6	◆ ●

NOTE: For information on the location of LEDs and ports on individual interconnect modules, see the documentation that ships with the interconnect module.

For more information, see "Mapping to interconnect ports (on page 45)."

Installation

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Installation overview

To set up and install the enclosure:

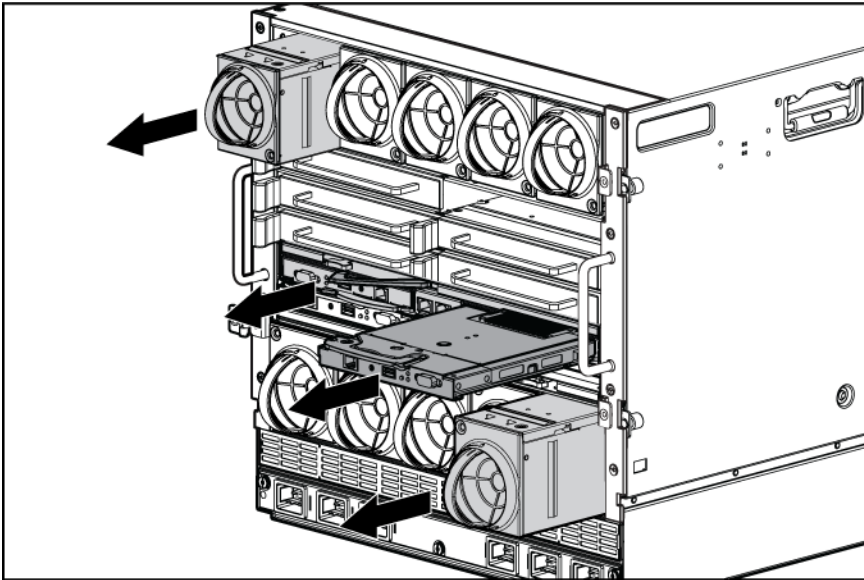
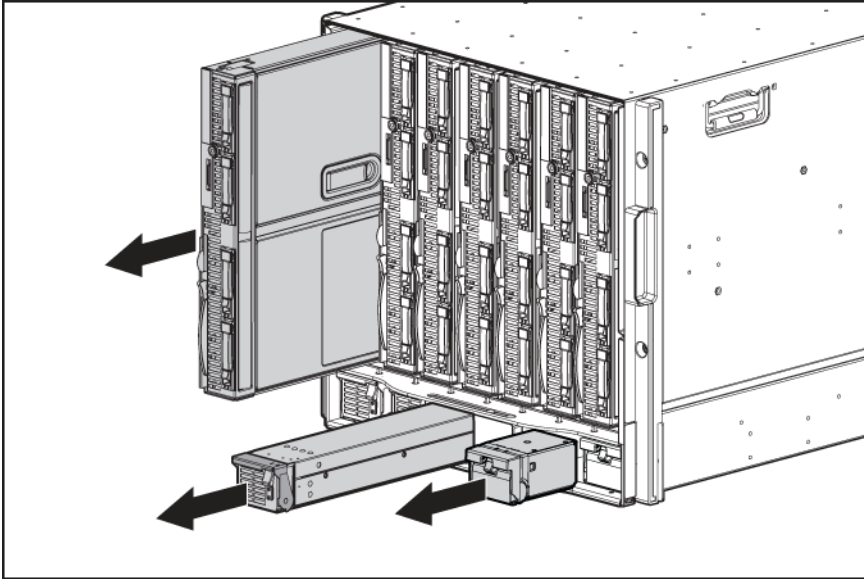
1. Disassemble the enclosure ("[Disassembling the enclosure](#)" on page 21).
2. For rack-free installations ("[Rack-free installation](#)" on page 24), set up the enclosure on an appropriate surface, then install the rear cage and enclosure components.
3. For rack installations, install the enclosure into the rack ("[Installing the enclosure into the rack](#)" on page 26) then reassemble the enclosure.
4. Install the enclosure components ("[Component installation](#)" on page 29) into the enclosure.
5. Connect the enclosure components ("[Cabling and powering up the enclosure](#)" on page 51) in the enclosure.
6. Connect the AC power cables and power up the enclosure ("[Powering up the enclosure](#)" on page 54).
7. Configure the enclosure ("[Running the Insight Display installation steps](#)" on page 59) using the Insight Display.

Disassembling the enclosure

Before installing the enclosure into the rack, you must disassemble the enclosure. Because a fully-populated enclosure can weigh up to 217.7 kg (480 lb), remove the components and the rear cage from the enclosure to make moving and installing the enclosure easier. Two people should work together to remove the rear cage from the enclosure.

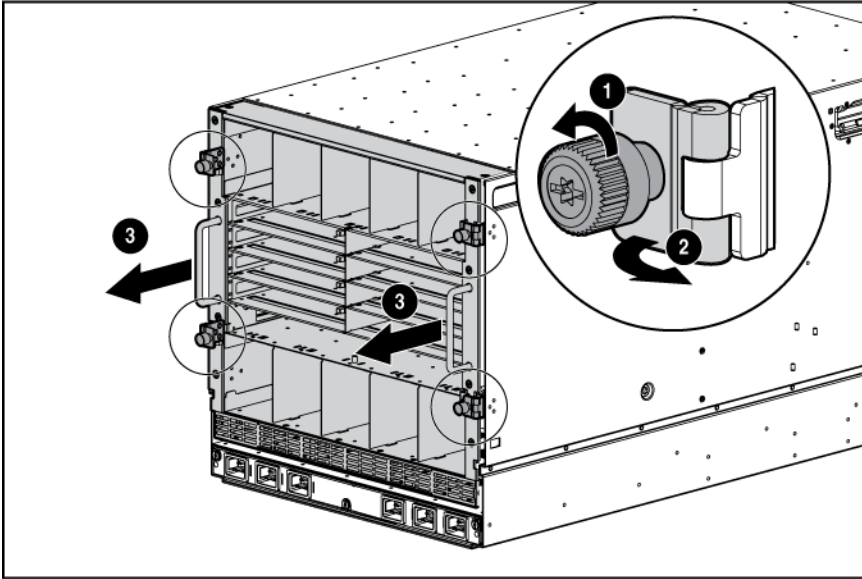
The empty enclosure with the rear cage installed weighs 58.6 kg (129 lb). When the enclosure is disassembled, the empty enclosure without the rear cage installed weighs 35.5 kg (78 lb). The empty rear cage weighs 23.2 kg (51 lb).

1. With the enclosure still on the pallet, remove all components from the front and rear of the enclosure.

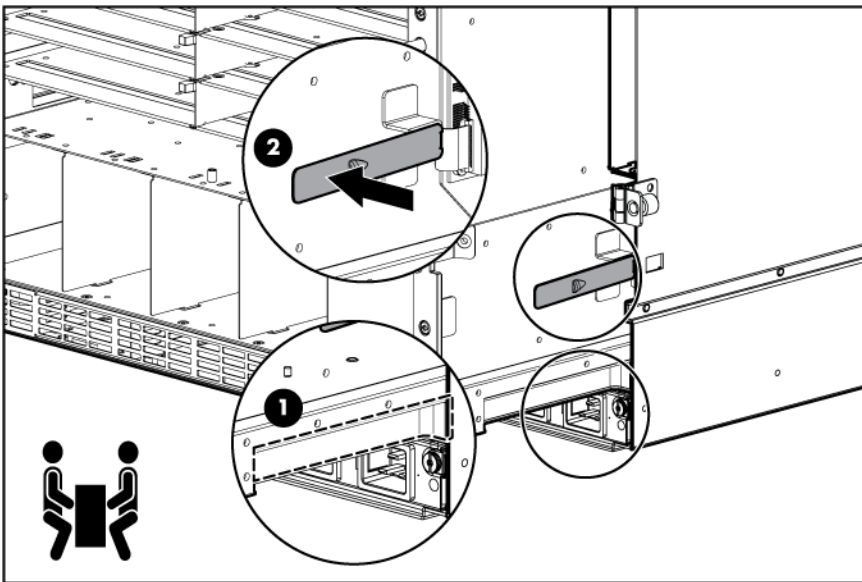


2. Remove the rear cage:
 - a. Loosen the thumbscrews and open the hinges completely.

- b. Use the handles to extend the rear cage until the release levers engage on both sides of the rear cage.



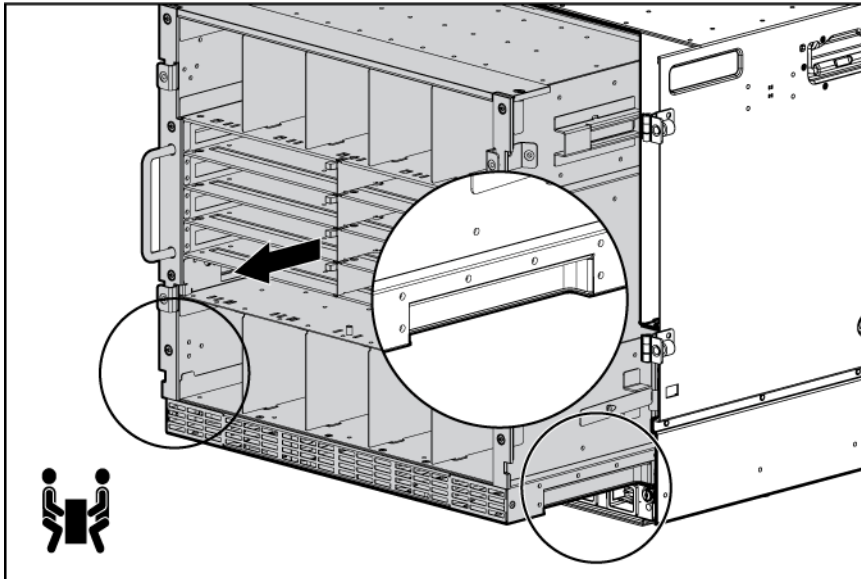
- c. Grasp the handholds below the release levers.
d. Disengage the release levers on both sides of the rear cage.



△ **CAUTION:** When removing and lifting the rear cage, always grasp the handholds as far forward as possible. The front end of the rear cage is heavy and the handholds provide a more balanced location to distribute the weight of the cage during lifting.

△ **CAUTION:** When removing the rear cage and midplane assembly, the connectors on the midplane assembly are susceptible to damage. Use caution to avoid damage to the pins and connectors.

- e. Use the handholds to extend and remove the rear cage from the enclosure.



Rack-free installation



WARNING: To reduce the risk of personal injury or damage to the equipment in a rack-free environment:

- Never stack an enclosure on top of another enclosure.
- Never place equipment on top of an enclosure.
- Never place an enclosure on a surface that cannot support up to 217.7 kg (480 lb).

To set up the enclosure in a rack-free environment:

1. Select the location for the enclosure. For more information, see "Rack-free environment requirements (on page 8)."
2. Disassemble the enclosure ("[Disassembling the enclosure](#)" on page 21).
3. Place the enclosure on a flat, sturdy surface to support the enclosure.
4. Install the rear cage into the enclosure.

Rack installation



CAUTION: Always plan the rack installation so that the heaviest item is on the bottom of the rack. Install the heaviest item first, and continue to populate the rack from the bottom to the top.

NOTE: Up to four 10U enclosures can be installed in a 42U rack. If you are installing more than one enclosure, install the first enclosure in the bottom of the rack, and then install additional enclosures by moving up the rack with each subsequent enclosure. Plan rack installation carefully because it is difficult to change the location of components after they are installed.

To install an enclosure into the rack:

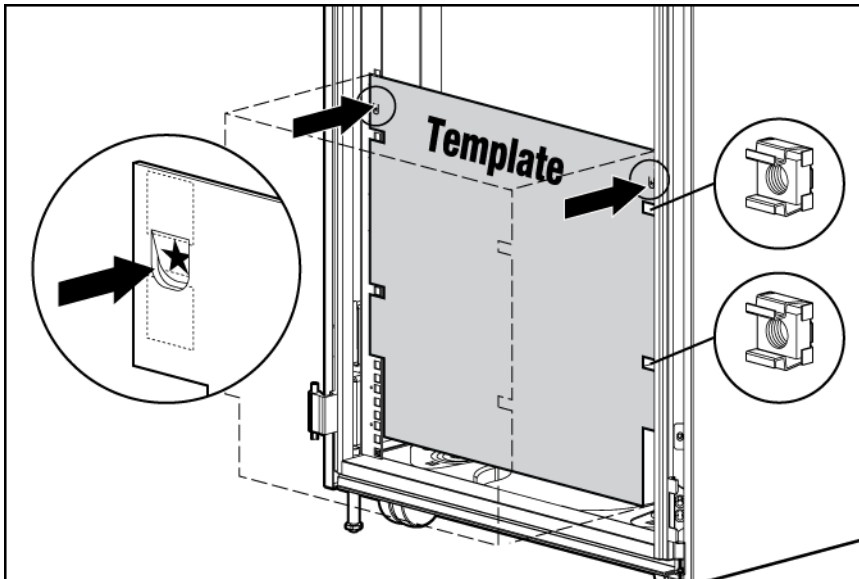
1. Disassemble the enclosure ("[Disassembling the enclosure](#)" on page 21).
2. Use the rack template ("[Measuring with the rack template](#)" on page 25) to mark the locations for the rack rails.
3. Install the rack rails ("[Installing the rack rails](#)" on page 25) for each enclosure.
4. Install the enclosure into the rack ("[Installing the enclosure into the rack](#)" on page 26).

Measuring with the rack template

The rack template ships with the rack rail kit and provides detailed instructions on where to position the enclosure rack rails and where to install the four cage or clip nuts. Each enclosure kit includes the rack rails recommended for that enclosure.

NOTE: Four cage nuts and four clip nuts are included with the enclosure. Cage nuts should be used in racks with square holes. Clip nuts should be used in racks with round holes.

When installing multiple enclosures, install the rack rails and cage or clip nuts for one enclosure, and then install the enclosure. Repeat for each additional enclosure.



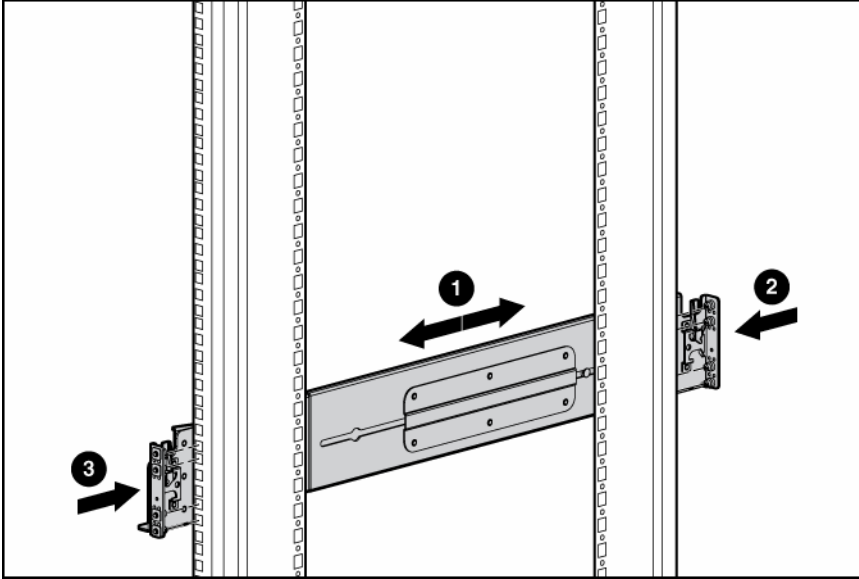
Installing the rack rails

The rack rails are marked for easy identification. The left rack rail is marked "L" and the right rack rail is marked "R."

To install the rack rails:

1. Begin with the left rack rail. Align the end of the rail with the rear rack column.
2. Slide the rack rail closed until the end of the rail is locked in place, wrapping behind the rear rack column.

3. Slide the front end of the rail to the rack front column. When fully seated, the rack rail will lock into place.



4. Repeat the procedure for the right rack rail.

Installing the enclosure into the rack

The empty enclosure with the rear cage installed weighs 58.6 kg (129 lb). When the enclosure is disassembled, the empty enclosure without the rear cage installed weighs 35.5 kg (78 lb). The empty rear cage weighs 23.2 kg (51 lb).

⚠ WARNING: Always use at least two people to lift an enclosure into the rack. If the enclosure is being loaded into the rack above chest level, a third person must assist with aligning the enclosure with the rails while the other two people support the weight of the enclosure.

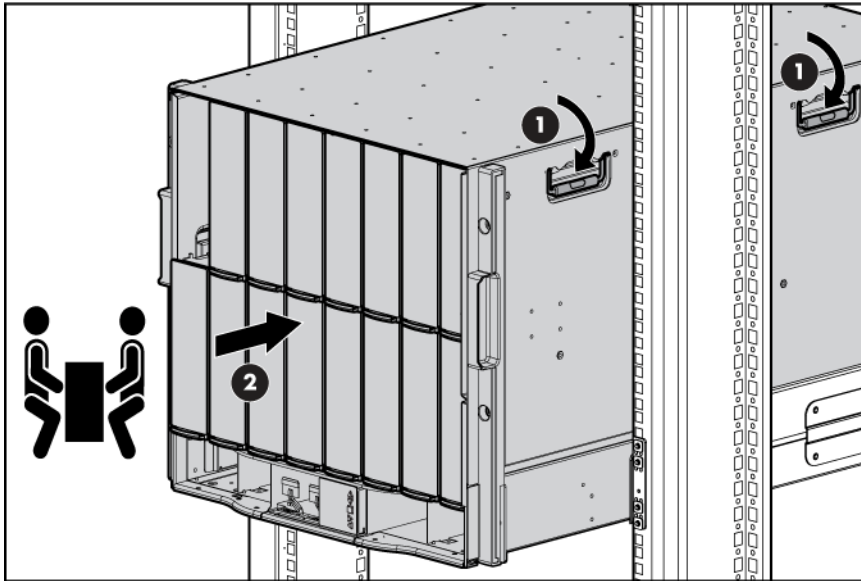
To install the enclosure into the rack:

1. At the front of the rack, lift and align the enclosure guiding fins with the guiding groove in the rack rails.

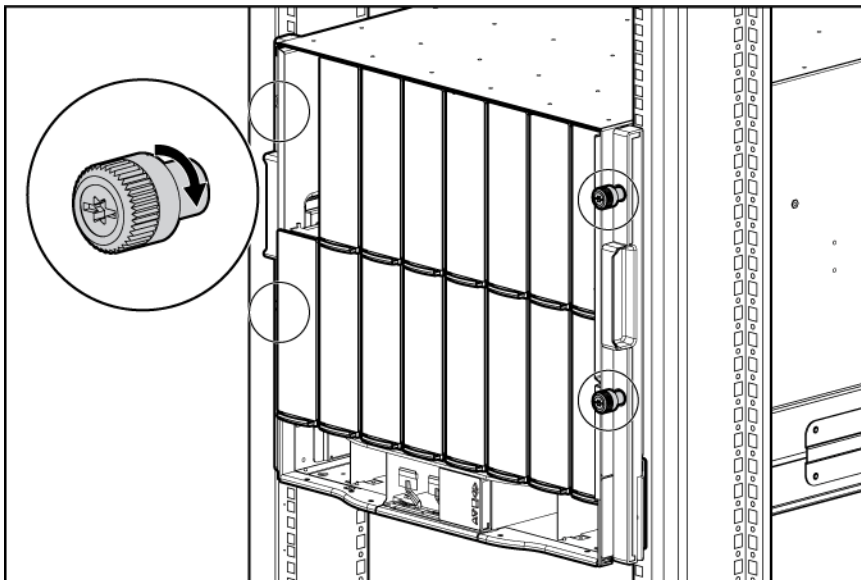


IMPORTANT: Be sure that the guiding fins on the enclosure seat properly in the guiding groove on the rack rail.

2. Push the handles down on each side of the enclosure, and slide the enclosure fully into the rack.



3. Tighten the thumbscrews to secure the enclosure to the rack.

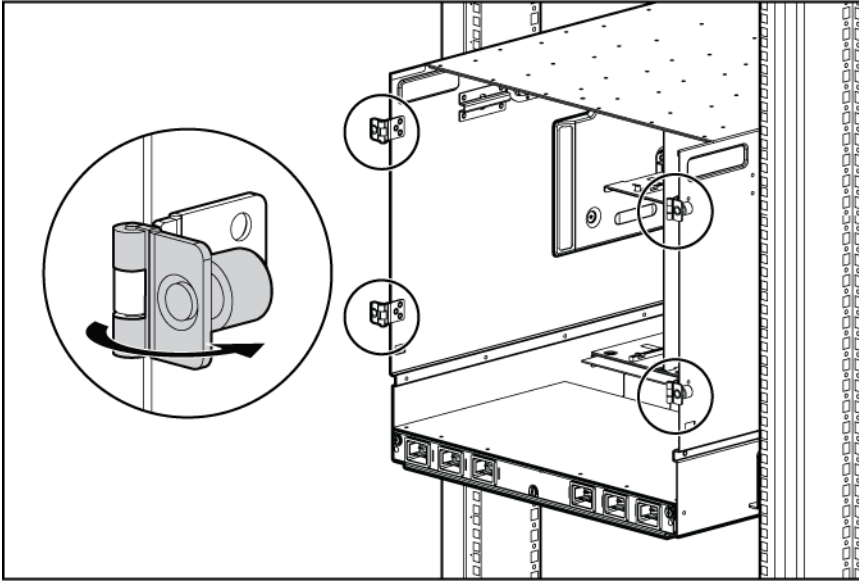


4. Install the rear cage into the enclosure.
5. Repeat the procedure for the remaining enclosures.

NOTE: Up to four 10U enclosures can be installed in a 42U rack. If you are installing more than one enclosure, install the first enclosure in the bottom of the rack, and then install additional enclosures by moving up the rack with each subsequent enclosure. Plan rack installation carefully because it is difficult to change the location of components after they are installed.

