

HP BladeSystem c7000 Enclosure Setup and Installation Guide

Abstract

This guide describes identification, operations, setup, configuration and utilities, troubleshooting, regulatory notices, specifications, and technical support. This guide is for an experienced service technician. HP assumes you are qualified in the servicing of computer equipment, trained in recognizing hazards in products, and are familiar with weight and stability precautions.



Part Number: 411272-401
February 2013
Edition: 10

© Copyright 2006, 2013 Hewlett-Packard Development Company, L.P.

The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

Contents

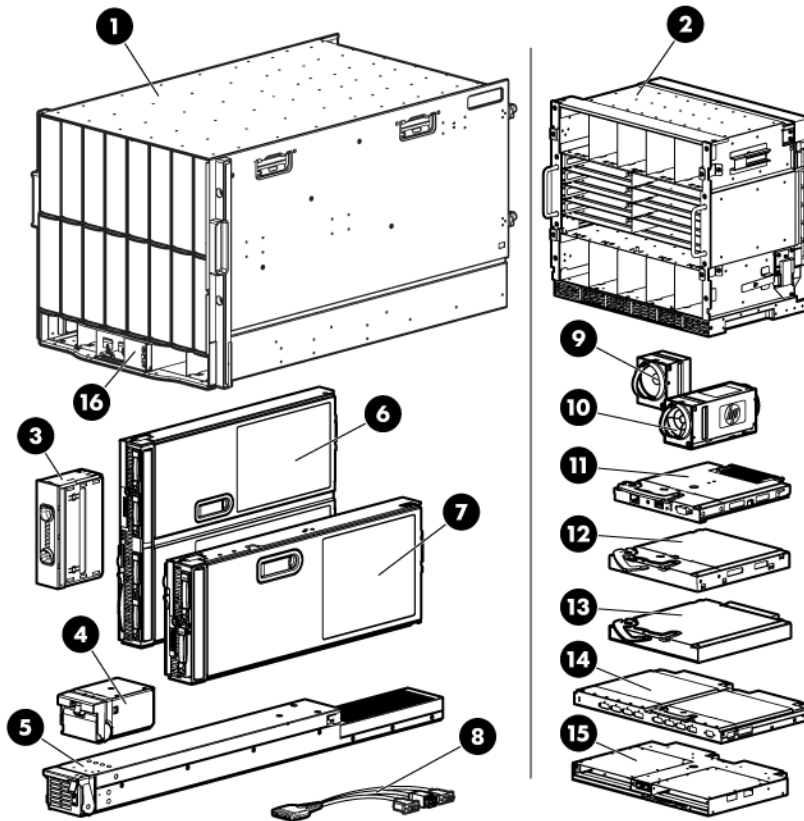
Planning the installation	6
Verifying the pallet contents	6
Rack requirements	7
Rack-free environment requirements	8
Warning, caution, and important messages	8
Space and airflow requirements	10
Temperature requirements	11
Power requirements	11
Grounding requirements	11
Component and LED identification	12
Enclosure front components	12
Power supply bay numbering	13
Power supply LEDs	13
Device bay numbering	14
HP BladeSystem Insight Display components	15
Location Discovery Services	15
Enclosure rear components	16
Fan bay numbering	17
Fan LED	18
Onboard Administrator components	18
HP c7000 Onboard Administrator with KVM components	19
Interconnect bay numbering	20
Installation	21
Installation overview	21
Disassembling the enclosure	21
Rack-free installation	24
Rack installation	24
Measuring with the rack template	25
Installing the rack rails	25
Installing the enclosure into the rack	26
Installing the rear cage into the enclosure	28
Component installation	29
Installing a power supply	29
Installing blades	31
Connecting locally to a server blade with video and USB devices	40
Installing fans	42
Installing Onboard Administrator modules	44
Installing interconnect modules	46
Cabling and powering up the enclosure	56
Cabling the enclosure	56
Onboard Administrator cabling	56
Enclosure link cabling	57
Cabling a PC to the enclosure service port	58
Cabling the network to the enclosure	59

Powering up the enclosure.....	59
Single-phase AC configuration	59
Three-phase AC configuration	64
HP BladeSystem Insight Display	65
Insight Display overview	65
Running the Insight Display installation steps	65
Navigating the Insight Display	69
Health Summary screen	70
Enclosure Settings screen	73
Enclosure Info screen	73
Blade and Port Info screen	74
Turn Enclosure UID On/Off screen.....	75
View User Note screen.....	77
Chat Mode screen	77
Troubleshooting	78
Troubleshooting resources	78
Important safety information.....	78
Symbols on equipment	78
Warnings and cautions	79
Insight Display errors	80
Power errors	80
Cooling errors.....	81
Location errors	81
Configuration errors.....	81
Device failure errors.....	81
Support and other resources	83
Before you contact HP.....	83
HP contact information.....	83
Customer Self Repair	83
Regulatory compliance notices	91
Regulatory compliance identification numbers	91
Federal Communications Commission notice.....	91
FCC rating label.....	91
FCC Notice, Class A Equipment.....	91
FCC Notice, Class B Equipment	91
Declaration of conformity for products marked with the FCC logo, United States only.....	92
Modifications.....	92
Cables.....	92
Canadian notice (Avis Canadien).....	92
European Union regulatory notice	93
Disposal of waste equipment by users in private households in the European Union.....	93
Japanese notice	94
BSMI notice	94
Korean notice	94
Chinese notice	95
Laser compliance	95
Battery replacement notice.....	95
Taiwan battery recycling notice.....	96
Power cord statement for Japan.....	96
Electrostatic discharge	97

Preventing electrostatic discharge	97
Grounding methods to prevent electrostatic discharge.....	97
Acronyms and abbreviations.....	98
Documentation feedback	100
Index.....	101

Planning the installation

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
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 blade
9	Fan blank	A mandatory insert installed in any unused fan bay
10	HP Active Cool 200 Fan (quantity as ordered)	A fan used to cool the components installed in the enclosure

Item	Name	Description
11	Onboard Administrator module	Hot-pluggable enclosure management module. One module is required to manage the components installed in the enclosure. To provide redundant enclosure management, you can install an optional second module.
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-thrus or switches that enable communication between the blade and the enclosure
15	Onboard Administrator tray	Hot-pluggable tray that houses up to two Onboard Administrator modules and provides two enclosure link connectors, the rear enclosure UID, LED, and switch.
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)	Tie straps that help prevent single-phase power cables from disconnecting from the power connectors
18*	Documentation CD	A CD containing detailed documentation on using the enclosure
19*	Hard copy installation instructions for blades, options, and interconnects	The printed installation instructions
20*	Installation checklist	A checklist to guide you through installation of the enclosure and 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
 - 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
- Adjustable rack rails are shipped with each enclosure:
 - Minimum rail length: 63.5 cm (25 in)
 - Maximum rail length: 86.4 cm (34 in)

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 the enclosure on top of another enclosure.
 - Never place equipment on top of the enclosure.
 - Never place the 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 might 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.
-

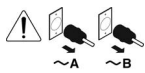
-
-  **WARNING:** The enclosure is very heavy. To reduce the risk of personal injury or damage to the equipment:
- Observe local occupational health and safety requirements and guidelines for manual material handling.
 - Remove all installed enclosure components from their enclosures before installing 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 97)."

 **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.

In high density configurations, the HP 10000 Series Rack Airflow Optimization Kit (AF090A) should be installed to prevent airflow from the rear of the rack to the front the rack via gaps in the rack frame.


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.

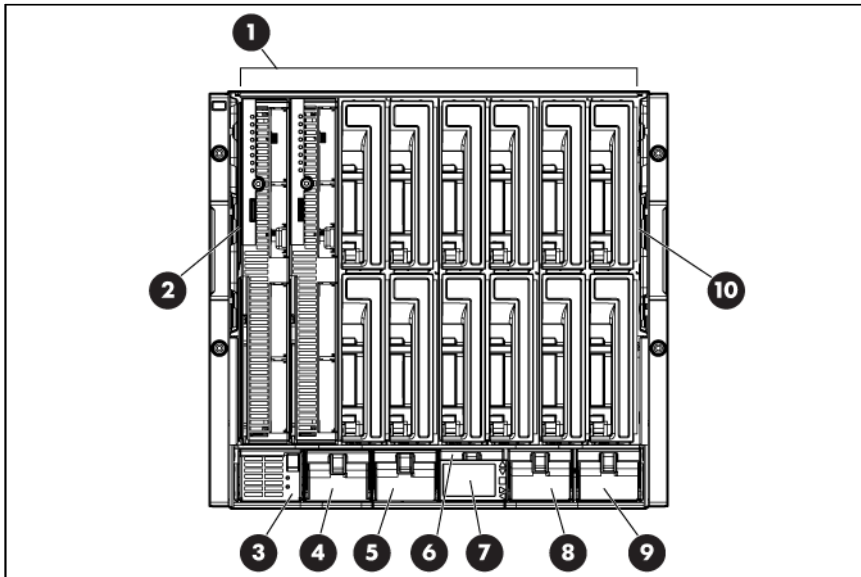
In Canada, you must install the equipment in accordance with Canadian Standards Association, CSA C22.1, Canadian Electrical Code.

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

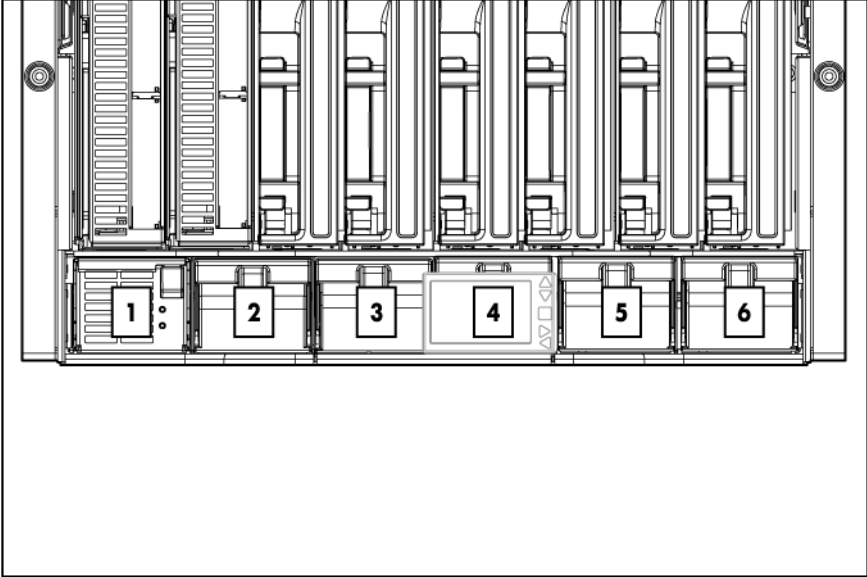
Enclosure front components



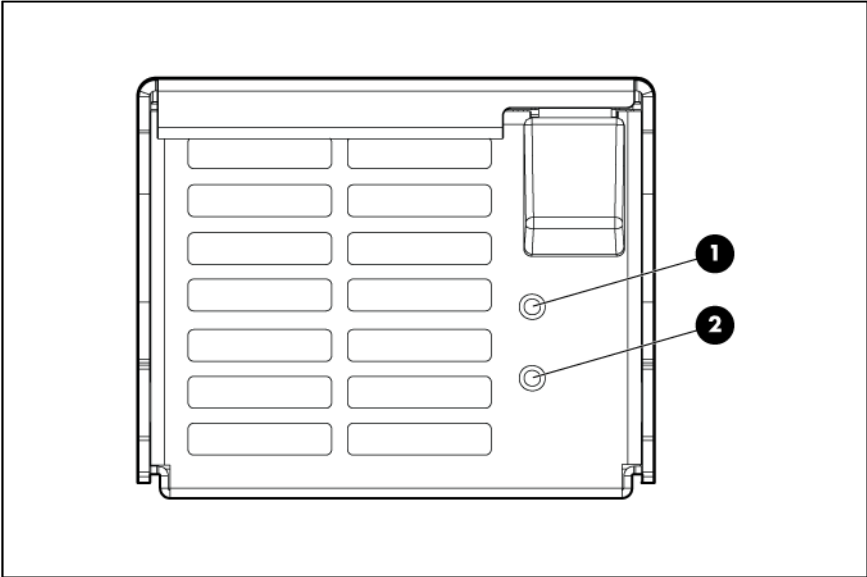
Item	Description
1	Device bays*
2	Air intake slot (Do not block.)
3	Power supply bay 1
4	Power supply bay 2
5	Power supply bay 3
6	Power supply bay 4
7	Insight Display
8	Power supply bay 5
9	Power supply bay 6
10	Air intake slot (Do not block.)

*For more information, see "Device bay numbering (on page 14)."

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).

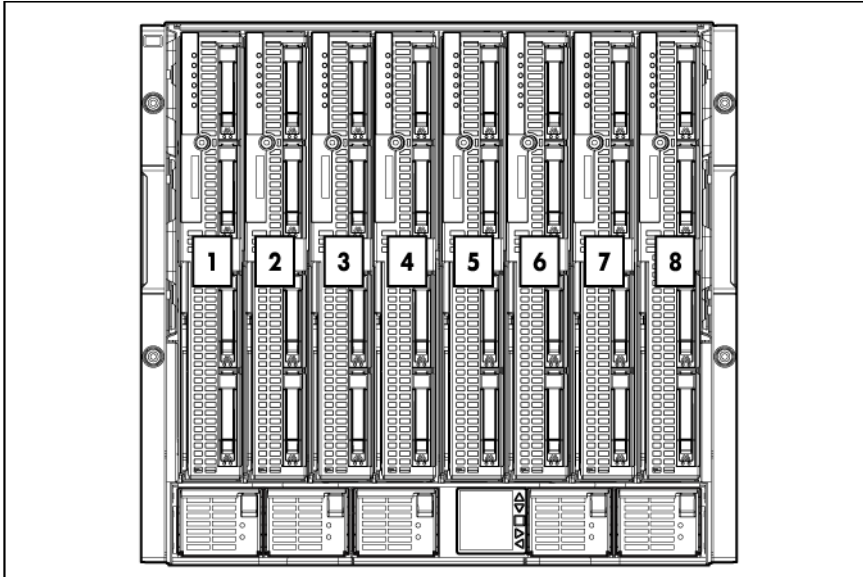
Device bay numbering

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.

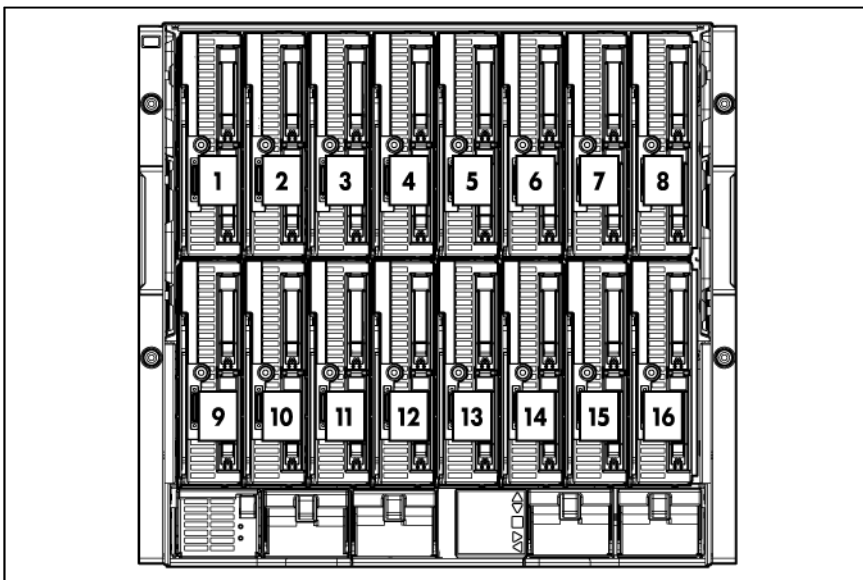


IMPORTANT: When looking at the rear of the enclosure, front device bay numbering is reversed.

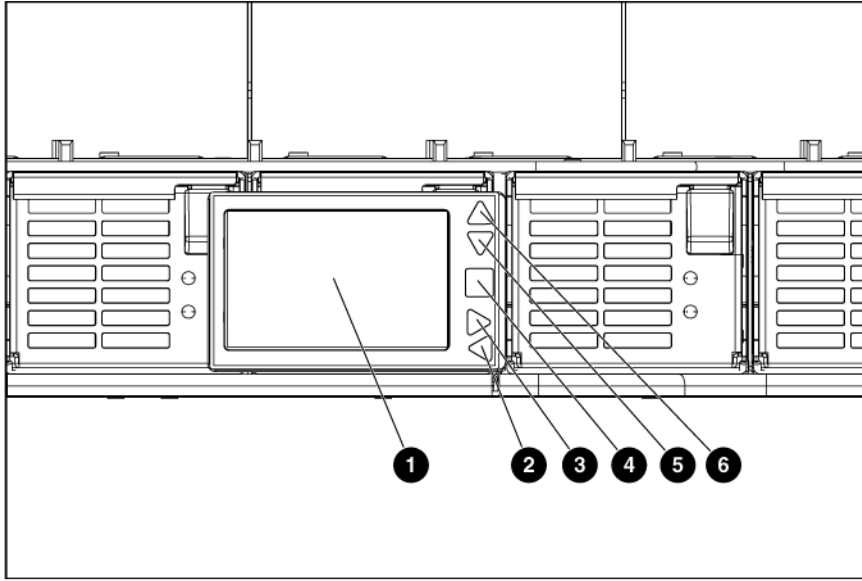
Full-height device bay numbering



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

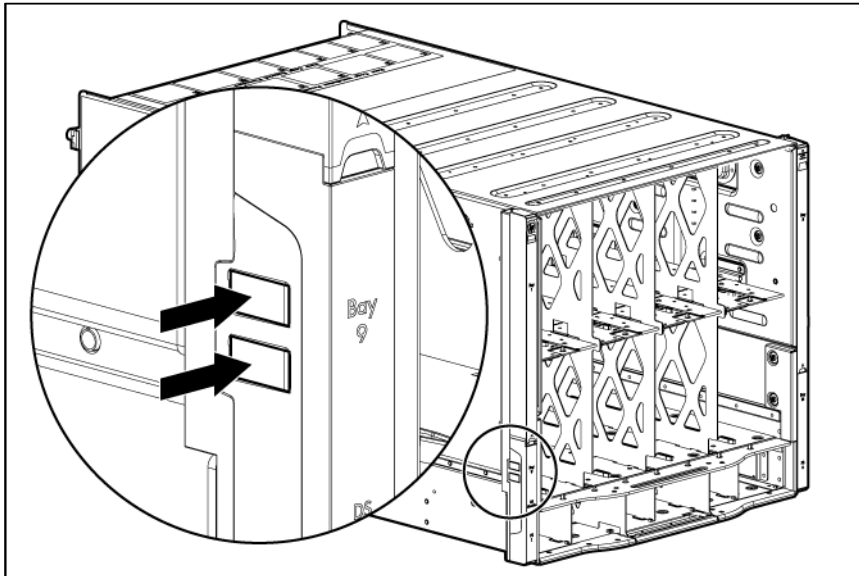
Location Discovery Services

HP provides built-in location awareness in the new ProLiant servers, a capability that works hand-in-hand with technology in the new HP Intelligent Series racks. Together these technologies provide the rack identification number and precise U location of the servers. This information is communicated through SIM, ICPM, and HP iPDUs.

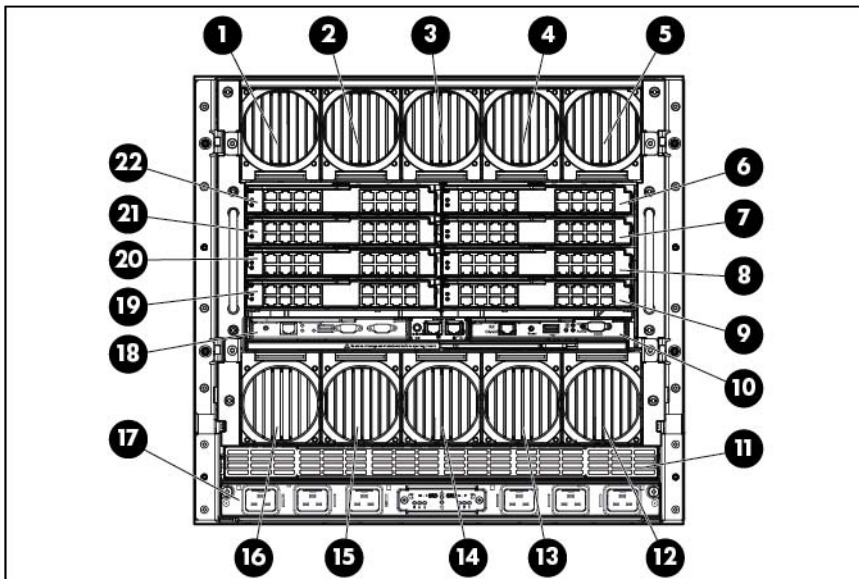
For LDS software requirements, see the QuickSpecs on the HP website (<http://www.hp.com/go/rackandpower>).

This feature is only available on HP BladeSystem c7000 Platinum Enclosures.

The following figure shows the location of the contacts on the c7000 enclosure that enable use of LDS.



