Hewlett Packard
Enterprise

HPE ProLiant MicroServer Gen11 User Guide

Part Number: 30-56345037-002
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Edition: 2

HPE ProLiant MicroServer Gen11 User Guide

Abstract

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

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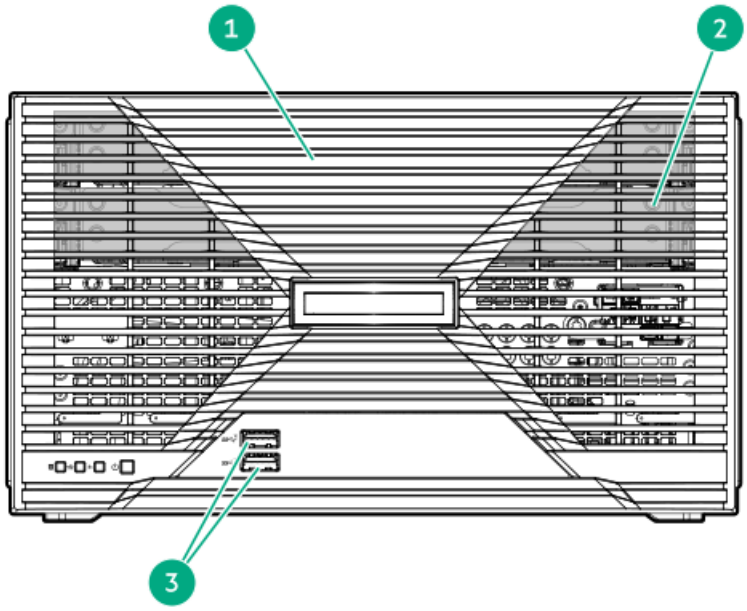
Component identification

This chapter describes the external and internal server features and components.

Subtopics

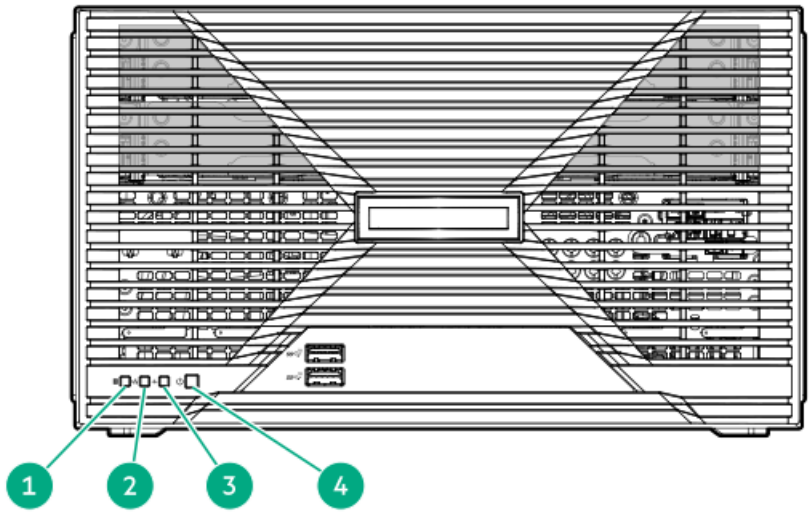
Front panel components



Item	Component	Description
1	Front bezel	To access the drive bays, remove this bezel.
2	Drive bays (four, behind the front bezel)	The drive bays support 3.5-inch LFF SATA drives. To support 2.5-inch SFF drives, install the LFF-to-SFF drive converter option.
3	USB 3.2 Gen 2 Type-A ports [1]	Connect USB devices. These ports are backwards compatible with earlier USB Type-A version devices.

[1] These ports are also known as SuperSpeed USB 10 Gb/s ports. The appropriate cable and compatible hardware are required to take advantage of the 10 Gb/s data transfer speed.

Front panel LEDs and button



Item	Description	Status	Definition
1	Drive activity LED [1], [2]	Flashing green	Ongoing drive activity
		Off	No drive activity
2	NIC status LED [2], [3]	Solid green	Linked to network
		Flashing green	Network active
		Off	No network activity
3	Health LED [2]	Solid green	Normal
		Flashing green	iLO is rebooting
		Flashing amber	System degraded [4]
		Flashing red	System critical [4]
4	Power on/Standby button and system power LED [2]	Solid green	System on and normal operation
		Flashing green	Performing power-on sequence
		Amber	System in standby
		Off	No power present [5]

1 This LED only reflects the status of drives that are connected to the onboard SATA port.
2 When these LEDs flash simultaneously, a power fault has occurred. For more information, see Front panel LED power fault codes.
3 This LED reflects the status of the onboard NIC ports and the optional iLO dedicated network port.
4 If the health LED indicates a degraded or critical state, review the system Integrated Management Log (IML) or use HPE iLO to review the system health status.
5 Facility power is not present, power cord is not attached, or power supply failure has occurred.

Subtopics

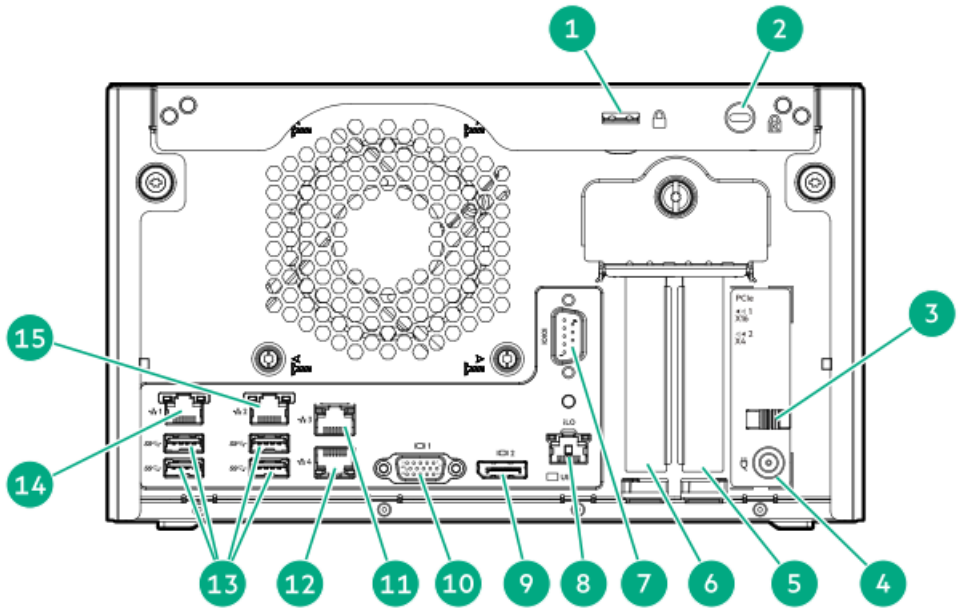
Front panel LED power fault codes

Front panel LED power fault codes

The following table provides a list of power fault codes, and the subsystems that are affected. Not all power faults are used by all servers.

Subsystem	LED behavior
System board	1 flash
Processor	2 flashes
Memory	3 flashes
Riser board PCIe slots	4 flashes
FlexibleLOM	5 flashes
Storage controller	6 flashes
System board PCIe slots	7 flashes
Power backplane	8 flashes
Storage backplane	9 flashes
Power supply	10 flashes
PCIe expansion cards installed in riser board	11 flashes
Chassis	12 flashes
GPU card	13 flashes

Rear panel components



Item	Component	Description
1	Padlock eye	To lock the chassis cover and prevent access to the internal components, attach a padlock here.
2	Kensington security slot	To secure the server to a heavy or immovable object, connect an antitheft security cable here.
3	Power cord clamp	Secures the power adapter cord.
4	Power jack	Connects the power cord.
5	Slot 2 PCIe4 x8	Connects a half-height, half-length (low-profile) PCIe4 expansion card option. [1]
6	Slot 1 PCIe5 x16	Connects a half-height, half-length (low-profile) PCIe5 expansion card option.
7	Serial port (optional)	Connects to a physical serial device. This port requires the installation of the iLO-M.2-serial module option.
8	iLO dedicated network port (optional)	To connect iLO to a dedicated management network, connect a standard Ethernet cable here. This port requires the installation of the iLO-M.2-serial module option.
9	DisplayPort 1.1a	Connects to a high-resolution digital display device.
10	VGA port	Connects to an analog display device.
11	1 Gb RJ45 port 3	To connect the server to a wired network, connect a standard Ethernet cable here.
12	1 Gb RJ45 port 4	
13	USB 3.2 Gen 1 Type-A ports [2]	Connect USB devices. These ports are backwards compatible with earlier USB Type-A version devices.
14	1 Gb RJ45 port 1 / iLO shared port [3]	To connect the server to a wired network, connect a standard Ethernet cable here.
15	1 Gb RJ45 port 2	

[1] Support up to four lanes PCI Express Gen 4

[2] These ports are also known as SuperSpeed USB 5 Gb/s ports. The appropriate cable and compatible hardware are required to take advantage of the 5 Gb/s data transfer speed.

[3] When the server has the iLO-M.2-serial module option, this port can be configured to handle both server network and iLO network traffic.