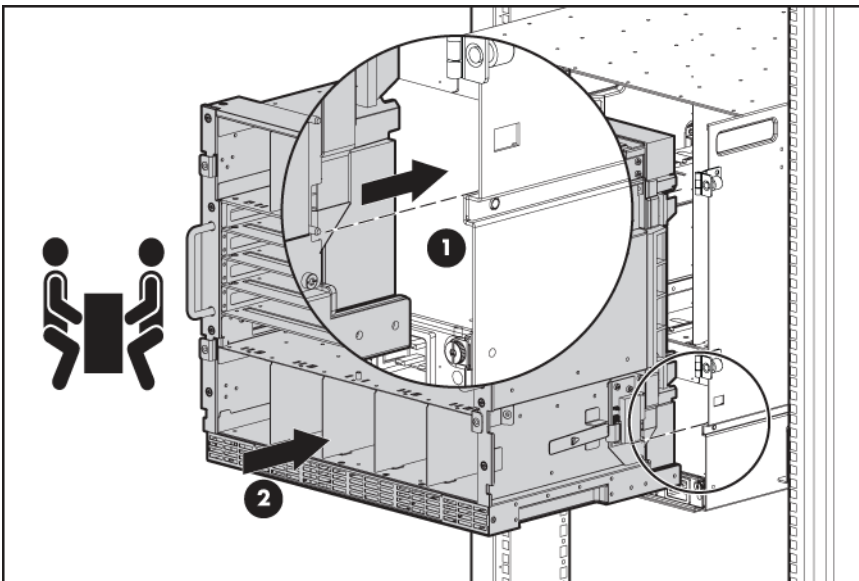
Installing the rear cage into the enclosure

1. Open all hinges completely.

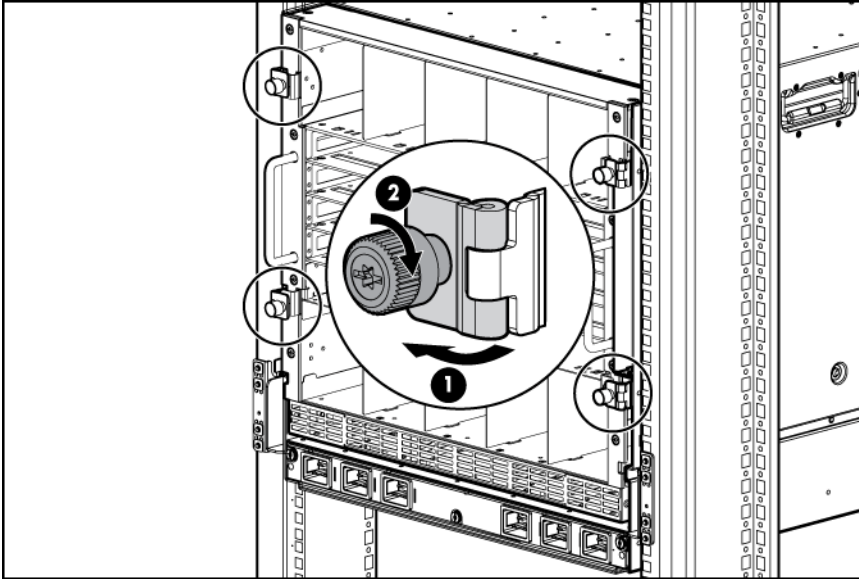


2. Position the rear cage at the rear of the enclosure, and align the rear cage guiding fins with the guiding groove in the rack rails.
3. Slide the rear cage fully into the enclosure.

CAUTION: Do not touch or bump rear cage connector pins when installing the rear cage into the enclosure.



4. Close the hinges, and tighten the thumbscrews to secure the rear cage.



Component installation

The following sections contain installation instructions for the individual enclosure components. All components must be installed and cabled before you power up the enclosure. There is no specific installation order requirement for the enclosure components.

Installing a power supply

See "Running the Insight Display installation steps (on page 59)" for information on the types of power configurations available and how to set them up.

If your HP BladeSystem c7000 Enclosure is equipped with a three-phase power configuration, six power supplies are required. Single-phase configurations can have fewer than six power supplies.

Install the power supplies based on the total number of supplies needed:

- Two power supplies: Bays 1 and 4
- Three power supplies: Bays 1, 2, and 4
- Four power supplies: Bays 1, 2, 4, and 5
- Five power supplies: Bays 1, 2, 3, 4, and 5
- Six power supplies: All bays

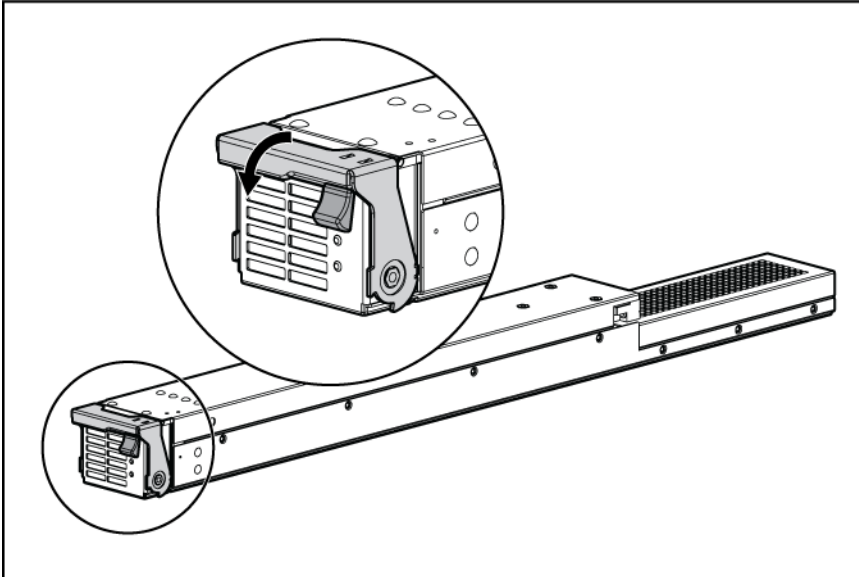
Install power supply blanks in any unused power supply bays.

Power supplies are installed in this manner to provide maximum flexibility for redundancy in three-phase configuration options.

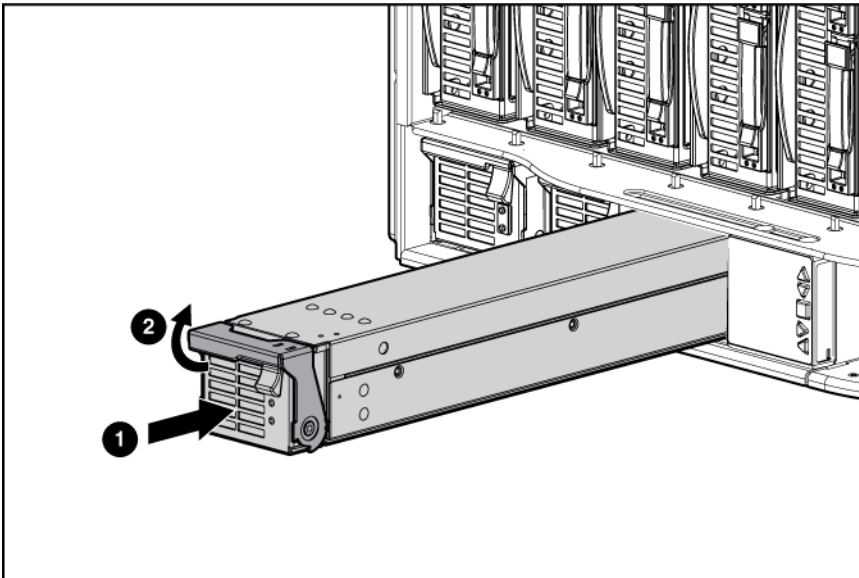
To install a power supply:

1. Slide the HP BladeSystem Insight Display to the right or left to gain access to all power supply bays.

2. Open the power supply bracket.



3. Insert the power supply into the enclosure, and close the bracket.



Check the power supply LEDs (on page 14) to determine the status of the power supply.

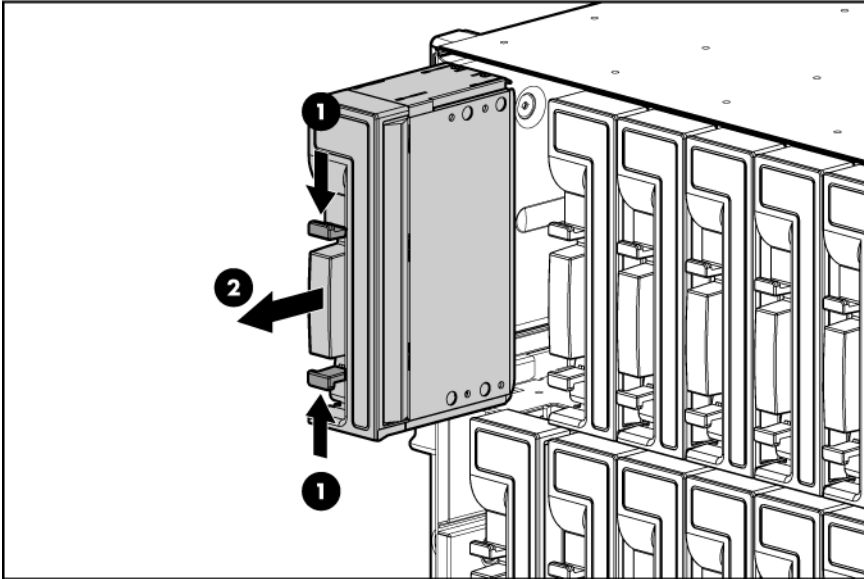
To calculate how many power supplies are needed, see the HP BladeSystem Power Sizer (<http://www.hp.com/go/bladeSystem/powercalculator>).

Installing a full-height server blade

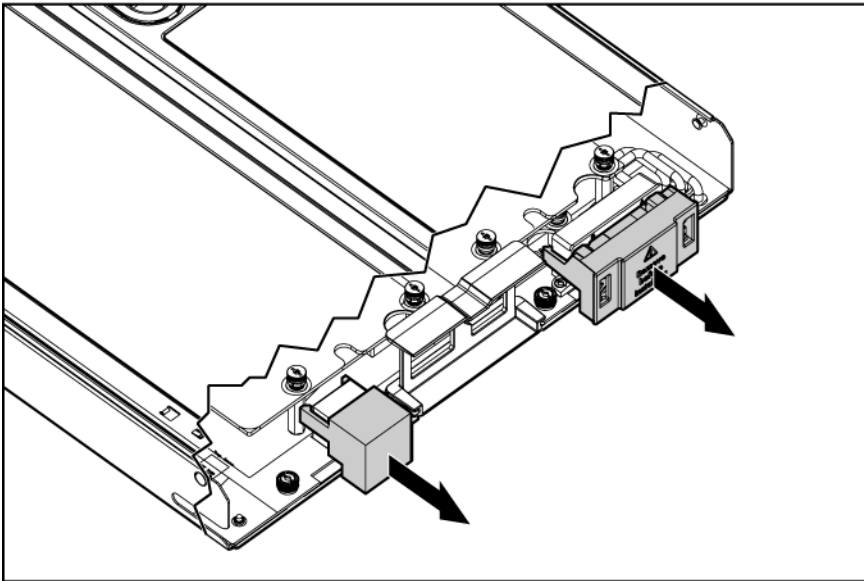
The HP BladeSystem c7000 Enclosure ships with four device bay shelves to support half-height devices. To install a full-height device, remove the device bay shelf and the corresponding blanks.

To install a server blade:

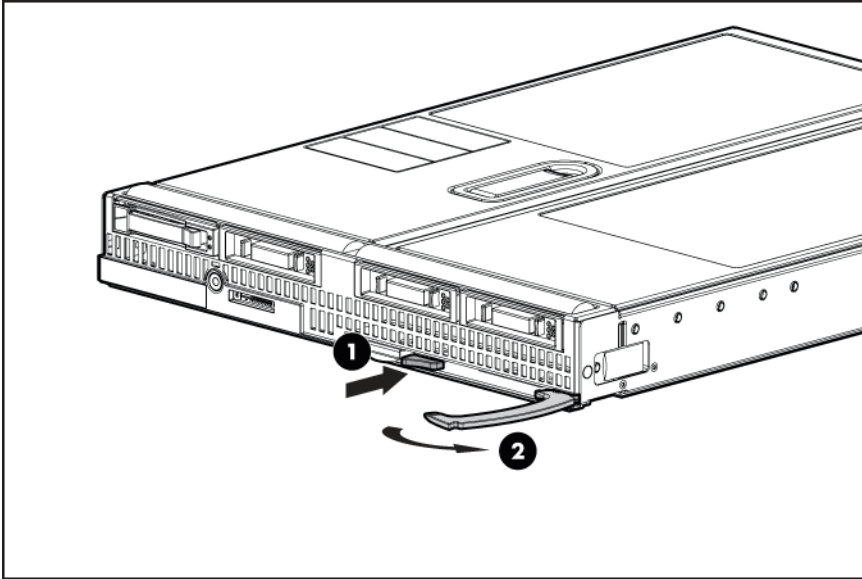
1. Remove the blank.



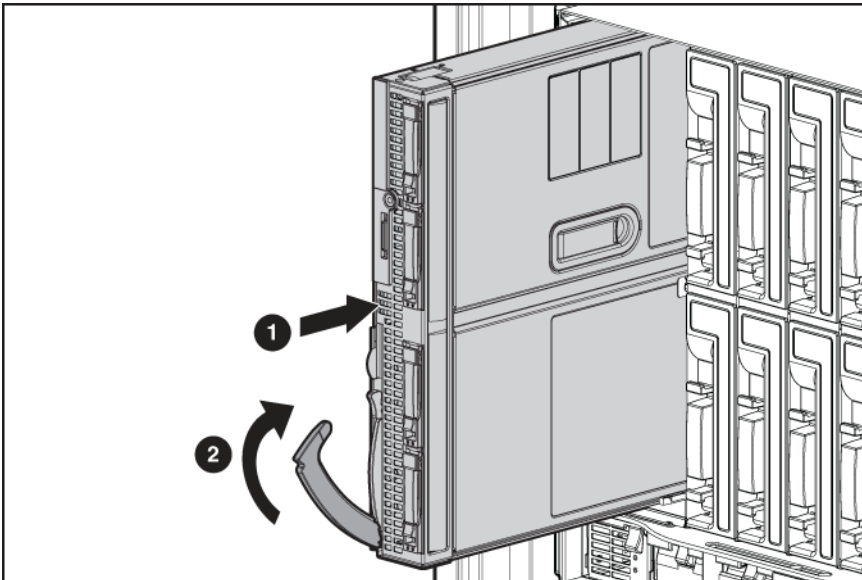
2. Remove the three adjacent blanks.
3. Remove the device bay shelf ("[Removing a device bay shelf](#)" on page 33).
4. Remove the connector covers.



5. Prepare the server blade for installation.



6. Install the server blade.

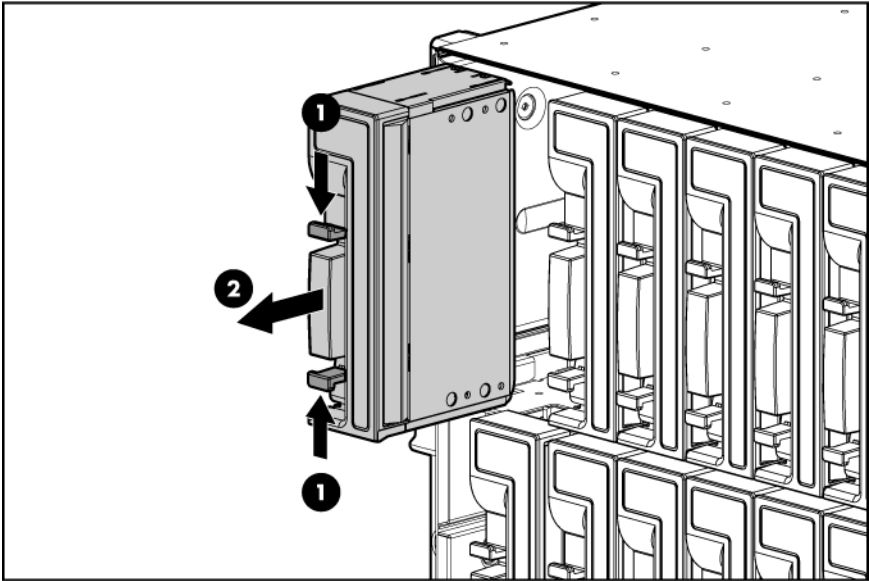


CAUTION: To prevent improper cooling and thermal damage, do not operate the server blade or the enclosure unless all hard drive and device bays are populated with either a component or a blank.

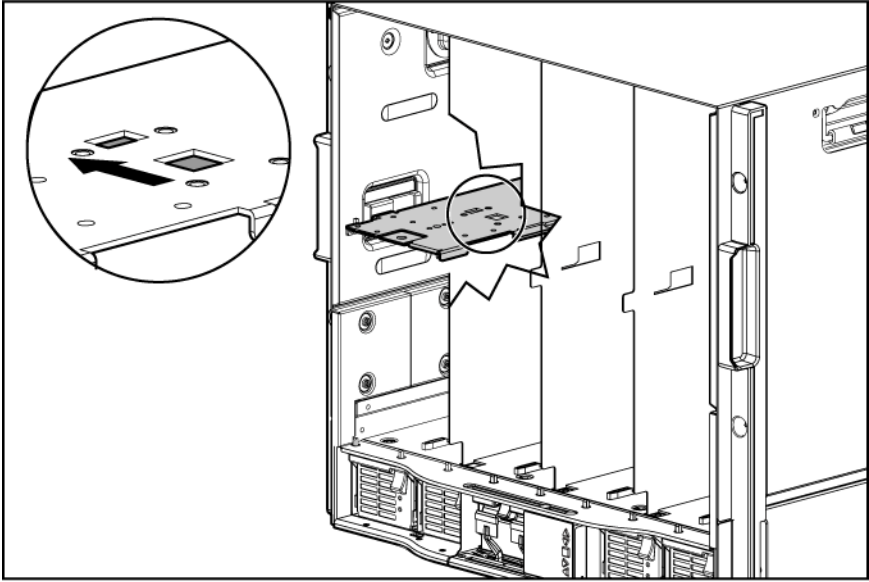
7. Install blanks in any empty bays ("[Creating a full-height device bay blank](#)" on page 34).

Removing a device bay shelf

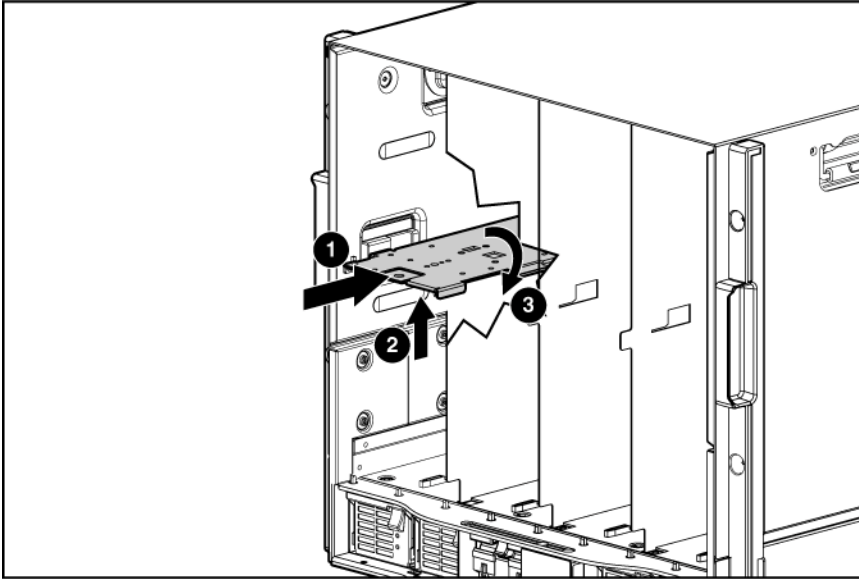
- 1. Remove the blank.



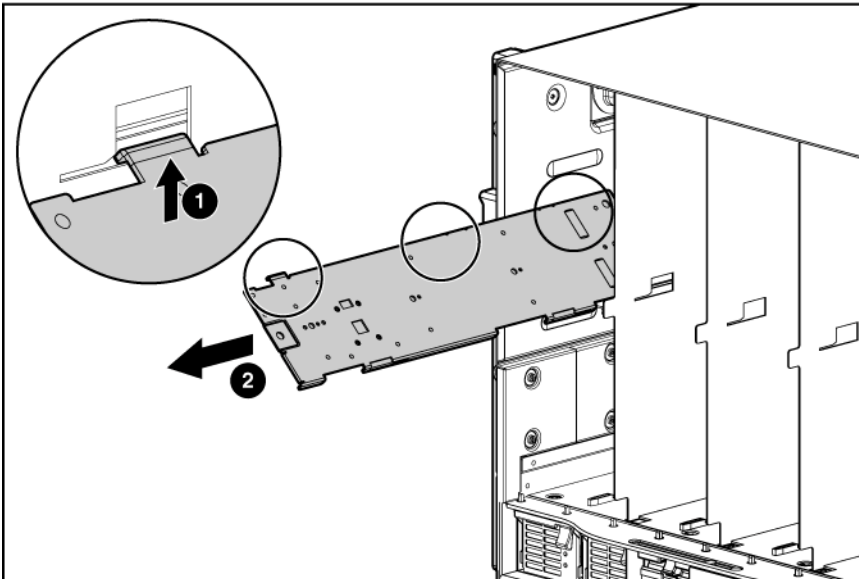
- 2. Slide the device bay shelf locking tab to the left to open it.



3. Push the device bay shelf back until it stops, lift the right side slightly to disengage the two tabs from the divider wall, and then rotate the right edge downward (clockwise).



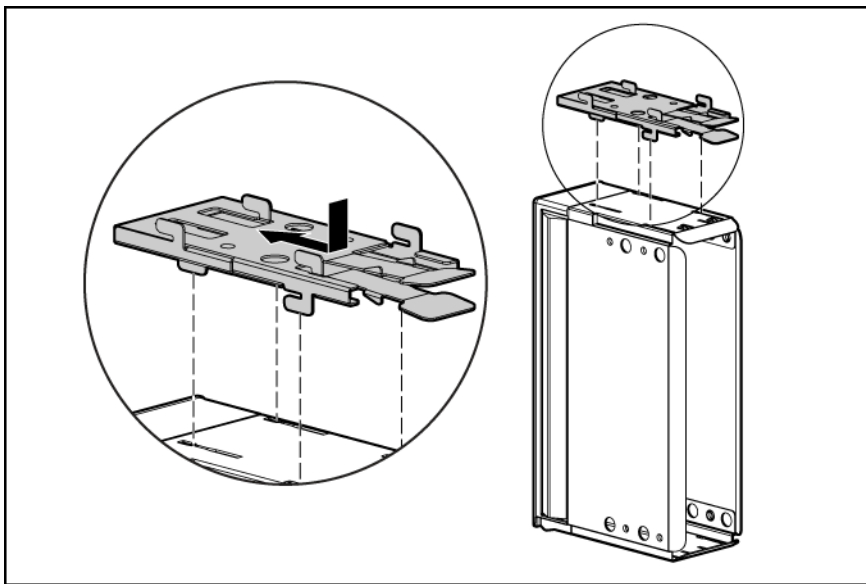
4. Lift the left side of the device bay shelf to disengage the three tabs from the divider wall, and then remove it from the enclosure.