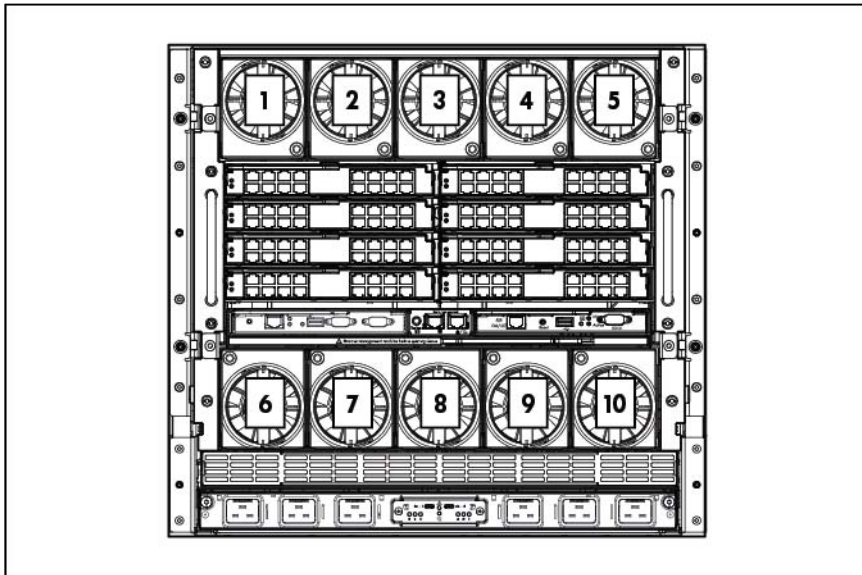
Enclosure rear components



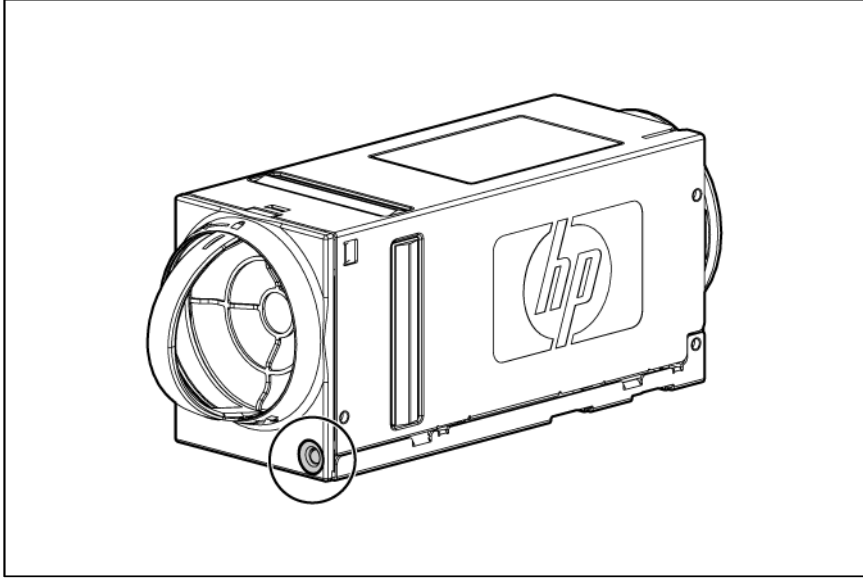
Item	Description
1	Fan bay 1
2	Fan bay 2
3	Fan bay 3
4	Fan bay 4
5	Fan bay 5
6	Interconnect bay 2
7	Interconnect bay 4
8	Interconnect bay 6
9	Interconnect bay 8

Item	Description
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

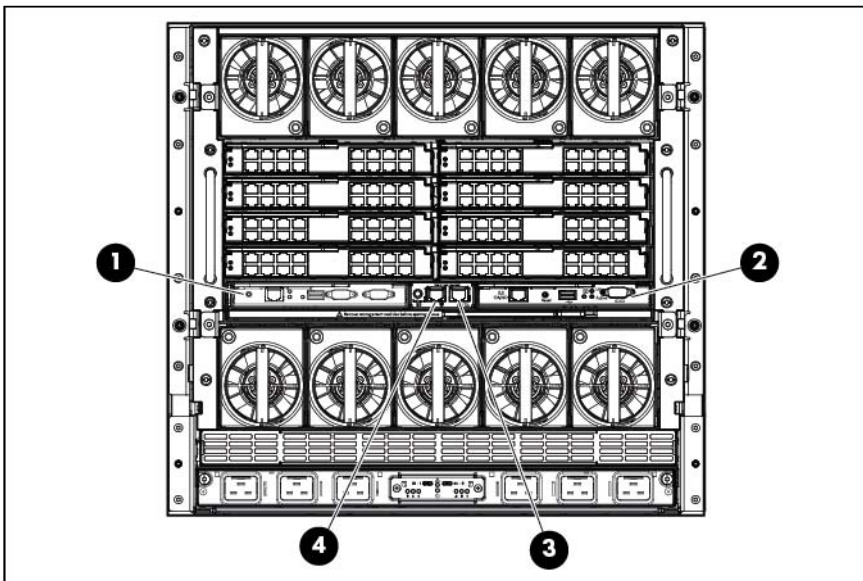


Fan LED



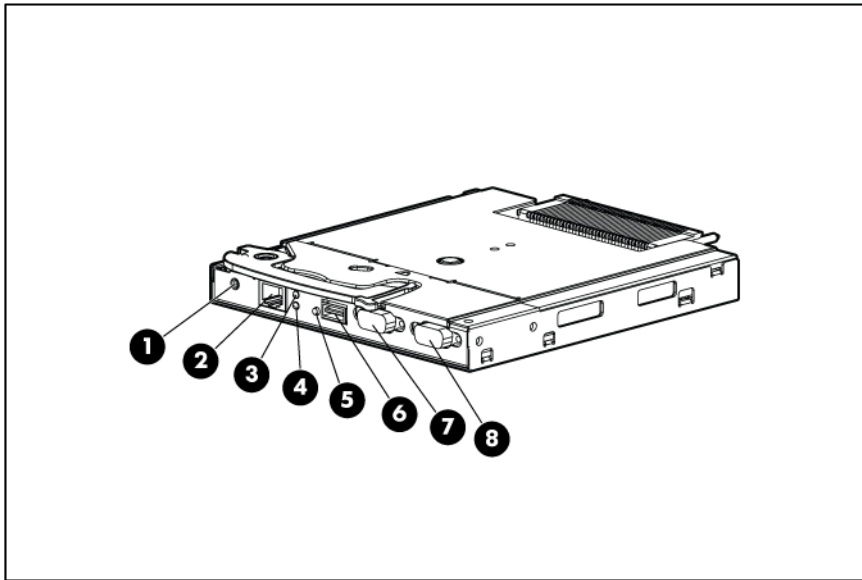
LED color	Fan status
Solid green	The fan is working.
Solid amber	The fan has failed.
Flashing amber	See the Insight Display screen.

Onboard Administrator components



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

HP c7000 Onboard Administrator with KVM components

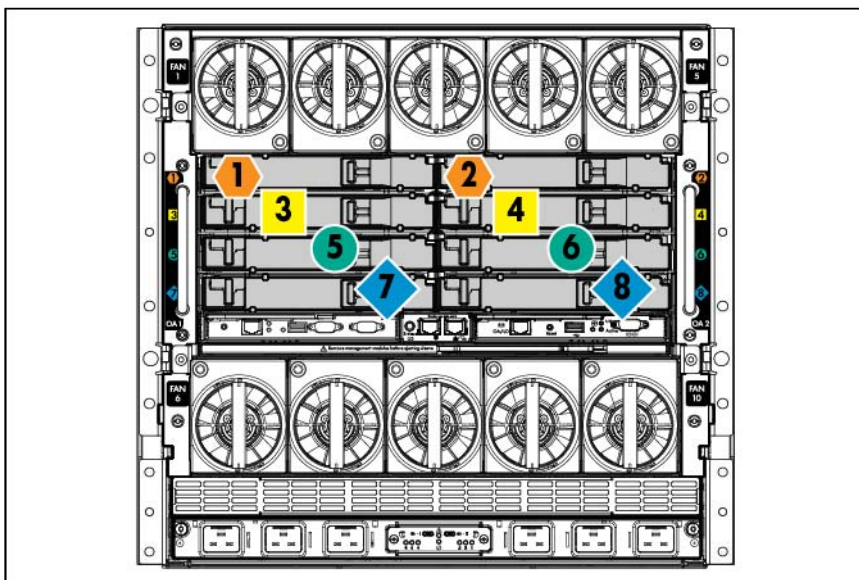


Item	Name	Description
1	Reset button	—
2	OA/iLO management port	Ethernet 100BaseT RJ45 connector, which provides Ethernet access to the Onboard Administrator and the iLO on each blade. Also supports interconnect modules with management processors configured to use the enclosure management network. Also supports GbE.
3	UID LED	Blue = UID on
4	Active Onboard Administrator LED	Indicates which Onboard Administrator is active
5	Health LED	Green = OK Red = Critical error
6	USB	USB 2.0 Type A connector used for connecting supported USB devices such as DVD drives, USB key drives, or a keyboard or mouse for enclosure KVM use. To connect multiple devices, a USB hub (not included) is required.

Item	Name	Description
7	Serial connector	Serial RS232 DB-9 connector with PC standard pinout. Connect a computer with a null-modem serial cable to the Onboard Administrator command line interface (CLI).
8	VGA	VGA DB-15 connector with PC standard pinout. To access the KVM menu or Onboard Administrator CLI, connect a VGA monitor or rack KVM monitor for enclosure KVM.

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	◆ 🟢

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 48)."

Installation

Installation overview

To set up and install the enclosure:

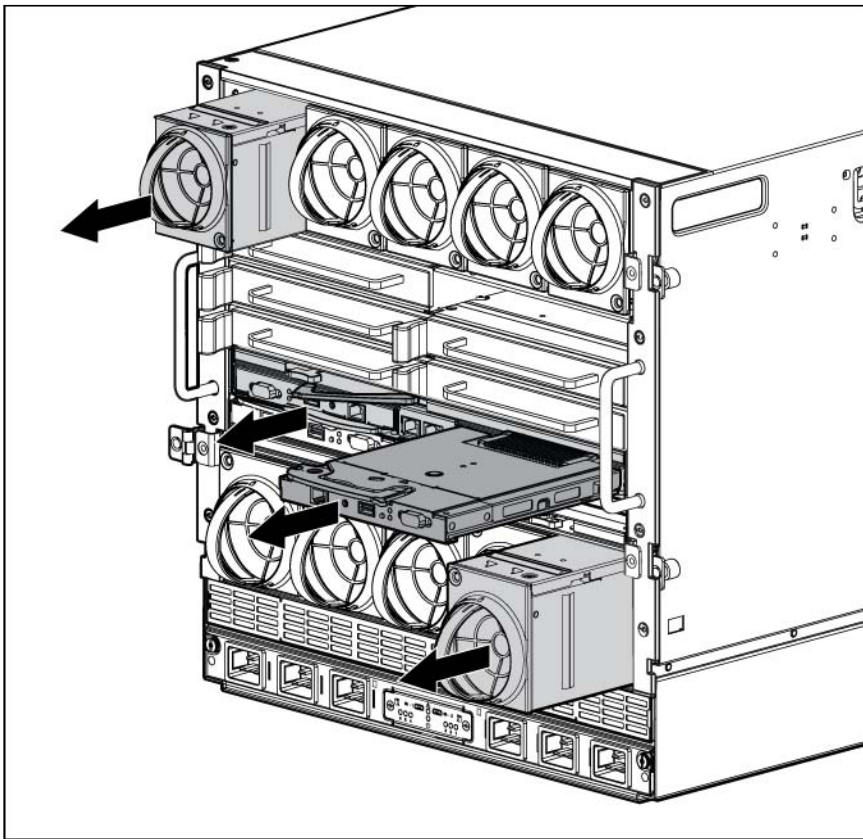
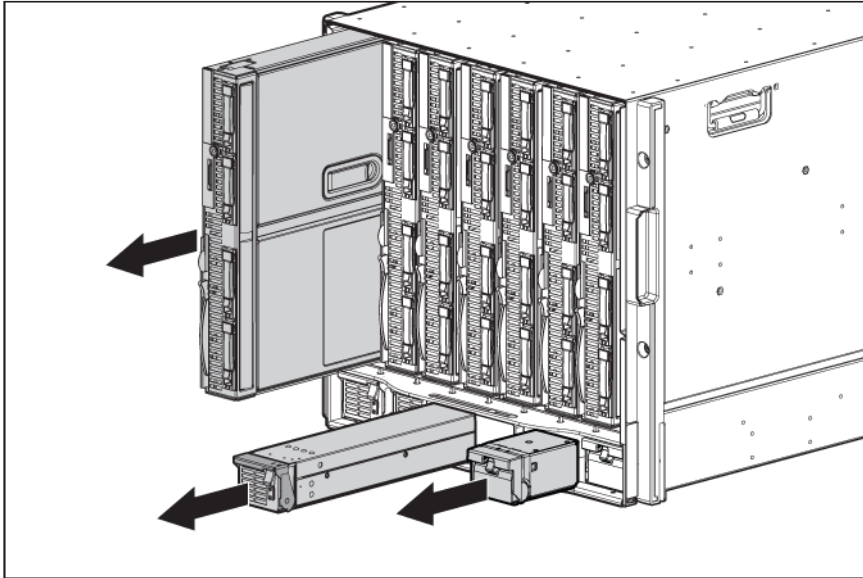
1. Disassemble the enclosure ("[Disassembling the enclosure](#)" on page 21).
2. For rack-free installations ("[Rack-free installation](#)" on page 24), set up the enclosure on an appropriate surface, then install the rear cage and enclosure components.
3. For rack installations, install the enclosure 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 56) in the enclosure.
6. Connect the AC power cables and power up the enclosure ("[Powering up the enclosure](#)" on page 59).
7. Configure the enclosure ("[Running the Insight Display installation steps](#)" on page 65) 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.

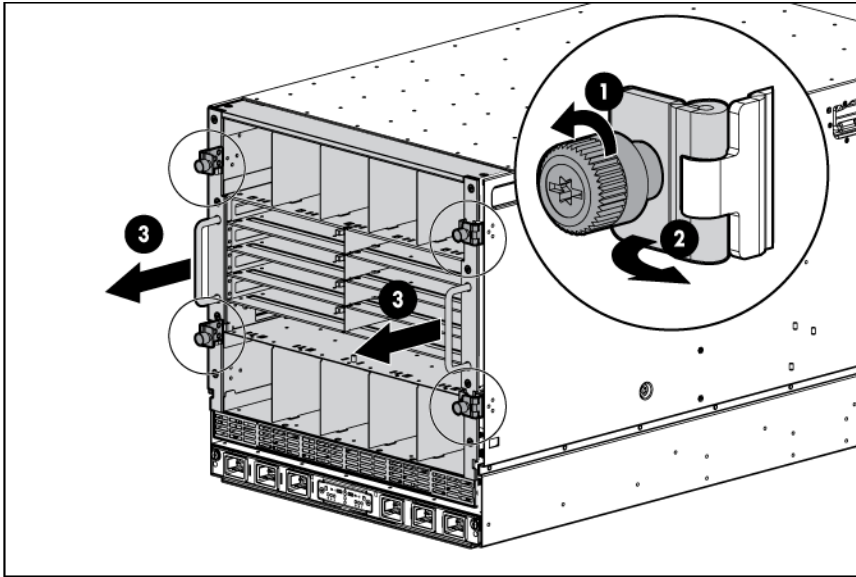
The empty enclosure with the rear cage installed weighs 58.6 kg (129 lb). When the enclosure is disassembled, the empty enclosure without the rear cage installed weighs 35.5 kg (78 lb). The empty rear cage weighs 23.2 kg (51 lb).

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

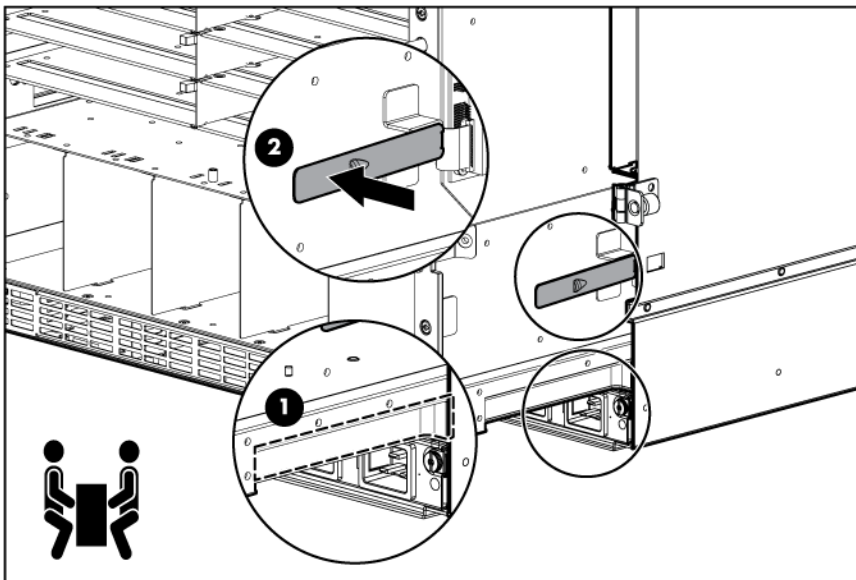


2. Remove the rear cage:
 - a. Loosen the thumbscrews and open the hinges completely.

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

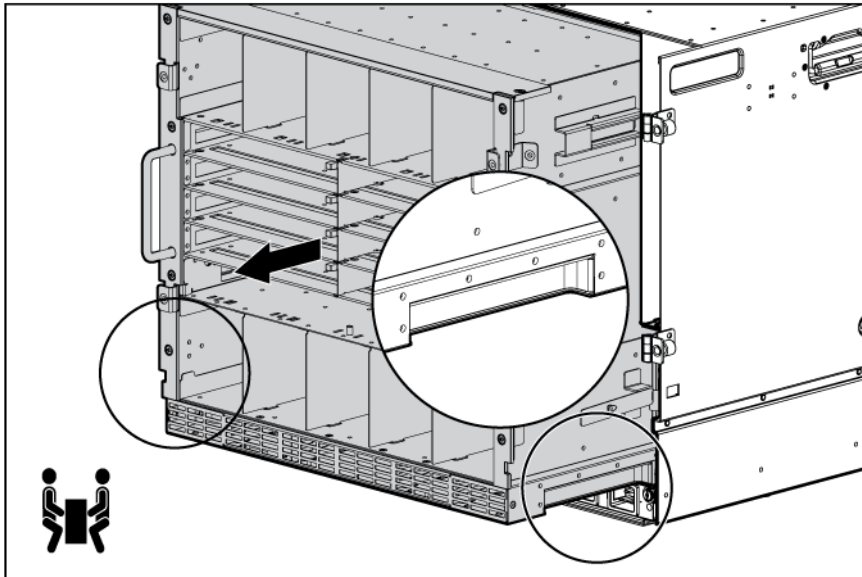


- c. Grasp the handholds below the release levers.
d. Disengage the release levers on both sides of the rear cage.



- △ **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 the enclosure on top of another enclosure.
 - Never place equipment on top of the enclosure.
 - Never place the 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. ("[Installing the rear cage into the enclosure](#)" on page 28)

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).

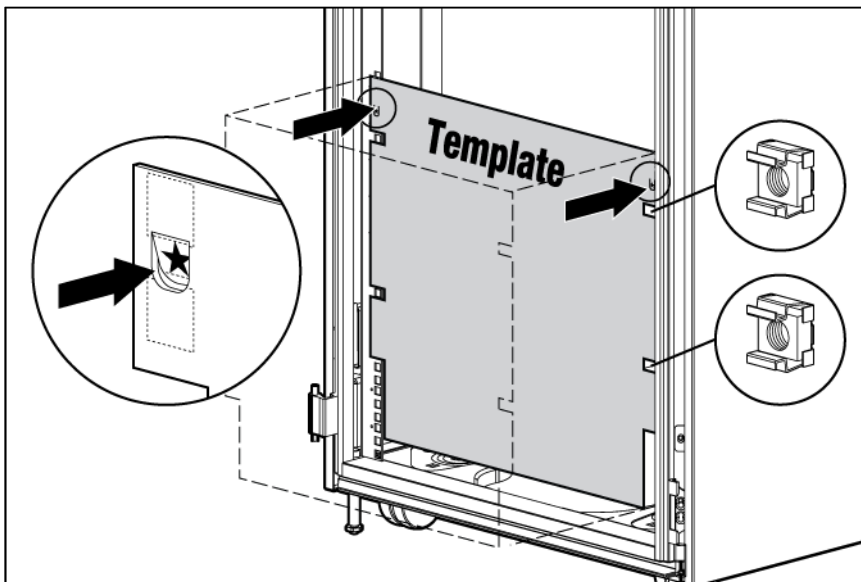
2. Use the rack template ("Measuring with the rack template" on page 25) to mark the locations for the rack rails.
3. Install the rack rails ("Installing the rack rails" on page 25) for each enclosure.
4. Install the enclosure into the rack ("Installing the enclosure into the rack" on page 26).

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.



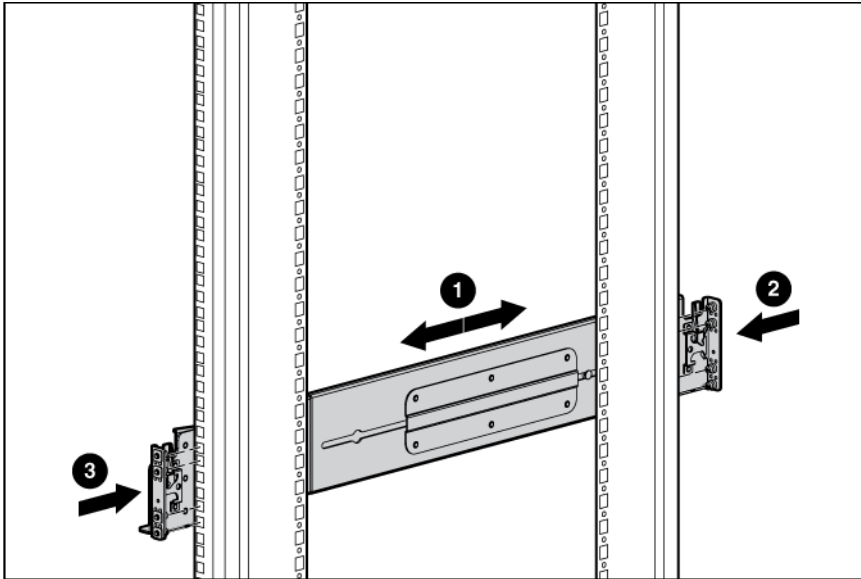
Installing the rack rails

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).

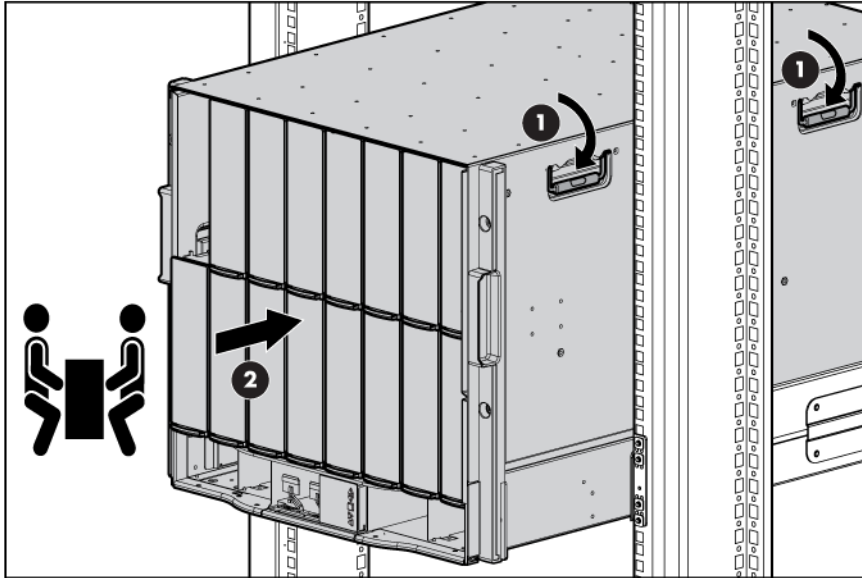
⚠ WARNING: Always use at least two people to lift an enclosure into the rack. If the enclosure is being loaded into the rack above chest level, a third person must assist with aligning the enclosure with the rails while the other two people support the weight of the enclosure.

To install the enclosure into the rack:

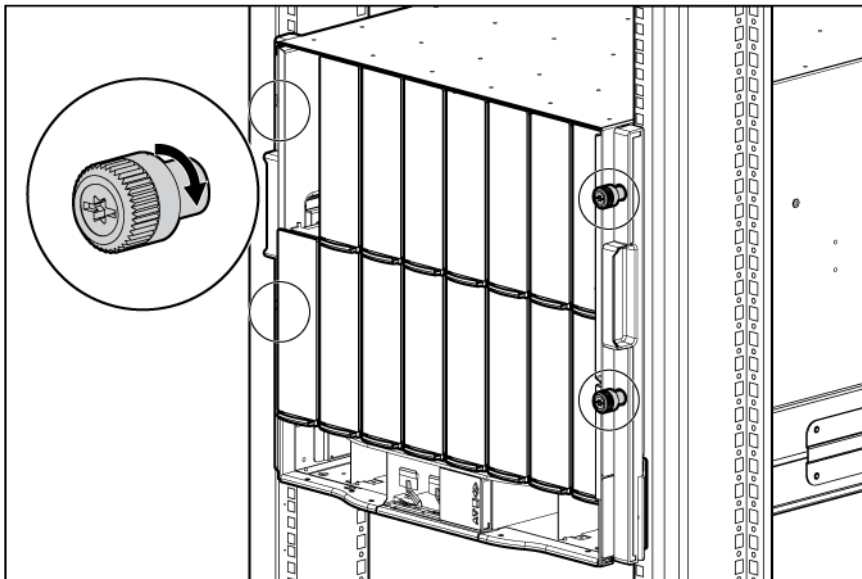
1. At the front of the rack, lift and align the enclosure guiding fins with the guiding groove in the rack rails.

📌 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.