Subtopics

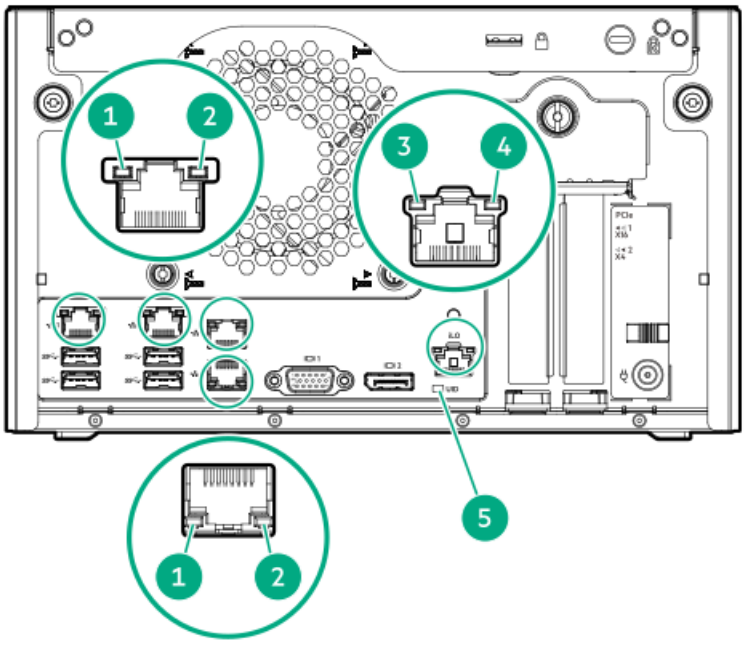
Display device setup

The server supports both VGA port and DisplayPort 1.1a. Before connecting a display device, observe following:

- Display output modes:
  - If you connect two display devices to the server using both the VGA port and DisplayPort, the same image is mirrored on both devices.
  - The embedded video controller in the iLO chipset does not support dual display or screen extension mode. To enable dual display, install a compatible graphics card.
- When using HDMI or DVI adapters for the DisplayPort, use an active-type adapter. Passive-type adapters marked with the DP++ symbol are not supported.

  Whenever possible, use the same display connection type. For example, if your monitor only has a VGA port, use the VGA port on the server. Using other adapters or converter cables or dongles might lead to decreased display quality or a lag over the connection.

Rear panel LEDs



Item	Description	Status	Definition
1	NIC/iLO link [1]	Solid green	Network link speed is 1000 Mb/s
		Solid amber	Network link speed is 10/100 Mb/s
		Off	No network link
2	NIC activity	Flashing green	Network active
		Off	No network activity
3	iLO link	Solid green	Network link
		Off	No network link
4	NIC activity	Flashing green	Network active
		Off	No network activity
5	UID	Solid blue	Activated
		Flashing blue	• 1 flash per second—Remote management or firmware upgrade in progress • 4 flashes per sec—iLO manual reboot sequence initiated • 8 flashes per sec—iLO manual reboot sequence in progress
		Off	Deactivated

[1] RJ45 port 1 supports iLO and LAN/WAN connections when the iLO-M.2-serial module option is installed. RJ45 port 2–4 does not support iLO connection.

Subtopics

Server UID LED

Using the UID button to view the Server Health Summary

Server UID LED

Server UID LED

The UID LED is used to locate a particular server when it is deployed in a dense rack with other equipment. Activating the UID LED helps an on-site technician to quickly identify a server for maintenance tasks.

Using the UID button to view the Server Health Summary

Prerequisites

- An external monitor is connected.
- The iLO-M.2-serial module option is installed.
- In the iLO web interface, the Show Server Health on External Monitor feature is enabled on the Access Settings page.

About this task

Use the UID button to display the iLO Server Health Summary screen on an external monitor. This function works when the server is powered on or off. Use this feature for troubleshooting if the server will not start up.

CAUTION: Press and release the UID button. Holding it down at any time for more than five seconds initiates a graceful iLO reboot or a hardware iLO reboot. Data loss or NVRAM corruption might occur during a hardware iLO reboot.

Procedure

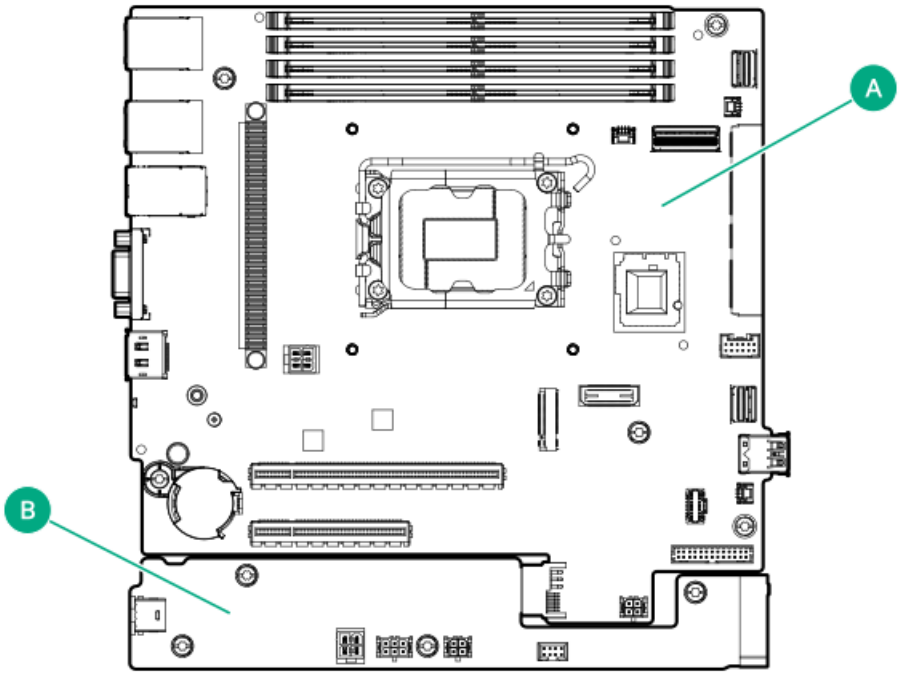
1. Press and release the UID button.

   The Server Health Summary screen is displayed on the external monitor. For more information, see the iLO troubleshooting guide:

   https://www.hpe.com/support/ilo6

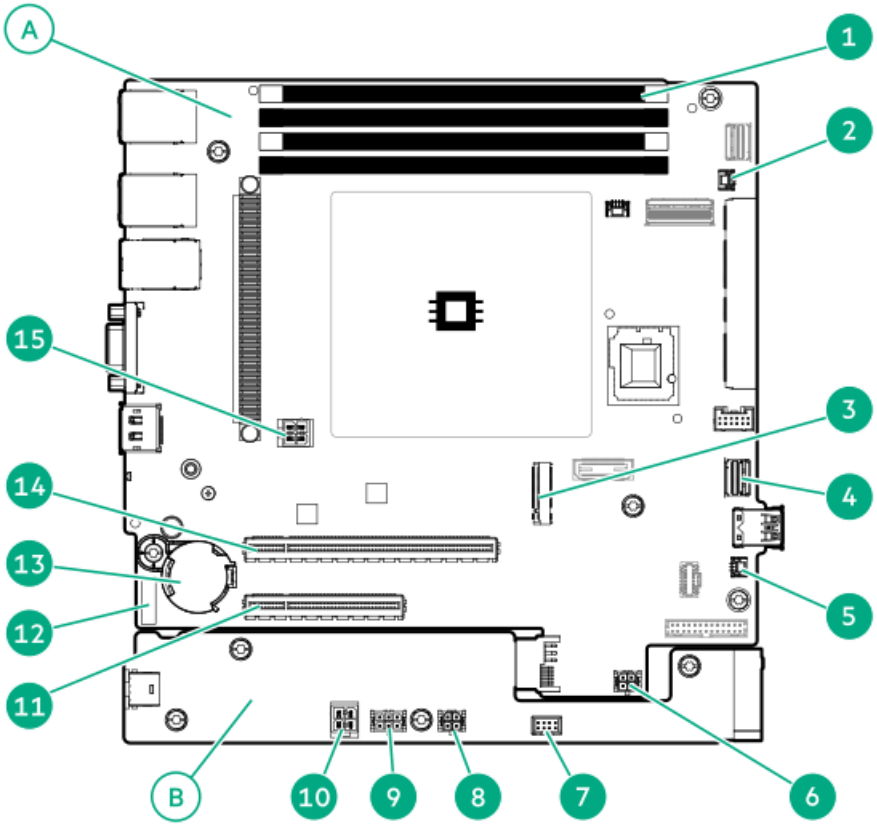
2. Press the UID button again to close the Server Health Summary screen.

System board components



The server has two individual printed circuit assemblies (PCA):

Item	Board
A	System board
B	Power distribution board (PDB)



Item	Description
1	DIMM slots
2	Ambient temperature sensor connector
3	M.2 slot [1]
4	SimSAS x4 port [2]
5	Storage controller backup power connector
6	System board: System power connector
7	Fan connector
8	PDB: System power connector
9	Drive power connector
10	PDB: 4-pin processor power connector
11	Slot 2 PCIe4 x8 (4, 1), supports up to 25W
12	System maintenance switch
13	System battery
14	Slot 1 PCIe5 x16 (16, 8, 4, 1), supports up to 25W
15	System board: 4-pin processor power connector

1 This M.2 slot does not support direct SSD installation. This slot instead supports the iLO-M.2 serial module option, which supports NVMe SSDs.