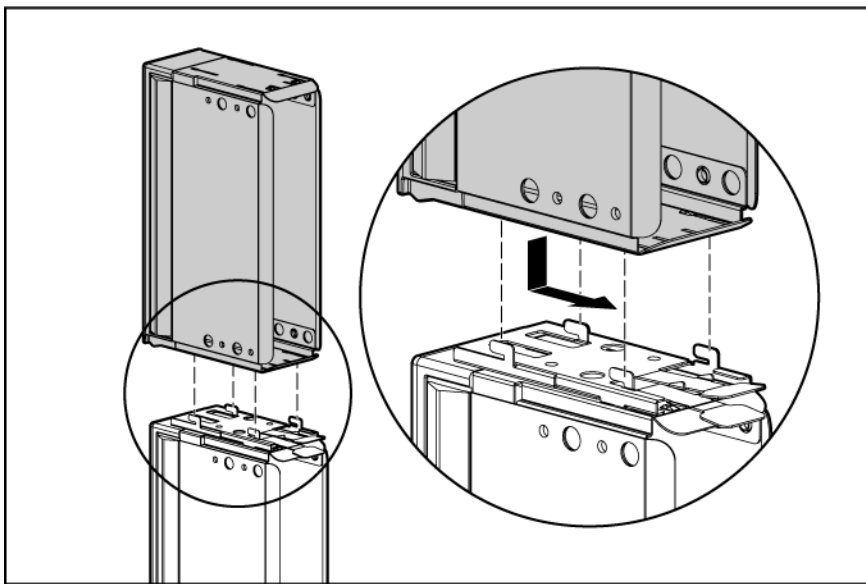
Creating a full-height device bay blank

1. Obtain the coupler plate:
 - If you are using a device bay blank that came with the enclosure, the coupler plate can be found with the contents of the full-height device shipping box.
 - If you are using a device bay blank that you purchased as an option, remove the coupler plate from inside the blank.

2. Fit the coupler plate in to the slots on top of the blank, and slide the coupler plate back until it snaps into place.



3. Fit the slots on the bottom of the second blank on to the tabs on the coupler plate, and slide the second blank forward until it snaps in place.

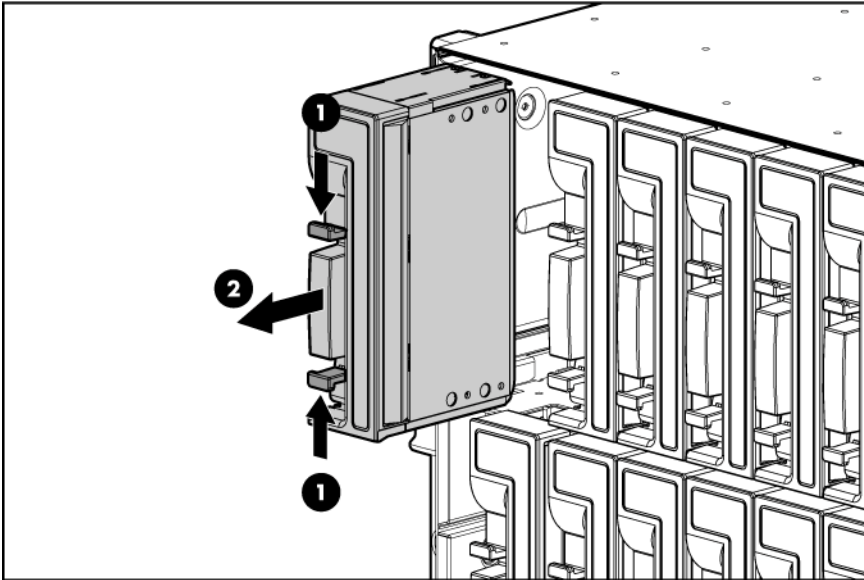


4. Install the full-height blank in to the device bay.

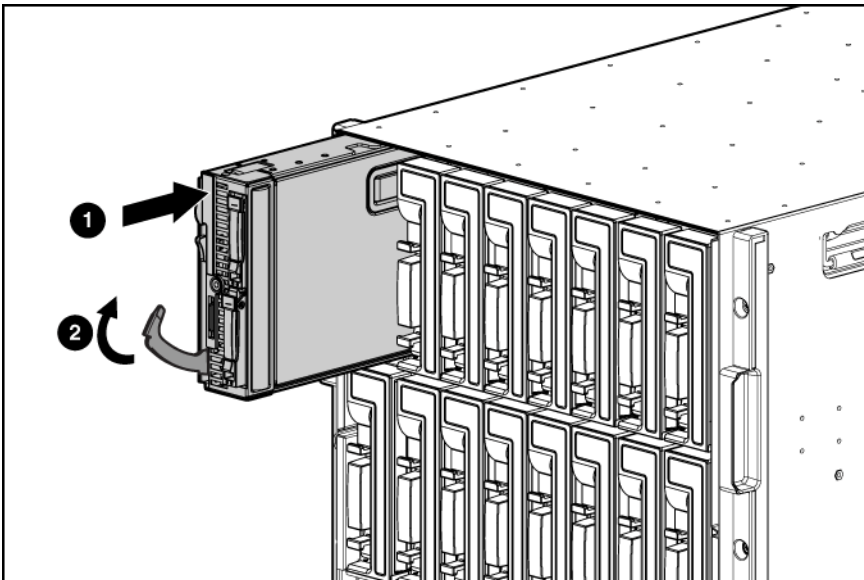
Installing a half-height server blade

To install a server blade into the enclosure:

1. Remove the blank.



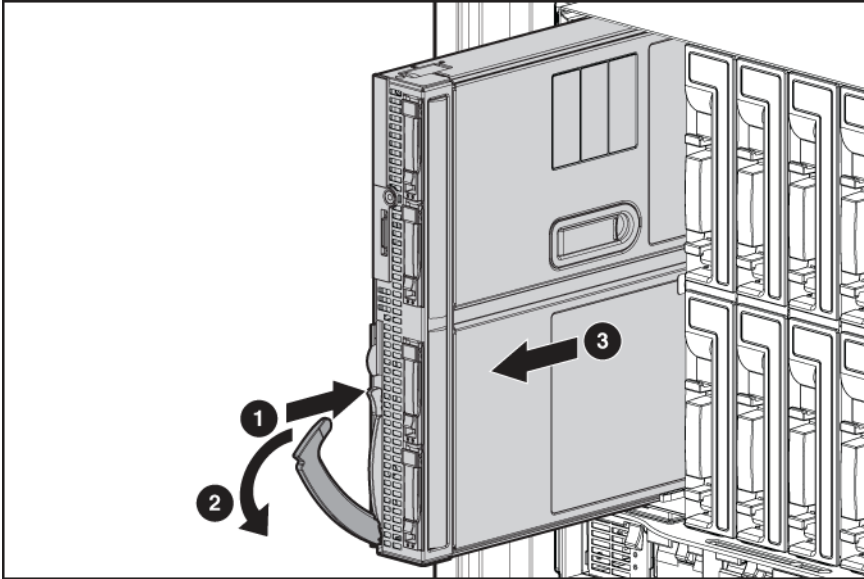
2. Install the device bay shelf, if applicable ("[Installing a device bay shelf](#)" on page 36).
3. Install the server blade in the empty bay.



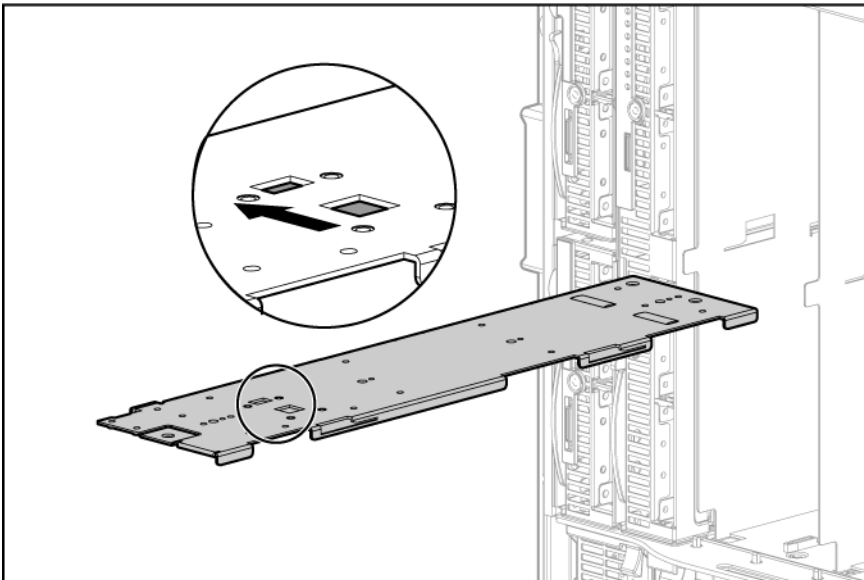
Installing a device bay shelf

You must install the device bay shelf to support half-height devices. To install the device bay shelf:

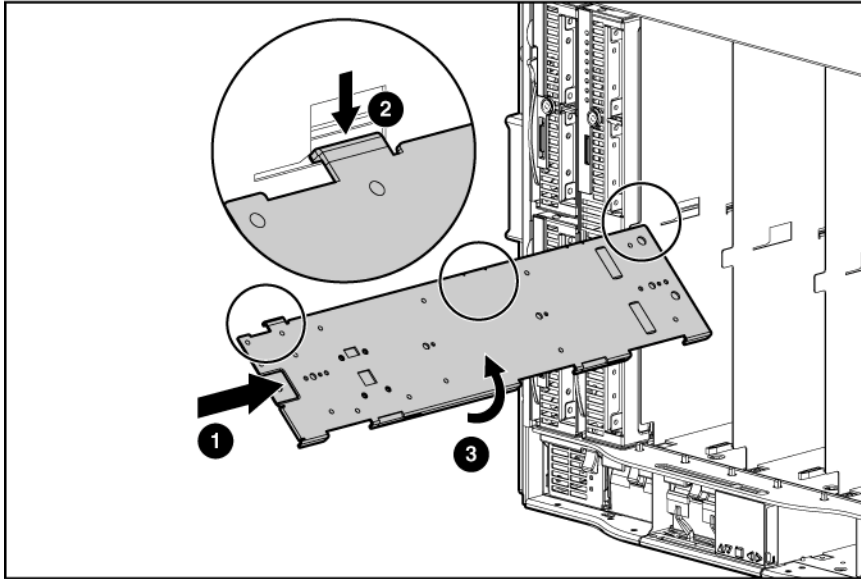
1. Remove the full-height server blade, storage blade, or device bay blank.



2. Slide the device bay shelf locking tab to the left to unlock it.

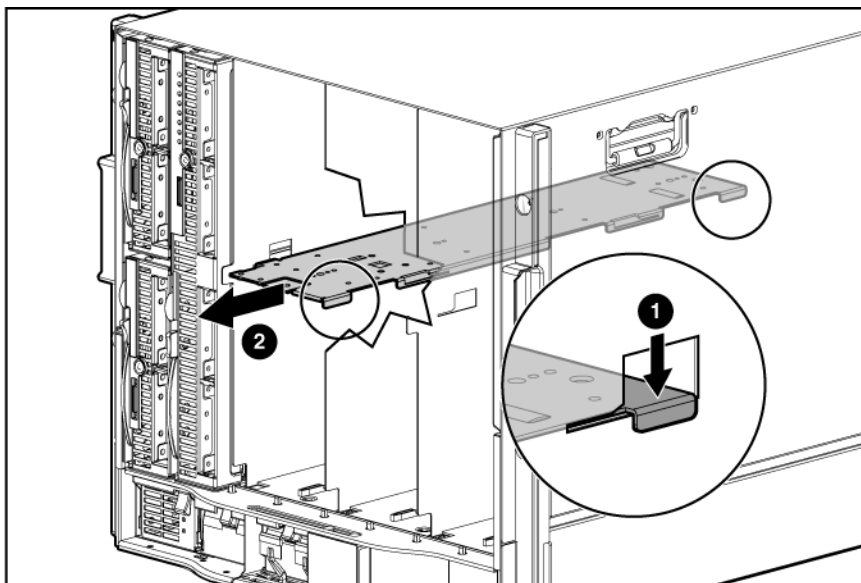


3. Tilt the shelf at an angle with the left edge up. Align the three tabs on the left edge of the shelf with the openings in the enclosure, and push the device bay shelf up.

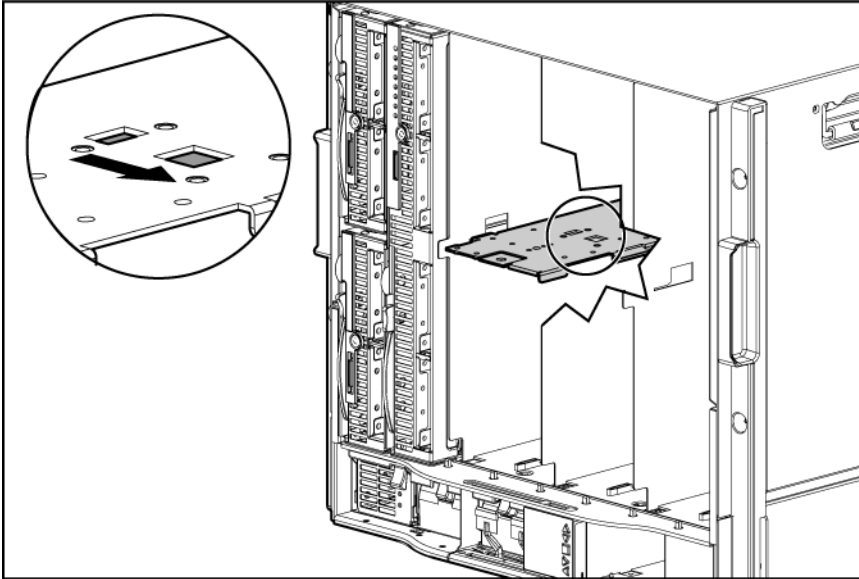


CAUTION: Be sure that all five tabs (three on the left side of the shelf and two on the right side of the shelf) are fully engaged before sliding the shelf forward to complete the installation. Failure to do so can cause damage to server blade connectors during installation.

4. Align the two tabs on the right edge of the device bay shelf with the openings, and slide the device bay shelf into the enclosure to lock it.



5. Slide the device bay shelf locking tab to the right to lock it.



Connecting locally to a server blade with video and USB devices

Use the local I/O cable to connect a monitor and any of the following USB devices:

- USB hub
- USB keyboard
- USB mouse
- USB CD/DVD-ROM drive
- USB diskette drive

Numerous configurations are possible. This section offers two possible configurations.

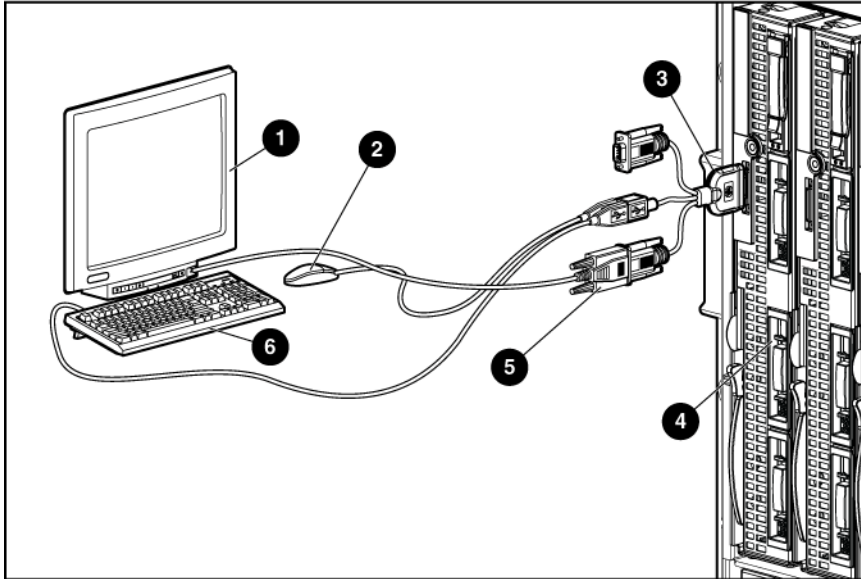
Accessing a server blade with local KVM

CAUTION: Before disconnecting the local I/O cable from the connector, always squeeze the release buttons on the sides of the connector. Failure to do so can result in damage to the equipment.

NOTE: For this configuration, a USB hub is not necessary. To connect additional devices, use a USB hub.

1. Connect the local I/O cable to the server blade.
2. Connect the video connector to a monitor.
3. Connect a USB mouse to one USB connector.

4. Connect a USB keyboard to the second USB connector.



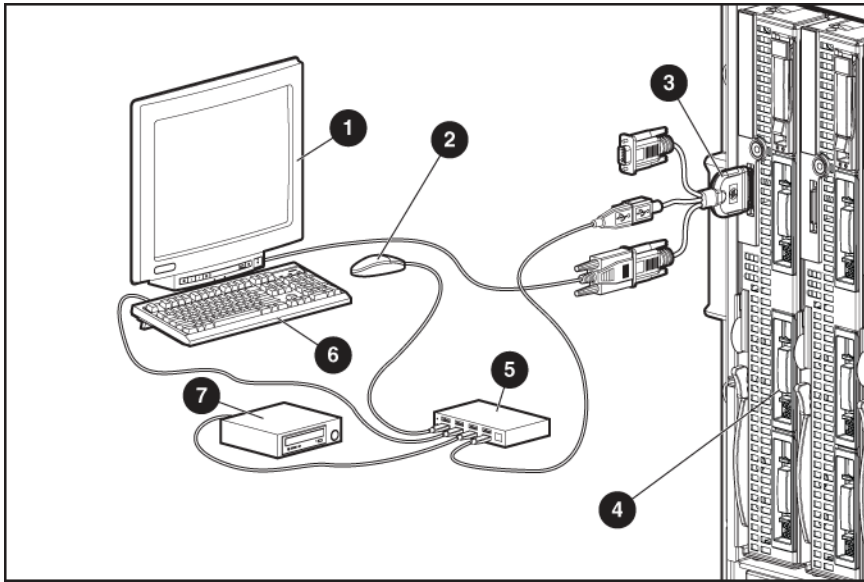
Item	Description
1	Monitor
2	USB mouse
3	Local I/O cable
4	Server blade
5	Video connector
6	USB keyboard

Accessing local media devices

Use the following configuration when configuring a server blade or loading software updates and patches from a USB CD/DVD-ROM or a USB diskette.

1. Connect the local I/O cable to the server blade.
2. Connect the video connector to a monitor.
3. Connect a USB hub to one USB connector.
4. Connect the following to the USB hub:
 - o USB CD/DVD-ROM drive
 - o USB keyboard
 - o USB mouse
 - o USB diskette drive

NOTE: Use a USB hub when connecting a USB diskette drive and/or USB CD-ROM drive to the server blade. The USB hub provides additional connections.



Item	Description
1	Monitor
2	USB mouse
3	Local I/O cable
4	Server blade
5	USB hub
6	USB keyboard
7	USB CD/DVD-ROM drive or diskette drive

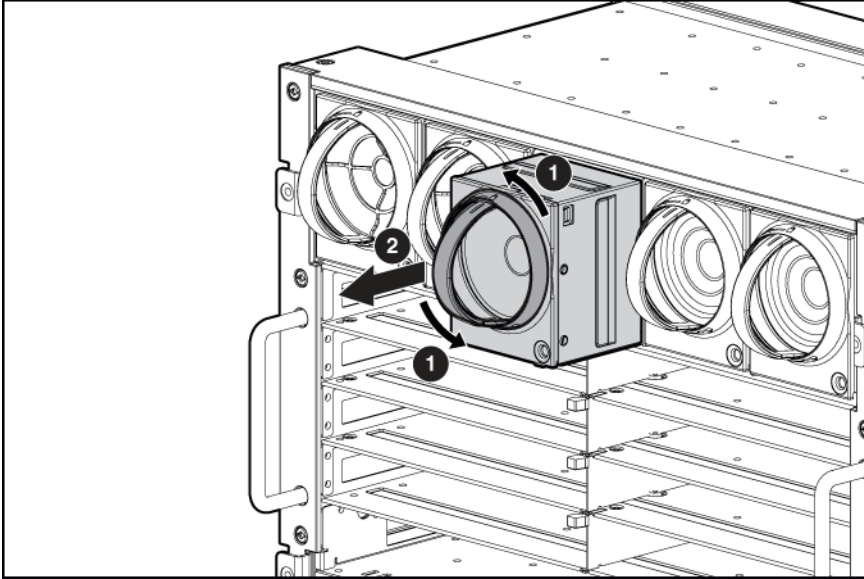
Installing fans

The HP BladeSystem c7000 Enclosure ships with 4 HP Active Cool Fans and supports up to 10 fans. Install fans in even-numbered groups, based on the total number of server blades installed in the enclosure.

- Four fan configuration—Fan bays 4, 5, 9, and 10 are used to support a maximum of two devices located in device bays 1, 2, 9, or 10. Only two device bays can be used with four fans.
- Six fan configuration—Fan bays 3, 4, 5, 8, 9, and 10 are used to support devices in device bays 1, 2, 3, 4, 9, 10, 11, or 12.
- Eight fan configuration—Fan bays 1, 2, 4, 5, 6, 7, 9, and 10 are used to support devices in all device bays.
- Ten fan configuration—All fan bays are used to support devices in all device bays.
- Install fan blanks in any unused fan bays.

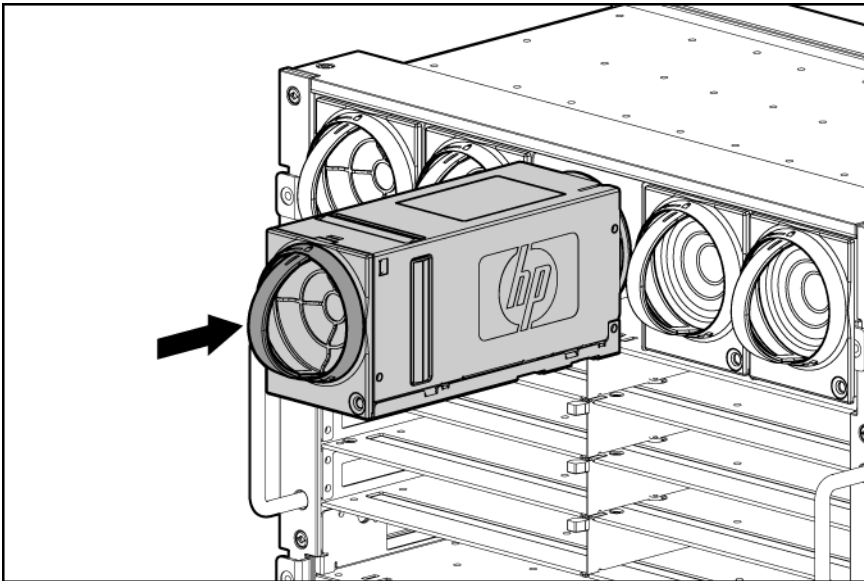
To install a fan:

1. Turn the handle counterclockwise to the unlock position, and pull the fan or fan blank from the enclosure.

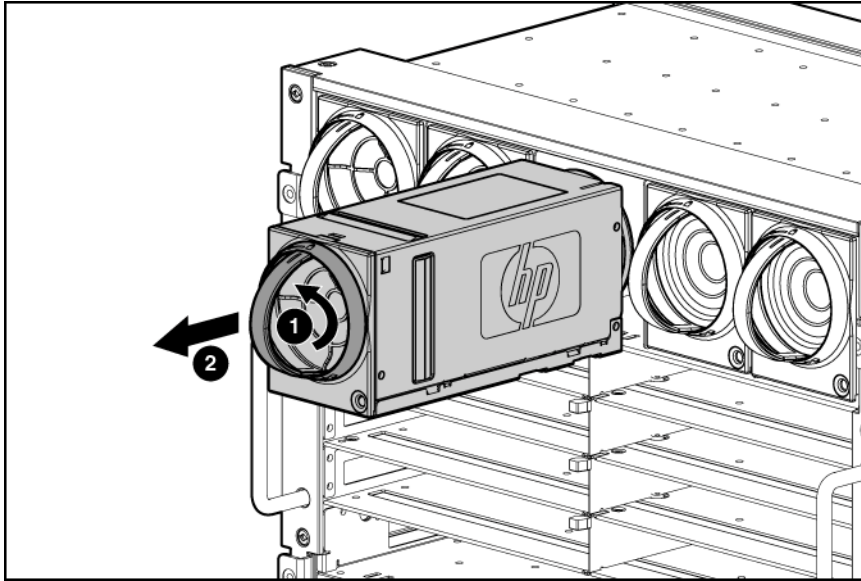


2. Slide the fan into the enclosure until it locks in place.

NOTE: When installing a fan in the top row of fan bays, orient the fan so that the LED is in the lower right corner. When installing a fan in the bottom row of fan bays, orient the fan so the LED is in the upper left corner.