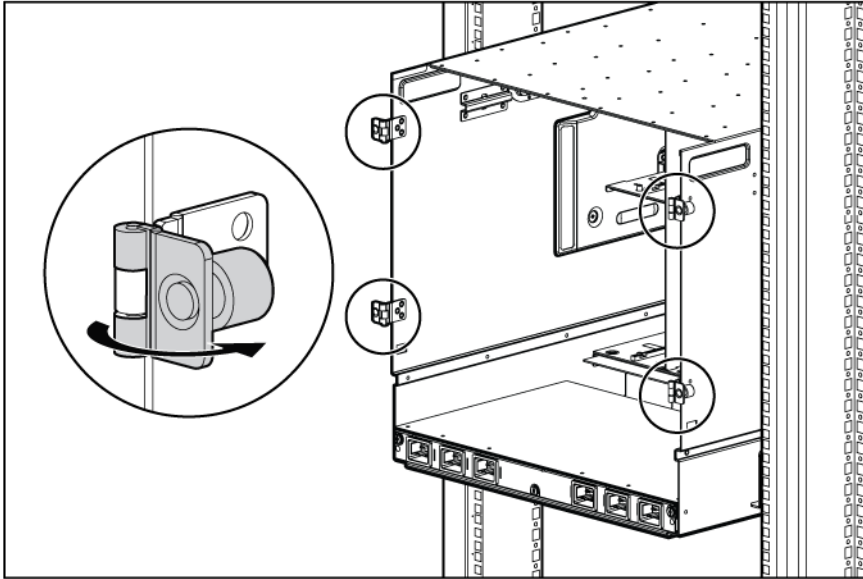


4. Install the rear cage into the enclosure. ("[Installing the rear cage into the enclosure](#)" on page 28)
5. Repeat the procedure for the remaining enclosures.

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

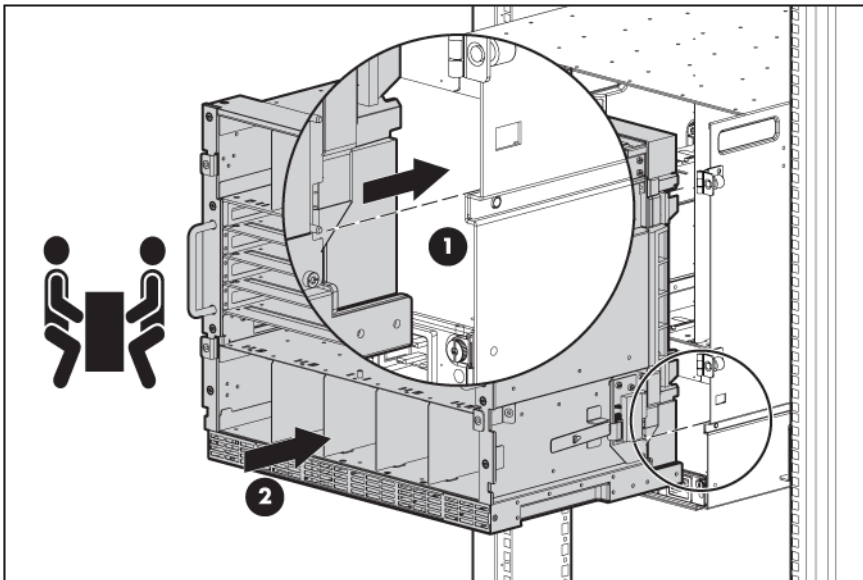
1. Open all hinges completely.



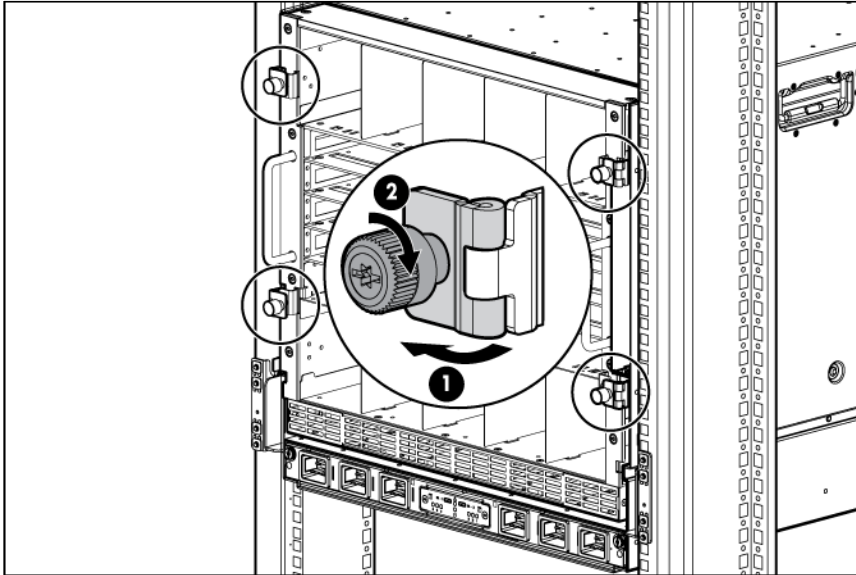
2. Position the rear cage at the rear of the enclosure, and align the rear cage guiding fins with the guiding groove in the rack rails.
3. Slide the rear cage fully into the enclosure.



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 65)" 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.

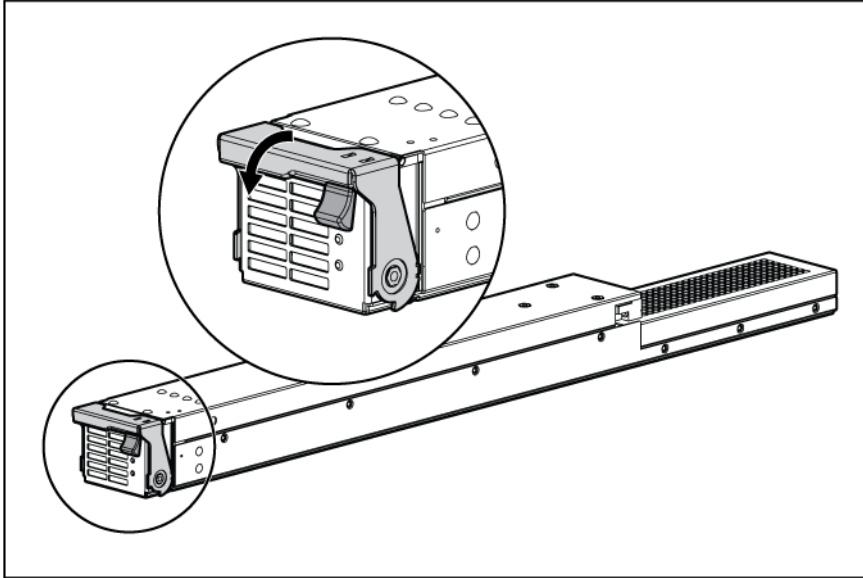
Power supplies are installed in this manner to provide maximum flexibility for redundancy in three-phase configuration options.

CAUTION: Do not mix HP 2250W, HP 2400W High Efficiency, HP BL7000 2400W Platinum, or -48vDC power supplies in one enclosure. Install only one type of power supply in a single enclosure.

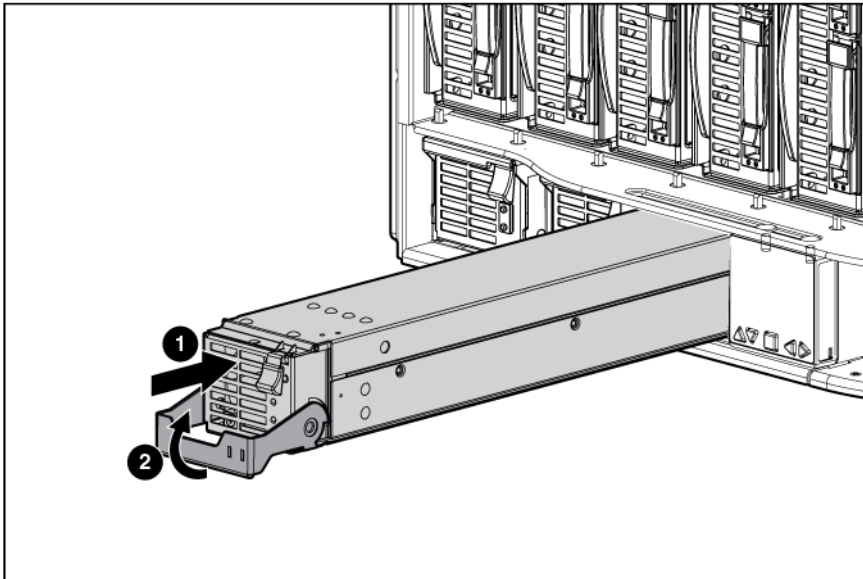
NOTE: This document discusses installation of AC power supplies only. For information on configuring DC power supplies or HP Carrier Grade Solutions, see the documentation that came with your power supply.

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 then close the bracket.



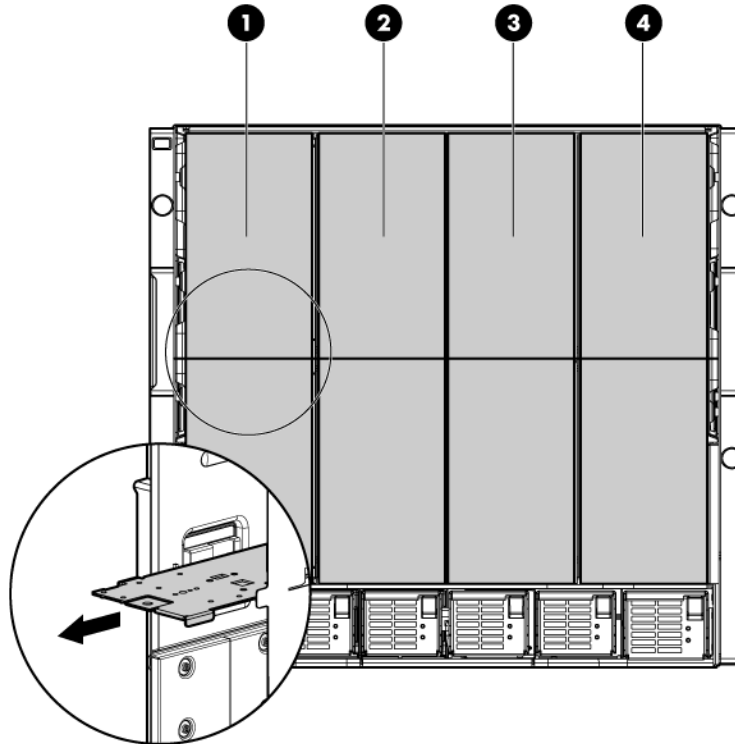
Check the power supply LEDs (on page 13) to determine the status of the power supply.

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

Installing blades

The c7000 enclosure is divided into four quadrants by the vertical support metal work. Within each quadrant, a removable divider supports half-height blades. To install a full-height blade in any quadrant, this divider must be removed. Therefore, a quadrant can only contain either full-height blades or half-height blades.

CAUTION: Failure to install the divider in a quadrant when installing half-height blades can result in damage to the connectors on the server blades.



Item	Description
1	Blade Zone 1
2	Blade Zone 2
3	Blade Zone 3
4	Blade Zone 4

Storage blades and tape blades can be installed in the same quadrant as both full-height and half-height blades. A bracket ships with each SB40c Storage Blade that allows a half-height blade to be mounted on top of the storage blade.

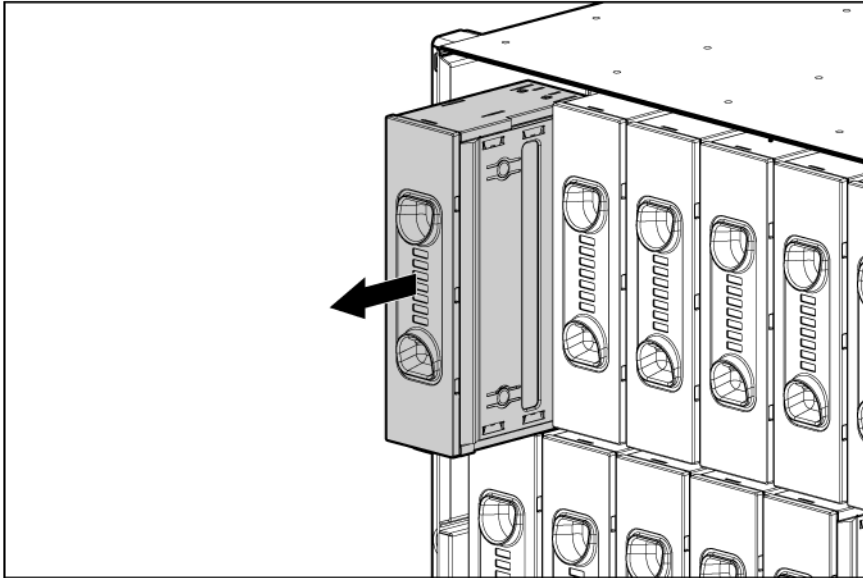
The lower tape or storage blade cannot be removed without first removing the upper half-height blade.

Installing a full-height blade

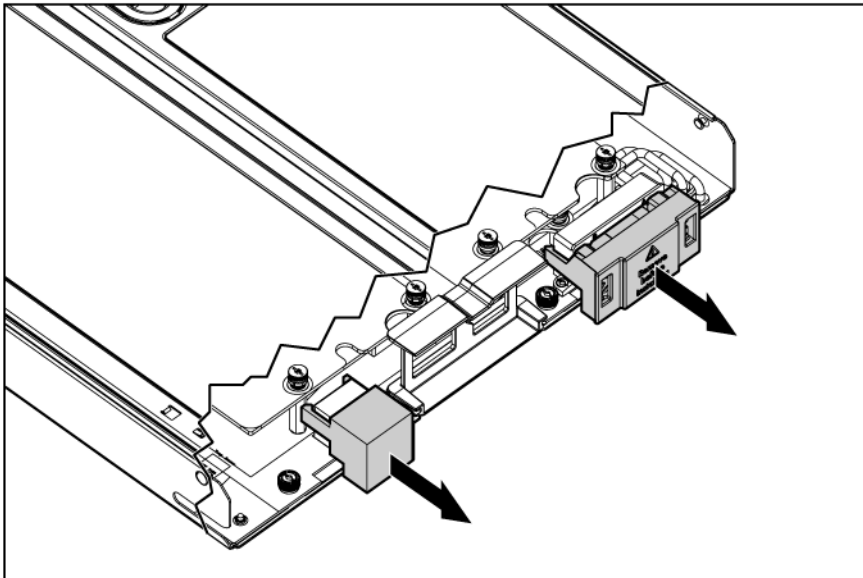
The HP BladeSystem c7000 Enclosure ships with four device bay shelves to support half-height devices. To install a full-height device, remove the device bay shelf and the corresponding blanks.

To install a blade:

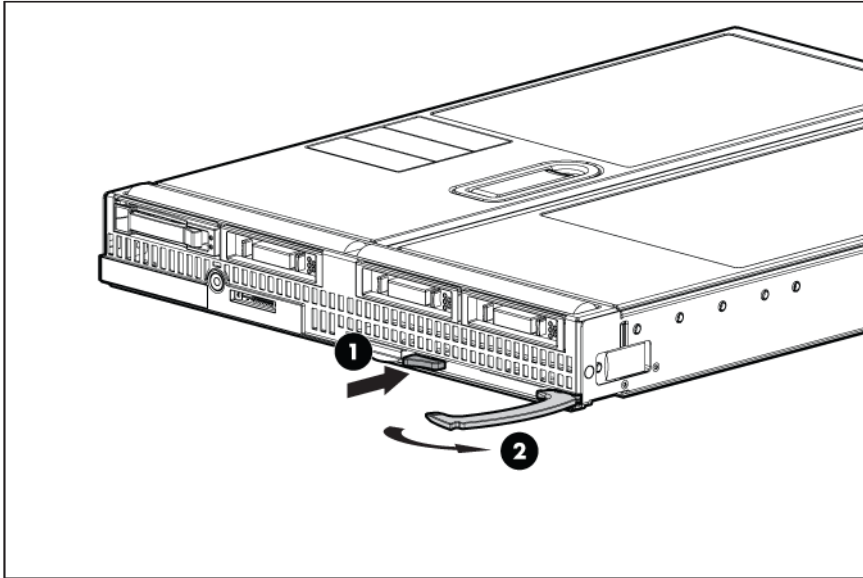
1. Remove the blank.



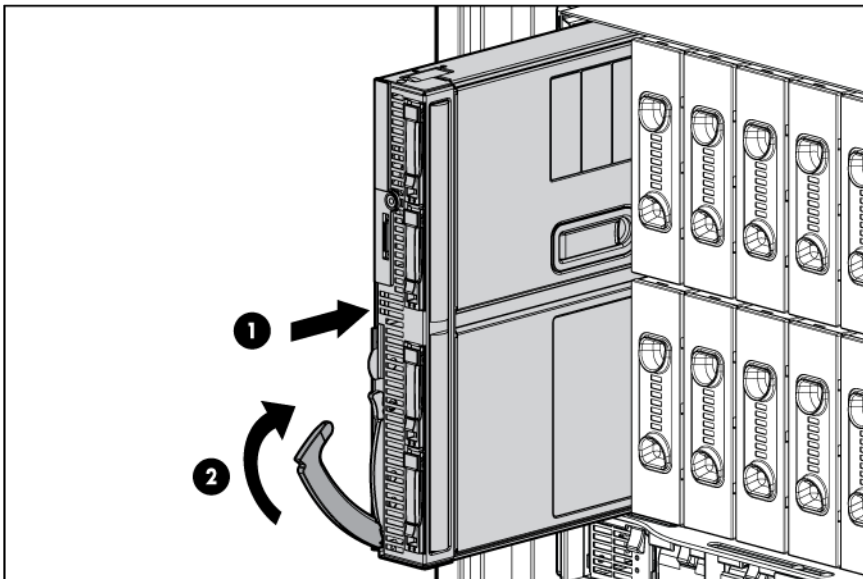
2. Remove the three adjacent blanks.
3. Remove the device bay shelf ("[Removing a device bay shelf](#)" on page 34).
4. Remove the connector covers.



5. Prepare the blade for installation.



6. Install the blade.

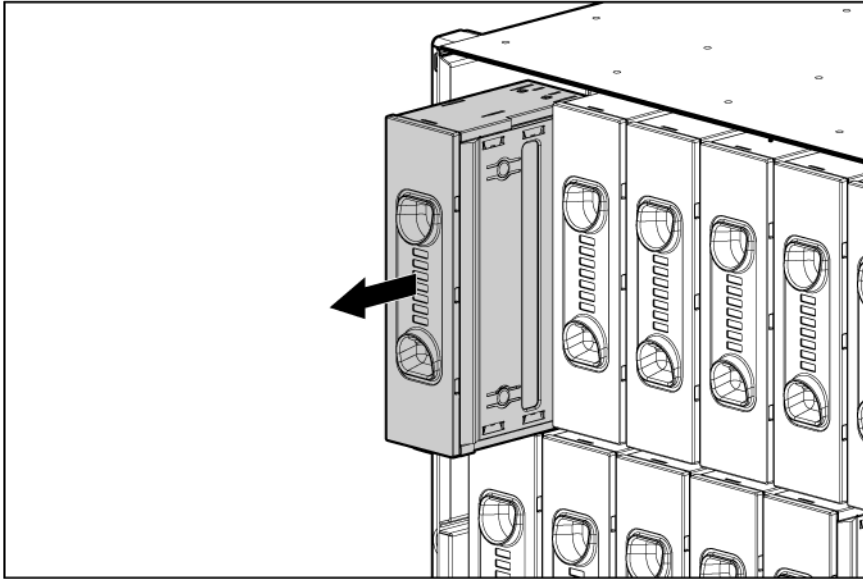


CAUTION: To prevent improper cooling and thermal damage, do not operate the blade or the enclosure unless all drive and device bays are populated with either a component or a blank.

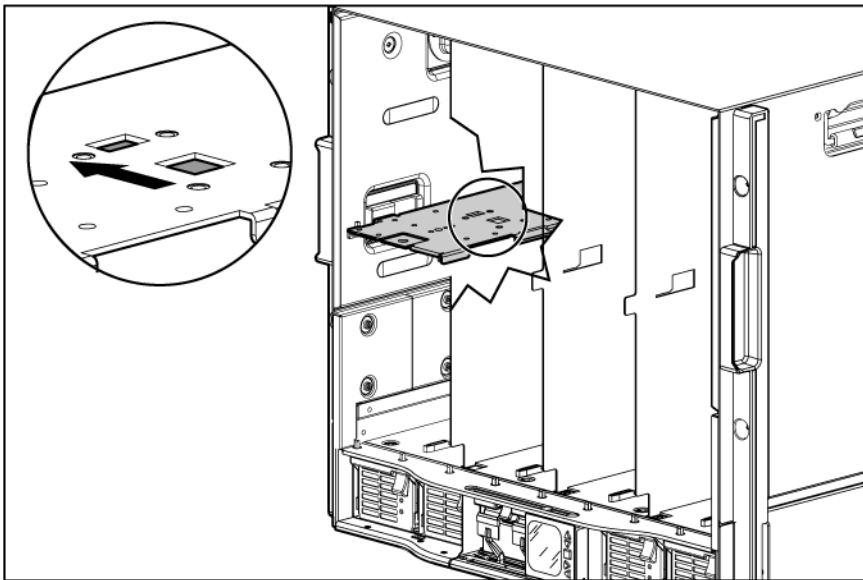
7. Install blanks in any empty bays.

Removing a device bay shelf

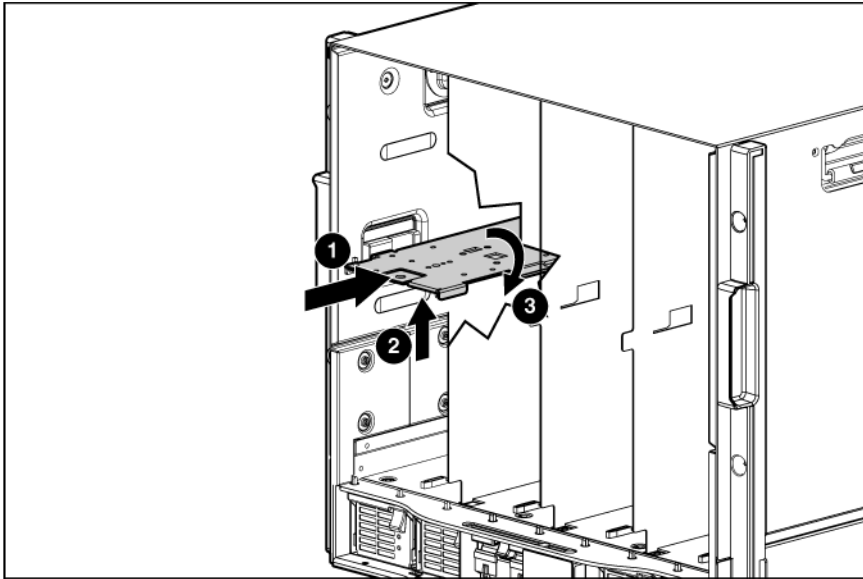
1. Remove the blank.