2 This connector supports a maximum of four SATA devices.

Subtopics

System maintenance switch descriptions

Position	Default	Function
S1 [1]	Off	• Off—iLO 6 security is enabled. • On—iLO 6 security is disabled.
S2	Off	Reserved
S3	Off	Reserved
S4	Off	Reserved
S5 [1]	Off	• Off—Power-on password is enabled. • On—Power-on password is disabled.
S6 [1, 2, 3]	Off	• Off—No function • On—Restore default manufacturing settings
S7	Off	Reserved
S8	Off	Reserved
S9	Off	Reserved
S10	Off	Reserved
S11	Off	Reserved
S12	Off	Reserved

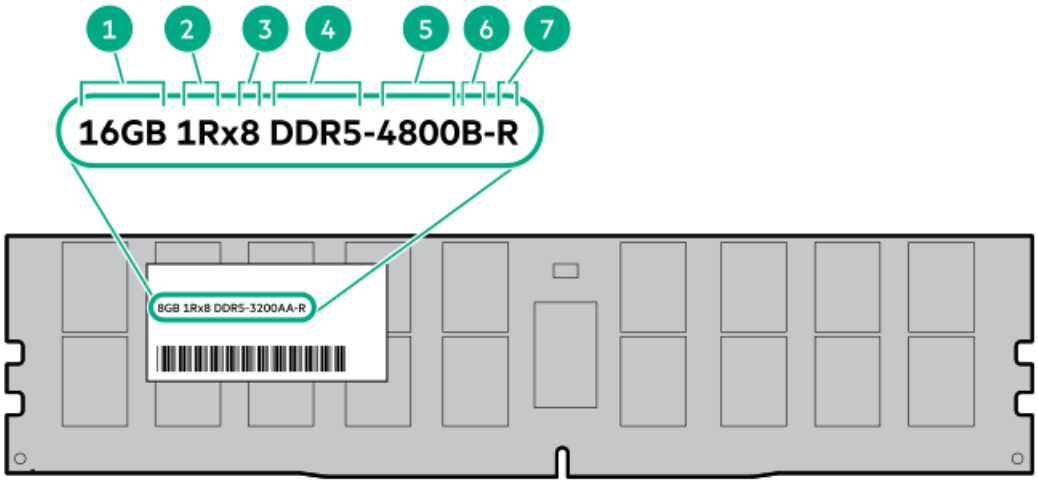
1 To access the redundant ROM, set S1, S5, and S6 to On.
2 When the system maintenance switch position 6 is set to the On position, the system is prepared to restore all configuration settings to their manufacturing defaults.
3 When the system maintenance switch position 6 is set to the On position and Secure Boot is enabled, some configurations cannot be restored. For more information, see Configuring the server.

DIMM label identification

To determine DIMM characteristics, see the label attached to the DIMM. The information in this section helps you to use the label to locate specific information about the DIMM.

For more information about product features, specifications, options, configurations, and compatibility, see the HPE DDR5 SmartMemory QuickSpecs:

https://www.hpe.com/docs/server-memory

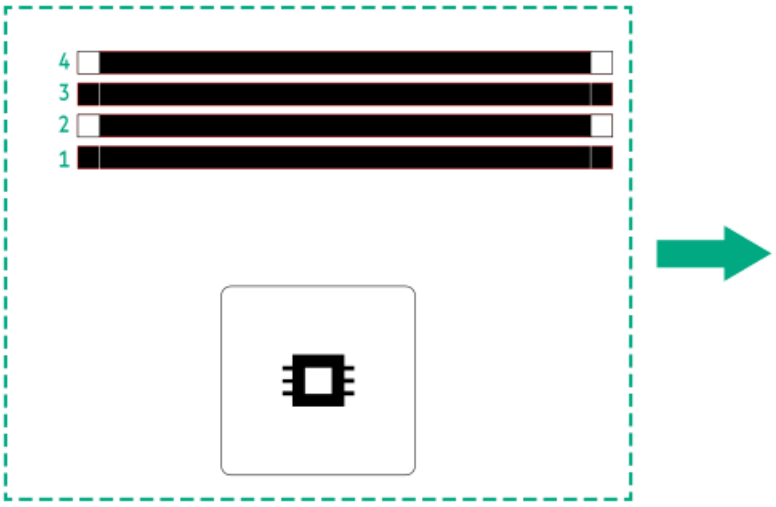


Item	Description	Example
1	Capacity [1]	16 GB 32 GB 64 GB 128 GB 256 GB
2	Rank	1R—Single rank 2R—Dual rank 4R—Quad rank 8R—Octal rank
3	Data width on DRAM	x4—4-bit x8—8-bit
4	Memory generation	PC5—DDR5
5	Maximum memory speed [1]	4800 MT/s
6	CAS latency	B—42-42-42 B—50-42-42 (for 128 GB and 256 GB capacities)
7	DIMM type	E—UDIMM (unbuffered with ECC) R—RDIMM (registered)

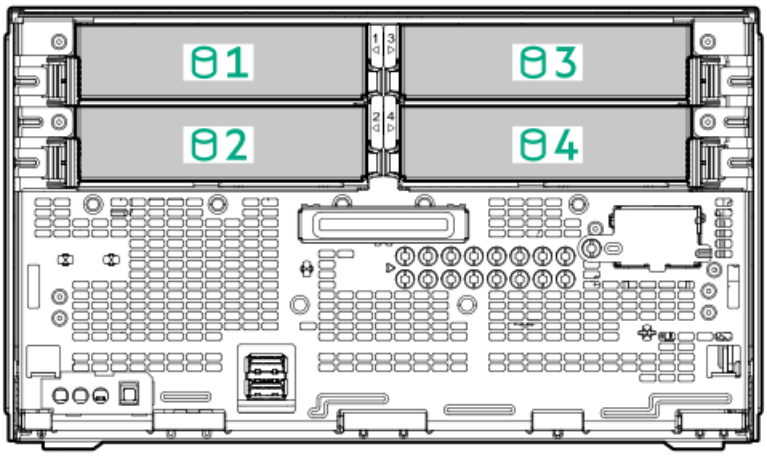
[1] The maximum memory speed and capacity is a function of the memory type, memory configuration, and processor model.

DIMM slot numbering

The arrow points to the front of the server.

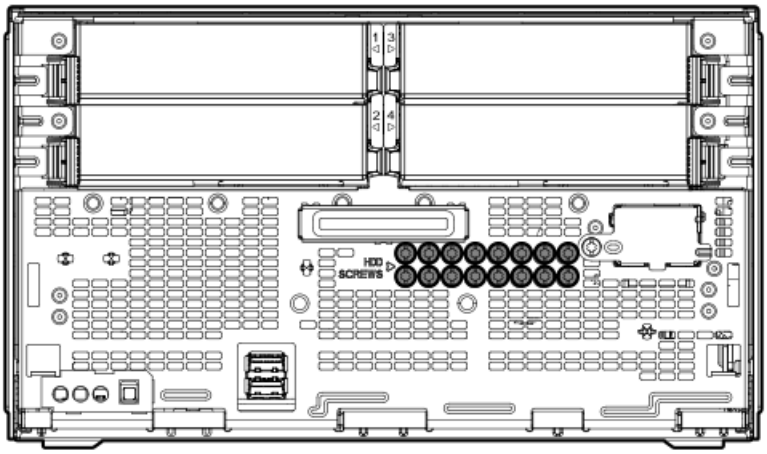


Drive bay numbering



Drive screws

There are 16 T-15 Torx screws located under the drive bays. Use these screws to install drives in the server.



Fan mode behavior

The server supports nonredundant fan mode. If a fan fails or is missing, the following behaviors are exhibited:

- The health LED flashes red.
- The operating system performs a graceful shutdown.

Trusted Platform Module 2.0

The Trusted Platform Module 2.0 (TPM) is a hardware-based system security feature that securely stores artifacts used to authenticate the platform. These artifacts can include passwords, certificates, and encryption keys.

The TPM 2.0 is embedded on the server system board.

The TPM 2.0 is supported with specific operating system support such as Microsoft Windows Server 2012 R2 and later. For more information about operating system support, see the product QuickSpecs on the Hewlett Packard Enterprise website (**https://www.hpe.com/info/quickspecs**). For more information about Microsoft Windows BitLocker Drive Encryption feature, see the Microsoft website (**https://www.microsoft.com**).

Subtopics

Trusted Platform Module 2.0 guidelines

CAUTION:

- Always observe the TPM guidelines in this section. Failure to follow these guidelines can cause hardware damage or halt data access.
- If you do not follow procedures for modifying the server and suspending or disabling the TPM in the OS, an OS that is using TPM might lock all data access. This includes updating system or option firmware, replacing hardware such as the system board and drives, and modifying TPM OS settings.
- Changing the TPM mode after installing an OS might cause problems, including loss of data.

Hewlett Packard Enterprise SPECIAL REMINDER: Before enabling TPM functionality on this system, you must ensure that your intended use of TPM complies with relevant local laws, regulations and policies, and approvals or licenses must be obtained if applicable.