To remove a fan, turn handle the counterclockwise to the unlock position, and pull the fan out of the enclosure.



Installing Onboard Administrator modules

The HP BladeSystem c7000 Enclosure is shipped with one HP BladeSystem Onboard Administrator module installed and can support up to two Onboard Administrator modules. Install Onboard Administrator modules based on the total number ordered:

- One Onboard Administrator module: Bay 1
- Two Onboard Administrator modules: Bays 1 and 2

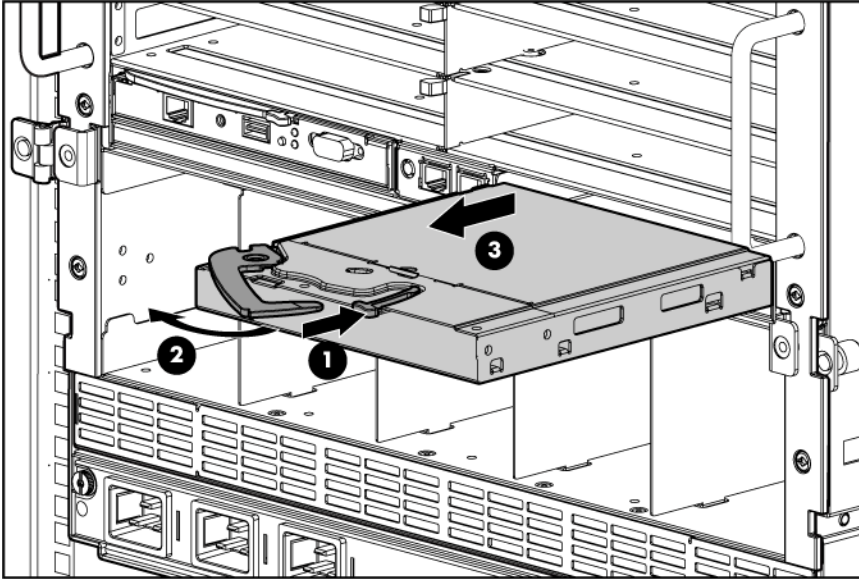
Install an Onboard Administrator blank in an unused Onboard Administrator bay.

NOTE: When two Onboard Administrator modules are installed, the module installed in Bay 1 is active and the module installed in Bay 2 is redundant.

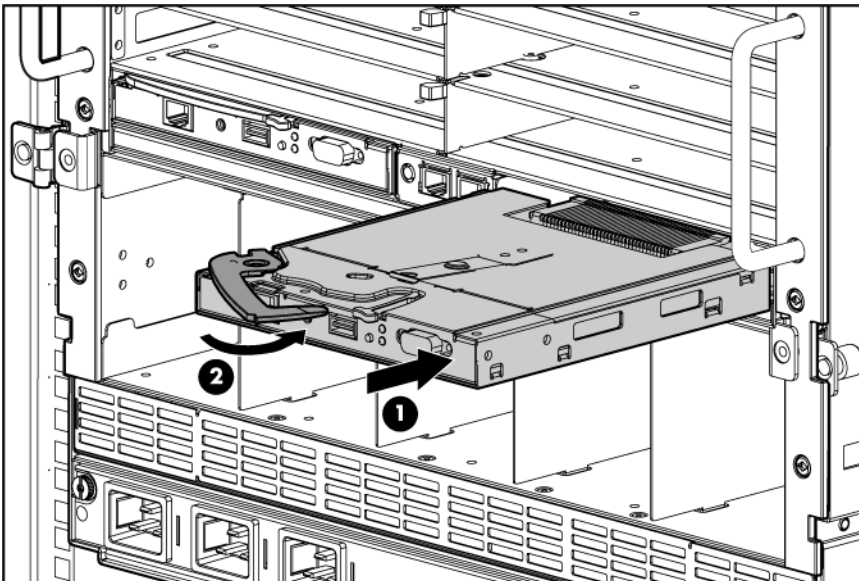
To install an Onboard Administrator module:

1. Remove the Onboard Administrator blank, if present.
 - a. Press the button on the front of the blank to release the handle.

- b. Pull the handle, and slide the Onboard Administrator blank out of the Onboard Administrator tray.



2. Slide the Onboard Administrator module into the Onboard Administrator tray, and close the handle. When the Onboard Administrator module is fully inserted, it locks into place.



Installing interconnect modules

There are eight single-wide interconnect bays in the enclosure. Interconnect bays 1 and 2 are reserved for Ethernet switches. Installation into the remaining interconnect bays depends on the type of mezzanine card installed in the server and in which mezzanine slot the mezzanine card was installed.

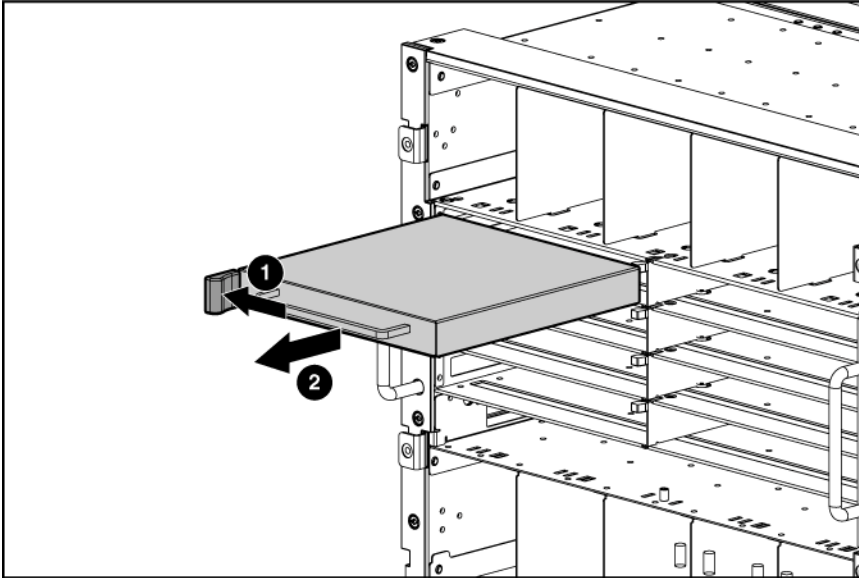


IMPORTANT: If the mezzanine card is not installed properly or the interconnect module installation does not coincide with the mezzanine card installation, the ports on the interconnect module will not function.

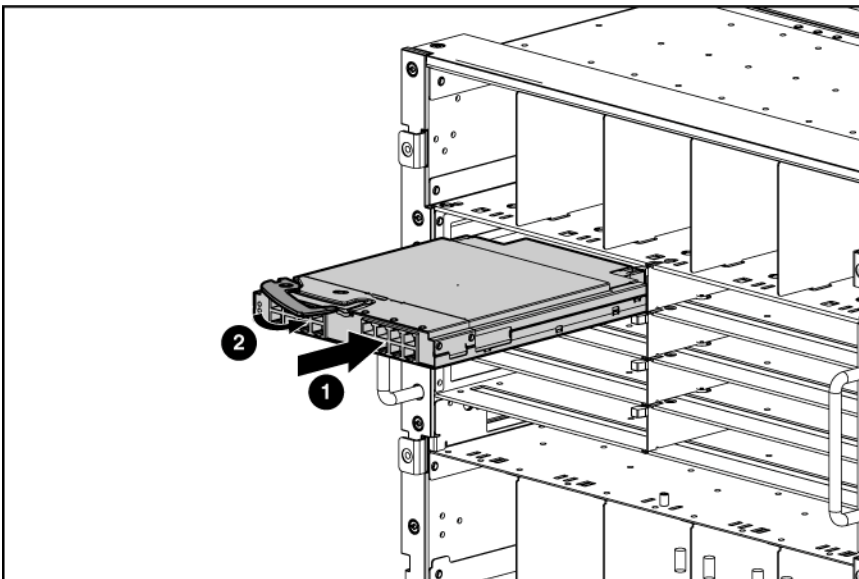
NOTE: For more information on how and where to install mezzanine cards, see the server-specific user guide.

To install an interconnect module:

1. Remove the interconnect blank, if applicable.



2. If you are installing a double-wide interconnect module, remove the interconnect bay dividers ("[Removing interconnect bay dividers](#)" on page 49).
3. Install the interconnect module, and close the release lever.



Mapping to interconnect ports

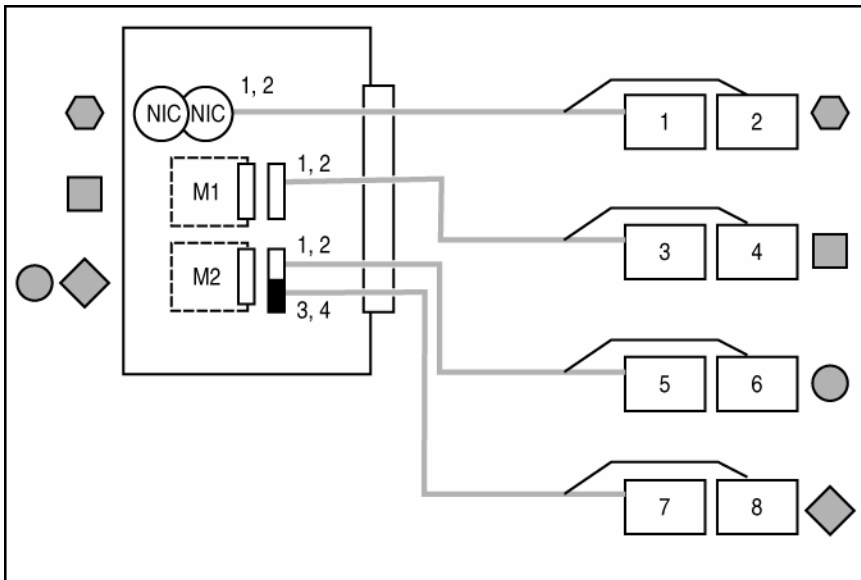
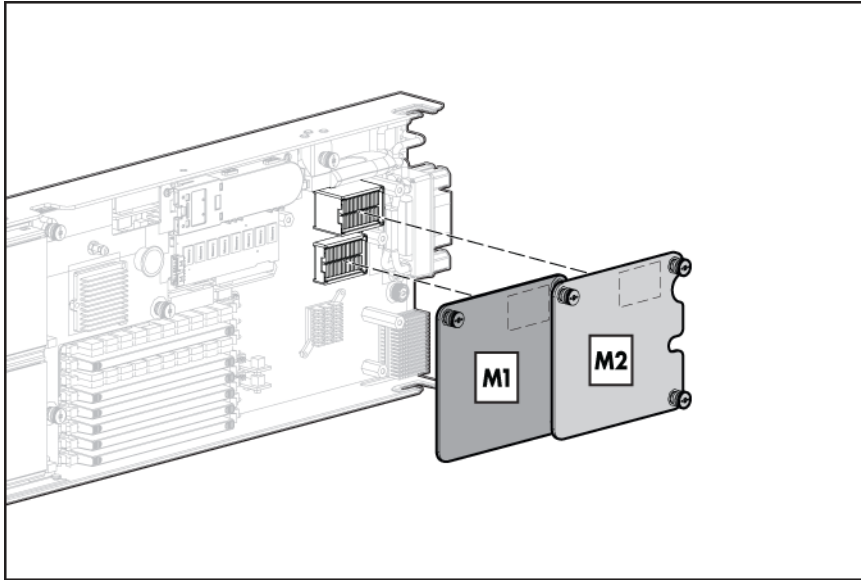
Several port types are referenced in the following tables.

- Examples of 1x ports are 1-Gb Ethernet (1 GbE) Pass-through modules and Fibre Channel interconnect modules.
- An example of a 2x port is a Serial Attached SCSI (SAS) interconnect module.

- Examples of 4x ports are 10-Gb Ethernet (10 GbE) interconnect modules.

NOTE: 1x and 2x port mezzanine cards interface with single-wide interconnect modules. 4x port mezzanine cards interface with double-wide interconnect modules.

Mapping half-height server blades



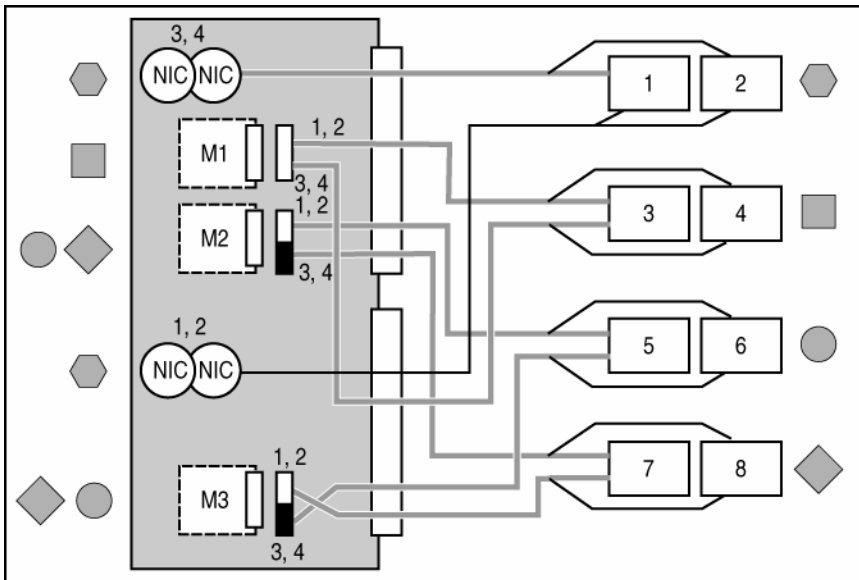
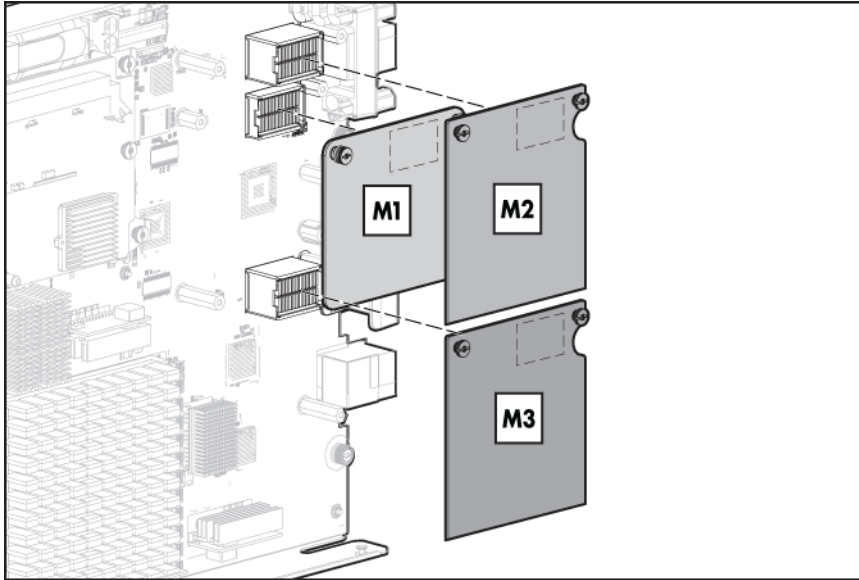
The following table lists the available configurations for half-height devices installed in device bay N (1–16).

Connection	Port number	Connects to interconnect bay/port	Comments
Embedded NIC	NIC 1 NIC 2	1/Port N 2/Port N	One or two single-wide Ethernet interconnect modules

Connection	Port number	Connects to interconnect bay/port	Comments
Mezzanine slot 1—1x or 2x cards	1x/2x port 1 1x/2x port 2	3/Port N 4/Port N	<ul style="list-style-type: none"> • One single-wide interconnect module • Four port cards will only connect the first two ports.
Mezzanine slot 1—4x cards	4x port 1	3/Port N	<ul style="list-style-type: none"> • One double-wide interconnect module • Only port 1 of a two port card will be connected.
Mezzanine slot 2—1x or 2x cards	1x/2x port 1 1x/2x port 2 1x/2x port 3 1x/2x port 4	5 / port N 6 / port N 7 / port N 8 / port N	One or two single-wide interconnect modules
Mezzanine slot 2—4x cards	4x port 1 4x port 2	5/Port N 7/Port N	One or two double-wide interconnect modules

* Connectivity to interconnect bays 7 and 8 is only available with four-port mezzanine cards or port 2 of 4x card in Mezzanine slot 2.

Mapping full-height server blades



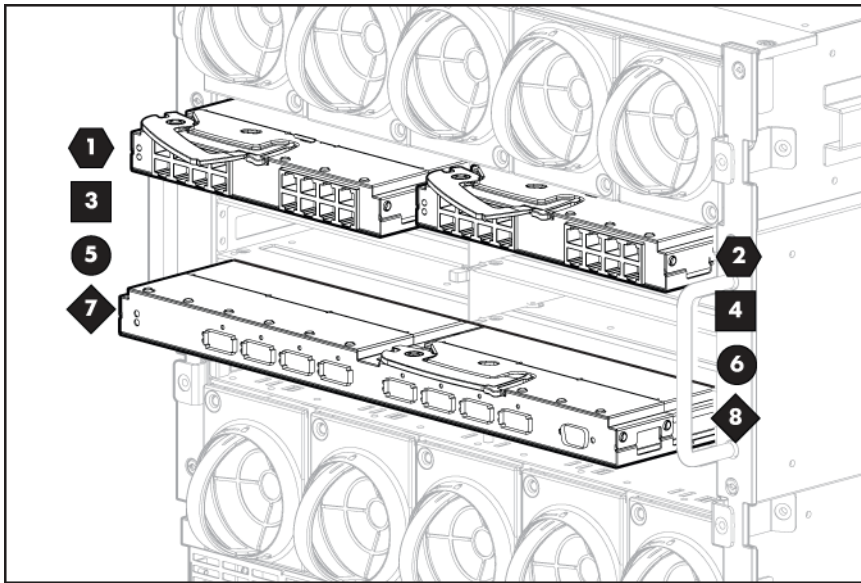
The following table lists the available configurations for full-height devices installed in device bay N (1–8).

Connection	Port number	Connects to interconnect bay/port	Comments
NIC	NIC 1	1/Port N+8	One or two single-wide Ethernet interconnect modules
	NIC 2	2/Port N+8	
	NIC 3	1/Port N	
	NIC 4	2/Port N	
Mezzanine slot 1 — 1x or 2x cards	1x/2x port 1	3/Port N	One or two single-wide interconnect modules
	1x/2x port 2	4/Port N	
	1x/2x port 3	3/Port N+8	
	1x/2x port 4	4/Port N+8	

Connection	Port number	Connects to interconnect bay/port	Comments
Mezzanine slot 1—4x cards	4x port 1	3/Port N	<ul style="list-style-type: none"> One double-wide interconnect module Only port 1 of a two port card will be connected
Mezzanine slot 2—1x or 2x cards	1x/2x port 1 1x/2x port 2 1x/2x port 3 1x/2x port 4	5/Port N 6/Port N 7/Port N+8 8/Port N+8	Up to four single-wide interconnect modules
Mezzanine slot 2—4x cards	4x port 1 4x port 2	5/Port N 7/Port N	One or two double-wide interconnect modules
Mezzanine slot 3—1x or 2x cards	1x/2x port 1 1x/2x port 2 1x/2x port 3 1x/2x port 4	7/Port N 8/Port N 5/Port N+8 6/Port N+8	Up to four single-wide interconnect modules
Mezzanine slot 3—4x cards	4x port 1 4x port 2	5/Port N 7/Port N	One or two double-wide interconnect modules

* Connectivity to interconnect bays 7 and 8 is only available with four-port mezzanine cards or port 2 of 4x card in Mezzanine slot 2.

Interconnect bay identification



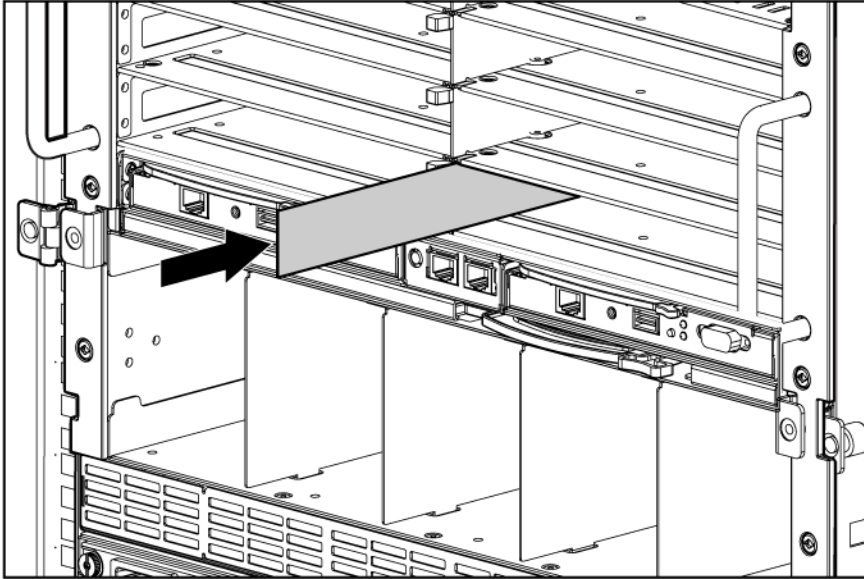
Removing interconnect bay dividers

The enclosure ships with interconnect bay dividers installed. The interconnect bay dividers must be removed before installing double-wide interconnect modules. To remove an interconnect bay divider, press the release tab, and pull the interconnect bay divider out of the enclosure.

Installing interconnect bay dividers

The enclosure ships with interconnect bay dividers installed. The interconnect bay dividers must be installed to use single-wide interconnect modules.

To reinstall an interconnect bay divider, align the interconnect bay divider with the rail, and slide the divider into the enclosure until it locks into place.




Cabling and powering up the enclosure


In this section

Cabling the enclosure	51
Powering up the enclosure.....	54

Cabling the enclosure

After all system hardware is installed, cable the components. See the *HP ProLiant BL System Best Practices Guide* on the Documentation CD or the HP website (<http://www.hp.com>) for HP recommendations on cable ordering.