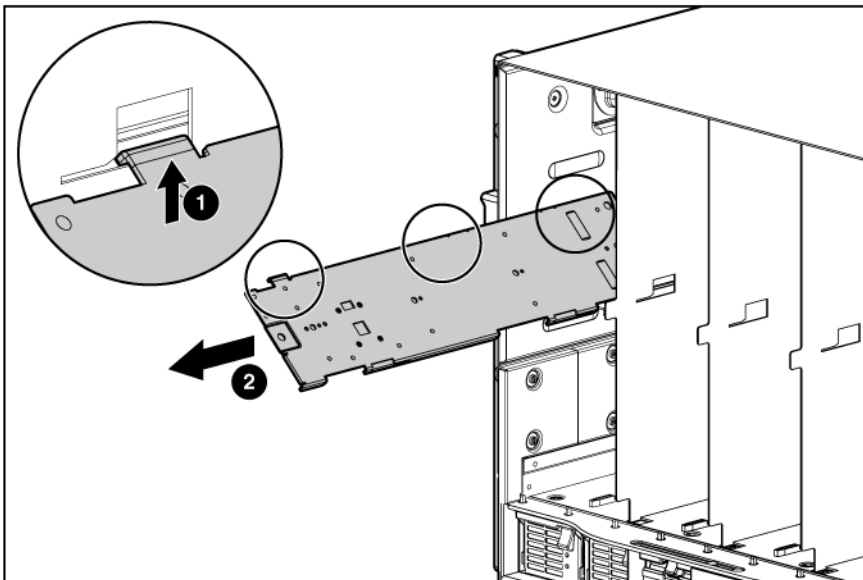
2. Slide the device bay shelf locking tab to the left to open it.



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).



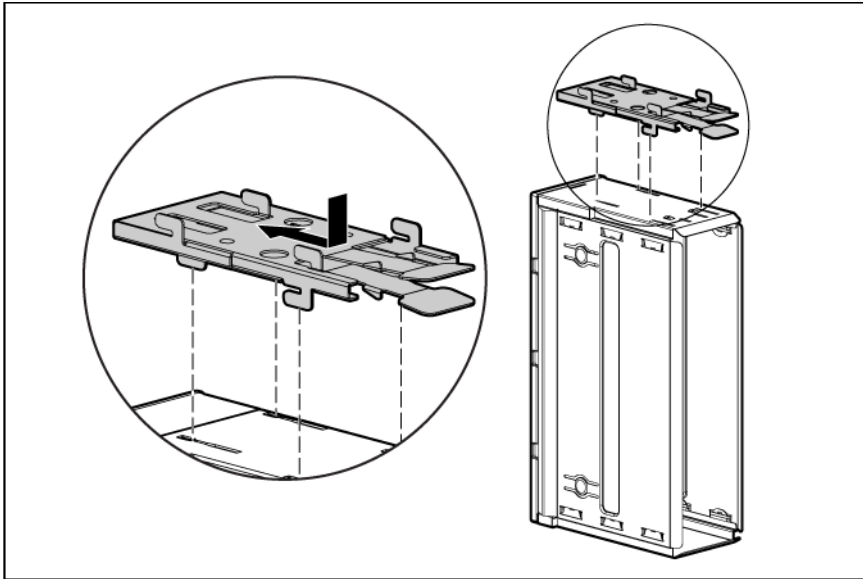
4. Lift the left side of the device bay shelf to disengage the three tabs from the divider wall, and then remove it from the enclosure.



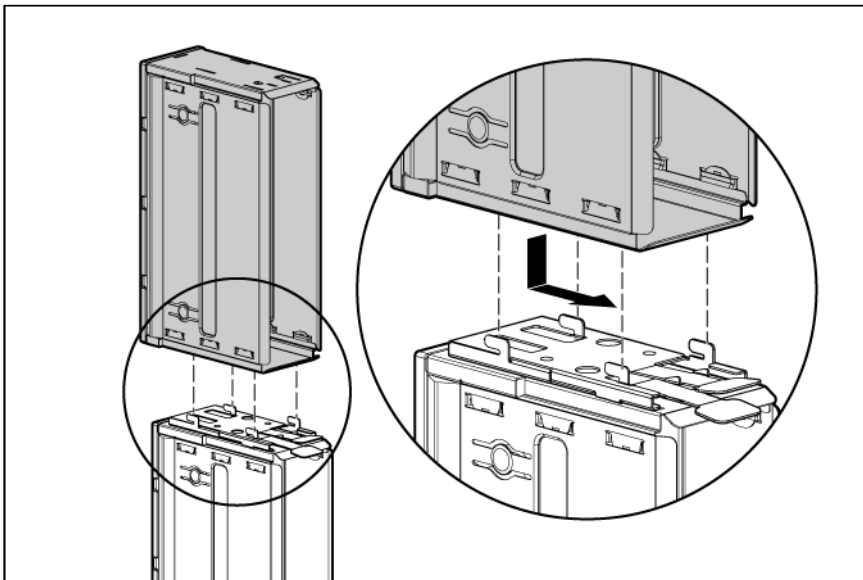
Creating a full-height device bay blank

1. Obtain the coupler plate:
 - o 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.
 - o 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 into the slots on top of the blank, and then slide the coupler plate back until it snaps into place.



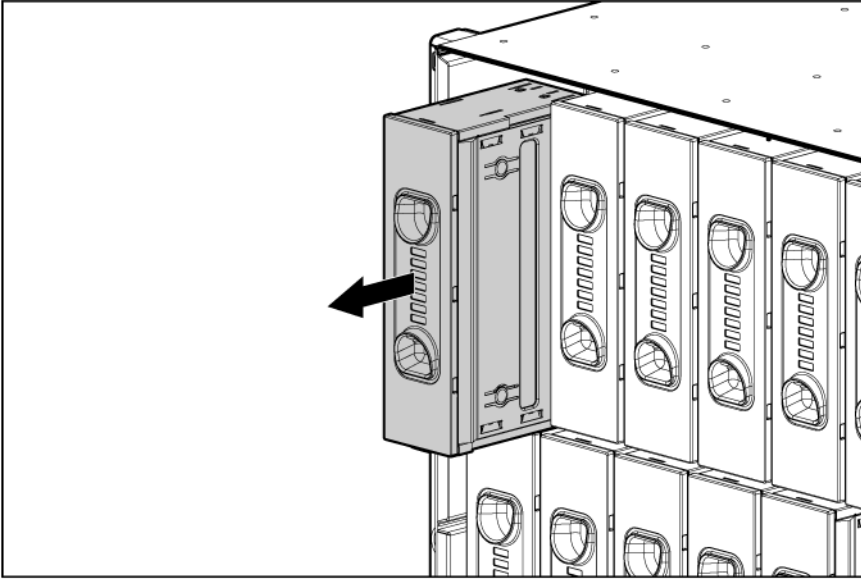
3. Fit the slots on the bottom of the second blank on to the tabs on the coupler plate, and then slide the second blank forward until it snaps in place.



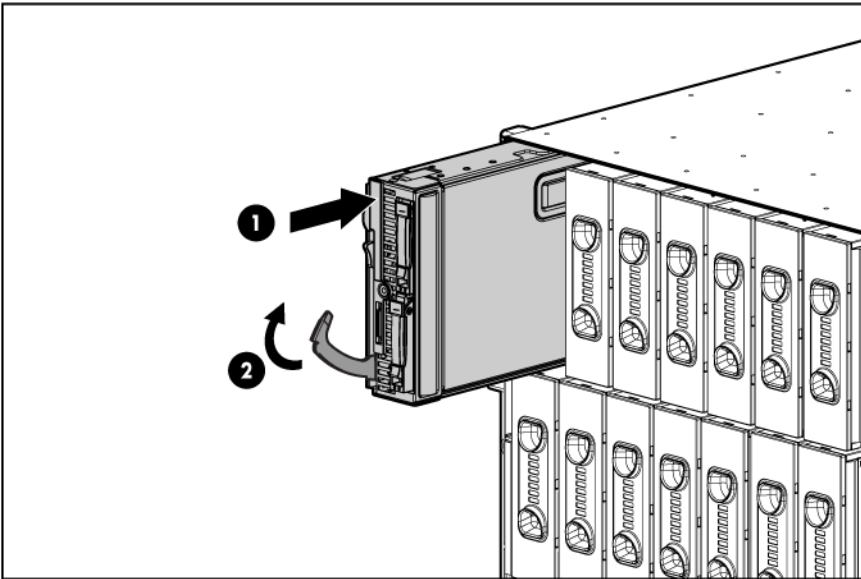
4. Install the full-height blank into the device bay.

Installing a half-height blade

1. Remove the blank.



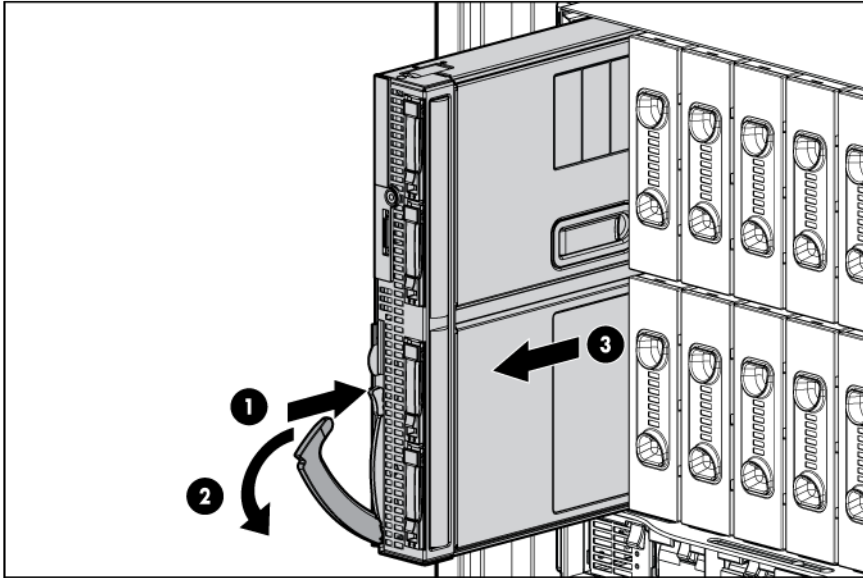
2. Install the device bay shelf, if applicable.
3. Install the blade in the empty bay.



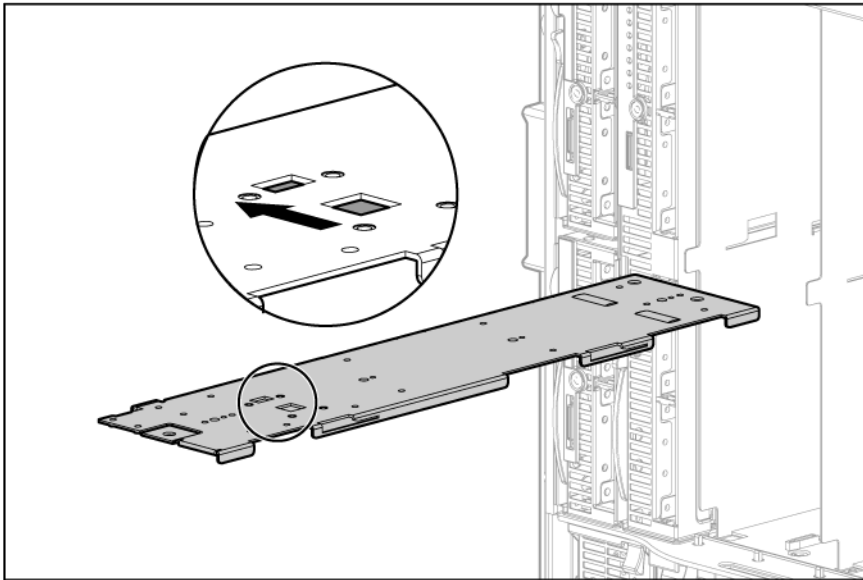
Installing a device bay shelf

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

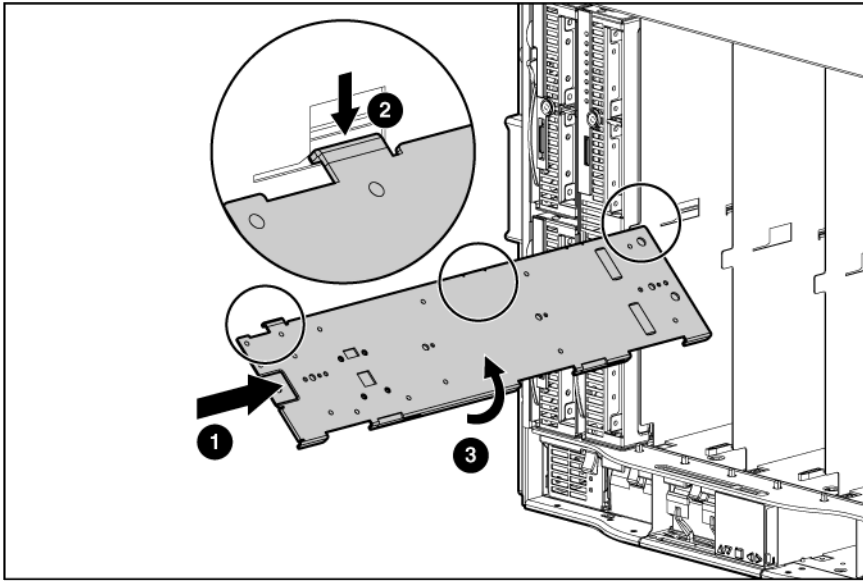
1. Remove the full-height blade, storage blade, or device bay blank.



2. To unlock device bay shelf locking tab, slide it to the left.

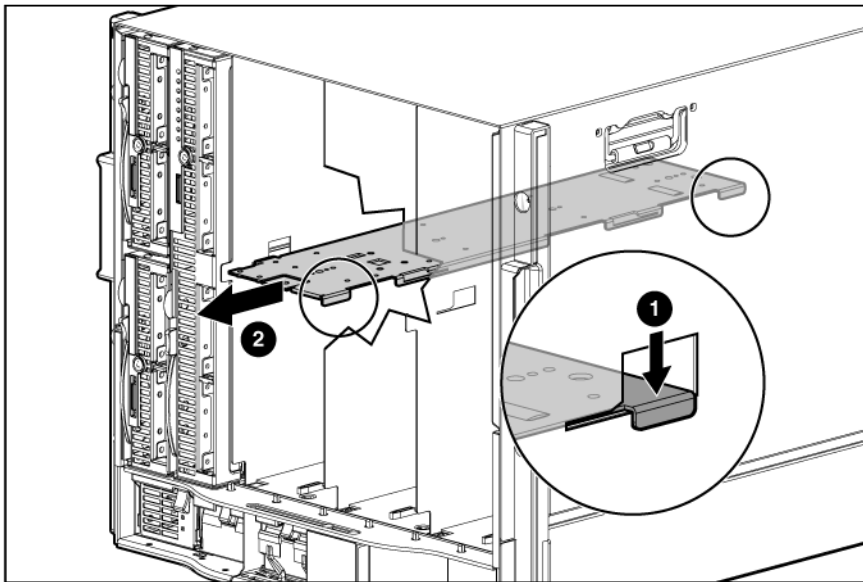


3. Tilt the shelf at an angle with the left edge up. Align the three tabs on the left edge of the shelf with the openings in the enclosure, and then push the device bay shelf up.

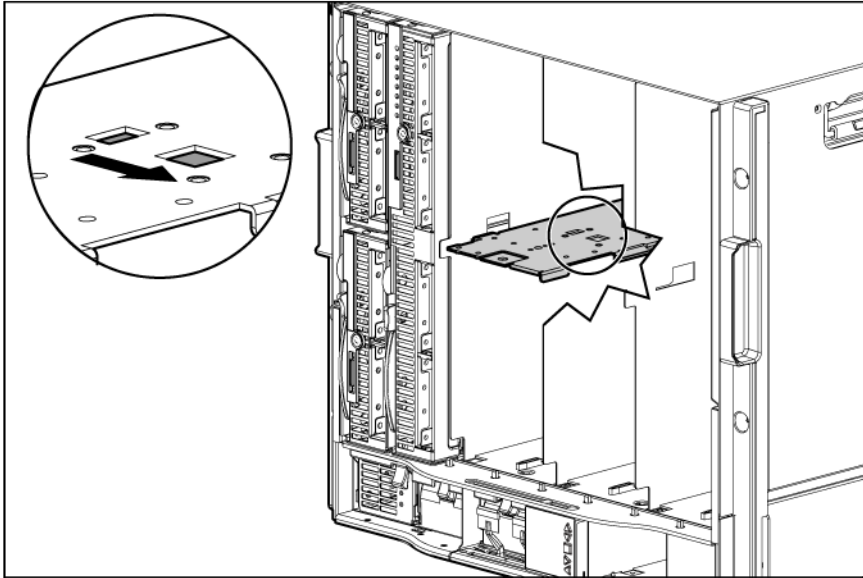


CAUTION: Be sure that all five tabs (three on the left side of the shelf and two on the right side of the shelf) are fully engaged before sliding the shelf forward to complete the installation. Failure to do so can cause damage to server blade connectors during installation.

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. To lock device bay shelf locking tab, slide it to the right.



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.

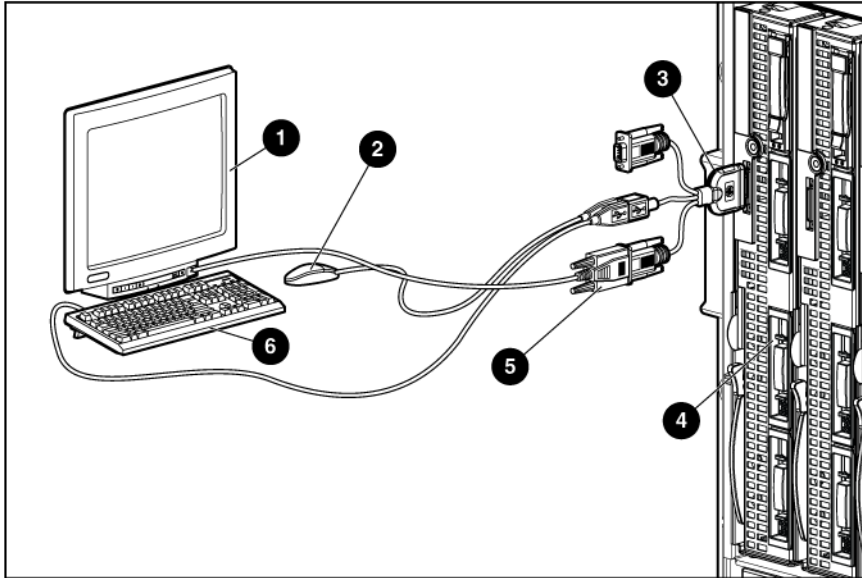
Accessing a server blade with local KVM

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

CAUTION: Before disconnecting the SUV 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.

1. Connect the SUV cable to the 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	HP c-Class Blade SUV cable
4	Server blade
5	Video connector
6	USB keyboard

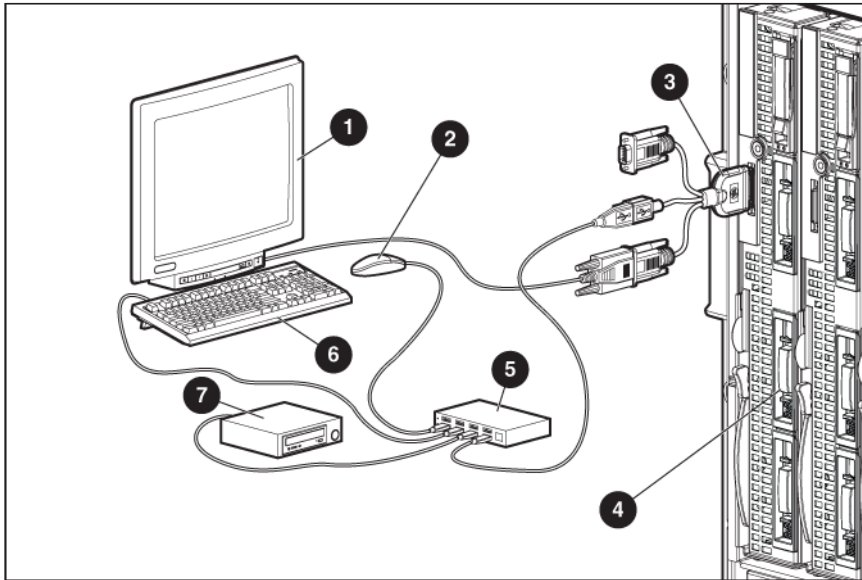
Accessing local media devices

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

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

1. Connect the HP c-Class Blade SUV cable to the 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

- USB diskette drive



Item	Description
1	Monitor
2	USB mouse
3	HP c-Class Blade SUV cable
4	Server blade
5	USB hub
6	USB keyboard
7	USB CD/DVD-ROM drive or diskette drive

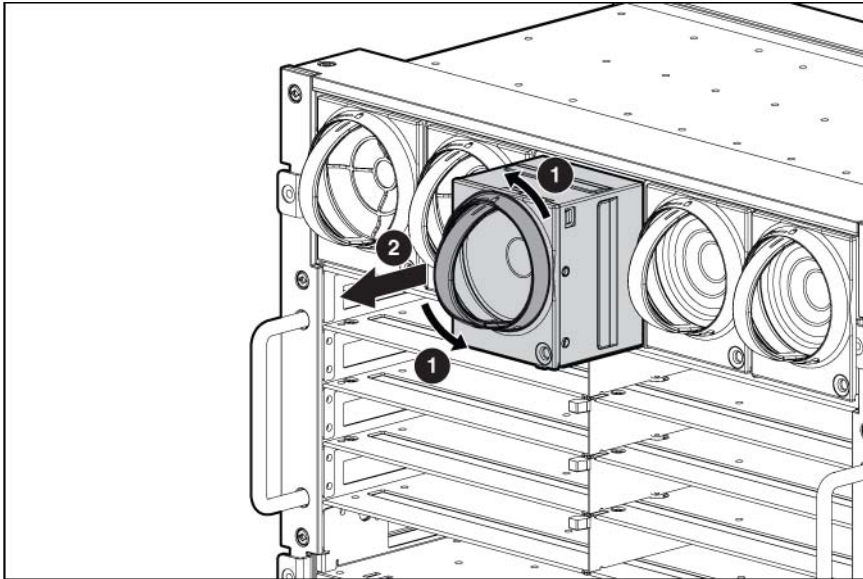
Installing fans

The HP BladeSystem c7000 Enclosure ships with four HP Active Cool 200 Fans and supports up to 10 fans. Install fans in even-numbered groups, based on the total number of 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.