慧与特别提醒：在您启用系统中的TPM功能前，请务必确认您对TPM的使用遵守当地相关法律、法规及政策，并已事先获得所需的一切批准及许可（如适用），因您未获得相应的操作/使用许可而导致的违规问题，皆由您自行承担全部责任，与慧与无涉。

- When the embedded TPM is enabled, the Trusted Platform Module operates in TPM 2.0 mode.
- Use the UEFI System Utilities to configure the TPM. From the System Utilities screen, select System Configuration > BIOS/Platform Configuration (RBSU) > Server Security > Trusted Platform Module options. For more information, see the UEFI user guide:

  https://www.hpe.com/support/UEFIGen11-UG-en
- When using the Microsoft Windows BitLocker Drive Encryption feature, always retain the recovery key or password. The recovery key or password is required to enter Recovery Mode after BitLocker detects a possible compromise of system integrity.
- HPE is not liable for blocked data access caused by improper TPM use. For operating instructions, see the documentation for the encryption technology feature provided by the operating system.

BitLocker recovery key/password retention guidelines

The recovery key/password is generated during BitLocker setup, and can be saved and printed after BitLocker is enabled. When using BitLocker, always retain the recovery key/password. The recovery key/password is required to enter Recovery Mode after BitLocker detects a possible compromise of system integrity.

To help ensure maximum security, observe the following guidelines when retaining the recovery key/password:

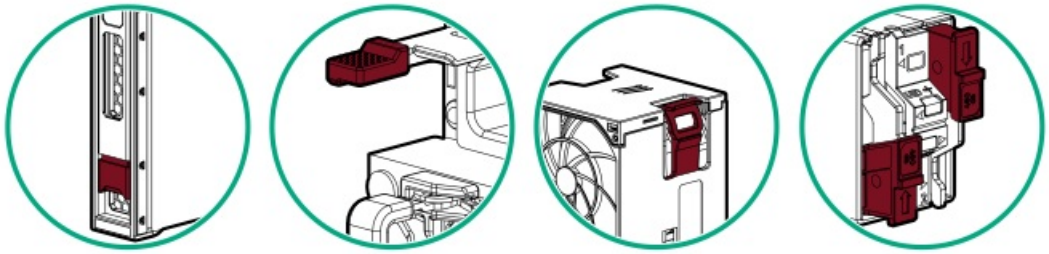
- Always store the recovery key/password in multiple locations.
- Always store copies of the recovery key/password away from the server.
- Do not save the recovery key/password on an encrypted drive.

Component touchpoints

Certain components on the server are color-coded. These colors represent the recommended touch areas for a removal process, and indicate whether components require a system shutdown during removal.

The following diagrams are examples only. Not all these components are used by the server.

HPE hot-plug red

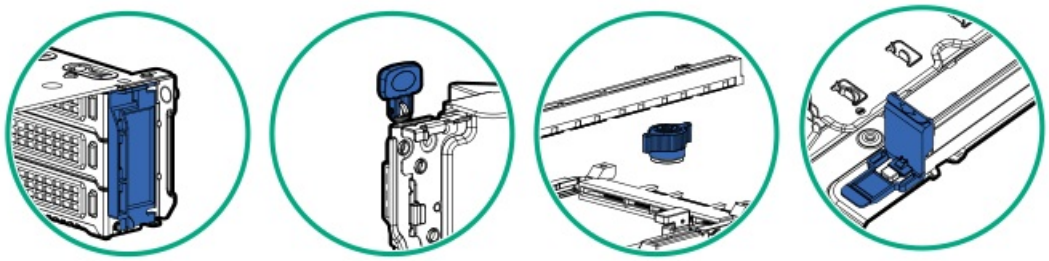


Hot-plug red touchpoints are used in hot-pluggable components. These components can be removed and installed while the system is running, and doing so will not result in a system shutdown.

Component examples:

- Flexible Slot power supply in a redundant power configuration
- Hot-plug fan
- Hot-plug drive
- M.2 SSD in a hot-plug boot device

HPE touchpoint blue



Touchpoint blue is used in cold-pluggable components. These components require performing a system shutdown. Failure to do so may result in system failure or data loss. Cold-pluggable blue components may also indicate touchpoints on non-electrical components.

Component examples:

- Storage device
- Fan cage
- System board
- Energy pack

Setup

This chapter describes general operational requirements and safety reminders, as well as the initial setup procedure for the server.

Subtopics

Initial system installation

Depending on your technical expertise and the complexity of the product, for the initial system installation, select one of the following options:

- Ordering the HPE Installation Service
- Setting up the server

Subtopics

HPE Installation Service
Intel VROC support
Setting up the server

HPE Installation Service

HPE Installation Service provides basic installation of Hewlett Packard Enterprise branded equipment, software products, as well as HPE-supported products from other vendors that are sold by HPE or by HPE authorized resellers. The Installation Service is part of a suite of HPE deployment services that are designed to give users the peace of mind that comes from knowing that their HPE and HPE-supported products have been installed by an HPE specialist.

The HPE Installation Service provides the following benefits:

- Installation by an HPE authorized technical specialist.
- Verification prior to installation that all service prerequisites are met.
- Delivery of the service at a mutually scheduled time convenient to your organization.
- Allows your IT resources to stay focused on their core tasks and priorities.
- Full coverage during the warranty period for products that require installation by an HPE authorized technical specialist.

For more information on the features, limitations, provisions, and ordering information of the HPE Installation Service, see this Hewlett Packard Enterprise website:

https://www.hpe.com/support/installation-service

Intel VROC support

Intel Virtual RAID on CPU (Intel VROC) provides enterprise-level hybrid RAID support. Note the following information:

- Intel VROC provides RAID support for direct attached SATA drives.
- The Intel VROC driver is required. For the OS-specific driver download, see the following page:

  https://support.hpe.com/hpesc/public/docDisplay?docId=sd00002239en_us&page=GUID-249FA246-0985-4598-8D7E-94069560F959.html
- Intel VROC requires the server boot mode to be set to UEFI Mode.
- Intel VROC RAID support is disabled by default. In the pre-OS environment, use UEFI System Utilities to enable Intel VROC and create a VROC RAID volume. These tasks are not supported in Intelligent Provisioning.
- The VROC RAID volume must use drives of the same interface and form factor.
- Intel VROC supports RAID management through the following tools:

- Non-OS specific: UEFI System Utilities
- Windows: Intel VROC GUI, Intel VROC CLI
- Linux: `mdadm` CLI

For more information on Intel VROC features and configuration, see Configuring storage controllers.

Setting up the server

Prerequisites

- As a best practice, Hewlett Packard Enterprise recommends installing the latest firmware, drivers, and system software before using the server for the first time. You have these options:
  - HPE GreenLake for Compute Ops Management is an advanced software-as-a-service platform that securely streamlines operations from edge-to-cloud and automates key life cycle tasks through a unified single browser-based interface. For more information on using HPE GreenLake for Compute Ops Management , see **https://www.hpe.com/info/com-docs**.
  - Use the Firmware Update option in Intelligent Provisioning—Intelligent Provisioning is a server deployment tool embedded in HPE ProLiant servers. To access Intelligent Provisioning, during the server boot process, press **F10**. For more information, see the Intelligent Provisioning user guide at **https://www.hpe.com/info/intelligentprovisioning/docs**.
  - Download the Service Pack for ProLiant (SPP) —SPP is a comprehensive system software and firmware update solution that is delivered as a single ISO image. This solution uses Smart Update Manager (SUM) as the deployment tool.
    - The preferred method for downloading an SPP is by creating an SPP custom download at **https://www.hpe.com/servers/spp/custom**.

      This option reduces the size of the SPP by excluding firmware and drivers for OS and server models that are not needed.
    - The SPP is also available for download from the SPP download page at **https://www.hpe.com/servers/spp/download**.
- Verify that your OS or virtualization software is supported: **https://www.hpe.com/support/Servers-Certification-Matrices**
- This server supports type-p storage controller options. For storage configuration, use either SATA AHCI (default) or Intel Virtual RAID on CPU (Intel VROC). If you plan to use Intel VROC, review these important information before setting up the server .
- Read the Operational requirements for the server.
- Read the safety and compliance information: **https://www.hpe.com/support/safety-compliance-enterpriseproducts**
- Take note of the iLO hostname and default login credentials on the iLO information label on the bottom of the server.

Procedure

1. Unbox the server and verify the contents:
   - Server
   - Power cord and adapter
   - Antislip rubber strips (2)
   - Printed setup documentation

   The server does not ship with OS media. All system software and firmware is preloaded on the server.
2. (Optional) Install the hardware options.
3. Select the server orientation:

- Position the server in a horizontal orientation.
- Position the server in a vertical orientation.

4. Connect the network cable:
   a. Connect one end of the network cable to the NIC port.

      IMPORTANT:

      The iLO shared connectivity of the RJ45 port 1 is dependent on the presence of the iLO-M.2-serial module. If this optional module is not installed, use an in-band communication method for accessing iLO. When this optional module is installed, iLO remote management / out-of-band management features are available. For more information, see the HPE iLO QuickSpecs (**https://www.hpe.com/info/quickspecs**).

   b. Connect the other end of the network cable to a network jack or a network device, such as a router or LAN switch.
5. Connect the power cord:
   a. Connect the power adapter to the server power jack with the connector secured in the power cord clamp.
   b. Connect the power cord to the adapter.
   c. Connect the power cord to the AC power source.
   d. Close the power cord clamp until it clicks into place.
6. Decide how to manage the server:
   - Locally: Use a KVM switch or a connect a keyboard, monitor, and mouse.
     Before connecting a display device to the server, review the information for Display device setup.
   - Remotely: Connect to the iLO web interface and run a remote console:
     a. Verify the following:
        - iLO is licensed to use the remote console feature.