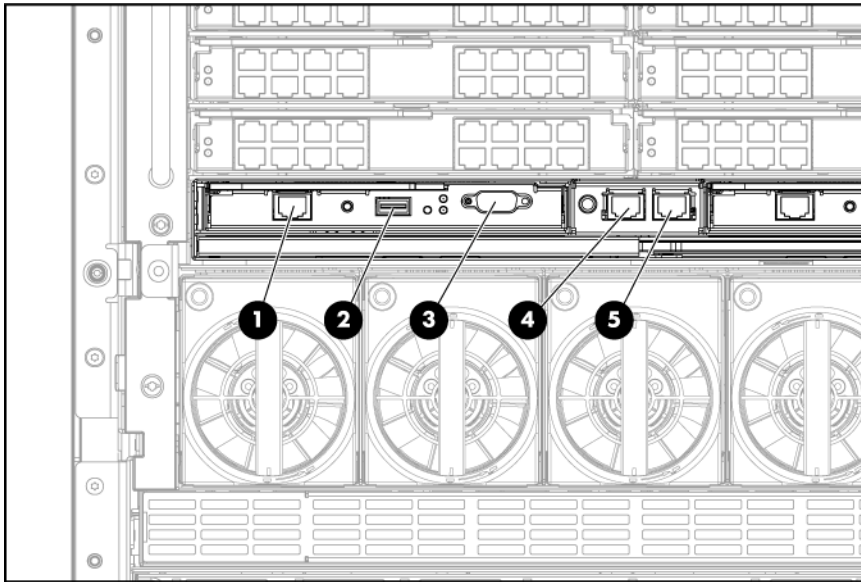
 **WARNING:** To reduce the risk of electric shock or injury due to high-current electrical energy, be sure that all power is completely disconnected at the source before beginning any power connections to the power bus bars or power bus box.

 **WARNING:** Be sure that all circuit breakers are locked in the off position before connecting any power components.

To cable the system:

1. Connect the Onboard Administrator modules ("[Onboard Administrator cabling](#)" on page [52](#)).
2. Connect the network cables to the interconnect modules. See the documentation that ships with the interconnect modules, or the *HP ProLiant BL System Best Practices Guide* on the Documentation CD or the HP website (<http://www.hp.com/go/bizsupport>).
3. Connect to the AC or DC power source in your facility and power up the enclosure ("[Powering up the enclosure](#)" on page [54](#)).

Onboard Administrator cabling



Item	Connector	Description
1	OA/iLO	Onboard Administrator Ethernet connection. Use a CAT5 patch cable to connect to the management network. This is the connector for the IP address of the Onboard Administrator and for the iLO ports on each server blade.
2	USB	For future USB connections. Not currently supported.
3	Serial connector	Used for command line interface (CLI). Connects to a laptop or computer with a null-modem serial cable (RS232).
4	Enclosure link-down port	Connects to the enclosure link-up port on the enclosure below with a CAT5 patch cable.
5	Enclosure link-up port and service port	Connects to the enclosure link-down port on the enclosure above with a CAT5 patch cable. On a stand-alone enclosure or the top enclosure in a series of linked enclosures, the top enclosure link-up port functions as a service port.

Enclosure link cabling

Two enclosure link ports are provided on the rear of the enclosure ("[Onboard Administrator components](#)" on page 18). Link multiple enclosures installed in one rack to:

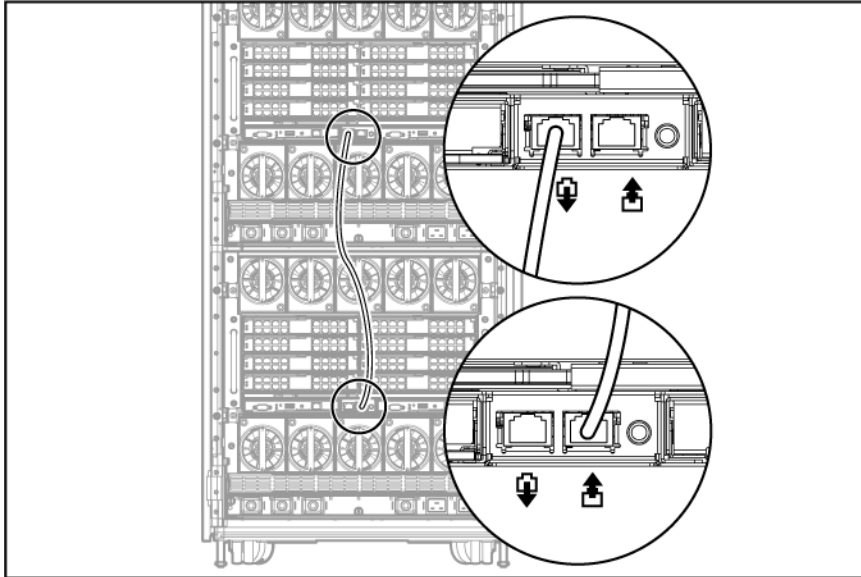
- Allow any active Onboard Administrator module to access the linked enclosures.
- Use the enclosure link-up port ("[Onboard Administrator components](#)" on page 18) on the top enclosure for temporary connection to a PC using the enclosure service port ("[Cabling a PC to the enclosure service port](#)" on page 53) to provide quick access to any Onboard Administrator module, iLO 2, or interconnect module with Ethernet management ability.
- Allow enclosure settings to be shared between enclosures, which simplifies deployment of multiple enclosures.

NOTE: The enclosure link ports are designed only to support c-Class enclosures in the same rack. The enclosure link-up port on the top enclosure is the service port, and the enclosure link-down port on the bottom linked enclosure is unused.

NOTE: If more c-Class enclosures are added to the rack at a later time, the open enclosure link-up port on the top enclosure can be used to link the new enclosure.

NOTE: The HP BladeSystem c-Class enclosure link ports are not compatible with the HP BladeSystem p-Class enclosure link ports.

To link the enclosures, use a standard Category 5 (CAT5) patch cable to connect the enclosure link-down port on the first enclosure to the enclosure link-up port on the second enclosure.



Cabling a PC to the enclosure service port

A PC can be temporarily connected to the enclosure to access the Onboard Administrator modules, iLO 2, and interconnect modules with Ethernet management ability. When enclosures in the same rack are linked, connecting a PC to the service port enables you to access the Onboard Administrator modules, iLO 2, and interconnect modules for all linked c-Class enclosures in that rack.

NOTE: The service port is the enclosure link-up port on the **top** enclosure in a group of linked enclosures. If the enclosures are not linked together, each enclosure has a service port.

Only one PC at a time can be connected to a group of linked enclosures using the service port.

1. Use the Insight Display on the enclosure you are logging into to obtain the Service IP address of that active Onboard Administrator module on the Enclosure Info screen. The Service IP address can be found in the Enclosure Settings ("[Enclosure Settings screen](#)" on page 67) screen.
2. Connect the laptop or PC 10/100Mb Ethernet port configured for DHCP addressing to the available link-up port on the top enclosure in the rack using a standard CAT5 patch cable. A Windows™ PC automatically obtains an IP address. If no IP address is obtained, configure the PC Ethernet port for static addressing using the IP address 169.254.1.254 with a netmask of 255.255.0.0.
3. Open a web browser on the PC and enter the active Onboard Administrator module Service IP address found in the Enclosure Info screen in step 2.
4. Log into the Remote Onboard Administrator. See the *HP BladeSystem Onboard Administrator User Guide* for information on using the Remote Onboard Administrator feature.

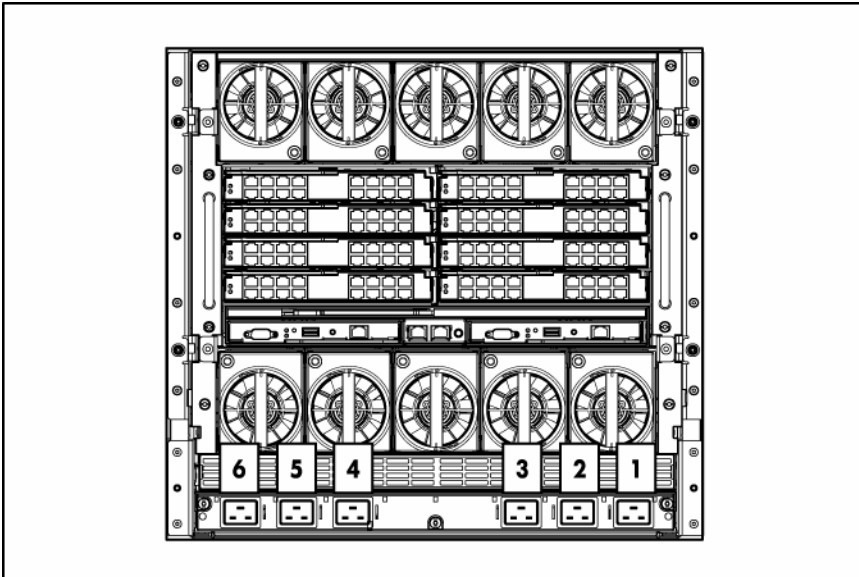
Cabling the network to the enclosure

Cable the interconnect modules to the enclosure. See "Mapping to interconnect ports (on page 45)" and the supporting documentation that came with your interconnect modules for specific details on cabling the interconnect modules.

Powering up the enclosure

Setting up AC power for the enclosure varies depending on whether you have a single-phase AC configuration or a three-phase AC configuration.

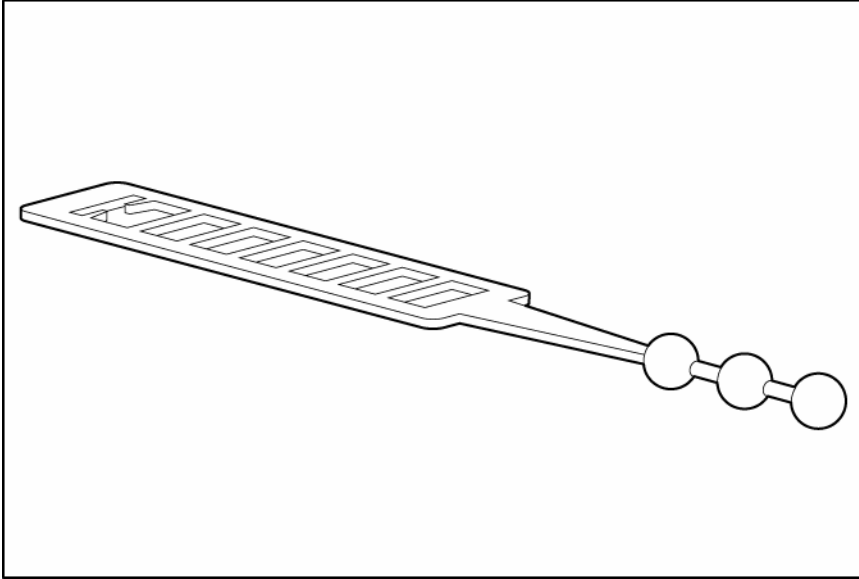
Single-phase AC configuration



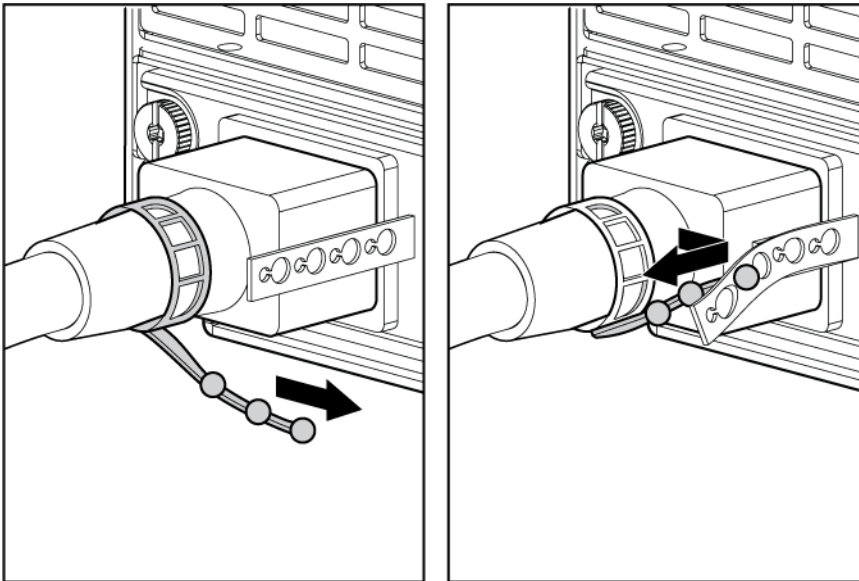
To cable the enclosure using a single-phase AC configuration:

1. Connect the AC power cables to the power connectors on the rear of the enclosure corresponding to the power supply that was populated on the front of the enclosure.
2. Connect the AC power cables to the AC power source or to an installed power distribution unit (PDU).
3. Turn on the AC circuit breakers for the enclosure.

4. Locate the bag of power retention ties that was taped to the top of the enclosure when it was shipped.



5. Be sure each power cable is securely attached to the power connectors.
6. Place a power retention tie around one of the power cables near the base of the plug, wrap it around the power cable, and then insert the plastic bead at one end of the power retention tie into the opening at the other end. Pull tightly.
7. Insert the plastic bead on the power retention tie into the cable retention strap located next to the power supply to secure the power cable tightly to the enclosure.



8. Repeat for each power cable attached to the enclosure.

When the enclosure powers up for the first time, it might take up to 5 minutes before all server blades are initialized and recognized by the Onboard Administrator. The time it takes to complete initialization depends on the number of server blades configured in the enclosure. For example, a full enclosure of 16 server blades might take 5 minutes to power up, while an enclosure with fewer server blades might take less time. Server blades are powered up incrementally, starting from device bay 1.

When first initialized, the Onboard Administrator programs the mezzanine cards on the server blades during discovery. After the mezzanine cards are programmed, powering up the enclosure takes only 1 to 2 minutes.

The enclosure and the Insight Display now have power. Configure the enclosure ("[Running the Insight Display installation steps](#)" on page 59) using the Insight Display.

PDU installation

The PDU can be installed in either a 1U or a 0U configuration. See the installation instructions that came with the PDU for specific details on installing the PDU in the rack.

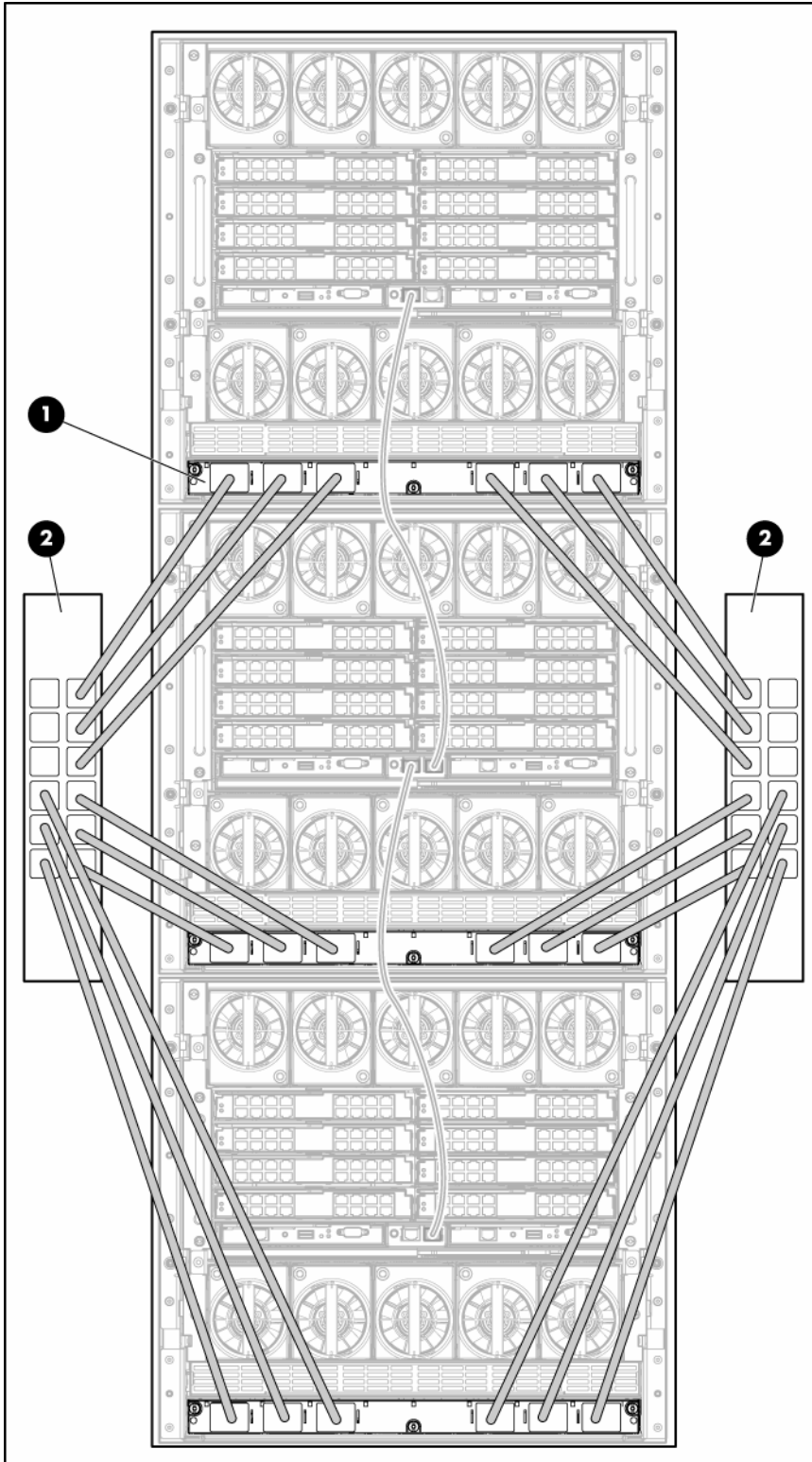
NOTE: Rack-based single-phase PDUs cannot be used with a three-phase power configuration.

NOTE: Total VA load of the attached enclosures should not exceed the VA capacity of the PDU. Do not exceed the rated current on circuit breakers.

To connect power to the PDU:

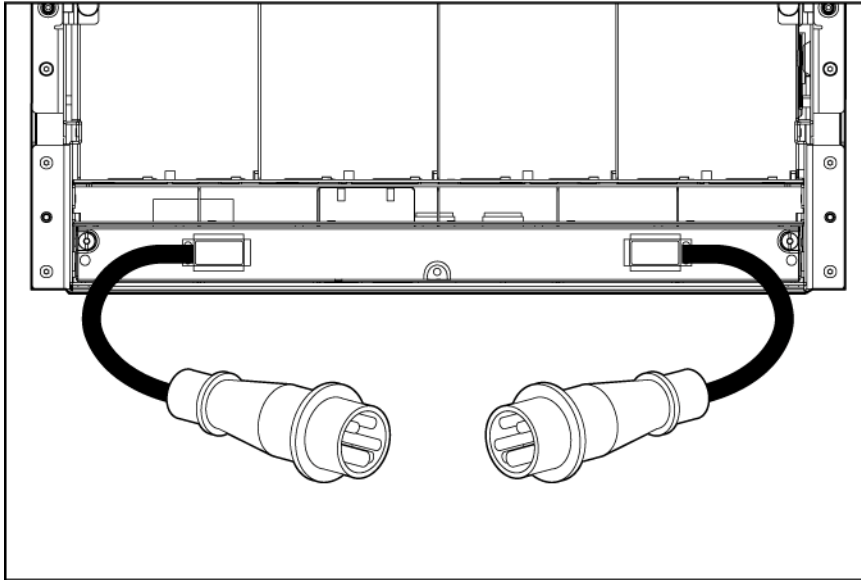
1. Connect the AC power cables to the power connectors on the rear of the enclosure corresponding to the power supply that was populated on the front of the enclosure.

2. Connect the AC power cables to the installed PDU.



3. Power up the enclosure ("[Powering up the enclosure](#)" on page 54).

Three-phase AC configuration



To cable the enclosure using a three-phase AC configuration:

1. The AC power cables are already attached to the enclosure.
2. Connect the AC power cables to the AC power source.
3. Turn on the AC circuit breakers for the enclosure.

When the enclosure powers up for the first time, it might take up to 5 minutes before all server blades are initialized and recognized by the Onboard Administrator. The time it takes to complete initialization depends on the number of server blades configured in the enclosure. For example, a full enclosure of 16 server blades might take 5 minutes to power up, while an enclosure with fewer server blades might take less time. Server blades are powered up incrementally, starting from device bay 1.

When first initialized, the Onboard Administrator programs the mezzanine cards on the server blades during discovery. After the mezzanine cards are programmed, powering up the enclosure takes only 1 to 2 minutes.

The enclosure and the Insight Display now have power. Configure the enclosure ("[Running the Insight Display installation steps](#)" on page 59) using the Insight Display.

HP BladeSystem Insight Display

In this section

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Running the Insight Display installation steps.....	59
Navigating the Insight Display	63

Insight Display overview

The Insight Display enables the rack technician to configure the enclosure initially. It also provides information about the health and operation of the enclosure. See the *HP BladeSystem Onboard Administrator User Guide* for additional information.

The color of the Insight Display varies with the condition of the enclosure health:

- **Blue**—The Insight Display illuminates blue when the enclosure UID is active. The enclosure UID is automatically turned on when the enclosure is powered up for the first time and can be turned on by selecting **Turn Enclosure UID On** from the Main Menu or by pressing the enclosure UID button on the Onboard Administrator.

When the enclosure UID is on, the Insight Display flashes after 2 minutes of inactivity. Pressing any button on the Insight Display stops the flashing and reactivates the screen.

- **Green**—The Insight Display illuminates green when no error or alert conditions exist and the enclosure is operating normally. After 2 minutes of inactivity, the Insight Display light turns off. Pressing any button on the Insight Display reactivates the screen.
- **Amber**—The Insight Display illuminates amber when the Onboard Administrator detects an error or alert condition. The details of the condition display on the screen.

After 2 minutes of inactivity, the Insight Display flashes amber, indicating an error or alert condition exists. If the enclosure UID is on and an error or alert condition exists, the Insight Display illuminates blue because the enclosure UID takes priority over the alert. Pressing any button on the Insight Display reactivates the screen.

- **Dark (no power)**—The Insight Display has a 2-minute inactivity period. If no action is taken and no alert condition exists, the screen light turns off after 2 minutes. Pressing any button on the Insight Display reactivates the screen.

The Enclosure Health icon is located on the bottom left corner of every screen, indicating the enclosure health. Navigate the cursor to the Enclosure Health icon and press **OK** to access the Health Summary screen (on page 64) from any Insight Display screen.