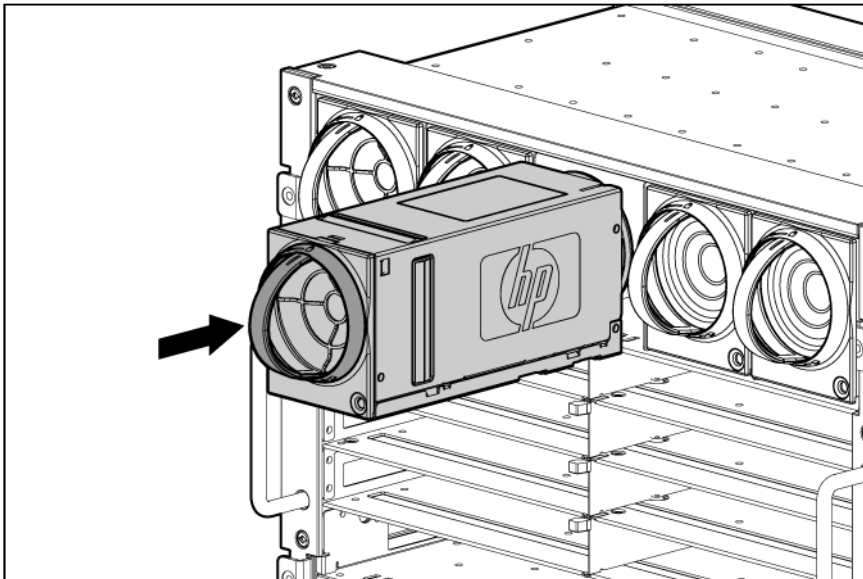
To install a fan:

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

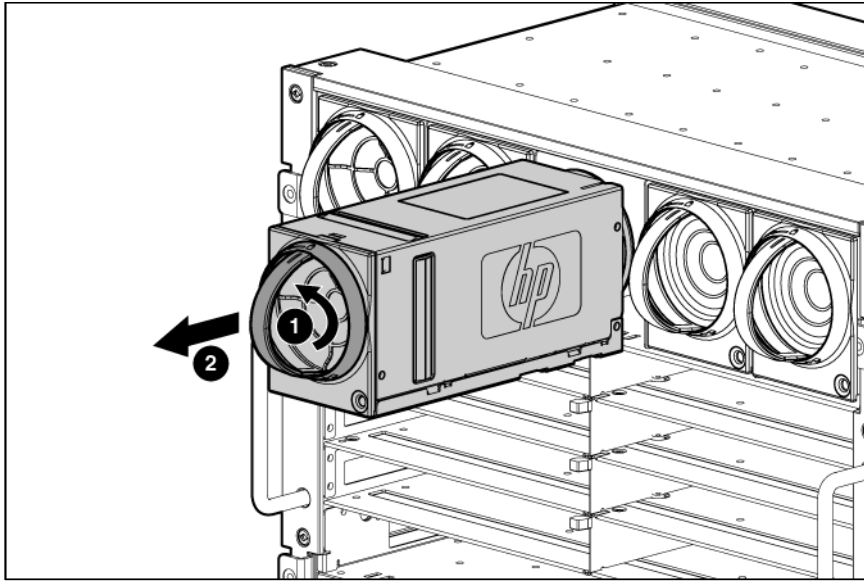


2. Slide the fan into the enclosure until it locks in place.

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 the handle 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 with KVM 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

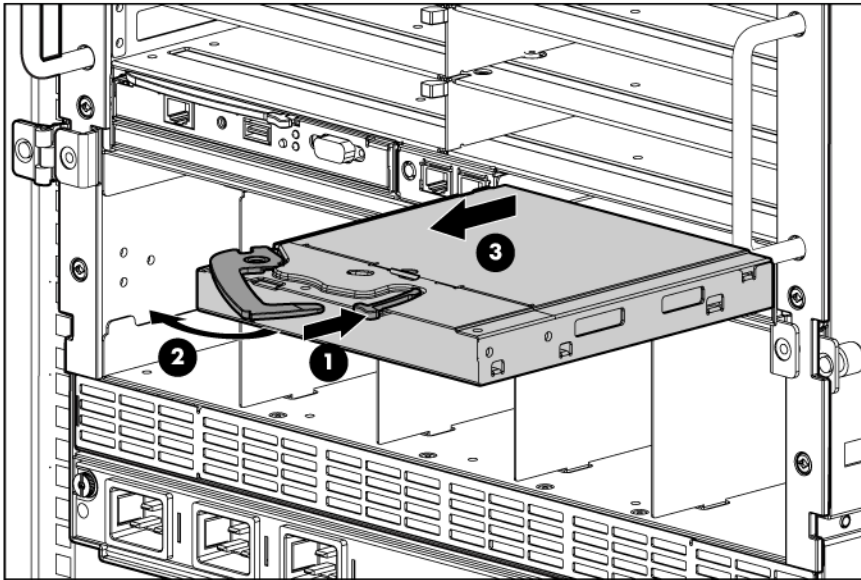
Install an Onboard Administrator blank in an unused Onboard Administrator bay.

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.

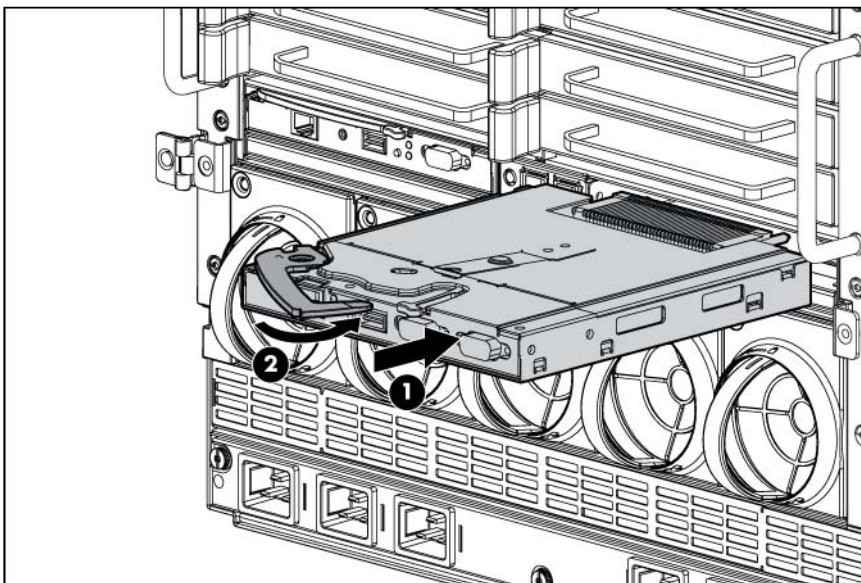
To install an Onboard Administrator module:

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.

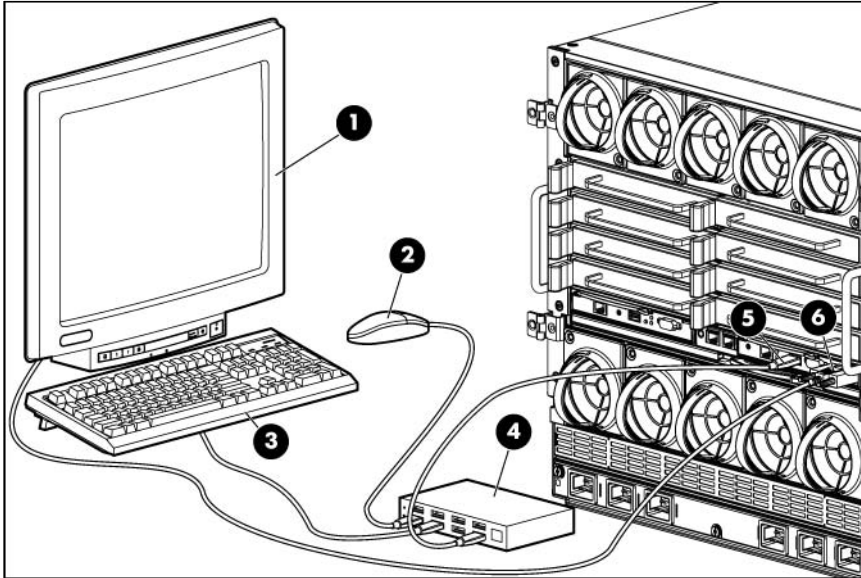


Attaching components to the HP c7000 Onboard Administrator with KVM

For local access to the enclosure:

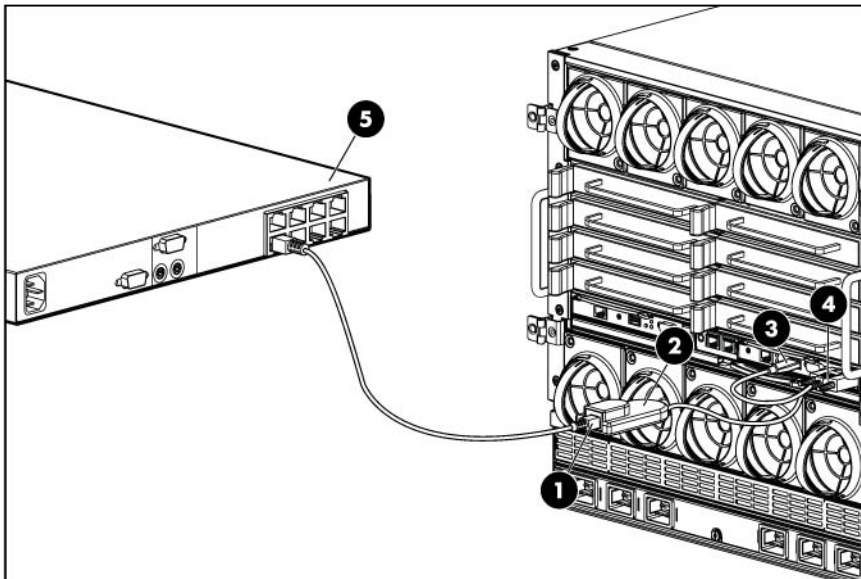
1. Connect a monitor (1) to the VGA connector (6) on the HP Onboard Administrator with KVM.
2. Connect a USB hub (4) to the USB connector (5) on the HP Onboard Administrator with KVM.

3. Connect a USB mouse (2) and keyboard (3) to the USB hub (4).



To connect the HP Onboard Administrator with KVM to an HP Server Console Switch or an HP IP Console Switch:

1. Connect the KVM interface adapter (2) to the VGA connector (4) and the USB connector (3) on the HP Onboard Administrator with KVM.
2. Connect a CAT5 cable (1) to the KVM interface adapter (2) and an optional HP Console Switch (5).



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.

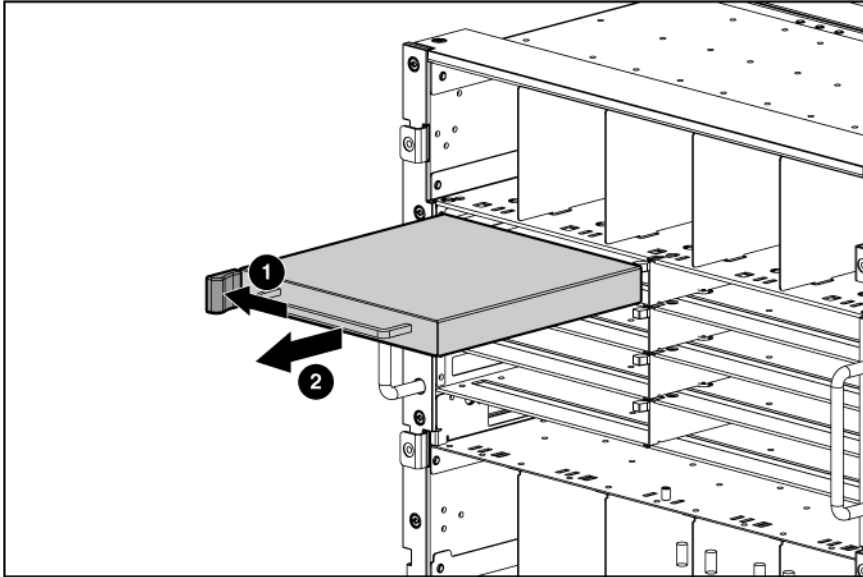


IMPORTANT: If the mezzanine card is not installed properly or the interconnect module installation does not coincide with the mezzanine card installation, the ports on the interconnect module will not function.

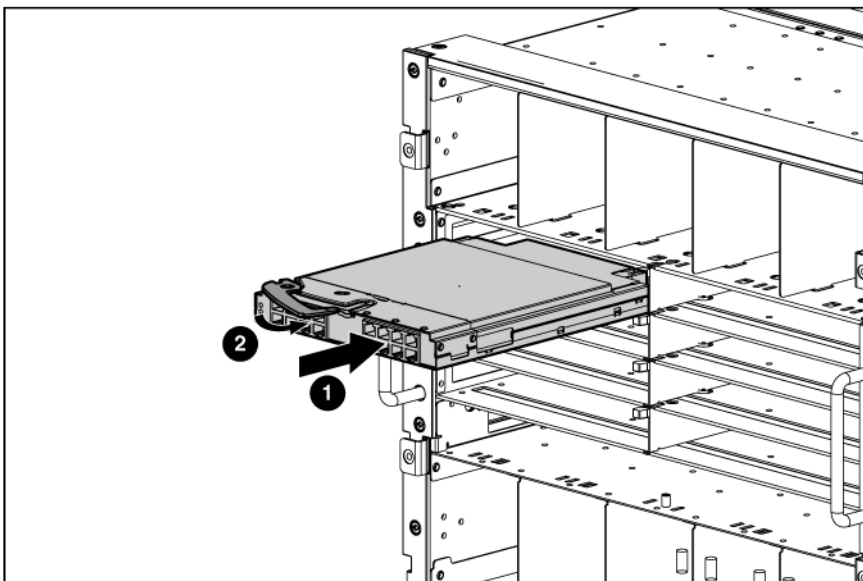
NOTE: For more information on how and where to install mezzanine cards, see the server-specific user guide.

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 55).
3. Install the interconnect module, and close the release lever.



Mapping to interconnect ports

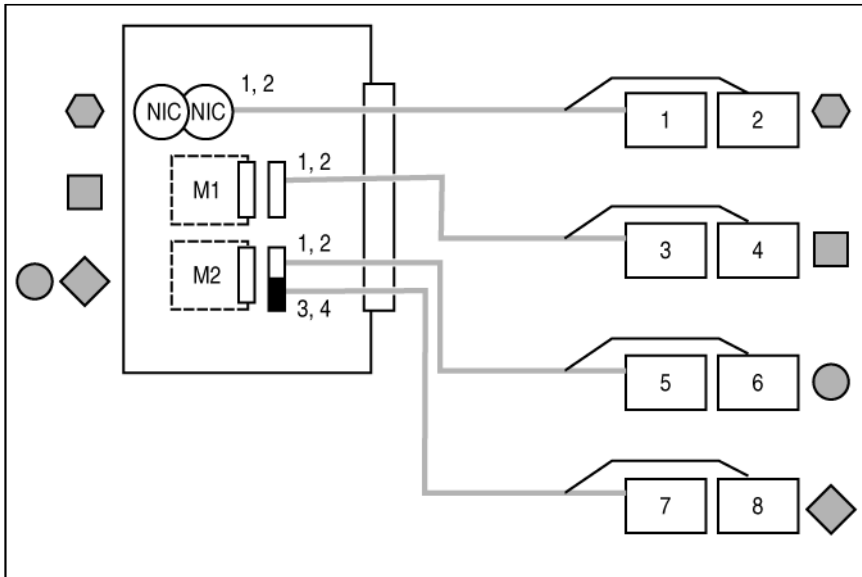
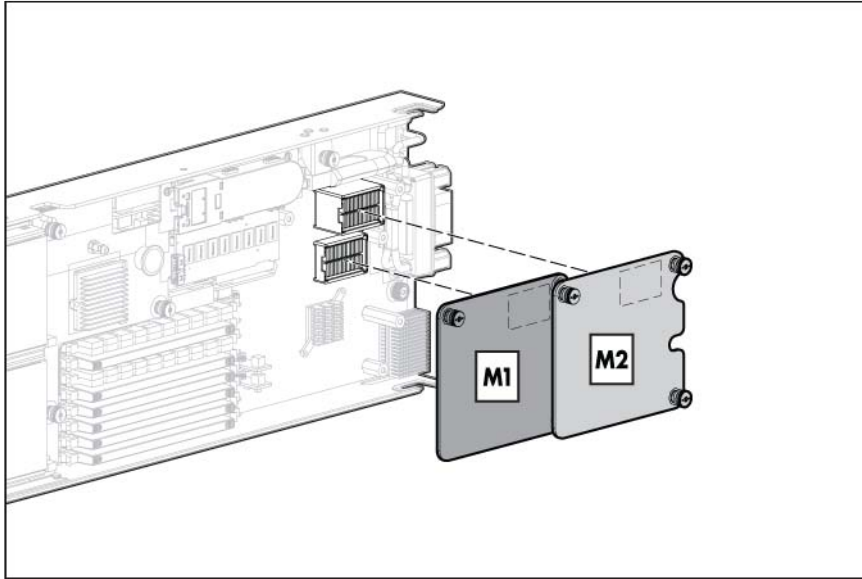
Several port types are referenced in the following tables.

- Examples of 1x ports are 1-Gb Ethernet (1 GbE) switch modules and Fibre Channel interconnect modules.
- An example of a 2x port is a Serial Attached SCSI (SAS) interconnect module. (Reserved for future use.)
- Examples of 4x ports are 10-Gb Ethernet (10 GbE) interconnect modules.
- Gen8 servers have FlexibleLOM adapters that have the same port mapping as the previous generation server blade Embedded NICs.

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

The term "1x/2x" refers to the number of interconnect lanes per port provided by the controller. The more lanes provided per port, the higher the data transmission rate coming from that port.

Mapping half-height blades



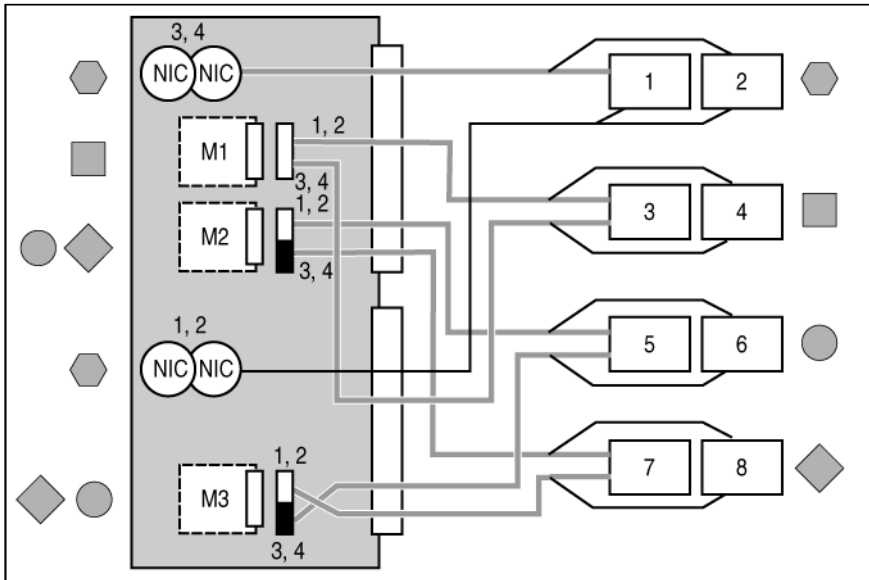
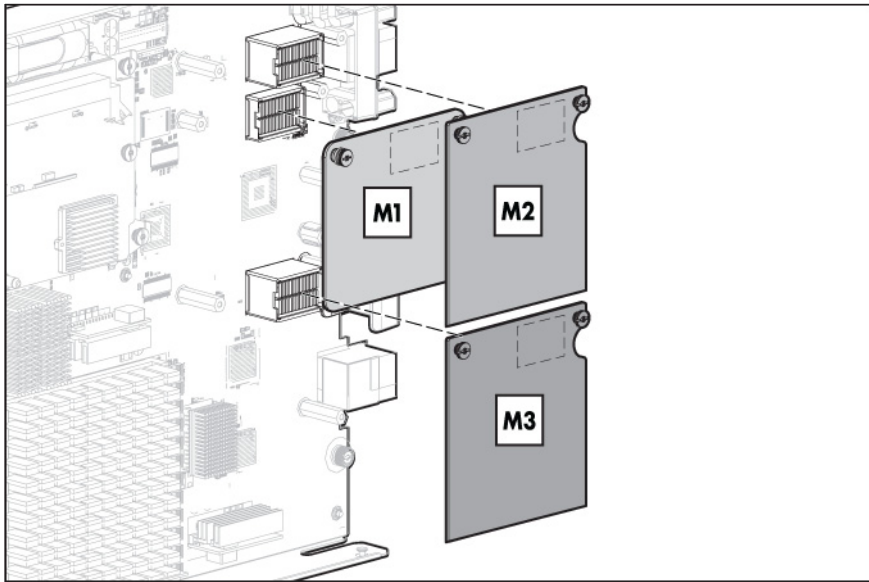
The following table lists the available configurations for half-height devices installed in device bay N (1–16).

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
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.

Connection	Port number	Connects to interconnect bay/port	Comments
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 blades

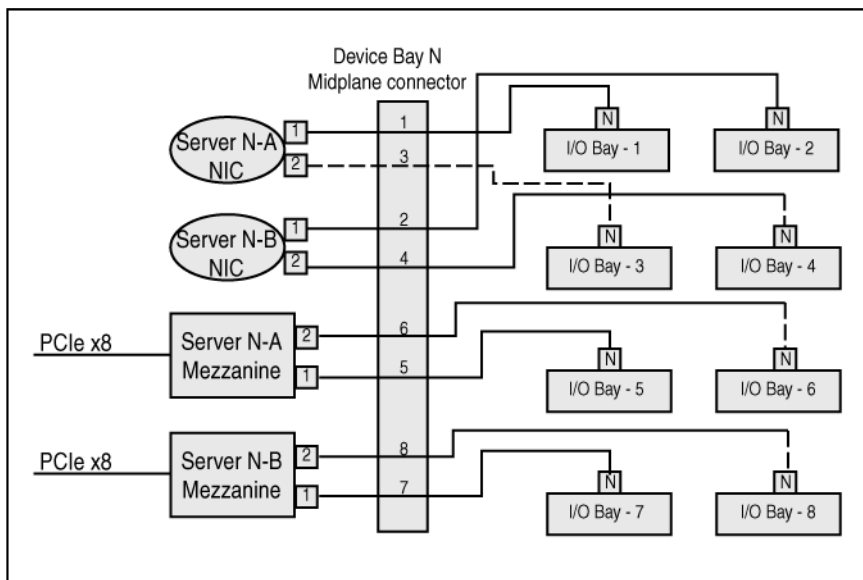


The following table lists the available configurations for full-height devices installed in device bay N (1–8).

Connection	Port number	Connects to interconnect bay/port	Comments
NIC	NIC 1 NIC 2 NIC 3 NIC 4	1/Port N+8 2/Port N+8 1/Port N 2/Port N	One or two single-wide Ethernet interconnect modules
Mezzanine slot 1—1x or 2x cards	1x/2x port 1 1x/2x port 2 1x/2x port 3 1x/2x port 4	3/Port N 4/Port N 3/Port N+8 4/Port N+8	One or two single-wide interconnect modules
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 can 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	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 8/Port N+8 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+8 7/Port N+8	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 BL2x220c Blades



To support network connections for specific signals, install an interconnect module in the bay corresponding to the embedded NIC or mezzanine signals.

Interconnect device mapping for double dense server blades

The following table lists the available configurations for double dense server blades installed in device bay N (1-16).

Connection	Port number	Connects to interconnect bay/port
Server A Embedded NIC	NIC 1 (ENET:1) NIC 2 (ENET:2)	1/Port N 3/Port N
Server A Mezzanine	Port 1 Port 2	5/Port N 6/Port N
Server B Embedded NIC	NIC 1 (ENET:1) NIC 2 (ENET:2)	2/Port N 4/Port N
Server B Mezzanine	Port 1 Port 2	7/Port N 8/Port N

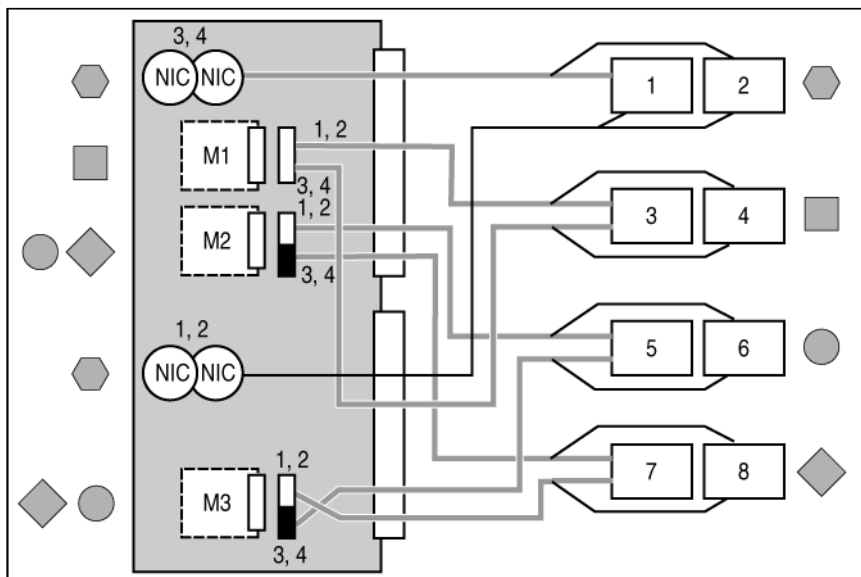
Interconnect device mapping for AMC Telco I/O expansion blades

The following table lists the available configurations for AMC Telco I/O expansion blades installed in device bay N (1-16).