          If iLO is not licensed, visit the HPE website:

          https://www.hpe.com/info/ilo
        - The iLO dedicated network port is connected to a secure network.

     b. Using a browser, navigate to the iLO web interface, and then log in.

        ```
        https://<iLO hostname or IP address>
        ```

        Note the following:
        - If a DHCP server assigns the IP address, the IP address appears on the boot screen.
        - If a static IP address is assigned, use that IP address.

     c. Enter the iLO login name and password, and then click Log In.
     d. In the navigation tree, click the Remote Console & Media link, and then launch a remote console.
7. Press the Power On/Standby button.

   For remote management, use the iLO virtual power button.
8. Configure the initial server setup.
9. Set up the storage.
10. Deploy an OS or virtualization software.

11. After the OS is installed, update the drivers.
12. Register the server.

Server orientation options

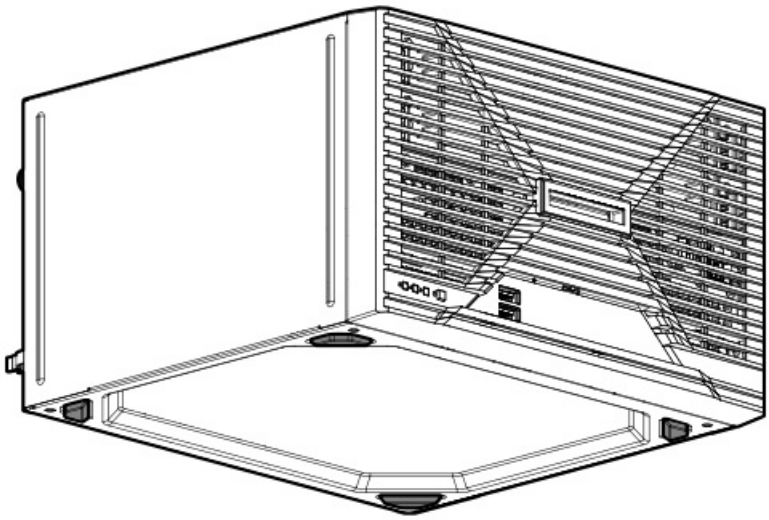
The server can be oriented in a horizontal or vertical setup depending on the available space in the installation site.

Subtopics

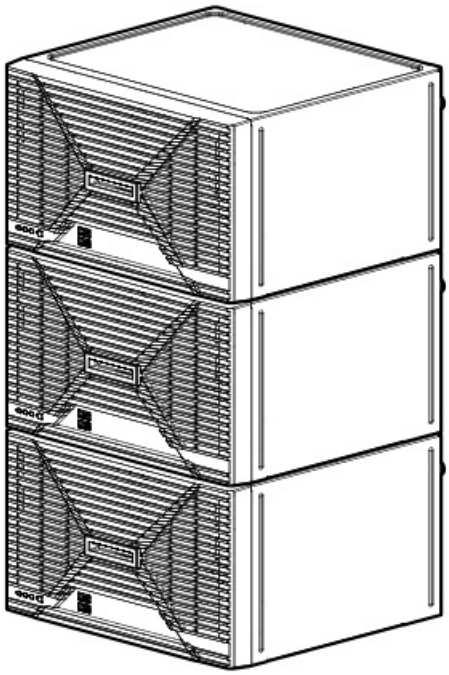
Position the server in a horizontal orientation

About this task

There are four antislip rubber pads preinstalled on the base of the server for a horizontal setup.



In a horizontal setup, you can stack up to three MicroServers on top of each other.



Position the server in a vertical orientation

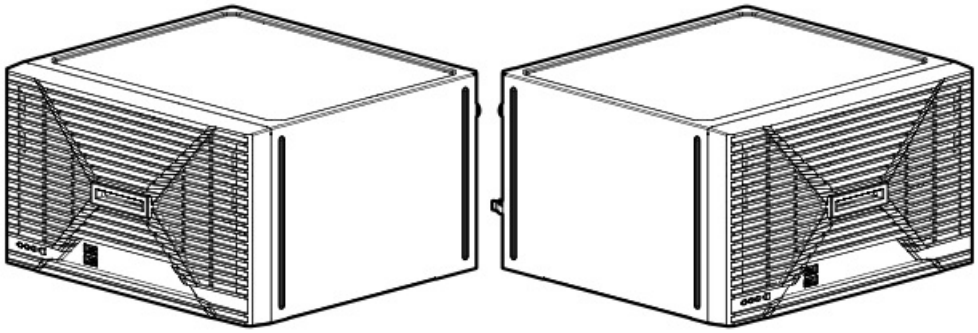
Prerequisites

Before you perform this procedure, make sure that you have the following items available:

- Isopropyl alcohol wipe
- Antislip rubber strips

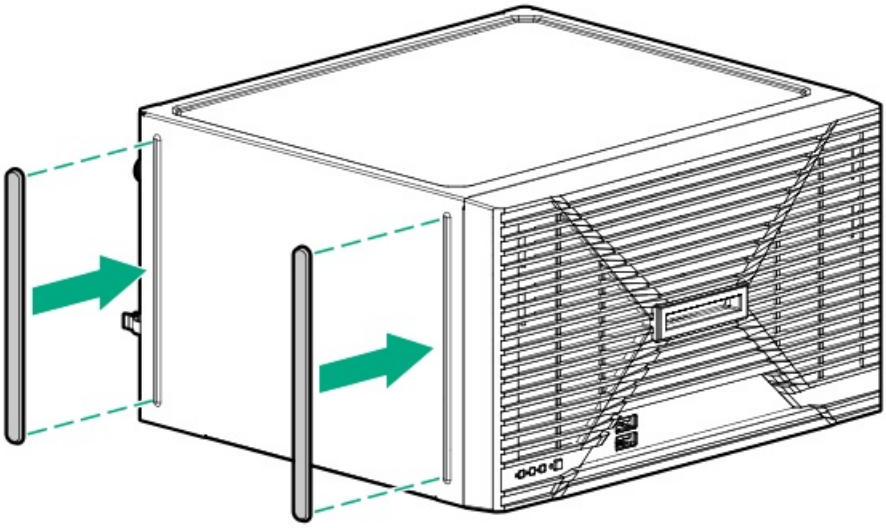
About this task

The server can be oriented vertically for a smaller footprint setup. There are two pairs of divots on both sides of the server for attaching the antislip rubber strips. Two antislip rubber strips are shipped with the server.

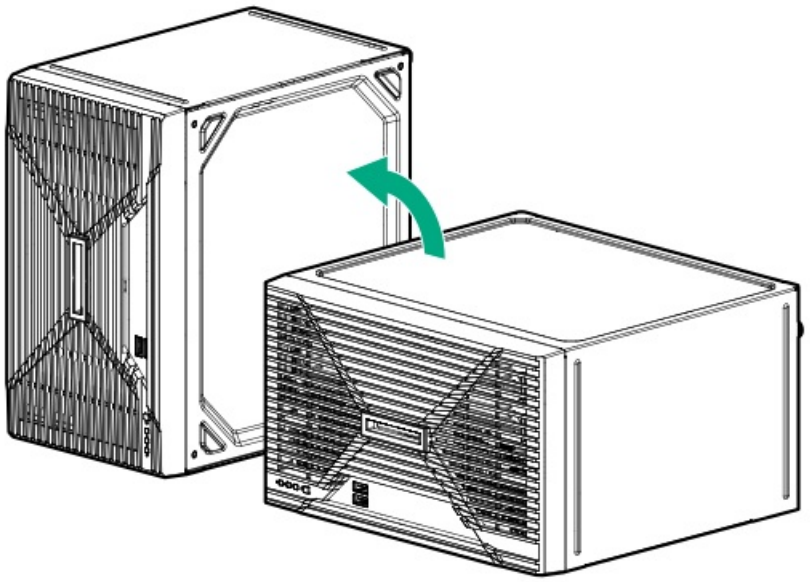


Procedure

1. Use an isopropyl alcohol wipe to clean the divots on the side of the server. Allow the alcohol to evaporate before continuing.
2. Peel off the protective liner from the rubber strips.
3. Attach the strips onto the divots. To ensure proper adhesion, press along the entire strip.



4. Position the server in a vertical orientation.



Operational requirements

When preparing and planning the installation, observe the following operational requirements:

- Space and airflow requirements
- Temperature requirements
- Power requirements
- Electrical grounding requirements

For environmental requirements, see Environmental specifications.

Subtopics

Site requirements

The server may be located in an office space or a purpose-made equipment room. The location must:

- Comply with local health and safety regulations.
- Be clean, tidy, and free of excessive dust and vibration.
- Be in an area in which the server cannot easily be disconnected from its power source.
- Not be adjacent to or underneath any area or piece of equipment where liquid is stored.
- Not be in a place where the server might be bumped, scratched, or disturbed.
- Be within an area that is ideally locked or at minimum not accessible to unauthorized personnel.
- Be within patching distance, directly or via cable management cross-patches, of the location of the WAN connection and the switch that supplies the office/room floor network ports.