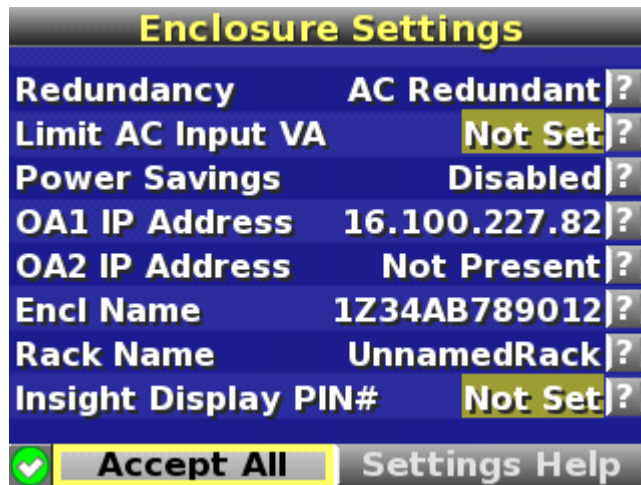
For information on driver and firmware updates, see the HP website (<http://www.hp.com/go/blades/>).

Running the Insight Display installation steps

When the enclosure is powered up for the first time, the Insight Display launches an installation wizard to guide you through the configuration process. After configuring the enclosure, the Insight Display verifies that there are no installation or configuration errors.

To identify the enclosure, the rear enclosure UID light and the background of the Insight Display are illuminated blue when the enclosure is powered on initially. The Installation Wizard automatically turns on the enclosure UID at the beginning of the installation and turns it off after the installation is complete.

The Enclosure Settings screen (on page 67) is the first screen to display. The background color is blue because the enclosure UID is active when this screen displays.



1. Review each setting on the Enclosure Settings screen (on page 67) for accuracy.
2. To change any value, navigate the cursor to the menu option to be edited, and press the **OK** button.
3. Change the setting to the appropriate value, navigate the cursor to **Accept**, and press the **OK** button to return to the Enclosure Settings menu. Repeat this step until all options on the Enclosure Settings menu are accurate.

TIP: Select the ? icon to access detailed help information about each setting or topic.

TIP: Within any menu option, navigate the cursor to **What is This**, and press the **OK** button to view additional information about each setting, option, or alert.

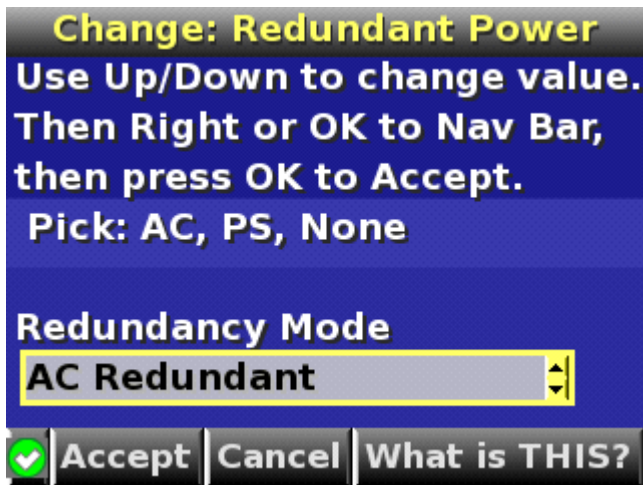
4. When all settings on the Enclosure Settings menu are accurate, navigate the cursor to **Accept All**, and press the **OK** button to accept the current settings.

You can change the following options in the Enclosure Settings screen:

Redundant Power Mode—The default setting is AC Redundant. The following selections are valid:

- o AC Redundant
- o Power Supply Redundant

- None



Limit AC Input VA—The default setting is Not Set. The Max AC Watts can be changed in increments of 50 Watts.



IMPORTANT: When calculating the Limit AC Input VA value, derate the circuit to 80% of the maximum to prevent tripping the circuit breaker (United States only).



IMPORTANT: If your facility cannot support the calculated peak AC input VA, set the Limit AC Input VA value to match the capability of your facility.

Power Savings—The default setting is Enabled. The following selections are valid:

- **Enabled**—Some of the power supplies can be automatically placed on standby to increase overall enclosure power subsystem efficiency.
- **Disabled**—All power supplies share the load; the power subsystem efficiency will vary based on load.

OA1 IP Addr—The default setting is DHCP; if no IP address is received, the IP address is 0.0.0.0. The IP address, mask, and gateway are set within this option.

OA2 IP Addr—If this module is present, the default setting is DHCP; if no IP address is received, the IP address is 0.0.0.0. If only one Onboard Administrator module is installed, the screen will display "Not Present."

Enclosure Name—The default setting is a unique factory-assigned name. The accepted character values are 0–9, A–Z, a–z, -, _ and □. □ is used to signal the end of the name.

NOTE: Do not use the □ symbol in the middle of a text field. Entries in text fields will be truncated to the last character before the □ symbol.



TIP: Select **Clear** from the navigation bar to quickly clear entries in text fields up to the □ symbol.

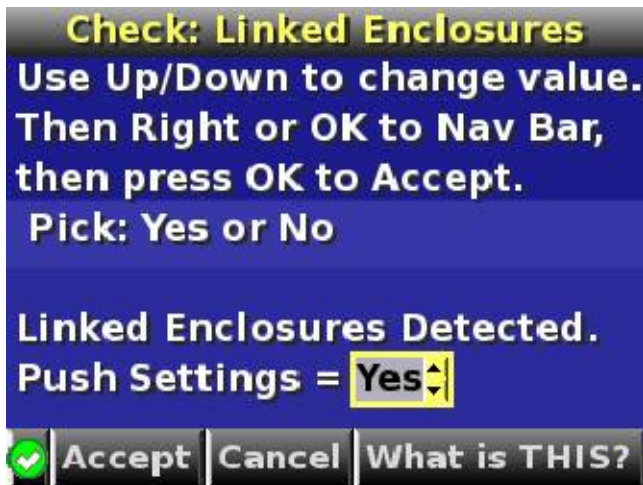
Rack Name—The default setting is UnnamedRack The accepted character values are 0–9, A–Z, a–z, -, _ and □. □ is used to signal the end of the name.

Insight Display PIN#—The default setting is Not Set. HP recommends that you set a PIN to protect the enclosure configuration from unauthorized changes. You must enter the PIN after each inactivity period to change options in the Enclosure Settings menu. The accepted character values are 0–9, A–Z, a–z, -, _ and □. □ is used to signal the end of the name.

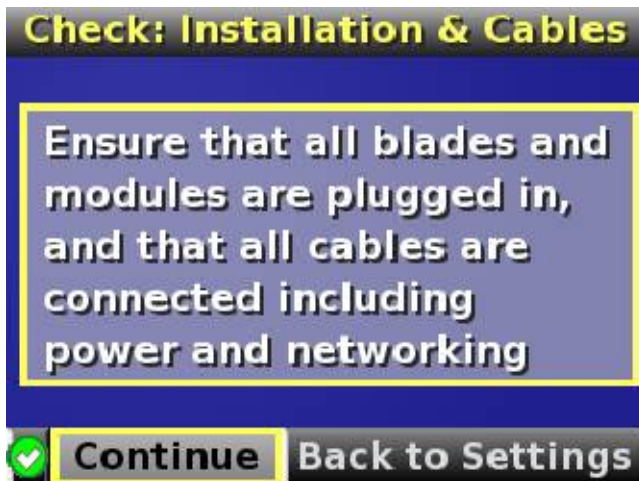
5. Navigate to the **Accept All** button at the bottom of the Enclosure Settings screen, and press the **OK** button to accept all the settings and continue.
6. In the Check: Linked Enclosures screen, the message "Linked enclosures detected" displays if the Onboard Administrator module detects other enclosures. Use the up and down arrow buttons to change **Push Settings** = to one of the following values:
 - o **Yes**—Copy the configured power settings, rack name, and LCD Lockout PIN (if set) from the Enclosure Settings screen to the detected enclosures.
 - o **No**—Continue configuring the current enclosure only. The Insight Display installation wizard must be run on each of the other detected enclosures. Select this option if each enclosure requires different power settings.



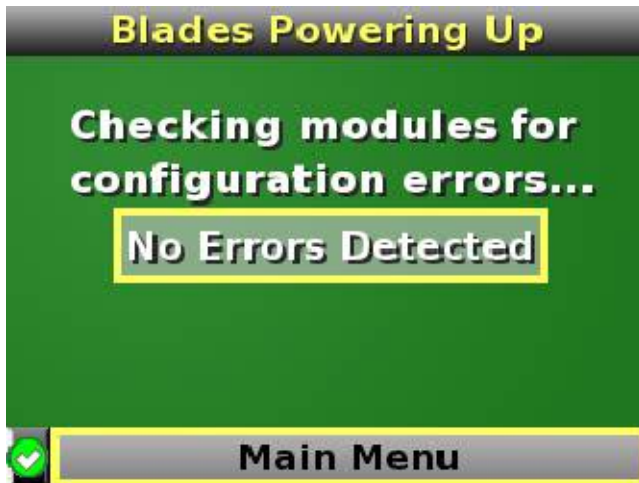
IMPORTANT: If your facility uses Static IP addressing for the Onboard Administrator modules, you must manually enter those IP addresses into the Insight Display for each Insight Display separately. You can enter those Onboard Administrator module IP addresses before you send the settings to adjacent enclosures. You can return to the Enclosure Settings menu after the Installation Wizard completes to change the Onboard Administrator module IP addresses, if necessary.



7. Navigate the cursor to **Accept**, and press the **OK** button.
The installation wizard displays the Check: Installation and Cables screen.



8. Verify all components are installed and cabled before continuing. Select **Continue**, and press the OK button to begin checking for configuration and installation errors. When Continue is selected, the enclosure UID automatically turns off. If **Push Settings = Yes**:
 - o The enclosure settings are pushed to adjacent enclosures
 - o The installation wizards run on each adjacent enclosure
 - o The enclosure UID turns off on the adjacent enclosures
9. If no errors are detected, the rear enclosure UID turns off, and the Insight Display screen illuminates green. Press the **OK** button to return to the Main Menu. Enclosure and blade hardware setup and configuration is complete.



If errors are detected, the Insight Display screen illuminates amber, and the Health Summary screen displays. See [Insight Display errors \(on page 75\)](#) for more information on troubleshooting configuration and installation errors.



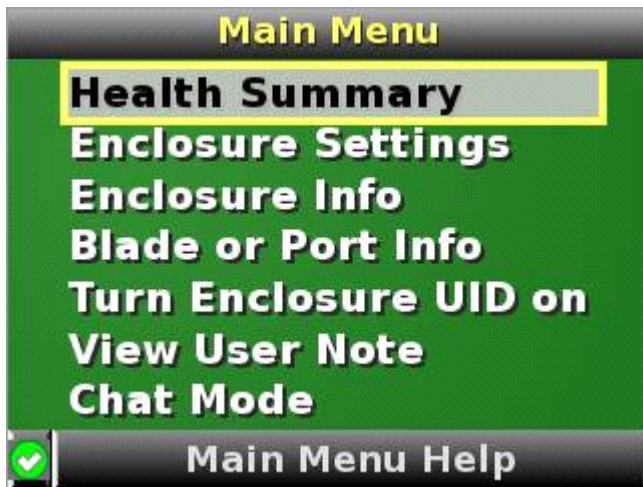
IMPORTANT: All configuration errors prevent the operation of the enclosure and should be corrected immediately.

10. Open a browser and connect to the active Onboard Administrator module using the Onboard Administrator IP address that was configured during the Insight Display installation wizard process.
11. Enter the user name and password from the tag supplied with the Onboard Administrator module to access the remote Onboard Administrator web interface and complete the Onboard Administrator first time installation wizard.

Navigating the Insight Display

Navigate through the menus and selections by using the arrow buttons on the Insight Display ("[HP BladeSystem Insight Display components](#)" on page 16) panel.

The first menu that appears is the Main Menu:



The Main Menu of the Insight Display has the following menu options:

- Health Summary ("Health Summary screen" on page 64)
- Enclosure Settings ("Running the Insight Display installation steps" on page 59)
- Enclosure Info ("Enclosure Info screen" on page 67)
- Blade or Port Info ("Blade and Port Info screen" on page 68)
- Turn Enclosure UID On/Off ("Turn Enclosure UID On/Off screen" on page 70)
- View User Note ("View User Note screen" on page 71)
- Chat Mode ("Chat Mode screen" on page 71)



TIP: Within any menu option, navigate the cursor to **What is This**, and press the **OK** button to view additional information about each setting, option, or alert.

The navigation bar contains options to:

- Navigate forward and backward through alert screens
- Return to the main menu
- Accept changes to current settings
- Cancel changes to current settings
- Access the Health Summary screen from any screen by selecting the Health Summary icon on the navigation bar

Health Summary screen

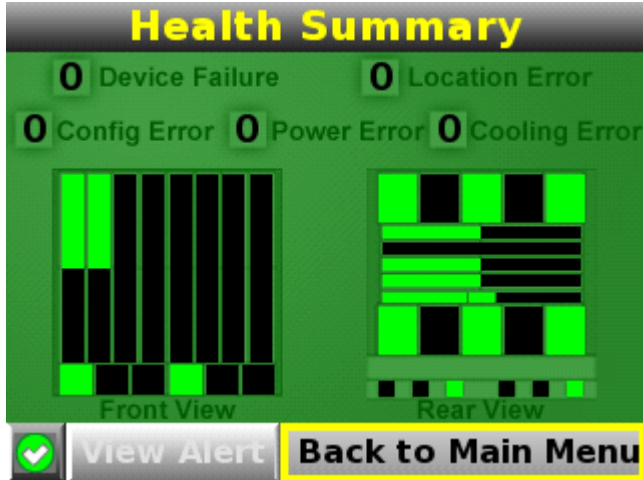
The Health Summary screen displays the current condition of the enclosure. The Health Summary screen can be accessed by:

- Selecting **Health Summary** from the main menu
- Selecting the **Health Summary icon** from any Insight Display screen

When an error or alert condition is detected, the Health Summary screen displays the total number of error conditions and the error locations.

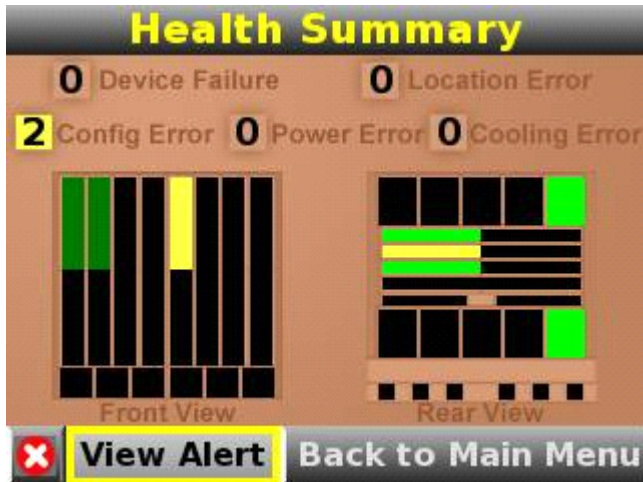
Select **Next Alert** from the navigation bar, and press the **OK** button to view each individual error condition. The Insight Display displays each error condition in the order of severity. Critical alerts display first (if one exists), followed by caution alerts.

When the enclosure is operating normally, the Health Summary screen displays green. The bright green rectangles are components that are installed and on. A light green rectangle represents a component that is installed but powered off with no errors.

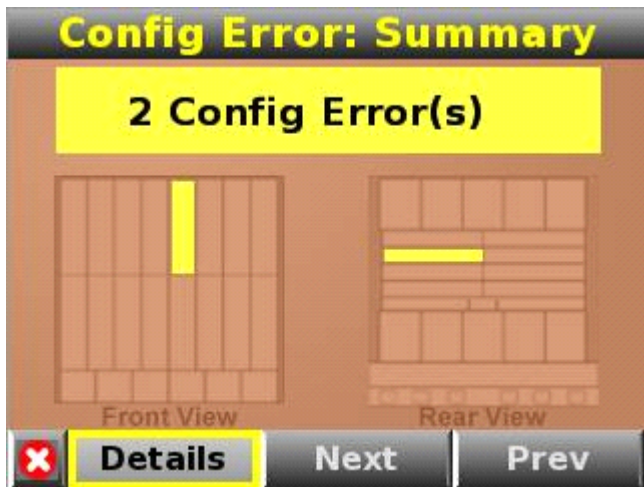


The only option active on the navigation bar is Back to Main Menu. Select **Back to Main Menu**, and press the OK button to return to the main menu.

If there is a configuration error between the server blade and the interconnect module, the error will be highlighted in yellow.

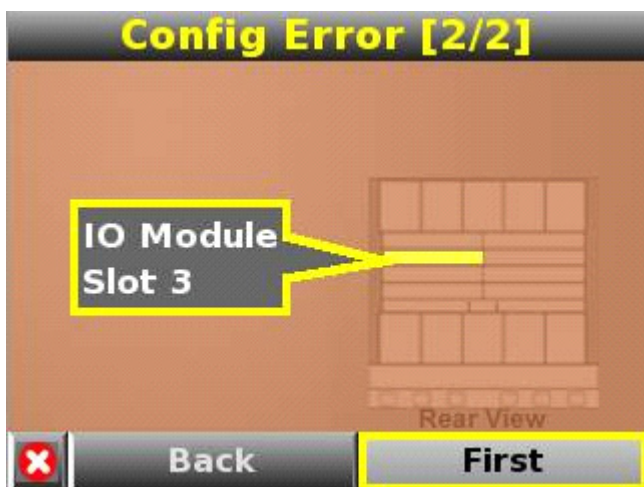
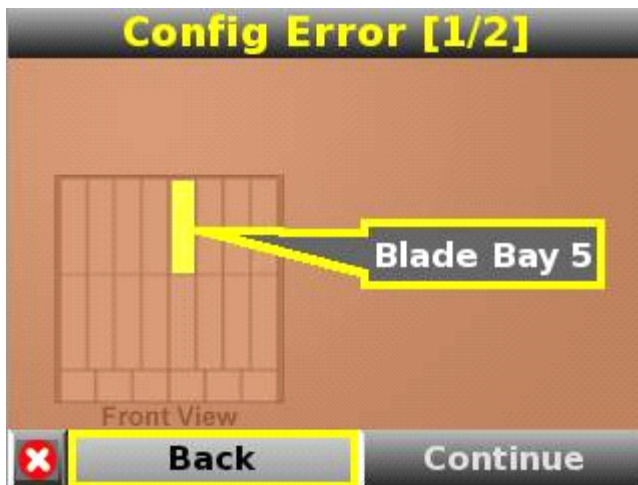


Select **View Alert** and press the OK button to display the errors.



Select **Details** to view the details of the error.

In the following example, the server blade in bay 5 and the interconnect module in slot 3 have a configuration error.



Enclosure Settings screen

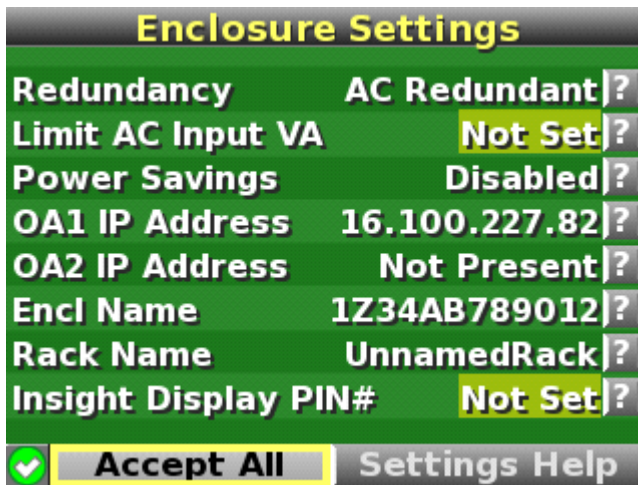
The Enclosure Settings screen displays the following setting information about the enclosure, including:

- Redundancy mode setting
- Limit AC input VA setting
- Power Savings mode setting
- Active and Standby OA IP addresses
- Enclosure Name
- Rack Name
- Insight Display PIN#



TIP: Set a PIN to protect the enclosure settings from changes.

Navigate the cursor to a setting or to the ?, and press OK to change the setting or get help on that setting.

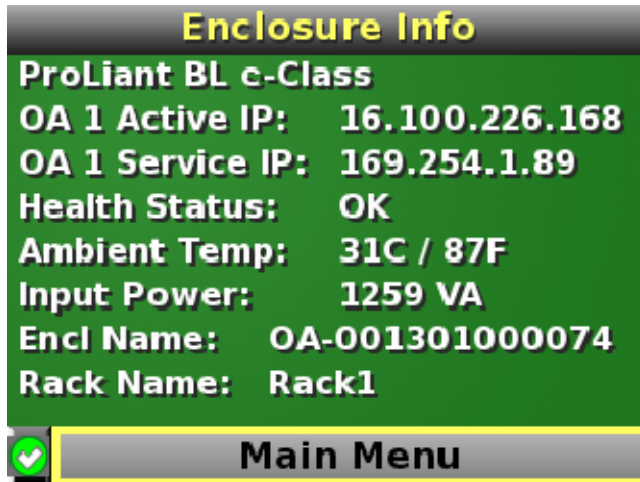


Enclosure Info screen

The Enclosure Info screen displays information about the enclosure, including:

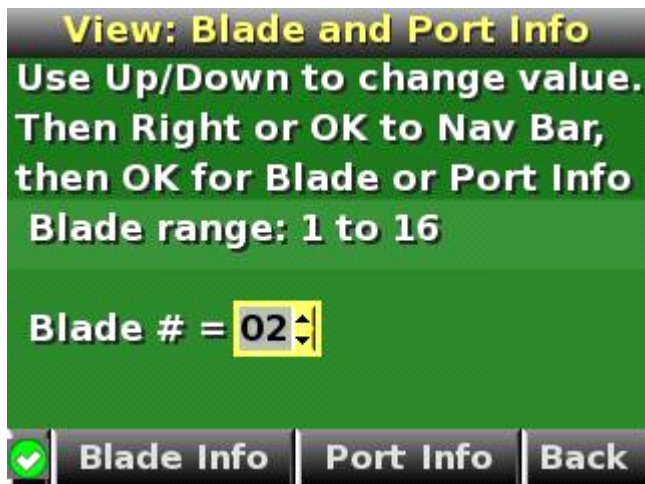
- Active OA IP address
- Active OA Service IP address
- Current health status of the enclosure
- Current enclosure ambient temperature
- Current AC input power to the enclosure
- Enclosure name

- Rack name

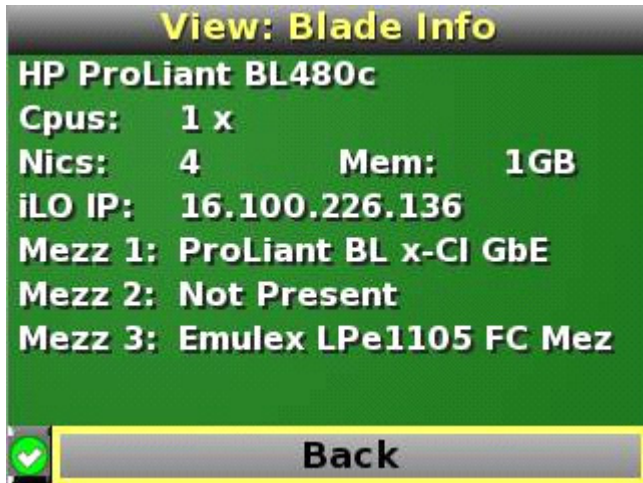


Blade and Port Info screen

The Blade or Port Info screen displays information about a specific server blade. On the first screen, select the server blade number, then press the OK button. Select **Blade Info** or **Port Info**, and press the OK button.