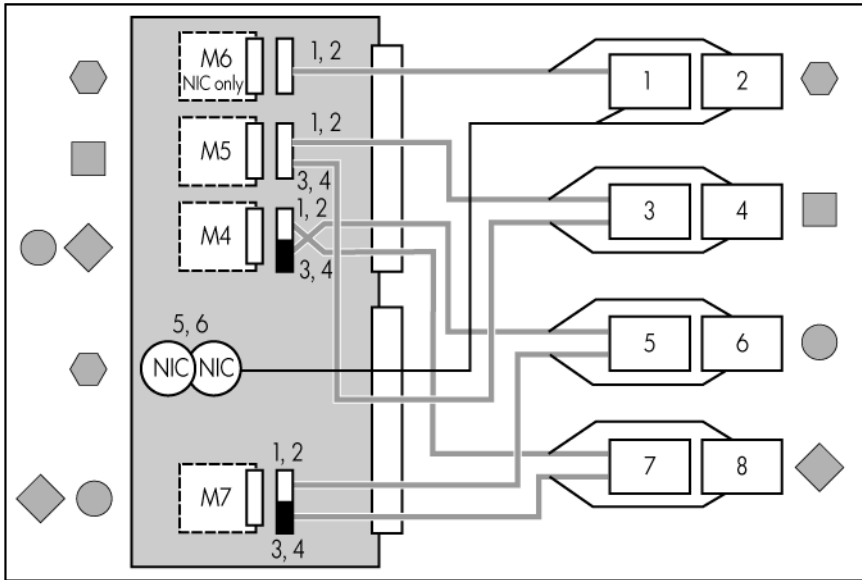
Connection	Port number	Connects to interconnect bay/port
AMC Embedded (1)	Port 1 Port 2 Port 3 Port 4	1/Port N 2/Port N 3/Port N 4/Port N
AMC Embedded (2)	Port 5 Port 6 Port 7 Port 8	5/Port N 6/Port N 7/Port N 8/Port N

Mapping the BL680c G7 Blade

- A side

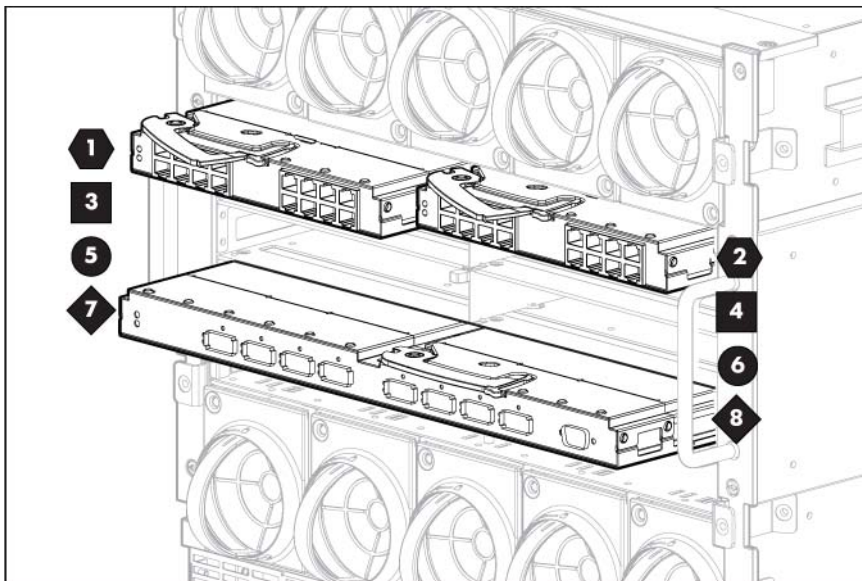


- B side



To support network connections for specific signals, install an interconnect module in the bay corresponding to the embedded NIC or mezzanine signals.

Interconnect bay identification

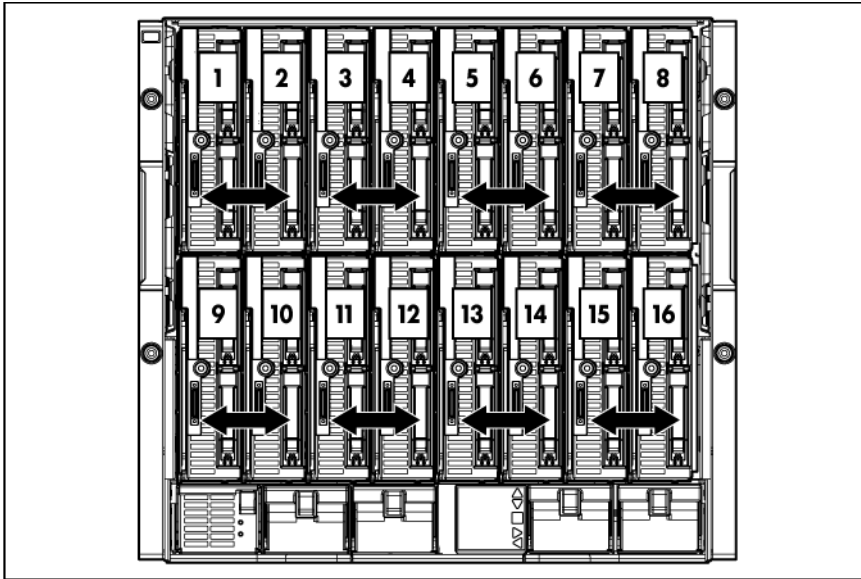


Bay-to-bay crosslinks

Four trace SerDes signals between adjacent bays are provided in the enclosure midplane to permit bay-to-bay communications. Interconnect modules can only connect horizontally.

Device bay crosslinks

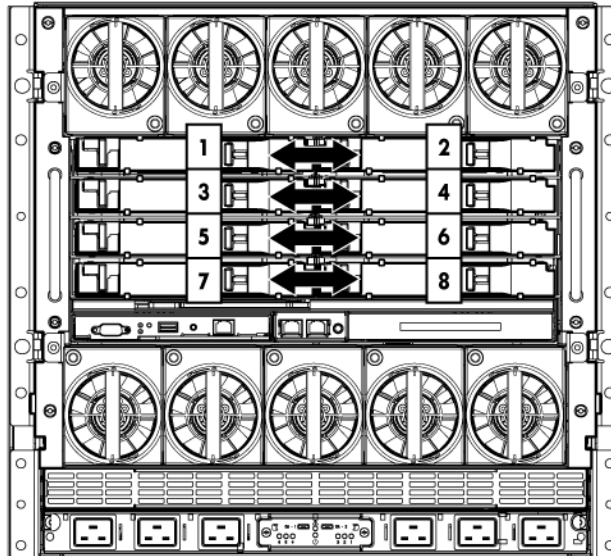
Device bay crosslinks are wired between adjacent horizontal device bay pairs.



For half-height blades, these signals connect a four-lane PCIe module to a partner blade such as a tape blade or a PCI expansion blade. For full-height blades, these signals are used to connect a PCIe module to a partner blade in the lower adjacent bay and require a PCIe pass-thru mezzanine card installed in mezzanine connector 3. The Onboard Administrator disables the device bay crosslinks when they cannot be used, such as when two server blades reside in adjacent device bays.

Interconnect bay crosslinks

Interconnect bay crosslinks are wired between adjacent interconnect bay pairs.



You can enable these signals to provide module-to-module connections, such as Ethernet crosslink ports between matching switches, or Virtual Connect modules as stacking links. Onboard Administrator disables the interconnect bay crosslinks when they cannot be used, such as when two different modules reside in adjacent horizontal interconnect bays.

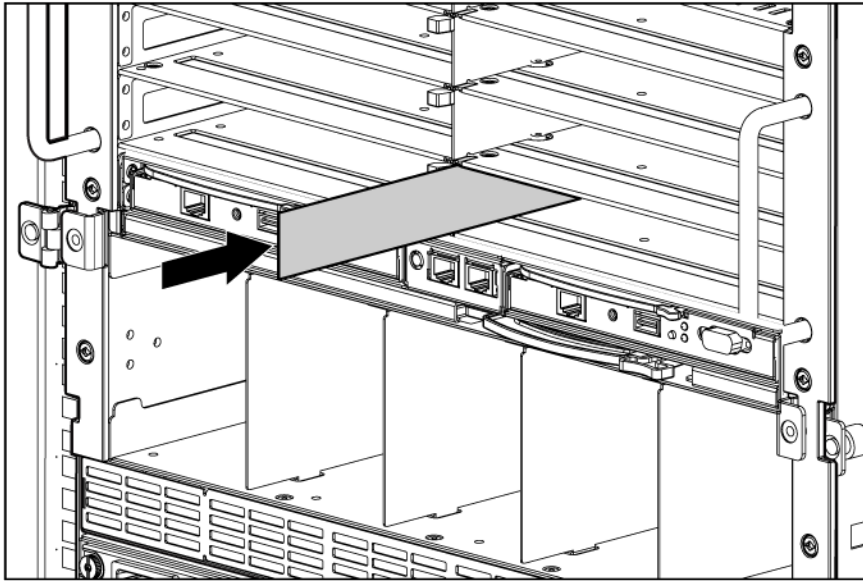
Removing interconnect bay dividers

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

Cabling the enclosure

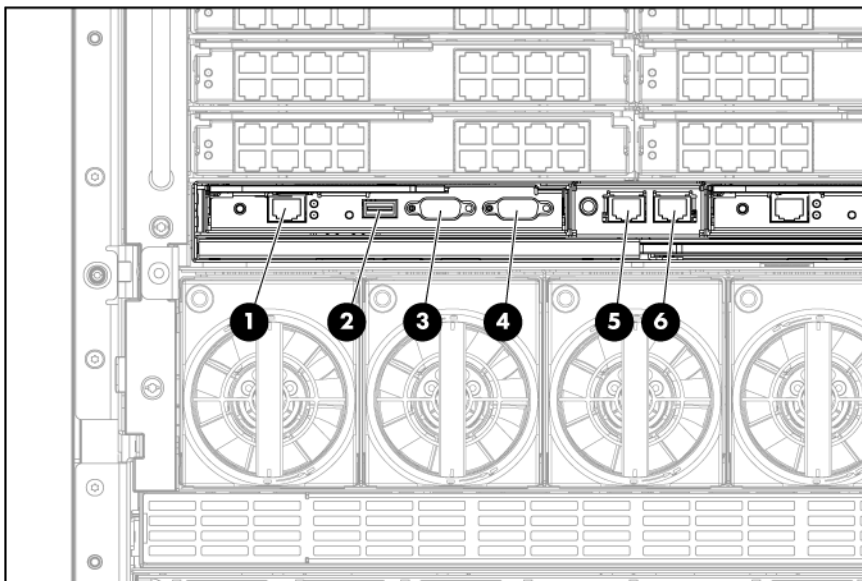
After all system hardware is installed, cable the components. See the *HP ProLiant BladeSystem c-Class Site Planning Guide* on the Documentation CD or the HP website (<http://www.hp.com>) for additional cabling and site planning requirements.

-
- ⚠ 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:

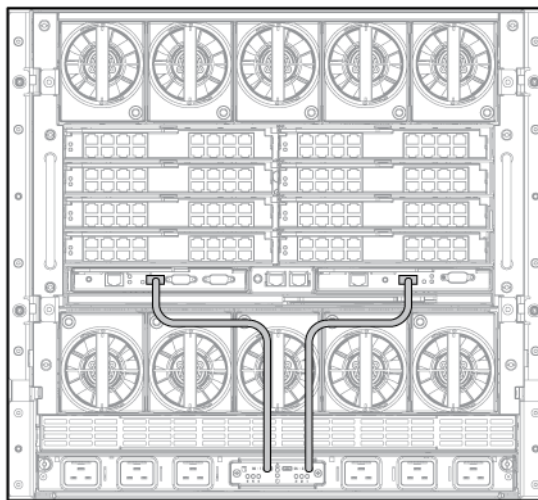
1. Connect the Onboard Administrator modules.
2. Connect the network cables to the interconnect modules. See the documentation that ships with the interconnect modules, or the *HP ProLiant BladeSystem c-Class Site Planning Guide* on the Documentation CD or the HP website (<http://www.hp.com/go/bizsupport>).
3. Connect to the AC or DC power source in your facility and power up the enclosure ("Powering up the enclosure" on page 59).

Onboard Administrator cabling



Item	Connector	Description
1	OA/iLO	Ethernet 1000BaseT RJ45 connector, which provides Ethernet access to the Onboard Administrator and the iLO on each blade. Also supports interconnect modules with management processors configured to use the enclosure management network. Autonegotiates 1000/100/10 or can be configured to force 100Mb or 10Mb full duplex.
2	USB	USB 2.0 Type A connector used for connecting supported USB devices such as DVD drives, USB key drives, or a keyboard or mouse for enclosure KVM use. To connect multiple devices, a USB hub (not included) is required.
3	Serial connector	Serial RS232 DB-9 connector with PC standard pinout. Connects a computer with a null-modem serial cable to the Onboard Administrator command line interface (CLI).
4	VGA connector	VGA DB-15 connector with PC standard pinout. To access the KVM menu or Onboard Administrator CLI, connect a VGA monitor or rack KVM monitor for enclosure KVM.
5	Enclosure link-down port	Connects to the enclosure link-up port on the enclosure below with a CAT5 patch cable
6	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.

To utilize intelligent power discovery, connect the cables to an intelligent single-phase AC module, and then to the OAs.



This feature is only available on HP BladeSystem c7000 Platinum Enclosures. For more information on intelligent power discovery, see the *HP Intelligent Power Distribution Unit User Guide* on the HP website (<http://www.hp.com/support/manuals>).

Enclosure link cabling

Two enclosure link ports are provided on the rear of the enclosure. Link multiple enclosures installed in one rack to:

- Allow any active Onboard Administrator module to access the linked enclosures.

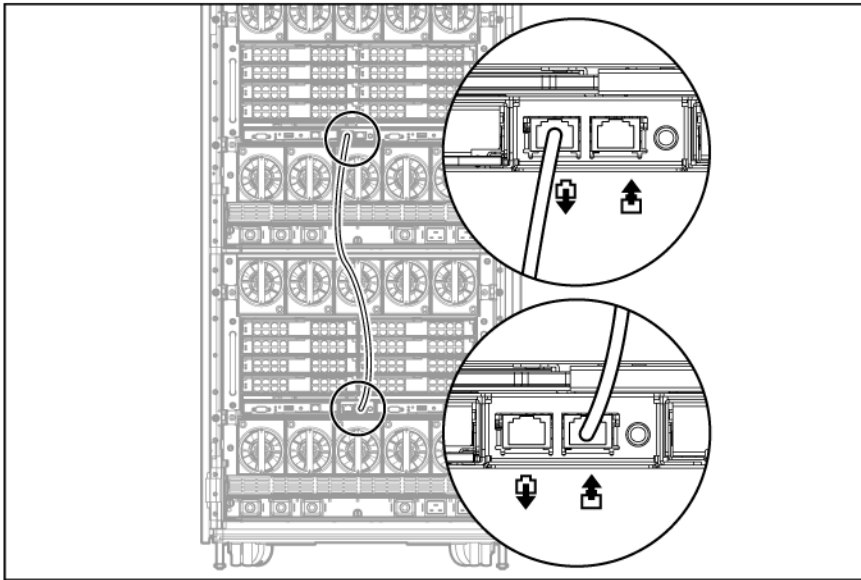
- Use the enclosure link-up port on the top enclosure for temporary connection to a PC using the enclosure service port ("Cabling a PC to the enclosure service port" on page 58) to provide quick access to any Onboard Administrator module, iLO, or interconnect module with Ethernet management ability.
- 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, 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, 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 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 Onboard Administrator. For more information on using Onboard Administrator, see the *HP BladeSystem Onboard Administrator User Guide*.

Cabling the network to the enclosure

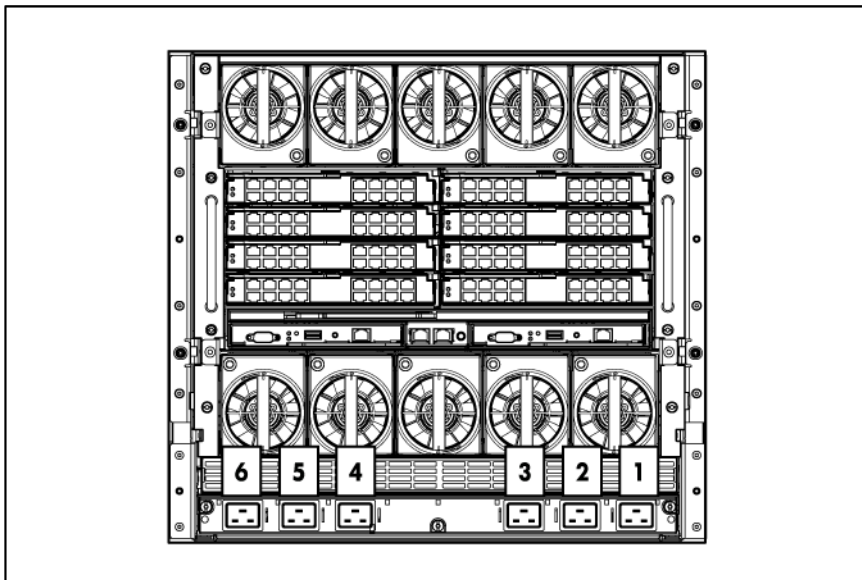
Cable the interconnect modules to the enclosure. See "Mapping to interconnect ports (on page 48)" and the supporting documentation that came with your interconnect modules for specific details on cabling the interconnect modules.

Powering up the enclosure

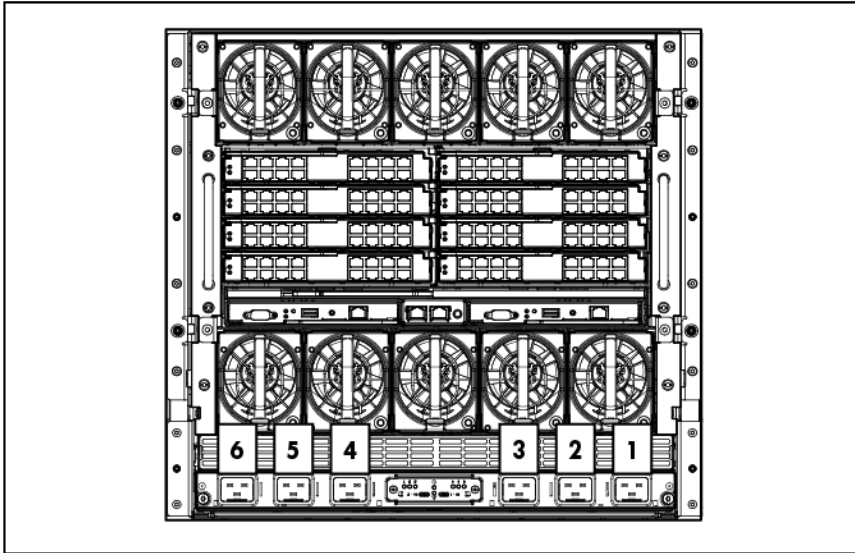
Setting up AC power for the enclosure varies depending on whether you have a single-phase AC configuration or a three-phase AC configuration.

Single-phase AC configuration

- Single-phase AC configuration

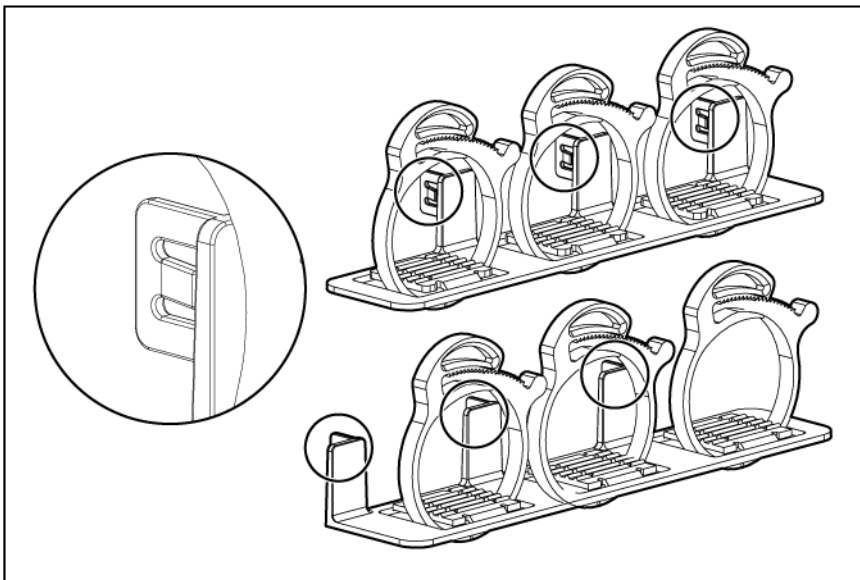


- Single-phase AC configuration using the HP Single-Phase Intelligent Power Module

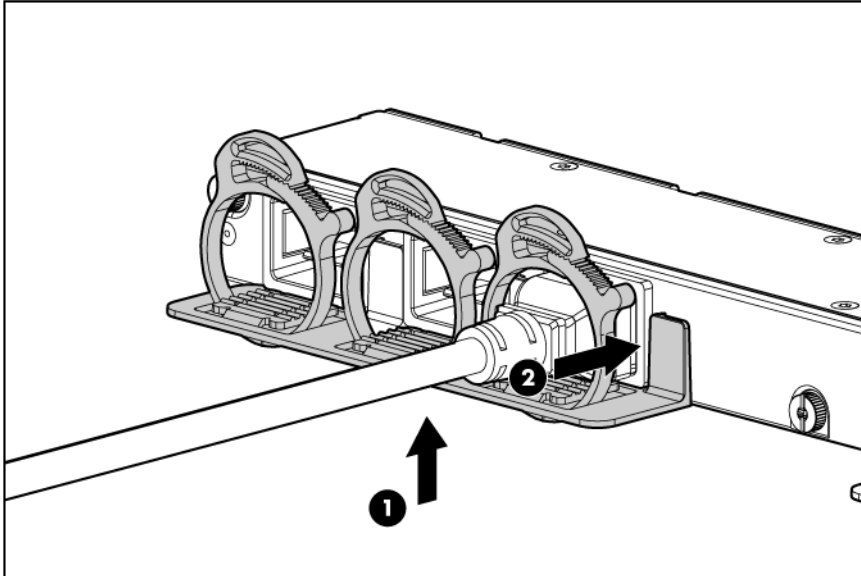


To cable the enclosure using a single-phase AC configuration:

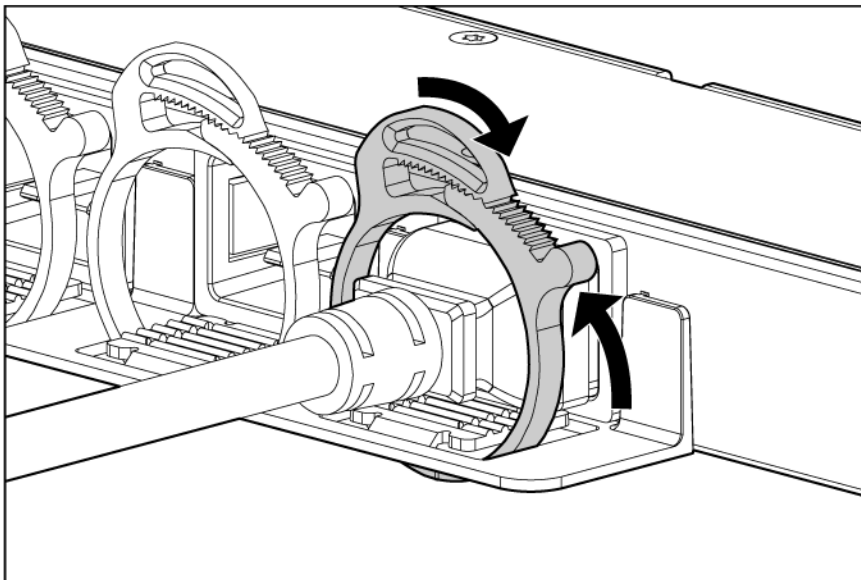
1. Connect the AC power cables to the power connectors on the rear of the enclosure corresponding to the power supply that was populated on the front of the enclosure.
2. Be sure each power cable is securely attached to the power connectors.
3. Connect the AC power cables to the AC power source or to an installed power distribution unit (PDU).
4. Turn on the AC circuit breakers that power the power cables installed in the enclosure.
5. Locate the power retention bracket that came with the enclosure.
6. Verify that the power cord retention tabs are on the correct side.
 - On the left side: To install the power cord retention bracket on the left side of the enclosure, ensure the power cord retention tabs are located to the right of the snap clamps.
 - On the right side: To install the power cord retention bracket on the right side of the enclosure, ensure the power cord retention tabs are located on the left side of the snap clamps.