Space and airflow requirements

Leave at least a 10 cm (4 in) clearance space at the front and back of the server for proper ventilation.

CAUTION:
The server draws in cool air through the ventilation openings on the front side, and expels warm air through the ventilation openings on the rear side. Do not block these openings. Failure to observe this caution will result in improper airflow and insufficient cooling that can lead to thermal damage.

Temperature requirements

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

The maximum recommended ambient operating temperature (TMRA) for most server products is 35°C (95°F). The temperature in the room where the rack is located must not exceed 35°C (95°F).

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 server or to increase the internal rack temperature beyond the maximum allowable limits.
- Do not exceed the manufacturer's TMRA.

Power requirements

Power requirements

Installation of this equipment must comply with local and regional electrical regulations governing the installation of information technology 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 server from power fluctuations and temporary interruptions with a regulating uninterruptible power supply. This device protects the hardware from damage caused by power surges and voltage spikes and keeps the system in operation during a power failure.

Electrical grounding requirements

The server must be grounded properly for proper operation and safety. In the United States, you must install the equipment in accordance with NFPA 70, 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 multiple servers connected to the same power source, Hewlett Packard Enterprise 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 for the server is not recommended.

Server warnings and cautions

WARNING:

To reduce the risk of personal injury, electric shock, or damage to the equipment, disconnect the power cord to remove power from the server. Pressing the Power On/Standby button does not shut off system power completely. Portions of the power supply and some internal circuitry remain active until AC power is removed.

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

CAUTION:

Protect the server 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 server in operation during a power failure.

CAUTION:

To prevent improper airflow and insufficient cooling that can lead to thermal damage, do not operate the server with the front bezel or chassis cover removed.

CAUTION: To prevent damage to electrical components, properly ground the server before beginning any installation procedure. Improper grounding can cause electrostatic discharge.

CAUTION:
To avoid data loss, Hewlett Packard Enterprise recommends that you back up all server data before installing or removing a hardware option, or performing a server maintenance or troubleshooting procedure.

Electrostatic discharge

Be aware of the precautions you must follow when setting up the system or handling components. 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 system or component.

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. 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.

Operations

This chapter describes the hardware operations carried out prior to and after installing or removing a hardware component, or performing a server maintenance or troubleshooting procedure.

Before performing these hardware operations, review and observe the server warnings and cautions.

Subtopics

Close the chassis
Install the front bezel
Install the chassis cover
Power up the server

Power down the server

Before powering down the server for any upgrade or maintenance procedures, perform a backup of critical server data and programs.

IMPORTANT:
When the server is in standby mode, auxiliary power is still being provided to the system.

To power down the server, use one of the following methods:

- Press and release the Power On/Standby button.
  This method activates a controlled shutdown of applications and the OS before the server enters standby mode. It can also activate a shutdown behavior governed by an OS configuration or policy.
- Press and hold the Power On/Standby button for more than 4 seconds to force the server to enter standby mode.
  This method forces the server to enter standby mode without properly exiting applications and the OS. If an application stops responding, you can use this method to force a shutdown.
- Use a virtual power button selection through iLO 6.
  This method initiates a controlled remote shutdown of applications and the OS before the server enters standby mode.

Before proceeding, verify that the server is in standby mode by observing that the system power LED is amber.

Remove the server from the wall mount

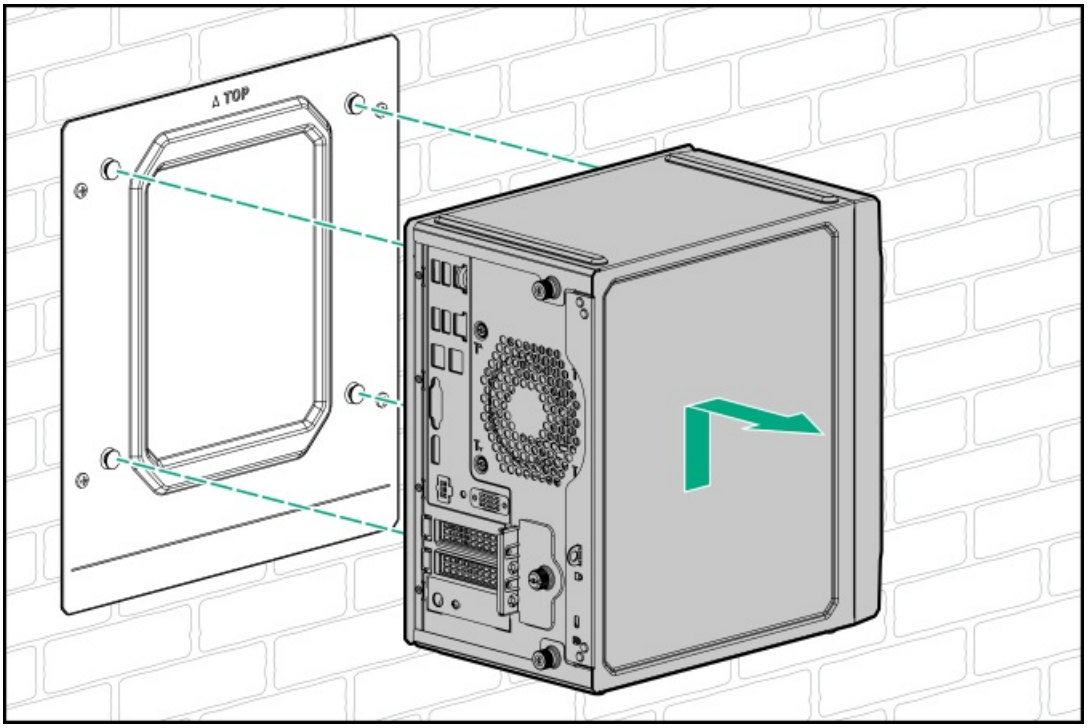
About this task

If the server is installed in the wall mount, use the following procedure to prepare the server for hardware replacement.

Procedure

1. Power down the server.
2. Remove the power adapter cord from the power cord clamp, and then disconnect the power adapter from the server.
3. Disconnect all peripheral cables from the server.
4. If installed, unlock and remove the security padlock and/or the Kensington security lock.

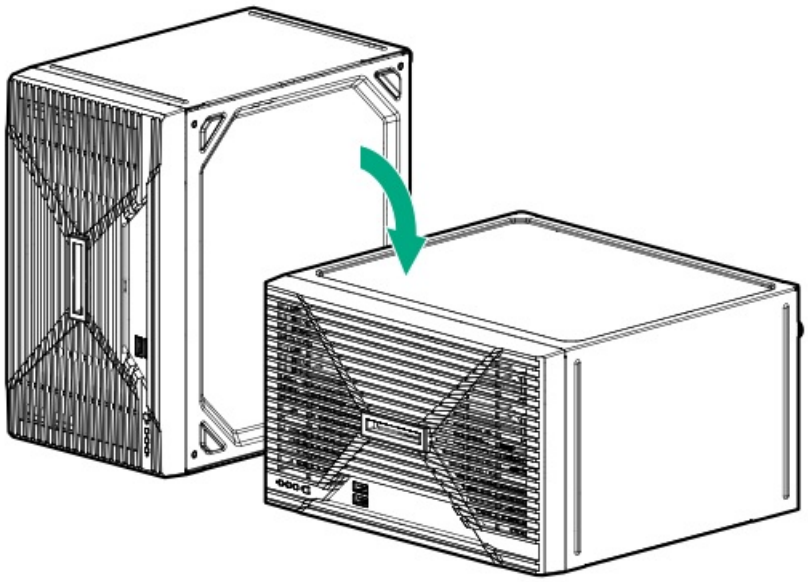
   For more information, see the lock documentation.
5. Remove the server from the wall mount:
   a. Slide the server upward to disengage the converter bracket from the wall mount base bracket.
   b. Remove the server from the wall mount base bracket.