To view information about the server blade, select **Blade Info** and press the OK button.



To view the ports used by a specific server blade, select **Port Info** and press the OK button.

On the following full-height server blade, there are four embedded NICs. There are two interconnect modules located in interconnect bays 1 and 5, shown with bright green highlights. The other interconnect bays are empty. The four embedded NICs are connected to particular port numbers on the interconnect modules.



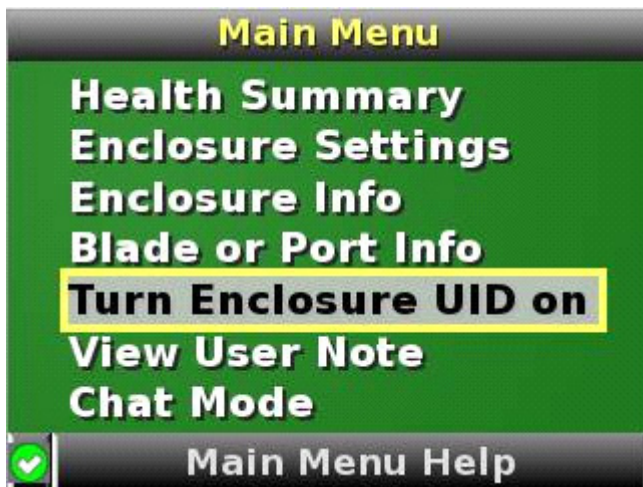
The following Port Info screen shows a configuration error. There is a mismatch between the mezzanine card and interconnect module. Interconnect bay 3 contains a Fibre Channel interconnect module. Mezzanine 1 on the server blade is a gigabit Ethernet which does not match the technology of the interconnect module. Therefore an error displays.



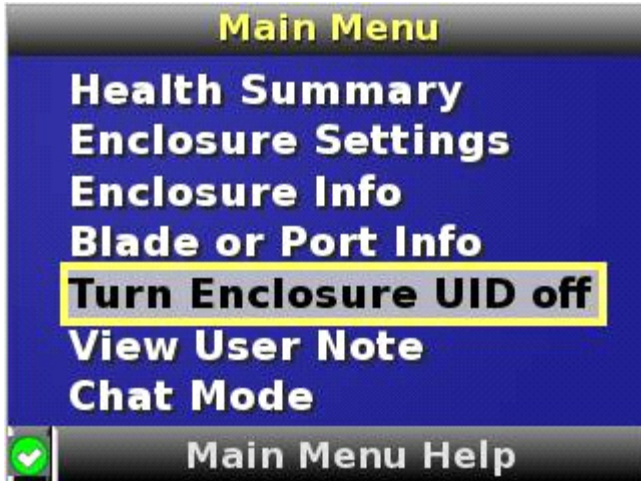
Turn Enclosure UID On/Off screen

The main menu option displays "Turn Enclosure UID Off" when the enclosure UID is active, and displays "Turn Enclosure UID on" when the enclosure UID is off.

Selecting **Turn Enclosure UID On** from the main menu turns on the rear enclosure UID LED and changes the color of the Insight Display screen to blue.

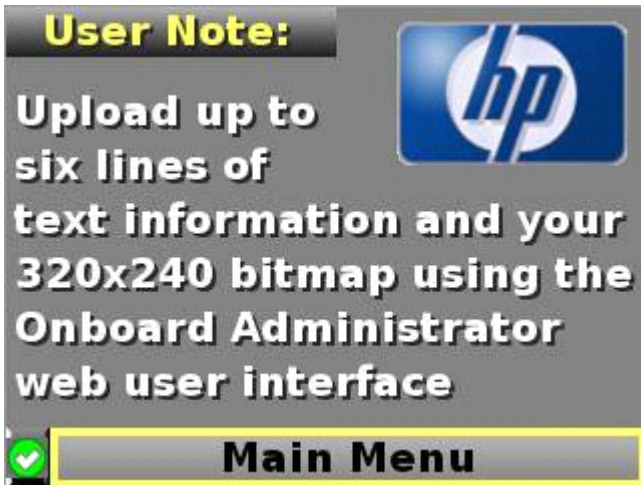


Selecting **Turn Enclosure UID Off** from the main menu turns off the rear enclosure UID LED and changes the color of the Insight Display screen to the current condition ("[Insight Display overview](#)" on page 59).



View User Note screen

The View User Note screen displays six lines of text, each containing a maximum of 16 characters. Use this screen to display helpful information such as contact phone numbers or other important information. Change this screen using the remote Onboard Administrator user web interface. Both the background bitmap and the text can be changed.



Chat Mode screen

The Chat Mode screen is used by the remote administrator who uses the web interface to send a message to an enclosure Insight Display. The technician uses the Insight Display buttons to select from a set of prepared responses, or dials in a custom response message on the ? line. To send a response back to the Administrator, navigate the cursor to **Send**, then press the **OK** button.

The Chat Mode screen has top priority in the Insight Display and will remain on the screen until **Send** is selected. The technician can leave this chat screen temporarily and use the other Insight Display screens, then return to the Chat Mode screen from the Main Menu to send a response. After the response, the Chat Mode screen is cleared. Both the A and ? responses are then displayed to the remote Administrator on the web interface for LCD Chat.



Troubleshooting

In this section

Troubleshooting resources	73
Important safety information	73
Insight Display errors	75

Troubleshooting resources

The *HP ProLiant Servers Troubleshooting Guide* provides simple procedures for resolving common problems as well as a comprehensive course of action for fault isolation and identification, error message interpretation, issue resolution, and software maintenance.

To obtain the guide, refer to any of the following sources and then select the *HP ProLiant Servers Troubleshooting Guide*:

- The server-specific Documentation CD
- The Business Support Center on the HP website (<http://www.hp.com/support>). Navigate to the server technical support page. Under self-help resources, select **ProLiant Troubleshooting Guide**.
- The Technical Documentation website (<http://www.docs.hp.com>). Select **Enterprise Servers, Workstations and Systems Hardware**, and then the appropriate server.

Important safety information

Familiarize yourself with the safety information in the following sections before troubleshooting the server.



Important safety information

Before servicing this product, read the *Important Safety Information* document provided with the server.

Symbols on equipment

The following symbols may be placed on equipment to indicate the presence of potentially hazardous conditions.



This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel.

WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure. Refer all maintenance, upgrades, and servicing to qualified personnel.



This symbol indicates the presence of electric shock hazards. The area contains no user or field serviceable parts. Do not open for any reason.

WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure.



This symbol on an RJ-45 receptacle indicates a network interface connection.

WARNING: To reduce the risk of electric shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.



This symbol indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists.

WARNING: To reduce the risk of injury from a hot component, allow the surface to cool before touching.



217.7 kg
480 lb

This symbol indicates that the component exceeds the recommended weight for one individual to handle safely.

WARNING: To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manual material handling.



These symbols, on power supplies or systems, indicate that the equipment is supplied by multiple sources of power.

WARNING: To reduce the risk of injury from electric shock, remove all power cords to completely disconnect power from the system.

Warnings and cautions



WARNING: Only authorized technicians trained by HP should attempt to repair this equipment. All troubleshooting and repair procedures are detailed to allow only subassembly/module-level repair. Because of the complexity of the individual boards and subassemblies, no one should attempt to make repairs at the component level or to make modifications to any printed wiring board. Improper repairs can create a safety hazard.



WARNING: To reduce the risk of personal injury or damage to the equipment, be sure that:

- The leveling feet are extended to the floor.
- The full weight of the rack rests on the leveling feet.
- The stabilizing feet are attached to the rack if it is a single-rack installation.
- The racks are coupled together in multiple-rack installations.
- Only one component is extended at a time. A rack may become unstable if more than one component is extended for any reason.



WARNING: To reduce the risk of electric shock or damage to the equipment:

- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
- Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
- Unplug the power cord from the power supply to disconnect power to the equipment.
- Do not route the power cord where it can be walked on or pinched by items placed against it. Pay particular attention to the plug, electrical outlet, and the point where the cord extends from the server.



217.7 kg

480 lb

WARNING: To reduce the risk of personal injury or damage to the equipment:

- Observe local occupation health and safety requirements and guidelines for manual handling.
 - Obtain adequate assistance to lift and stabilize the chassis during installation or removal.
 - The server is unstable when not fastened to the rails.
 - When mounting the server in a rack, remove the power supplies and any other removable module to reduce the overall weight of the product.
-



CAUTION: To properly ventilate the system, you must provide at least 7.6 cm (3.0 in) of clearance at the front and back of the server.



CAUTION: The server is designed to be electrically grounded (earthed). To ensure proper operation, plug the AC power cord into a properly grounded AC outlet only.

Insight Display errors

The enclosure installation is successful when all errors are corrected. The errors in the following sections are specific to installation and initial configuration of the enclosure. To clear errors that occur after initial powerup and configuration, see the *HP BladeSystem Onboard Administrator User Guide* for information.

The following types of errors can occur when installing and configuring the enclosure:

- Power errors (on page [75](#))
- Cooling errors (on page [76](#))
- Location errors (on page [76](#))
- Configuration errors (on page [76](#))
- Device failure errors (on page [76](#))

When the enclosure UID LED is off, the Insight Display is illuminated amber when any error condition exists. The navigation bar displays the following selections when an error condition exists:

- Health summary icon—Displays the Health Summary screen.
- Fix THIS—Suggests corrective action to clear the current error.
- Next Alert—Displays the next alert, or if none exist, displays the Health Summary screen.
- Previous Alert—Displays the previous alert.

Power errors

Power errors can occur because of insufficient power to bring up an enclosure. Power errors can occur on server blades, storage blades, or interconnect modules.

To correct a power error:

1. Use the arrow buttons to navigate to **Fix This**, and press **OK**.
2. Review and complete the corrective action suggested by the Insight Display. In most cases, you must either add power supplies to the enclosure or remove the indicated components.

Cooling errors

Cooling errors occur when too few fans are installed in the enclosure or when the existing fans are not installed in an effective configuration ("Installing fans" on page 41). Cooling errors can occur on server blades, storage blades, or interconnect modules.

To correct a cooling error:

1. Use the arrow buttons to navigate to **Fix This**, and press **OK**.
2. Review and complete the corrective action suggested by the Insight Display. In most cases, you must either add fans to the enclosure, correct the fan configuration, or remove the indicated components.

Location errors

Location (installation) errors occur when the component is not installed in the appropriate bay. Location errors can occur on server blades, storage blades, power supplies, and fans.

To correct a location error:

1. Use the arrow buttons to navigate to **Fix This**, and press **OK**.
2. Review and complete the corrective action suggested by the Insight Display. Remove the indicated component, and install it into the correct bay. The Insight Display will indicate the correct bay number.

Configuration errors

Configuration errors can occur if the interconnect modules are installed in the wrong bays or if mezzanine cards are installed in the wrong connectors in the server blade. Configuration errors can occur on server blades and interconnect modules.

To correct a configuration error:

1. Use the arrow buttons to navigate to **Fix This**, and press **OK**.
2. Review and complete the corrective action suggested by the Insight Display. Depending on the error received, do one of the following:
 - Remove the indicated interconnect module and install it into the correct bay (the Insight Display indicates the correct bay).
 - Remove the server blade to correct the mezzanine card installation (the Insight Display will indicate the correct bay). For information on installing the mezzanine card, see the server-specific user guide on the Documentation CD.

Device failure errors

Device failure errors occur when a component has failed. Device failure errors can occur on all components, including:

- Server blades
- Storage blades
- Power supplies
- Interconnect modules
- Onboard Administrator modules

- Fans
- AC power inputs

To correct a device failure error:

1. Use the arrow buttons to navigate to **Fix This**, and press **OK**.
2. Review and complete the corrective action suggested by the Insight Display. In most cases, you must remove the failed component to clear the error.
3. Replace the failed component with a spare, if applicable.

NOTE: If the device failure error is an AC power input failure error, you must have the failed AC input repaired to clear the error.

Technical support

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Before you contact HP

Be sure to have the following information available before you call HP:

- Technical support registration number (if applicable)
- Product serial number
- Product model name and number
- Applicable error messages
- Add-on boards or hardware
- Third-party hardware or software
- Operating system type and revision level

HP contact information

For the name of the nearest HP authorized reseller:

- In the United States, see the HP US service locator webpage (http://www.hp.com/service_locator).
- In other locations, see the Contact HP worldwide (in English) webpage (<http://welcome.hp.com/country/us/en/wwcontact.html>).

For HP technical support:

- In the United States, for contact options see the Contact HP United States webpage (http://welcome.hp.com/country/us/en/contact_us.html). To contact HP by phone:
 - Call 1-800-HP-INVENT (1-800-474-6836). This service is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored.
 - If you have purchased a Care Pack (service upgrade), call 1-800-633-3600. For more information about Care Packs, refer to the HP website (<http://www.hp.com>).
- In other locations, see the Contact HP worldwide (in English) webpage (<http://welcome.hp.com/country/us/en/wwcontact.html>).

Customer Self Repair

HP products are designed with many Customer Self Repair (CSR) parts to minimize repair time and allow for greater flexibility in performing defective parts replacement. If during the diagnosis period HP (or HP

service providers or service partners) identifies that the repair can be accomplished by the use of a CSR part, HP will ship that part directly to you for replacement. There are two categories of CSR parts:

- **Mandatory**—Parts for which customer self repair is mandatory. If you request HP to replace these parts, you will be charged for the travel and labor costs of this service.
- **Optional**—Parts for which customer self repair is optional. These parts are also designed for customer self repair. If, however, you require that HP replace them for you, there may or may not be additional charges, depending on the type of warranty service designated for your product.

NOTE: Some HP parts are not designed for customer self repair. In order to satisfy the customer warranty, HP requires that an authorized service provider replace the part. These parts are identified as "No" in the Illustrated Parts Catalog.

Based on availability and where geography permits, CSR parts will be shipped for next business day delivery. Same day or four-hour delivery may be offered at an additional charge where geography permits. If assistance is required, you can call the HP Technical Support Center and a technician will help you over the telephone. HP specifies in the materials shipped with a replacement CSR part whether a defective part must be returned to HP. In cases where it is required to return the defective part to HP, you must ship the defective part back to HP within a defined period of time, normally five (5) business days. The defective part must be returned with the associated documentation in the provided shipping material. Failure to return the defective part may result in HP billing you for the replacement. With a customer self repair, HP will pay all shipping and part return costs and determine the courier/carrier to be used.

For more information about HP's Customer Self Repair program, contact your local service provider. For the North American program, refer to the HP website (<http://www.hp.com/go/selfrepair>).

Réparation par le client (CSR)

Les produits HP comportent de nombreuses pièces CSR (Customer Self Repair = réparation par le client) afin de minimiser les délais de réparation et faciliter le remplacement des pièces défectueuses. Si pendant la période de diagnostic, HP (ou ses partenaires ou mainteneurs agréés) détermine que la réparation peut être effectuée à l'aide d'une pièce CSR, HP vous l'envoie directement. Il existe deux catégories de pièces CSR:

- **Obligatoire** - Pièces pour lesquelles la réparation par le client est obligatoire. Si vous demandez à HP de remplacer ces pièces, les coûts de déplacement et main d'œuvre du service vous seront facturés.
- **Facultatif** - Pièces pour lesquelles la réparation par le client est facultative. Ces pièces sont également conçues pour permettre au client d'effectuer lui-même la réparation. Toutefois, si vous demandez à HP de remplacer ces pièces, l'intervention peut ou non vous être facturée, selon le type de garantie applicable à votre produit.

REMARQUE: Certaines pièces HP ne sont pas conçues pour permettre au client d'effectuer lui-même la réparation. Pour que la garantie puisse s'appliquer, HP exige que le remplacement de la pièce soit effectué par un Mainteneur Agréé. Ces pièces sont identifiées par la mention "Non" dans le Catalogue illustré.

Les pièces CSR sont livrées le jour ouvré suivant, dans la limite des stocks disponibles et selon votre situation géographique. Si votre situation géographique le permet et que vous demandez une livraison le jour même ou dans les 4 heures, celle-ci vous sera facturée. Pour bénéficier d'une assistance téléphonique, appelez le Centre d'assistance technique HP. Dans les documents envoyés avec la pièce de rechange CSR, HP précise s'il est nécessaire de lui retourner la pièce défectueuse. Si c'est le cas, vous devez le faire dans le délai indiqué, généralement cinq (5) jours ouvrés. La pièce et sa documentation

doivent être retournées dans l'emballage fourni. Si vous ne retournez pas la pièce défectueuse, HP se réserve le droit de vous facturer les coûts de remplacement. Dans le cas d'une pièce CSR, HP supporte l'ensemble des frais d'expédition et de retour, et détermine la société de courses ou le transporteur à utiliser.

Pour plus d'informations sur le programme CSR de HP, contactez votre Mainteneur Agréé local. Pour plus d'informations sur ce programme en Amérique du Nord, consultez le site Web HP (<http://www.hp.com/go/selfrepair>).

Riparazione da parte del cliente

Per abbreviare i tempi di riparazione e garantire una maggiore flessibilità nella sostituzione di parti difettose, i prodotti HP sono realizzati con numerosi componenti che possono essere riparati direttamente dal cliente (CSR, Customer Self Repair). Se in fase di diagnostica HP (o un centro di servizi o di assistenza HP) identifica il guasto come riparabile mediante un ricambio CSR, HP lo spedisce direttamente al cliente per la sostituzione. Vi sono due categorie di parti CSR:

- **Obbligatorie** – Parti che devono essere necessariamente riparate dal cliente. Se il cliente ne affida la riparazione ad HP, deve sostenere le spese di spedizione e di manodopera per il servizio.
- **Opzionali** – Parti la cui riparazione da parte del cliente è facoltativa. Si tratta comunque di componenti progettati per questo scopo. Se tuttavia il cliente ne richiede la sostituzione ad HP, potrebbe dover sostenere spese aggiuntive a seconda del tipo di garanzia previsto per il prodotto.

NOTA: alcuni componenti HP non sono progettati per la riparazione da parte del cliente. Per rispettare la garanzia, HP richiede che queste parti siano sostituite da un centro di assistenza autorizzato. Tali parti sono identificate da un "No" nel Catalogo illustrato dei componenti.

In base alla disponibilità e alla località geografica, le parti CSR vengono spedite con consegna entro il giorno lavorativo seguente. La consegna nel giorno stesso o entro quattro ore è offerta con un supplemento di costo solo in alcune zone. In caso di necessità si può richiedere l'assistenza telefonica di un addetto del centro di supporto tecnico HP. Nel materiale fornito con una parte di ricambio CSR, HP specifica se il cliente deve restituire dei componenti. Qualora sia richiesta la resa ad HP del componente difettoso, lo si deve spedire ad HP entro un determinato periodo di tempo, generalmente cinque (5) giorni lavorativi. Il componente difettoso deve essere restituito con la documentazione associata nell'imballo di spedizione fornito. La mancata restituzione del componente può comportare la fatturazione del ricambio da parte di HP. Nel caso di riparazione da parte del cliente, HP sostiene tutte le spese di spedizione e resa e sceglie il corriere/vettore da utilizzare.

Per ulteriori informazioni sul programma CSR di HP contattare il centro di assistenza di zona. Per il programma in Nord America fare riferimento al sito Web **HP** (<http://www.hp.com/go/selfrepair>).

Customer Self Repair

HP Produkte enthalten viele CSR-Teile (Customer Self Repair), um Reparaturzeiten zu minimieren und höhere Flexibilität beim Austausch defekter Bauteile zu ermöglichen. Wenn HP (oder ein HP Servicepartner) bei der Diagnose feststellt, dass das Produkt mithilfe eines CSR-Teils repariert werden kann, sendet Ihnen HP dieses Bauteil zum Austausch direkt zu. CSR-Teile werden in zwei Kategorien unterteilt:

- **Zwingend** – Teile, für die das Customer Self Repair-Verfahren zwingend vorgegeben ist. Wenn Sie den Austausch dieser Teile von HP vornehmen lassen, werden Ihnen die Anfahrt- und Arbeitskosten für diesen Service berechnet.

- **Optional** – Teile, für die das Customer Self Repair-Verfahren optional ist. Diese Teile sind auch für Customer Self Repair ausgelegt. Wenn Sie jedoch den Austausch dieser Teile von HP vornehmen lassen möchten, können bei diesem Service je nach den für Ihr Produkt vorgesehenen Garantiebedingungen zusätzliche Kosten anfallen.

HINWEIS: Einige Teile sind nicht für Customer Self Repair ausgelegt. Um den Garantieanspruch des Kunden zu erfüllen, muss das Teil von einem HP Servicepartner ersetzt werden. Im illustrierten Teilekatalog sind diese Teile mit „No“ bzw. „Nein“ gekennzeichnet.

CSR-Teile werden abhängig von der Verfügbarkeit und vom Lieferziel am folgenden Geschäftstag geliefert. Für bestimmte Standorte ist eine Lieferung am selben Tag oder innerhalb von vier Stunden gegen einen Aufpreis verfügbar. Wenn Sie Hilfe benötigen, können Sie das HP technische Support Center anrufen und sich von einem Mitarbeiter per Telefon helfen lassen. Den Materialien, die mit einem CSR-Ersatzteil geliefert werden, können Sie entnehmen, ob das defekte Teil an HP zurückgeschickt werden muss. Wenn es erforderlich ist, das defekte Teil an HP zurückzuschicken, müssen Sie dies innerhalb eines vorgegebenen Zeitraums tun, in der Regel innerhalb von fünf (5) Geschäftstagen. Das defekte Teil muss mit der zugehörigen Dokumentation in der Verpackung zurückgeschickt werden, die im Lieferumfang enthalten ist. Wenn Sie das defekte Teil nicht zurückschicken, kann HP Ihnen das Ersatzteil in Rechnung stellen. Im Falle von Customer Self Repair kommt HP für alle Kosten für die Lieferung und Rücksendung auf und bestimmt den Kurier-/Frachtdienst.

Weitere Informationen über das HP Customer Self Repair Programm erhalten Sie von Ihrem Servicepartner vor Ort. Informationen über das CSR-Programm in Nordamerika finden Sie auf der HP Website unter (<http://www.hp.com/go/selfrepair>).

Reparaciones del propio cliente

Los productos de HP incluyen muchos componentes que el propio usuario puede reemplazar (*Customer Self Repair*, CSR) para minimizar el tiempo de reparación y ofrecer una mayor flexibilidad a la hora de realizar sustituciones de componentes defectuosos. Si, durante la fase de diagnóstico, HP (o los proveedores o socios de servicio de HP) identifica que una reparación puede llevarse a cabo mediante el uso de un componente CSR, HP le enviará dicho componente directamente para que realice su sustitución. Los componentes CSR se clasifican en dos categorías:

- **Obligatorio:** componentes para los que la reparación por parte del usuario es obligatoria. Si solicita a HP que realice la sustitución de estos componentes, tendrá que hacerse cargo de los gastos de desplazamiento y de mano de obra de dicho servicio.
- **Opcional:** componentes para los que la reparación por parte del usuario es opcional. Estos componentes también están diseñados para que puedan ser reparados por el usuario. Sin embargo, si precisa que HP realice su sustitución, puede o no conllevar costes adicionales, dependiendo del tipo de servicio de garantía correspondiente al producto.