7. Place the power cord retention bracket under the power cords, and then align the power cords with the snap clamps.
8. Open the snap clamps, and then insert each power cord inside each clamp.
9. Slide the power cord retention bracket until the bracket touches the enclosure.
10. Insert the power cord retention tabs into the slots on the enclosure until they snap into place.



11. Slide each snap clamp over the end of each power cord overmold, and then squeeze each snap clamp closed.



When powering this enclosure with an HP Intelligent Power Distribution Unit, you must connect the HP Single-Phase Intelligent Power Module to HP Onboard Administrator 1 and HP Onboard Administrator 2. Connect the provided USB cables to the USB connectors available on the components.

When the enclosure powers up for the first time, it might take up to 5 minutes before all blades are initialized and recognized by the Onboard Administrator. The time it takes to complete initialization depends on the number of blades configured in the enclosure. For example, a full enclosure of 16 blades might take 5

minutes to power up, while an enclosure with fewer 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 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 65) using the Insight Display.

PDU installation

The PDU can be installed in either a 1U or a 0U configuration. For more information about installing the PDU in the rack, see the installation instructions that came with the PDU.



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

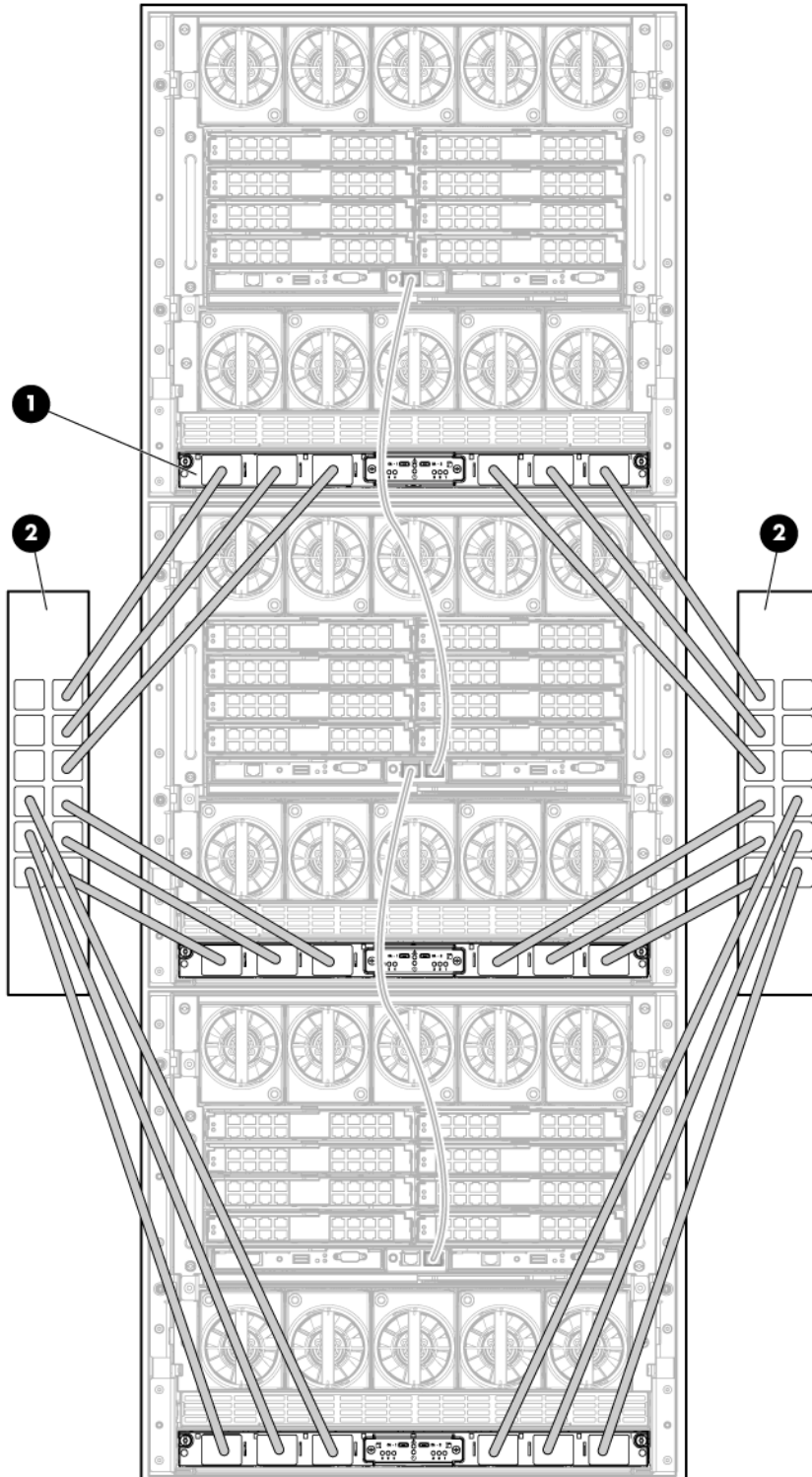


IMPORTANT: Total VA load of the attached enclosures should not exceed the VA capacity of the PDU. Do not exceed the rated current on circuit breakers.

To connect power to the PDU:

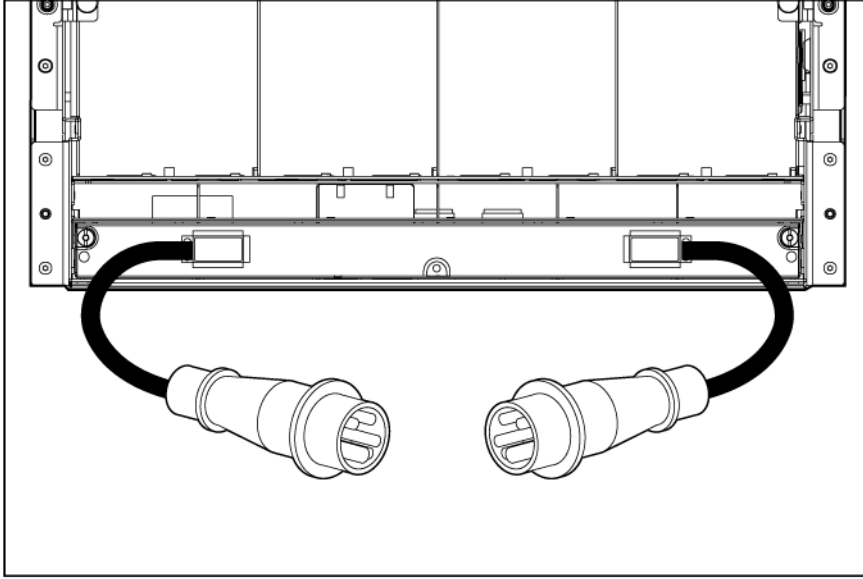
1. Connect the AC power cables to the power connectors on the rear of the enclosure corresponding to the power supply that was populated on the front of the enclosure.

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



3. Power up the enclosure ("[Powering up the enclosure](#)" on page 59).

Three-phase AC configuration



For a three-phase power configuration, the AC power cables are already attached to the enclosure. To cable the enclosure using a three-phase AC configuration:

1. Connect the AC power cables to the AC power source.
2. Turn on the AC circuit breakers that power the power cables installed in the enclosure.

When the enclosure powers up for the first time, it might take up to 5 minutes before all blades are initialized and recognized by the Onboard Administrator. The time it takes to complete initialization depends on the number of blades configured in the enclosure. For example, a full enclosure of 16 blades might take 5 minutes to power up, while an enclosure with fewer 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 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 65) using the Insight Display.

HP BladeSystem Insight Display

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

- **Blue**—The Insight Display background 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 rear of the enclosure.

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 background 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 background illuminates amber when the Onboard Administrator detects an error or alert condition. Depending on the error, the component is displayed in red or yellow on the Health Summary screen.

After 2 minutes of inactivity, the Insight Display background 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 enclosure UID is off, or the chat mode has not been activated, 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. To access the Health Summary screen from any Insight Display screen, navigate the cursor to the Enclosure Health icon and press **OK**.

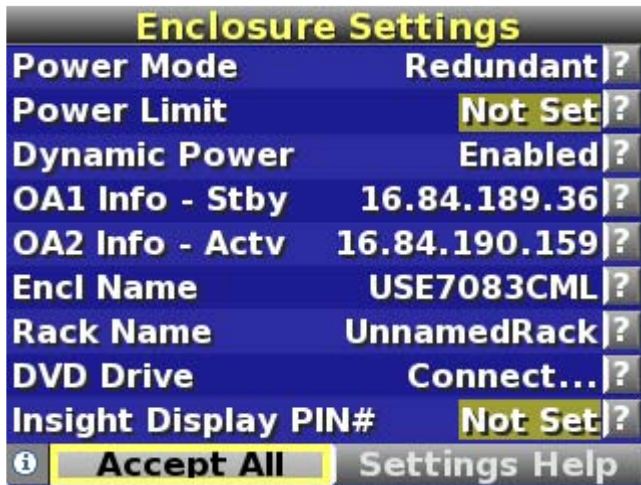
For information on driver and firmware updates, see the HP website (<http://www.hp.com/go/blades/>).

Running the Insight Display installation steps


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. When the enclosure is powered up for the first time, the Insight Display launches an installation wizard to guide you through the configuration process. At the beginning of the installation, the wizard automatically powers on the enclosure UID. After the installation is complete, the wizard powers off the enclosure. After configuring the enclosure, the Insight Display verifies that there are no installation or configuration errors. If errors are present, the Insight Display guides you


through the process of correcting the errors. 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 is the first screen to appear. The background color is blue because the enclosure UID is active when this screen appears.



1. Review each setting on the Enclosure Settings screen for accuracy.
2. To change any value, move 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.

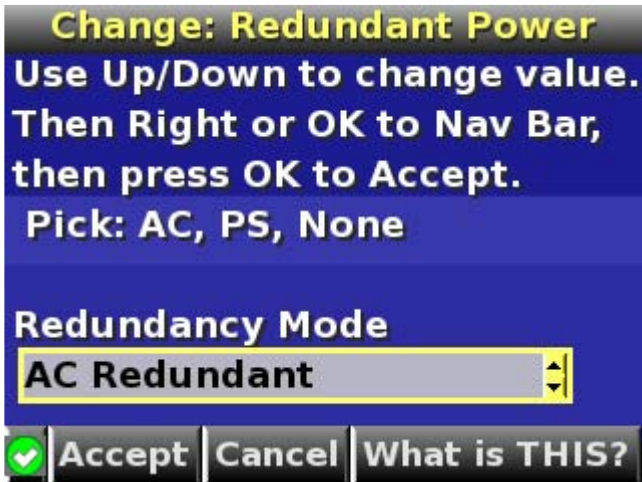
4. When all settings on the Enclosure Settings menu are accurate, move the cursor to **Accept All**, and press the **OK** button to accept the current settings.

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. You can change the Max AC Watts in increments of 50 Watts.

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


- **Enabled**—You can place some of the power supplies on standby automatically to increase overall enclosure power subsystem efficiency.
- **Disabled**—All power supplies share the load; the power subsystem efficiency varies 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.

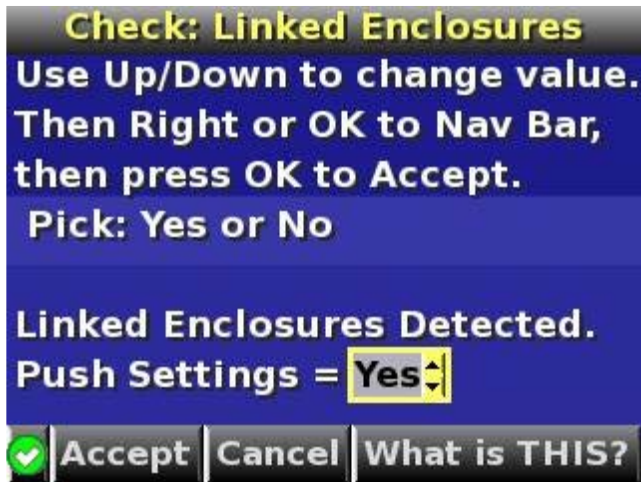
Insight Display PIN#—The default setting is Not Set. HP recommends that you set a PIN to protect the enclosure configuration from unauthorized changes. You must enter the PIN after each inactivity period to change options in the Enclosure Settings menu. The accepted character values are 0–9, A–Z, a–z,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

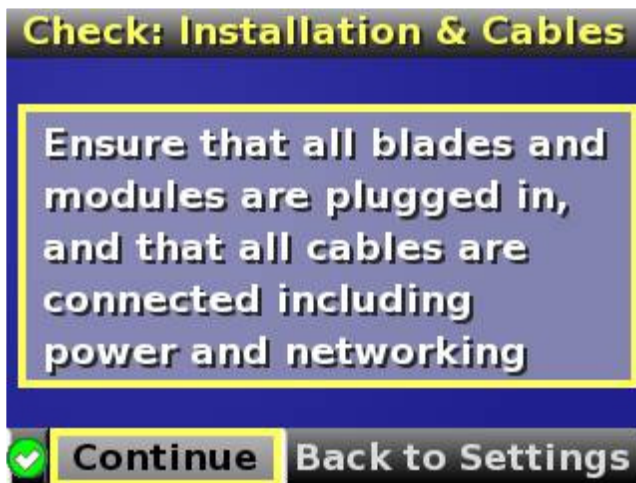
- **Yes**—Copy the configured power settings, rack name, and LCD Lockout PIN (if set) from the Enclosure Settings screen to the detected enclosures.
- **No**—Continue configuring the current enclosure only. The Insight Display installation wizard must be run on each of the other detected enclosures. 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.

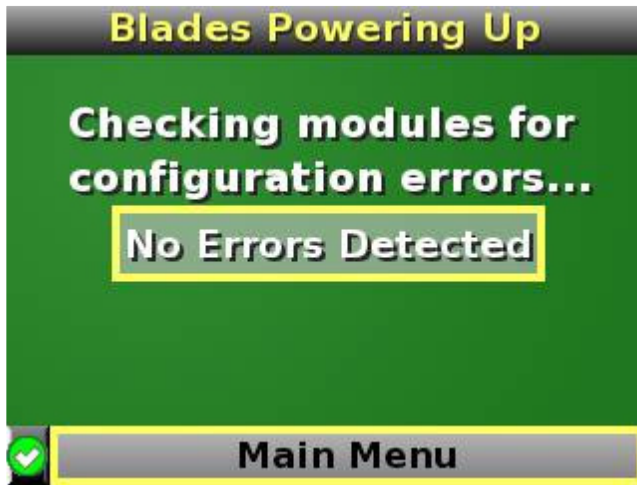


7. Navigate the cursor to **Accept**, and press the **OK** button. The Check: Installation and Cables screen appears.



8. Verify all components are installed and cabled before continuing.
9. Select **Continue**, and press the OK button to begin checking for configuration and installation errors. The enclosure UID automatically turns off. If **Push Settings = Yes**:
 - The enclosure settings are pushed to adjacent enclosures
 - The installation wizards run on each adjacent enclosure
 - The enclosure UID turns off on the adjacent enclosures

10. 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 appears. For more information on troubleshooting configuration and installation errors, see [Insight Display errors \(on page 80\)](#).



IMPORTANT: If errors are detected, the Insight Display screen illuminates amber, and the Health Summary screen displays. For more information on troubleshooting configuration errors, see ["Insight Display errors \(on page 80\)."](#)

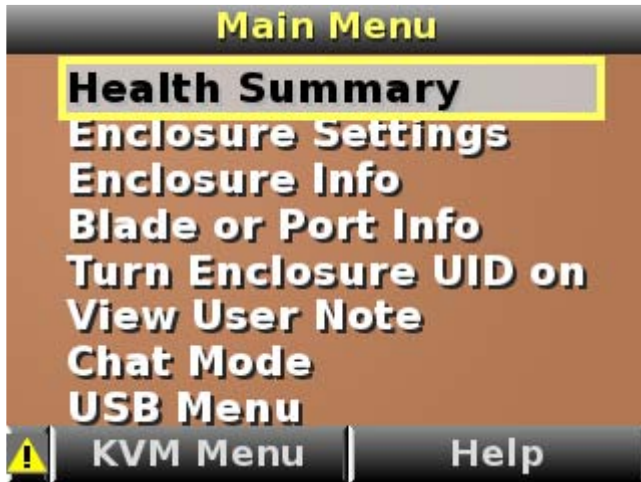
All configuration errors prevent the operation of the enclosure and should be corrected immediately.

11. 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.
12. 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 panel ("[HP BladeSystem Insight Display components](#)" on page 15). Use the arrow buttons to move the selection box to a menu item, and then press **OK** to go to selected screen.

The Main Menu appears:



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

- Health Summary ("Health Summary screen" on page 70)
- Enclosure Settings ("Running the Insight Display installation steps" on page 65)
- Enclosure Info ("Enclosure Info screen" on page 73)
- Blade or Port Info ("Blade and Port Info screen" on page 74)
- Turn Enclosure UID on/off ("Turn Enclosure UID On/Off screen" on page 75)
- View User Note ("View User Note screen" on page 77)
- Chat Mode ("Chat Mode screen" on page 77)
- USB Menu—This option is available on Onboard Administrator version 2.30 and later.
- KVM Menu—This option is available if the enclosure supports KVM.



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

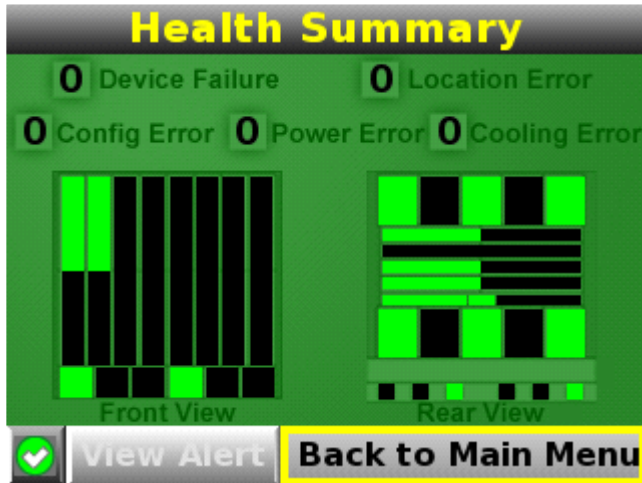
The Health Summary screen displays the current condition of the enclosure. The Health Summary screen can be accessed by:

- 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.

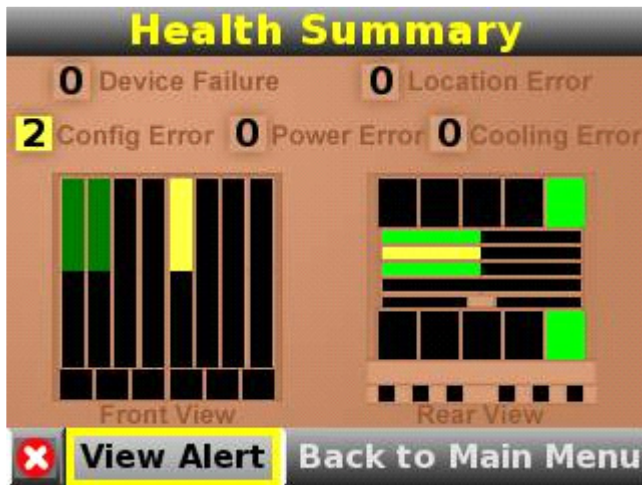
Select **Next Alert** from the navigation bar, and press the **OK** button to view each individual error condition. The Insight Display displays each error condition in the order of severity. Critical alerts display first (if one exists), followed by caution alerts.

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.

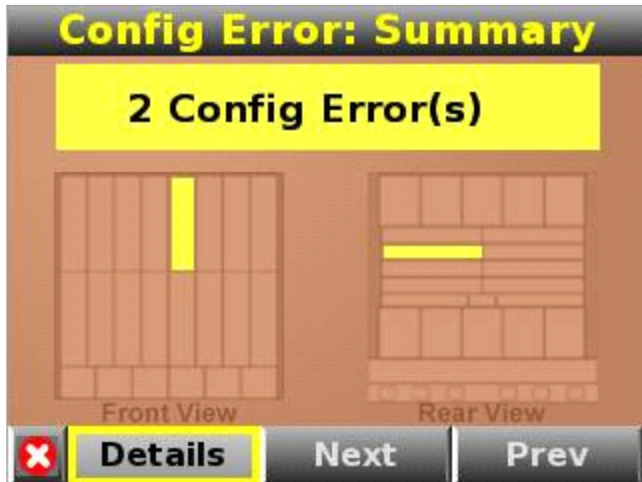


The only option active on the navigation bar is Back to Main Menu. Select **Back to Main Menu**, and press the OK button to return to the main menu.

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

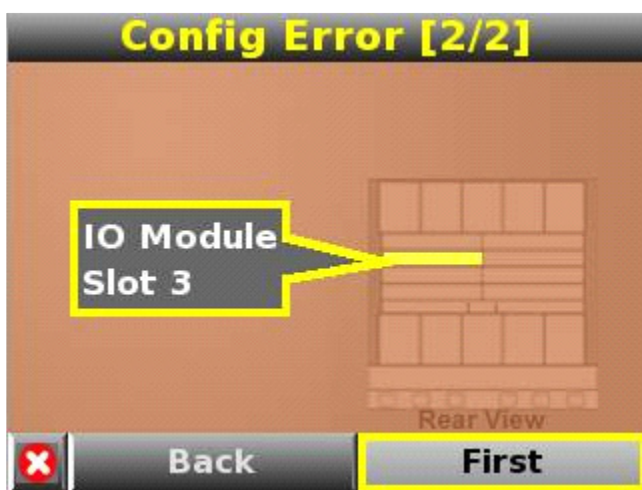
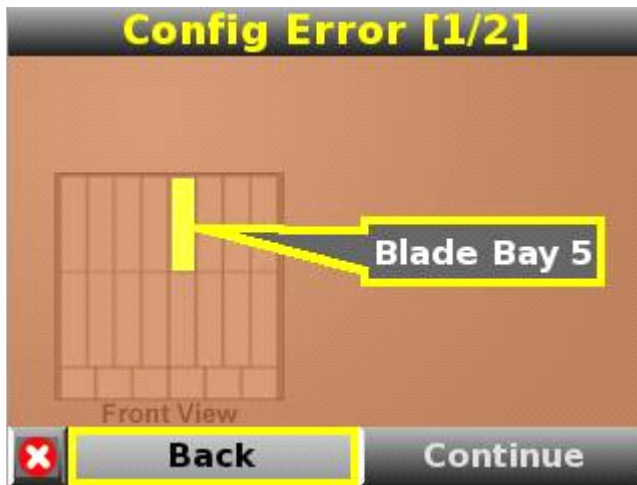


Select **View Alert** and press the OK button to display the errors.