Position the server for hardware configuration

Procedure

1. If the server is in a vertical orientation, position the server in a horizontal orientation.



2. Place the server on a flat, level surface with the chassis cover facing up.

Removing the chassis cover

Prerequisites

Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

About this task

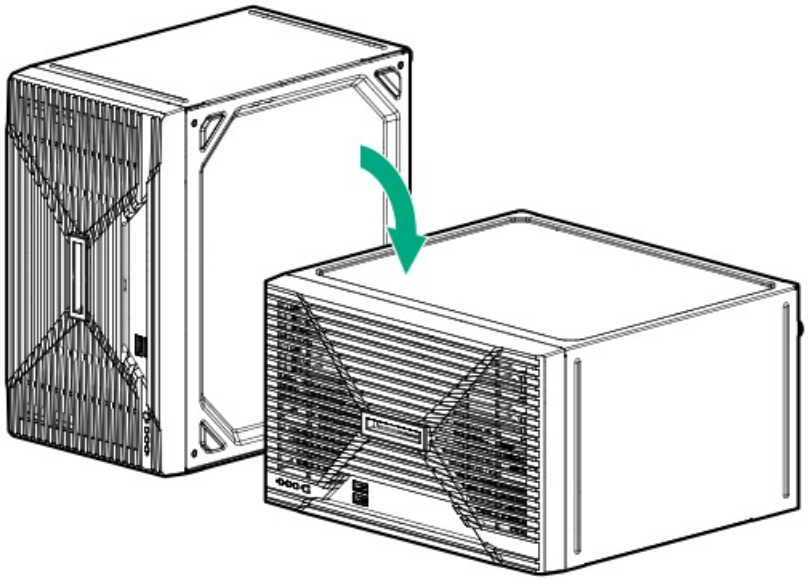
WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

CAUTION: A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

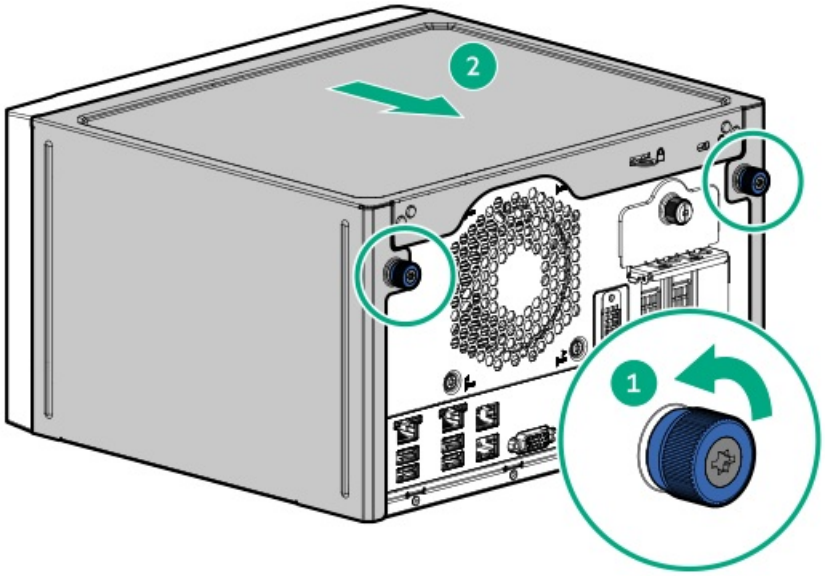
1. Power down the server.
2. Disconnect the power cord from the AC source.
3. Remove the power adapter cord from the power cord clamp, and then disconnect the power adapter from the server.
4. Disconnect all peripheral cables from the server.
5. If installed, unlock and remove the security padlock and/or the Kensington security lock.

   For more information, see the lock documentation.
6. If the server is in a vertical orientation, position the server in a horizontal orientation.

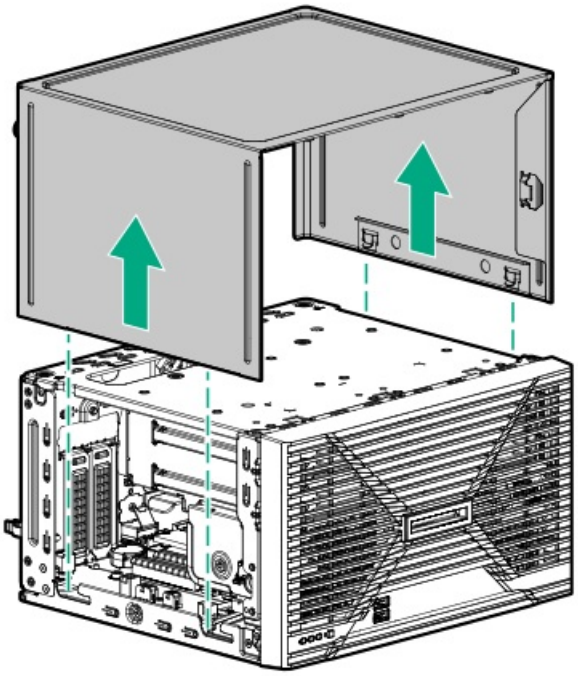


7. Remove the chassis cover:
   a. Loosen the cover thumbscrews.

      If the thumbscrews are too tight, use a T-15 Torx screwdriver to loosen them.
   b. Slide the cover about half an inch towards the rear panel.



c. Detach the cover from the server.



Remove the front bezel

About this task

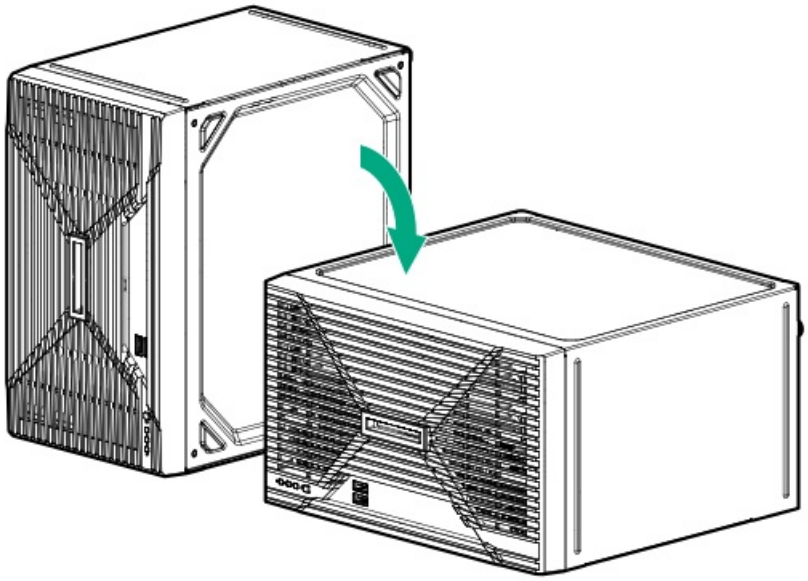
To access the drive bays and the drive screws, remove the front bezel.

Procedure

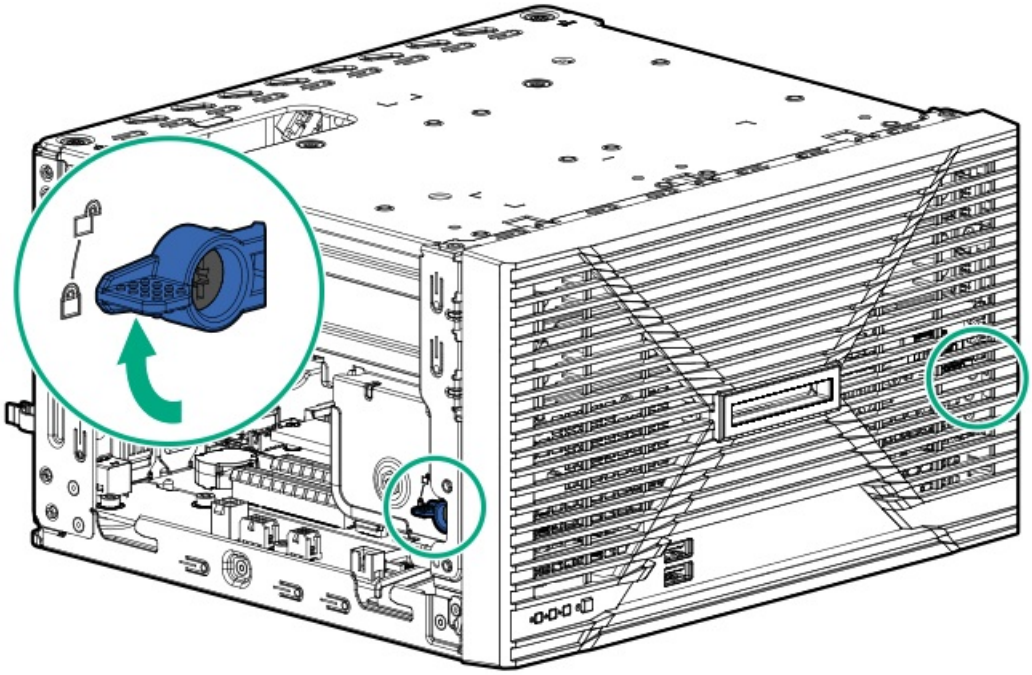
1. Power down the server.
2. Disconnect the power cord from the AC source.

3. Remove the power adapter cord from the power cord clamp, and then disconnect the power adapter from the server.
4. Disconnect all peripheral cables from the server.
5. If installed, unlock and remove the security padlock and/or the Kensington security lock.

   For more information, see the lock documentation.
6. If the server is in a vertical orientation, position the server in a horizontal orientation.



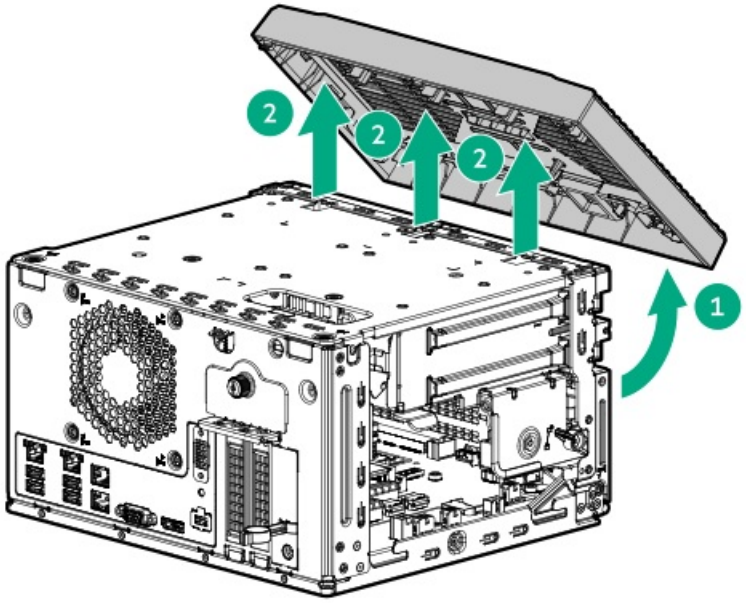
7. If the front bezel is locked, do the following:
   a. Remove the chassis cover.
   b. Switch the bezel locks upward.