NOTA: Algunos componentes no están diseñados para que puedan ser reparados por el usuario. Para que el usuario haga valer su garantía, HP pone como condición que un proveedor de servicios autorizado realice la sustitución de estos componentes. Dichos componentes se identifican con la palabra "No" en el catálogo ilustrado de componentes.

Según la disponibilidad y la situación geográfica, los componentes CSR se enviarán para que lleguen a su destino al siguiente día laborable. Si la situación geográfica lo permite, se puede solicitar la entrega en el mismo día o en cuatro horas con un coste adicional. Si precisa asistencia técnica, puede llamar al Centro de asistencia técnica de HP y recibirá ayuda telefónica por parte de un técnico. Con el envío de materiales para la sustitución de componentes CSR, HP especificará si los componentes defectuosos deberán devolverse a HP. En aquellos casos en los que sea necesario devolver algún componente a HP,

deberá hacerlo en el periodo de tiempo especificado, normalmente cinco días laborables. Los componentes defectuosos deberán devolverse con toda la documentación relacionada y con el embalaje de envío. Si no enviara el componente defectuoso requerido, HP podrá cobrarle por el de sustitución. En el caso de todas sustituciones que lleve a cabo el cliente, HP se hará cargo de todos los gastos de envío y devolución de componentes y escogerá la empresa de transporte que se utilice para dicho servicio.

Para obtener más información acerca del programa de Reparaciones del propio cliente de HP, póngase en contacto con su proveedor de servicios local. Si está interesado en el programa para Norteamérica, visite la página web de HP siguiente (<http://www.hp.com/go/selfrepair>).

Customer Self Repair

Veel onderdelen in HP producten zijn door de klant zelf te repareren, waardoor de reparatieduur tot een minimum beperkt kan blijven en de flexibiliteit in het vervangen van defecte onderdelen groter is. Deze onderdelen worden CSR-onderdelen (Customer Self Repair) genoemd. Als HP (of een HP Service Partner) bij de diagnose vaststelt dat de reparatie kan worden uitgevoerd met een CSR-onderdeel, verzendt HP dat onderdeel rechtstreeks naar u, zodat u het defecte onderdeel daarmee kunt vervangen. Er zijn twee categorieën CSR-onderdelen:

- **Verplicht:** Onderdelen waarvoor reparatie door de klant verplicht is. Als u HP verzoekt deze onderdelen voor u te vervangen, worden u voor deze service reiskosten en arbeidsloon in rekening gebracht.
- **Optioneel:** Onderdelen waarvoor reparatie door de klant optioneel is. Ook deze onderdelen zijn ontworpen voor reparatie door de klant. Als u echter HP verzoekt deze onderdelen voor u te vervangen, kunnen daarvoor extra kosten in rekening worden gebracht, afhankelijk van het type garantieservice voor het product.

OPMERKING: Sommige HP onderdelen zijn niet ontwikkeld voor reparatie door de klant. In verband met de garantievoorwaarden moet het onderdeel door een geautoriseerde Service Partner worden vervangen. Deze onderdelen worden in de geïllustreerde onderdelencatalogus aangemerkt met "Nee".

Afhankelijk van de leverbaarheid en de locatie worden CSR-onderdelen verzonden voor levering op de eerstvolgende werkdag. Levering op dezelfde dag of binnen vier uur kan tegen meerkosten worden aangeboden, indien dit mogelijk is gezien de locatie. Indien assistentie gewenst is, belt u een HP Service Partner om via de telefoon technische ondersteuning te ontvangen. HP vermeldt in de documentatie bij het vervangende CSR-onderdeel of het defecte onderdeel aan HP moet worden geretourneerd. Als het defecte onderdeel aan HP moet worden teruggezonden, moet u het defecte onderdeel binnen een bepaalde periode, gewoonlijk vijf (5) werkdagen, retourneren aan HP. Het defecte onderdeel moet met de bijbehorende documentatie worden geretourneerd in het meegeleverde verpakkingsmateriaal. Als u het defecte onderdeel niet terugzendt, kan HP u voor het vervangende onderdeel kosten in rekening brengen. Bij reparatie door de klant betaalt HP alle verzendkosten voor het vervangende en geretourneerde onderdeel en kiest HP zelf welke koerier/transportonderneming hiervoor wordt gebruikt.

Neem contact op met een Service Partner voor meer informatie over het Customer Self Repair programma van HP. Informatie over Service Partners vindt u op de **HP website** (<http://www.hp.nl/services/servicepartners>).

Reparo feito pelo cliente

Os produtos da HP são projetados com muitas peças para reparo feito pelo cliente (CSR) de modo a minimizar o tempo de reparo e permitir maior flexibilidade na substituição de peças com defeito. Se, durante o período de diagnóstico, a HP (ou fornecedores/parceiros de serviço da HP) concluir que o

reparo pode ser efetuado pelo uso de uma peça CSR, a peça de reposição será enviada diretamente ao cliente. Existem duas categorias de peças CSR:

- **Obrigatória** – Peças cujo reparo feito pelo cliente é obrigatório. Se desejar que a HP substitua essas peças, serão cobradas as despesas de transporte e mão-de-obra do serviço.
- **Opcional** – Peças cujo reparo feito pelo cliente é opcional. Essas peças também são projetadas para o reparo feito pelo cliente. No entanto, se desejar que a HP as substitua, pode haver ou não a cobrança de taxa adicional, dependendo do tipo de serviço de garantia destinado ao produto.

OBSERVAÇÃO: Algumas peças da HP não são projetadas para o reparo feito pelo cliente. A fim de cumprir a garantia do cliente, a HP exige que um técnico autorizado substitua a peça. Essas peças estão identificadas com a marca "No" (Não), no catálogo de peças ilustrado.

Conforme a disponibilidade e o local geográfico, as peças CSR serão enviadas no primeiro dia útil após o pedido. Onde as condições geográficas permitirem, a entrega no mesmo dia ou em quatro horas pode ser feita mediante uma taxa adicional. Se precisar de auxílio, entre em contato com o Centro de suporte técnico da HP para que um técnico o ajude por telefone. A HP especifica nos materiais fornecidos com a peça CSR de reposição se a peça com defeito deve ser devolvida à HP. Nos casos em que isso for necessário, é preciso enviar a peça com defeito à HP dentro do período determinado, normalmente cinco (5) dias úteis. A peça com defeito deve ser enviada com a documentação correspondente no material de transporte fornecido. Caso não o faça, a HP poderá cobrar a reposição. Para as peças de reparo feito pelo cliente, a HP paga todas as despesas de transporte e de devolução da peça e determina a transportadora/serviço postal a ser utilizado.

Para obter mais informações sobre o programa de reparo feito pelo cliente da HP, entre em contato com o fornecedor de serviços local. Para o programa norte-americano, visite o site da HP (<http://www.hp.com/go/selfrepair>).

顧客自己修理保証サービス

修理時間を短縮し、故障部品の交換における高い柔軟性を確保するために、HP製品には多数の顧客自己修理（CSR）部品があります。診断の際に、CSR部品を使用すれば修理ができるとHP（HPまたはHP正規保守代理店）が判断した場合、HPはその部品を直接、お客様に発送し、お客様に交換していただきます。CSR部品には以下の2通りがあります。

- **必須** - 顧客自己修理が必須の部品。当該部品について、もしもお客様がHPに交換作業を依頼される場合には、その修理サービスに関する交通費および人件費がお客様に請求されます。
- **任意** - 顧客自己修理が任意である部品。この部品も顧客自己修理用です。当該部品について、もしもお客様がHPに交換作業を依頼される場合には、お買い上げの製品に適用される保証サービス内容の範囲内においては、別途費用を負担していただくことなく保証サービスを受けることができます。

注：HP製品の一部の部品は、顧客自己修理用ではありません。製品の保証を継続するためには、HPまたはHP正規保守代理店による交換作業が必須となります。部品カタログには、当該部品が顧客自己修理除外品である旨が記載されています。

部品供給が可能な場合、地域によっては、CSR部品を翌営業日に届くように発送します。また、地域によっては、追加費用を負担いただくことにより同日または4時間以内に届くように発送することも可能な場合があります。サポートが必要なときは、HPの修理受付窓口へ電話していただければ、技術者が電話でアドバイスします。交換用のCSR部品または同梱物には、故障部品をHPに返送する必要があるかどうかが表示されています。故障部品をHPに返送する必要がある場合は、指定期限内（通常は5営業日以内）に故障部品をHPに返送してください。故障部品を返送する場合は、届いた時の梱包箱に関連書類とともに入れてください。故障部品を返送しない場合、HPから部品費用が請求されます。顧客自己修理の際には、HPは送料および部品返送費を全額負担し、使用する宅配便会社や運送会社を指定します。

客户自行维修

HP 产品提供许多客户自行维修 (CSR) 部件，以尽可能缩短维修时间和在更换缺陷部件方面提供更大的灵活性。如果在诊断期间 HP（或 HP 服务提供商或服务合作伙伴）确定可以通过使用 CSR 部件完成维修，HP 将直接把该部件发送给您进行更换。有两类 CSR 部件：

- **强制性的** — 要求客户必须自行维修的部件。如果您请求 HP 更换这些部件，则必须为该服务支付差旅费和人工费用。
- **可选的** — 客户可以选择是否自行维修的部件。这些部件也是为客户自行维修设计的。不过，如果您要求 HP 为您更换这些部件，则根据为您的产品指定的保修服务类型，HP 可能收取或不再收取任何附加费用。

注：某些 HP 部件的设计并未考虑客户自行维修。为了满足客户保修的需要，HP 要求授权服务提供商更换相关部件。这些部件在部件图解目录中标记为“否”。

CSR 部件将在下一个工作日发运（取决于备货情况和允许的地理范围）。在允许的地理范围内，可在当天或四小时内发运，但要收取额外费用。如果需要帮助，您可以致电 HP 技术支持中心，将会有技术人员通过电话为您提供帮助。HP 会在随更换的 CSR 部件发运的材料中指明是否必须将有缺陷的部件返还给 HP。如果要求您将缺陷的部件返还给 HP，那么您必须在指定期限内（通常是五 (5) 个工作日）将缺陷部件发给 HP。有缺陷的部件必须随所提供的发运材料中的相关文件一起返还。如果未能送还有缺陷的部件，HP 可能会要求您支付更换费用。客户自行维修时，HP 将承担所有相关运输和部件返回费用，并指定快递商/承运商。

有关 HP 客户自行维修计划的详细信息，请与您当地的服务提供商联系。有关北美地区的计划，请访问 HP 网站 (<http://www.hp.com/go/selfrepair>)。

客戶自行維修

HP 產品設計了許多「客戶自行維修」(CSR) 的零件以減少維修時間，並且使得更換瑕疵零件時能有更大的彈性。如果在診斷期間 HP (或 HP 服務供應商或維修夥伴) 辨認出此項維修工作可以藉由使用 CSR 零件來完成，則 HP 將直接寄送該零件給您作更換。CSR 零件分為兩種類別：

- **強制的** — 客戶自行維修所使用的零件是強制性的。如果您要求 HP 更換這些零件，HP 將會向您收取此服務所需的外出費用與勞動成本。
- **選購的** — 客戶自行維修所使用的零件是選購的。這些零件也設計用於客戶自行維修之用。不過，如果您要求 HP 為您更換，則可能需要也可能不需要負擔額外的費用，端視針對此產品指定的保固服務類型而定。

備註：某些 HP 零件沒有消費者可自行維修的設計。為符合客戶保固，HP 需要授權的服務供應商更換零件。這些零件在圖示的零件目錄中，被標示為「否」。

基於材料取得及環境允許的情況下，CSR 零件將於下一個工作日以快遞寄送。在環境的允許下當天或四小時內送達，則可能需要額外的費用。若您需要協助，可致電「HP 技術支援中心」，會有一位技術人員透過電話來協助您。不論損壞的零件是否必須退回，HP 皆會在與 CSR 替換零件一起運送的材料中註明。若要將損壞的零件退回 HP，您必須在指定的一段時間內（通常為五 (5) 個工作天），將損壞的零件寄回 HP。損壞的零件必須與寄送資料中隨附的相關技術文件一併退還。如果無法退還損壞的零件，HP 可能要向您收取替換費用。針對客戶自行維修情形，HP 將負責所有運費及零件退還費用並指定使用何家快遞/貨運公司。

如需 HP 的「客戶自行維修」方案詳細資訊，請連絡您當地的服務供應商。至於北美方案，請參閱 HP 網站 (<http://www.hp.com/go/selfrepair>)。

고객 셀프 수리

HP 제품은 수리 시간을 최소화하고 결함이 있는 부품 교체 시 더욱 응통성을 발휘할 수 있도록 하기 위해 고객 셀프 수리(CSR) 부품을 다량 사용하여 설계되었습니다. 진단 기간 동안 HP(또는 HP 서비스 공급업체 또는 서비스 협력업체)에서 CSR 부품을 사용하여 수리가 가능하다고 판단되면 HP는 해당 부품을 바로 사용자에게 보내어 사용자가 교체할 수 있도록 합니다. CSR 부품에는 두 가지 종류가 있습니다.

- **고객 셀프 수리가 의무 사항인 필수 부품.** 사용자가 HP에 이 부품의 교체를 요청할 경우 이 서비스에 대한 출장비 및 작업비가 청구됩니다.
- **고객 셀프 수리가 선택 사항인 부품.** 이 부품들도 고객 셀프 수리가 가능하도록 설계되었습니다. 하지만 사용자가 HP에 이 부품의 교체를 요청할 경우 사용자가 구입한 제품에 해당하는 보증 서비스 유형에 따라 추가 비용 없이 교체가 가능할 수 있습니다.

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CSR 부품은 재고 상태와 지리적 조건이 허용하는 경우 다음 영업일 납품이 가능하도록 배송이 이루어집니다. 지리적 조건이 허용하는 경우 추가 비용이 청구되는 조건으로 당일 또는 4시간 배송이 가능할 수도 있습니다. 도움이 필요하시면 HP 기술 지원 센터로 전화하십시오. 전문 기술자가 전화로 도움을 줄 것입니다. HP는 결함이 발생한 부품을 HP로 반환해야 하는지 여부를 CSR 교체 부품과 함께 배송된 자료에 지정합니다. 결함이 발생한 부품을 HP로 반환해야 하는 경우에는 지정된 기간 내(통상 영업일 기준 5일)에 HP로 반환해야 합니다. 이 때 결함이 발생한 부품은 제공된 포장 재료에 넣어 관련 설명서와 함께 반환해야 합니다. 결함이 발생한 부품을 반환하지 않는 경우 HP가 교체 부품에 대해 비용을 청구할 수 있습니다. 고객 셀프 수리의 경우, HP는 모든 운송 및 부품 반환 비용을 부담하며 이용할 운송업체 및 택배 서비스를 결정합니다.

HP 고객 셀프 수리 프로그램에 대한 자세한 내용은 가까운 서비스 제공업체에 문의하십시오. 북미 지역의 프로그램에 대해서는 HP 웹 사이트(<http://www.hp.com/go/selfrepair>)를 참조하십시오.

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Regulatory compliance identification numbers

For the purpose of regulatory compliance certifications and identification, this product has been assigned a unique regulatory model number. The regulatory model number can be found on the product nameplate label, along with all required approval markings and information. When requesting compliance information for this product, always refer to this regulatory model number. The regulatory model number is not the marketing name or model number of the product.

Federal Communications Commission notice

Part 15 of the Federal Communications Commission (FCC) Rules and Regulations has established Radio Frequency (RF) emission limits to provide an interference-free radio frequency spectrum. Many electronic devices, including computers, generate RF energy incidental to their intended function and are, therefore, covered by these rules. These rules place computers and related peripheral devices into two classes, A and B, depending upon their intended installation. Class A devices are those that may reasonably be expected to be installed in a business or commercial environment. Class B devices are those that may reasonably be expected to be installed in a residential environment (for example, personal computers). The FCC requires devices in both classes to bear a label indicating the interference potential of the device as well as additional operating instructions for the user.

FCC rating label

The FCC rating label on the device shows the classification (A or B) of the equipment. Class B devices have an FCC logo or ID on the label. Class A devices do not have an FCC logo or ID on the label. After you determine the class of the device, refer to the corresponding statement.

Class A equipment

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 instructions, 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 personal expense.

Class B equipment

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 that is different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

Declaration of conformity for products marked with the FCC logo, United States only

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.

For questions regarding this product, contact us by mail or telephone:

- Hewlett-Packard Company
P. O. Box 692000, Mail Stop 530113
Houston, Texas 77269-2000
- 1-800-HP-INVENT (1-800-474-6836). (For continuous quality improvement, calls may be recorded or monitored.)

For questions regarding this FCC declaration, contact us by mail or telephone:

- Hewlett-Packard Company
P. O. Box 692000, Mail Stop 510101
Houston, Texas 77269-2000
- 1-281-514-3333

To identify this product, refer to the part, series, or model number found on the product.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Hewlett-Packard Company may void the user's authority to operate the equipment.

Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

Canadian notice (Avis Canadien)

Class A equipment

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Class B equipment

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union regulatory notice



This product complies with the following EU Directives:

- Low Voltage Directive 2006/95/EC
- EMC Directive 2004/108/EC

CE Compliance of this product is valid only if powered with the correct HP-provided and CE marked AC adapter.

If this product has telecommunication functionality, it also complies with the essential requirements of:

- R&TTE Directive 1999/5/EC



*For a notified body number refer to the product regulatory label.

Compliance with these directives implies conformity to harmonized European standards (European Norms) which are listed on the EU Declaration of Conformity issued by Hewlett-Packard for this product or product family.

The telecommunications functionality of this product may be used in the following EU and EFTA countries:

Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, and United Kingdom.

Notice for use in France and Italy

Italy:

Per l'uso del prodotto, è necessaria una concessione ministeriale. Si consiglia di verificare con il distributore di fiducia o direttamente presso la Direzione Generale Pianificazione e Gestione Frequenze.

License required for use. Verify with your dealer or directly with General Direction for Frequency Planning and Management (Direzione Generale Pianificazione e Gestione Frequenze).

France:

L'utilisation de cet équipement (2.4GHz Wireless LAN) est soumise a certaines restrictions: Cet équipement peut être utilisé à l'intérieur d'un bâtiment en utilisant toutes les fréquences de 2400 à 2483.5MHz (Chaîne 1-13). Pour une utilisation en environnement extérieur, vous devez utiliser les fréquences comprises entre 2454-2483.5MHz (Chaîne 10-13). Pour les dernières restrictions, voir <http://www.art-telecom.fr>.

For 2.4 GHz Wireless LAN operation of this product certain restrictions apply: This product may be used indoor for the entire 2400-2483.5 MHz frequency band (channels 1-13). For outdoor use, only 2454-2483.5 MHz frequency band (channels 10-13) may be used. For the latest requirements, see <http://www.art-telecom.fr>.

Notice for products incorporating 5GHz Wireless LAN devices

Frequency availability for 802.11a or 802.11h Wireless LAN is not currently harmonized throughout the European Union. For compliance requirements, users should verify with their supplier, local HP office or Telecommunications authority.

Hewlett-Packard GmbH, HQ-TRE, Herrenberger Strasse 140, 71034 Boeblingen, Germany

Disposal of waste equipment by users in private households in the European Union



This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

Japanese notice

ご使用になっている装置にVCCIマークが付いていましたら、次の説明文をお読み下さい。

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラス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マークが付いていない場合には、次の点にご注意下さい。

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラス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。

BSMI notice

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。

Korean notice

Class A equipment

A급 기기 (업무용 정보통신기기)

이 기기는 업무용으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며, 만약 잘못판매 또는 구입하였을 때에는 가정용으로 교환하시기 바랍니다.

Class B equipment

B급 기기 (가정용 정보통신기기)

이 기기는 가정용으로 전자파적합등록을 한 기기로서 주거지역에서는 물론 모든지역에서 사용할 수 있습니다.

Laser compliance

This product may be provided with an optical storage device (that is, CD or DVD drive) and/or fiber optic transceiver. Each of these devices contains a laser that is classified as a Class 1 Laser Product in accordance with US FDA regulations and the IEC 60825-1. The product does not emit hazardous laser radiation.

Each laser product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated May 27, 2001; and with IEC 60825-1:1993/A2:2001.



WARNING: Use of controls or adjustments or performance of procedures other than those specified herein or in the laser product's installation guide may result in hazardous radiation exposure. To reduce the risk of exposure to hazardous radiation:

- Do not try to open the module enclosure. There are no user-serviceable components inside.
- Do not operate controls, make adjustments, or perform procedures to the laser device other than those specified herein.
- Allow only HP Authorized Service technicians to repair the unit.

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured from August 1, 1976. Compliance is mandatory for products marketed in the United States.

Battery replacement notice



WARNING: The computer contains an internal lithium manganese dioxide, a vanadium pentoxide, or an alkaline battery pack. A risk of fire and burns exists if the battery pack is not properly handled. To reduce the risk of personal injury:

- Do not attempt to recharge the battery.
- Do not expose the battery to temperatures higher than 60°C (140°F).
- Do not disassemble, crush, puncture, short external contacts, or dispose of in fire or water.



Batteries, battery packs, and accumulators should not be disposed of together with the general household waste. To forward them to recycling or proper disposal, use the public collection system or return them to HP, an authorized HP Partner, or their agents.

For more information about battery replacement or proper disposal, contact an authorized reseller or an authorized service provider.

Taiwan battery recycling notice

The Taiwan EPA requires dry battery manufacturing or importing firms in accordance with Article 15 of the Waste Disposal Act to indicate the recovery marks on the batteries used in sales, giveaway or promotion. Contact a qualified Taiwanese recycler for proper battery disposal.



Power cord statement for Japan

製品には、同梱された電源コードをお使い下さい。
同梱された電源コードは、他の製品では使用出来ません。

Electrostatic discharge

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Preventing electrostatic discharge

To prevent damaging the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

To prevent electrostatic damage:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.

Grounding methods to prevent electrostatic discharge

Several methods are used for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm ± 10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
- Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, have an authorized reseller install the part.

For more information on static electricity or assistance with product installation, contact an authorized reseller.

Acronyms and abbreviations

CLI

Command Line Interface

CSA

Canadian Standards Association

CSR

Customer Self Repair

ESD

electrostatic discharge

I/O

input/output

IEC

International Electrotechnical Commission

iLO 2

Integrated Lights-Out 2

IP

Internet Protocol

LCD

liquid crystal display

LED

light-emitting diode

NEMA

National Electrical Manufacturers Association

NFPA

National Fire Protection Association

NIC

network interface controller

PDU

power distribution unit

RETMA

Radio Electronics Television Manufactures Association (rack spacing)

TMRA

recommended ambient operating temperature

UID

unit identification

UPS

uninterruptible power system

USB

universal serial bus

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