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


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



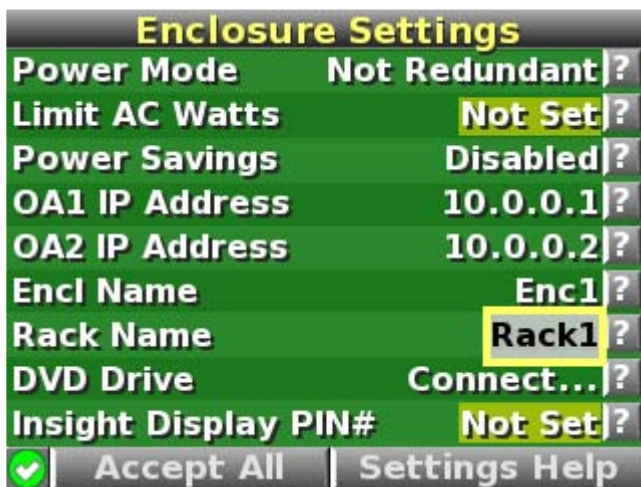
Enclosure Settings screen

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.

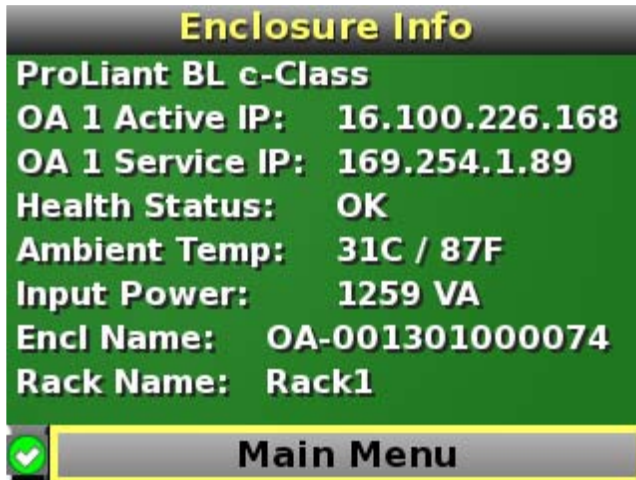


Enclosure Info screen

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

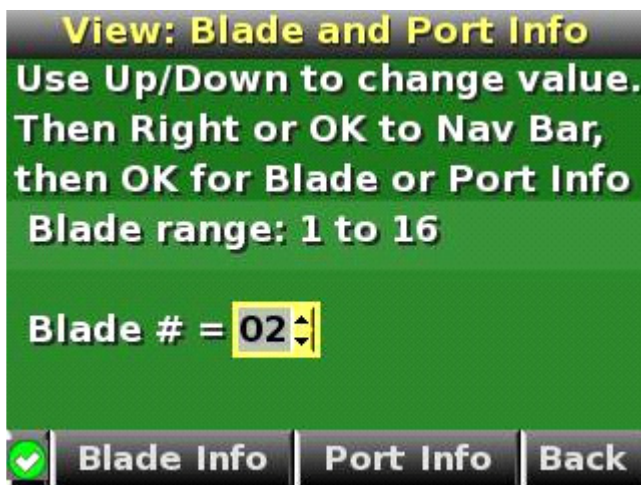
- Active OA IP address
- Active OA Service IP address
- Current health status of the enclosure
- Current enclosure ambient temperature
- Current AC input power to the enclosure
- Enclosure name

- Rack name

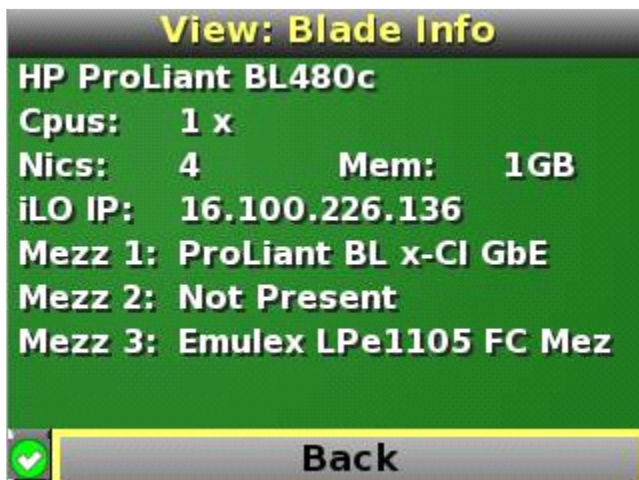


Blade and Port Info screen

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



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



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

On the following full-height 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.



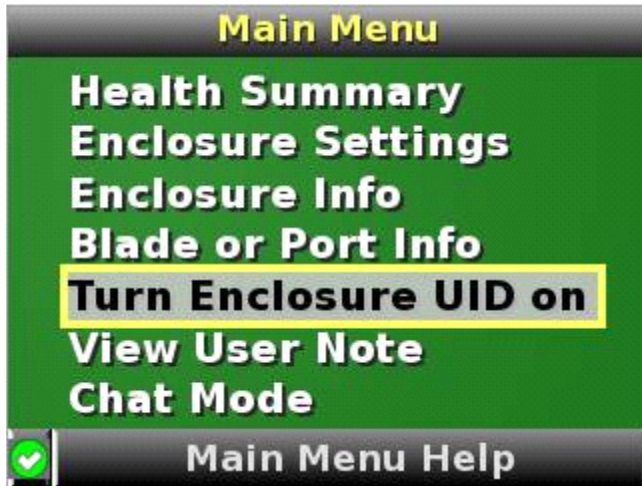
The following Port Info screen shows a configuration error. There is a mismatch between the mezzanine card and interconnect module. Interconnect bay 3 contains a Fibre Channel interconnect module. Mezzanine 1 on the blade is a gigabit Ethernet which does not match the technology of the interconnect module.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



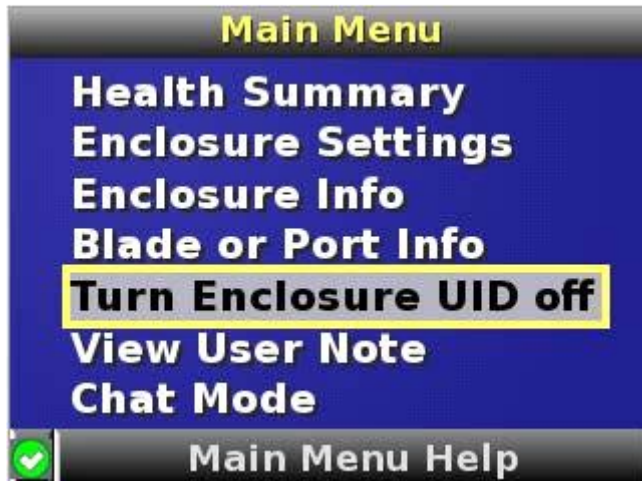
Turn Enclosure UID On/Off screen

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.

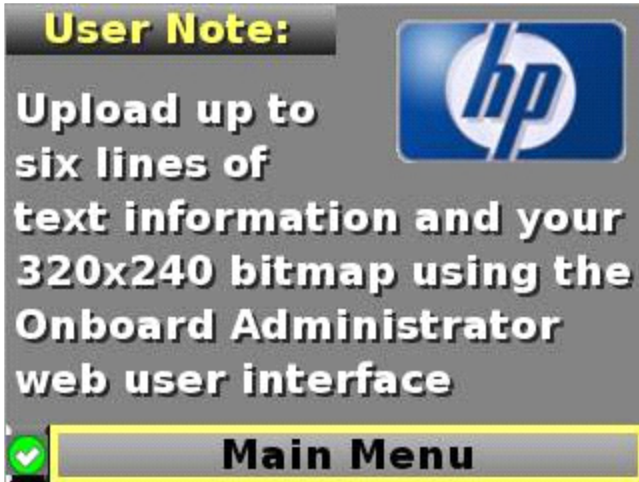


Selecting **Turn Enclosure UID Off** from the main menu turns off the rear enclosure UID LED and changes the color of the Insight Display screen to the current condition ("[Insight Display overview](#)" on page 65).



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

Troubleshooting resources

The *HP ProLiant Servers Troubleshooting Guide* provides procedures for resolving common problems and comprehensive courses of action for fault isolation and identification, error message interpretation, issue resolution, and software maintenance on ProLiant servers and server blades. This guide includes problem-specific flowcharts to help you navigate complex troubleshooting processes. To view the guide, select a language:

- English (http://www.hp.com/support/ProLiant_TSG_en)
- French (http://www.hp.com/support/ProLiant_TSG_fr)
- Italian (http://www.hp.com/support/ProLiant_TSG_it)
- Spanish (http://www.hp.com/support/ProLiant_TSG_sp)
- German (http://www.hp.com/support/ProLiant_TSG_gr)
- Dutch (http://www.hp.com/support/ProLiant_TSG_nl)
- Japanese (http://www.hp.com/support/ProLiant_TSG_jp)

The *HP BladeSystem c-Class Enclosure Troubleshooting Guide* provides procedures and solutions for troubleshooting HP BladeSystem c-Class enclosures. This guide explains how to use the Insight Display to troubleshoot enclosures, and it includes a flowchart to help you navigate the troubleshooting process. To view the guide, see the HP website (http://www.hp.com/support/BladeSystem_Enclosure_TSG_en).

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.



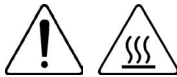
This symbol indicates the presence of electric shock hazards. The area contains no user or field serviceable parts. Do not open for any reason.

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.



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 [80](#))
- Cooling errors (on page [81](#))
- Location errors (on page [81](#))
- Configuration errors (on page [81](#))
- Device failure errors (on page [81](#))

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 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. Cooling errors can occur on 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 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 blade. Configuration errors can occur on 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:
 - o Remove the indicated interconnect module and install it into the correct bay (the Insight Display indicates the correct bay).
 - o Remove the 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.

Support and other resources

Before you contact HP

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

- Active Health System log (HP ProLiant Gen8 or later products)
Download and have available an Active Health System log for 3 days before the failure was detected. For more information, see the *HP iLO 4 User Guide* or *HP Intelligent Provisioning User Guide* on the HP website (<http://www.hp.com/go/ilo/docs>).
- Onboard Administrator SHOW ALL report (for HP BladeSystem products only)
For more information on obtaining the Onboard Administrator SHOW ALL report, see the HP website (<http://h20000.www2.hp.com/bizsupport/TechSupport/Document.jsp?lang=en&cc=us&objectID=c02843807>).
- Technical support registration number (if applicable)
- Product serial number
- Product model name and number
- Product identification number
- Applicable error messages
- Add-on boards or hardware
- Third-party hardware or software
- Operating system type and revision level

HP contact information

For United States and worldwide contact information, see the Contact HP website (<http://www.hp.com/go/assistance>).

In the United States:

- To contact HP by phone, call 1-800-334-5144. For continuous quality improvement, calls may be recorded or monitored.
- If you have purchased a Care Pack (service upgrade), see the Support & Drivers website (<http://www8.hp.com/us/en/support-drivers.html>). If the problem cannot be resolved at the website, call 1-800-633-3600. For more information about Care Packs, see the HP website (<http://pro-aq-sama.houston.hp.com/services/cache/10950-0-0-225-121.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.com/go/selfrepair>).

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>).

カスタマーセルフリペア

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** - カスタマーセルフリペアが必須の部品。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** - カスタマーセルフリペアが任意である部品。この部品もカスタマーセルフリペア用です。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、カスタマーセルフリペア用ではありません。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、当該部品がカスタマーセルフリペア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の修理受付窓口にご連絡いただければ、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。カスタマーセルフリペアの際には、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。

客戶自行維修

HP 產品提供許多客戶自行維修 (CSR) 部件，以尽可能縮短維修時間和在更換缺陷部件方面提供更大的靈活性。如果在診斷期間 HP (或 HP 服務提供商或服務合作夥伴) 確定可以通過使用 CSR 部件完成維修，HP 將直接把該部件發送給您進行更換。有兩類 CSR 部件：

- **強制性的** — 要求客戶必須自行維修的部件。如果您請求 HP 更換這些部件，則必須為該服務支付差旅費和人工費用。
- **可選的** — 客戶可以選擇是否自行維修的部件。這些部件也是為客戶自行維修設計的。不過，如果您要求 HP 為您更換這些部件，則根據為您的產品指定的保修服務類型，HP 可能收取或不再收取任何附加費用。

注：某些 HP 部件的設計並未考慮客戶自行維修。為了滿足客戶保修的需要，HP 要求授權服務提供商更換相關部件。這些部件在部件圖解目錄中標記為“否”。

CSR 部件將在下一個工作日發運（取決於備貨情況和允許的地理範圍）。在允許的地理範圍內，可在當天或四小時內發運，但要收取額外費用。如果需要幫助，您可以致電 HP 技術支持中心，將會有技術人員通過電話為您提供幫助。HP 會在隨更換的 CSR 部件發運的材料中指明是否必須將有缺陷的部件返還給 HP。如果要求您將有缺陷的部件返還給 HP，那麼您必須在規定期限內（通常是五 (5) 個工作日）將缺陷部件發給 HP。有缺陷的部件必須隨所提供的發運材料中的相關文件一起返還。如果未能送還有缺陷的部件，HP 可能會要求您支付更換費用。客戶自行維修時，HP 將承擔所有相關運輸和部件返回費用，並指定快遞商/承運商。

有關 HP 客戶自行維修計劃的詳細信息，請與您當地的服務提供商聯繫。有關北美地區的計劃，請訪問 HP 網站 (<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 융통성을 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.

참고: 일부 HP 부품은 고객 셀프 수리가 불가능하도록 설계되었습니다. HP는 만족스러운 고객 보증을 위해 공인 서비스 공급업체를 통해 부품을 교체하도록 하고 있습니다. 이러한 부품들은 Illustrated Parts Catalog에 "No"라고 표시되어 있습니다.

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 공급업체에 문의하십시오. 북미 지역의 프로그램에 대해서는 HP 웹 사이트(<http://www.hp.com/go/selfrepair>)를 참조하십시오.

Regulatory compliance notices

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.

FCC Notice, 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.

FCC Notice, 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

Products bearing the CE marking comply with the following EU Directives:

- Low Voltage Directive 2006/95/EC
- EMC Directive 2004/108/EC
- Ecodesign Directive 2009/125/EC, where applicable
- RoHS Directive 2011/65/EU

CE compliance of this product is valid if powered with the correct CE-marked AC adapter provided by HP.

Compliance with these directives implies conformity to applicable harmonized European standards (European Norms) that are listed in the EU Declaration of Conformity issued by HP for this product or product family and available (in English only) either within the product documentation or at the following HP website (<http://www.hp.eu/certificates>) (type the product number in the search field).

Compliance is indicated by the CE marking as shown below. Where applicable for telecommunications products, a 4-digit notified body number may follow it as a suffix.



Please refer to the regulatory label provided on the product.

The point of contact for regulatory matters is Hewlett-Packard GmbH, Dept./MS: 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、クラス B 情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。取扱説明書に従って正しい取り扱いをして下さい。

VCCI-B

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、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は適切な対策を講ずるよう要求されることがあります。

VCCI-A

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 방송통신기기)	이 기기는 업무용(A급)으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정 외의 지역에서 사용하는 것을 목적으로 합니다.
-----------------------	---

Class B equipment

B급 기기 (가정용 방송통신기기)	이 기기는 가정용(B급)으로 전자파적합등록을 한 기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.
-----------------------	--

Chinese notice

Class A equipment

声明

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

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 June 24, 2007; and with IEC 60825-1:2007.



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.

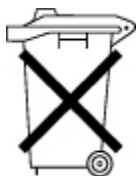
The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured from August 1, 1976. Compliance is mandatory for products marketed in the United States.

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.

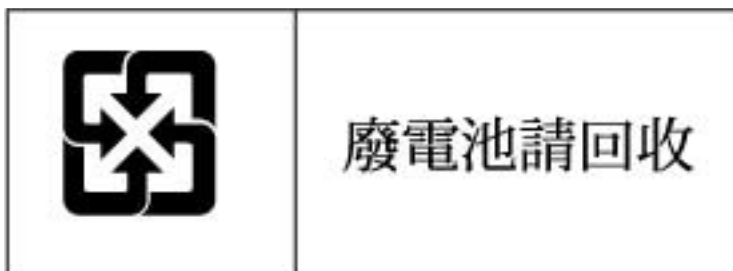


Batteries, battery packs, and accumulators should not be disposed of together with the general household waste. To forward them to recycling or proper disposal, use the public collection system or return them to HP, an authorized HP Partner, or their agents.

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

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

CSA

Canadian Standards Association

CSR

Customer Self Repair

ESD

electrostatic discharge

ICPM

Insight Control Power Management

IEC

International Electrotechnical Commission

iLO

Integrated Lights-Out

PDU

power distribution unit

RETMA

Radio Electronics Television Manufacturers Association (rack spacing)

SIM

Systems Insight Manager

TMRA

recommended ambient operating temperature

UID

unit identification

UPS

uninterruptible power system

USB

universal serial bus

Documentation feedback

HP is committed to providing documentation that meets your needs. To help us improve the documentation, send any errors, suggestions, or comments to Documentation Feedback (<mailto:docsfeedback@hp.com>). Include the document title and part number, version number, or the URL when submitting your feedback.

Index

A

- AC power configuration, single-phase 59
- AC power configuration, three-phase 64
- AC power configurations 59, 64
- accessing a server blade with local KVM 40
- accessing local media devices 41
- airflow requirements 8, 10
- alerts 65, 70, 80, 81
- AMC Telco port mapping 52
- authorized reseller 83

B

- batteries, replacing 95
- battery replacement notice 95
- bay numbering, full-height device 14
- bay numbering, half-height device 14
- bay numbering, interconnect 20, 53
- bay numbering, power supply 13
- bay to bay crosslinks 53
- before you contact HP 83
- BL2x220c blades, mapping 51
- Blade and Port Info screen 69, 74
- BSMI notice 94

C

- cable configuration 56, 57, 58, 59
- cables 56, 92
- cables, FCC compliance 92
- cables, overview 56
- cabling network to enclosure 59
- cabling, enclosure link 57
- cabling, Onboard Administrator module 56
- cabling, service port 56, 57, 58
- Canadian notice 92
- Chat Mode screen 77
- Chinese notice 95
- class A equipment 91
- class B equipment 91
- components, front panel 12, 14
- components, identification 12, 14
- components, installation 29, 45
- components, Onboard Administrator 18, 19, 45

- configuration errors 81
- configuration, fan 42
- configurations, power 59
- configuring the enclosure with HP BladeSystem Insight Display 65
- contacting HP 83
- cooling errors 81
- creating a full-height device bay blank 35
- critical alerts 69, 70, 80
- crosslinks, bay to bay 53, 54
- CSR (customer self repair) 83
- customer self repair (CSR) 83

D

- Declaration of Conformity 92
- device bay crosslinks 54
- device bay numbering 14
- device bay shelf, installing 37
- device bay shelf, removing 34
- device failure errors 81
- diagnosing problems 78
- disassembling the enclosure 21
- double dense server blade port mapping 52

E

- electrical grounding requirements 11
- electrostatic discharge 97
- Enclosure Info screen 73
- enclosure LEDs 12, 75
- enclosure link cabling 57
- enclosure link-down port 57, 58
- enclosure link-up port 57, 58
- Enclosure Settings screen 73
- enclosure, configuring 65
- enclosure, disassembling 21
- enclosure, installing into rack 24
- errors, configuration 81
- errors, cooling 81
- errors, device failure 81
- errors, fan 81
- errors, installation 81
- errors, location 81
- errors, power 80

Ethernet switches 46
European Union regulatory notice 93

F

fan bay numbering 17
fan configurations 42
fan errors 81
fan LED 18
fans, installing 42
FCC rating label 91
Federal Communications Commission (FCC)
notice 91, 92
front components 12, 14
full-height device bay blank, creating 35
full-height device bay numbering 14
full-height server blades, mapping 50

G

grounding methods 97
grounding requirements 11

H

half-height device bay numbering 14
half-height server blades, mapping 49
Health Summary icon 69, 70
Health Summary screen 69, 70
HP BladeSystem Insight Display components 15
HP BladeSystem Insight Display errors 80, 81
HP BladeSystem Insight Display screen 12, 15, 65,
69
HP BladeSystem Insight Display, navigating 15, 69
HP BladeSystem Insight Display, overview of 65
HP technical support 83
HP, contacting 83

I

identification number 91
Important Safety Information document 78
Insight Display installation 65
Insight Display screen, Blade or Port Info 74
Insight Display screen, Chat Mode 77
Insight Display screen, Enclosure Info 73
Insight Display screen, Enclosure Settings 73
Insight Display screen, Health Summary 70
Insight Display screen, Turn Enclosure UID
On/Off 75
Insight Display screen, View User Note 77
installation errors 81

installation overview 6, 21
installation, rack 24
installation, rack-free 8, 24
installing fans 42
installing interconnect bay dividers 55
installing interconnect modules 46
installing Onboard Administrator modules 44
installing PDU 62
installing power supplies 29
installing rear cage 28
installing server blade 31, 37
installing server blades 31, 37
installing the rails 24, 25
interconnect bay crosslinks 54
interconnect bay dividers, installing 46, 55
interconnect bay dividers, removing 46, 55
interconnect bay numbering 20, 53
interconnect modules, double-wide 55
interconnect modules, installing 46
interconnect ports, mapping to 48

J

Japanese notice 94

K

Korean notices 94
KVM 40, 45

L

laser compliance 95
laser devices 95
LED identification 12
LEDs 69, 75
LEDs, enclosure 12
LEDs, fan 18
LEDs, power supply 13
LEDs, unit identification (UID) 65, 75, 80
link-down port 57, 58
link-up port 57, 58
local media devices, accessing 41
location discovery services 15
location errors 81

M

mapping BL2x220c blades 51
mapping BL680c G7 blades 52
mapping full-height server blades 50
mapping half-height server blades 49

- mapping to interconnect ports 48
- measuring rack with template 25
- mezzanine card 48
- minimum requirements 11
- modifications, FCC notice 92

N

- numbering, device bay 14
- numbering, fan bays 17
- numbering, full-height device bays 14
- numbering, half-height device bays 14
- numbering, interconnect bays 53
- numbering, power supply bays 13

O

- Onboard Administrator components 18, 19
- Onboard Administrator module 44
- Onboard Administrator module, cabling 56
- overview of installation process 21

P

- pallet contents 6
- PDU (power distribution unit) 11, 62
- port mapping 49, 50, 51, 52
- port mapping, AMC Telco 52
- port mapping, double dense server blade 52
- port types 48
- power cables 59
- power configurations 59
- power cord 79, 96
- power distribution unit (PDU) 11, 62
- power errors 80
- power requirements 11
- power supplies 29
- power supply bay numbering 13
- power supply LEDs 13
- powering up the enclosure 56, 59
- preparation procedures 6
- problem diagnosis 78

R

- rack installation 24, 26
- rack options 8
- rack stability 8, 79
- rack template 25
- rack warnings 8, 79
- rack-free environment requirements 8
- rack-free installation 8, 24

- rails, installing 25
- rear cage, installing 28
- rear cage, removing 21
- rear components 16
- regulatory compliance identification numbers 91
- regulatory compliance notices 91, 93, 96
- removing interconnect bay dividers 55
- requirements, airflow 8, 10
- requirements, electrical grounding 11
- requirements, minimum 11
- requirements, power 11
- requirements, rack 7
- requirements, rack-free environment 8
- requirements, space 8, 10
- requirements, temperature 11

S

- safety considerations 78
- series number 91
- server blade installation 31, 37
- service port cabling 56, 57, 58
- single-phase AC configuration 59
- space requirements 10
- specifications 10, 11
- static electricity 97
- support 83
- supported servers 78
- symbols on equipment 78

T

- Taiwan battery recycling notice 96
- technical support 83
- telephone numbers 83
- temperature requirements 11
- three-phase AC configuration 64
- troubleshooting 78
- Turn Enclosure UID On/Off screen 75

U

- UID LED 65, 75, 80
- USB devices 40

V

- video devices 40
- View User Note screen 77