8. Remove the front bezel:

a. Pivot the bottom part of the bezel upward.

b. Release the bezel tabs from their chassis openings.



Open the chassis

Prerequisites

Before you perform this procedure, make sure that you have a T-10 Torx screwdriver available.

About this task

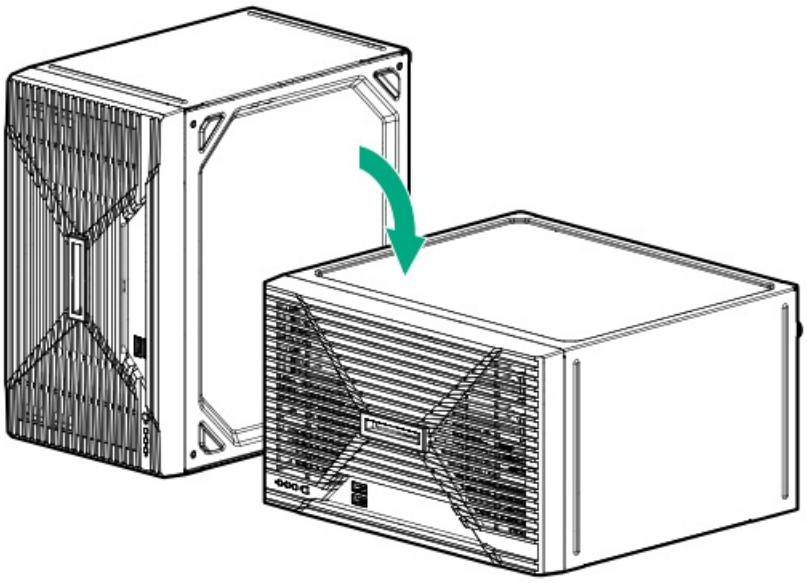
WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

CAUTION: A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

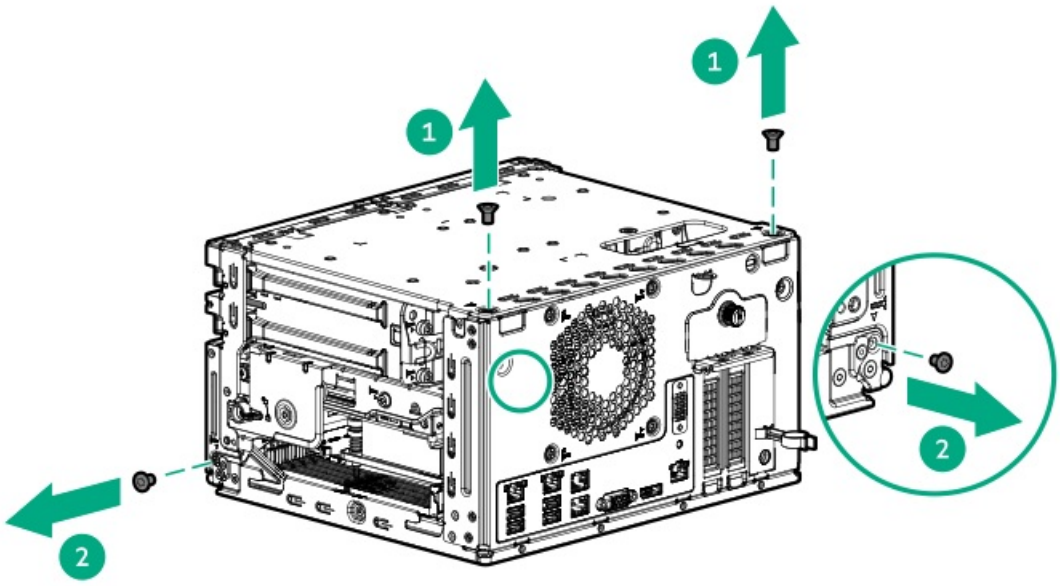
Procedure

1. Power down the server.
2. Disconnect the power cord from the AC source.
3. Remove the power adapter cord from the power cord clamp, and then disconnect the power adapter from the server.
4. Disconnect all peripheral cables from the server.
5. If installed, unlock and remove the security padlock and/or the Kensington security lock.

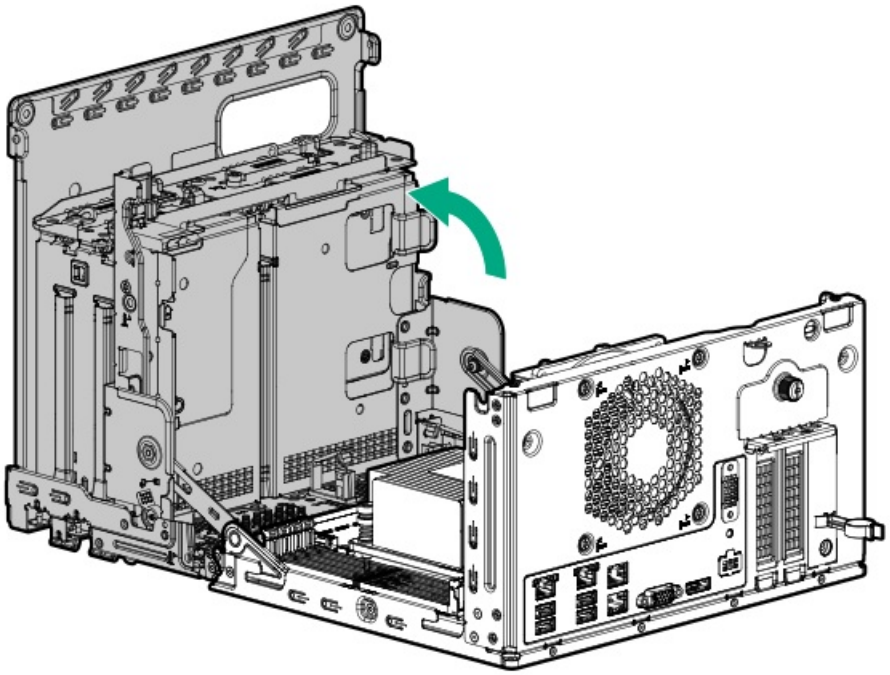
   For more information, see the lock documentation.
6. If the server is in a vertical orientation, position the server in a horizontal orientation.



7. Remove the chassis cover.
8. Remove the front bezel.
9. Open the chassis:
   a. Remove the chassis screws.



   b. Grab the upper half of the chassis at the blue touchpoint, and then pivot it outward to open the chassis.



Close the chassis

Prerequisites

Before you perform this procedure, make sure that you have a T-10 Torx screwdriver available.

About this task

CAUTION: A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

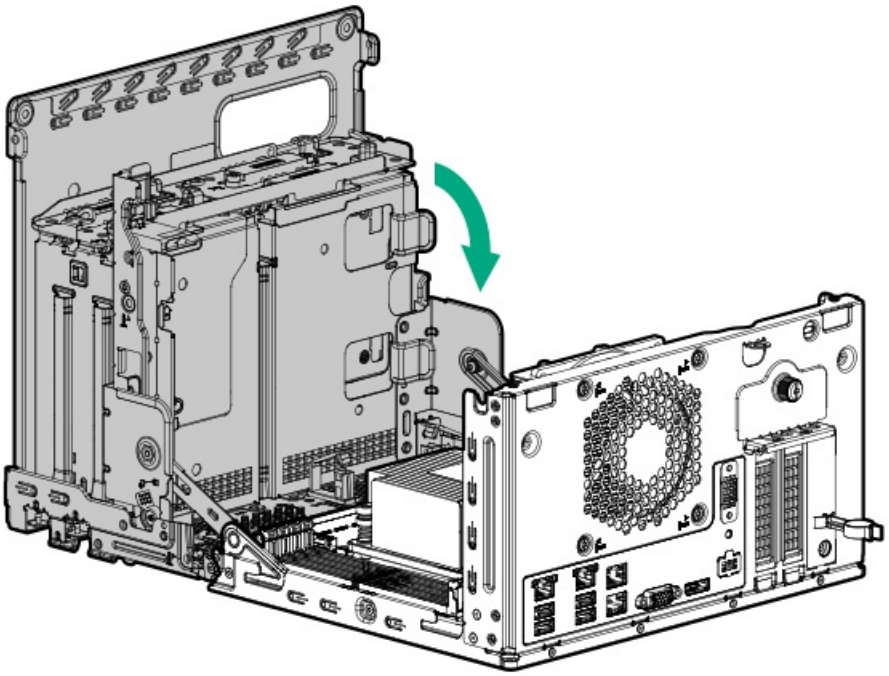
1. **WARNING:**

   To reduce the risk of personal injury, always keep your fingers away from the chassis hinges when closing the chassis. The chassis hinges could pinch your fingers.

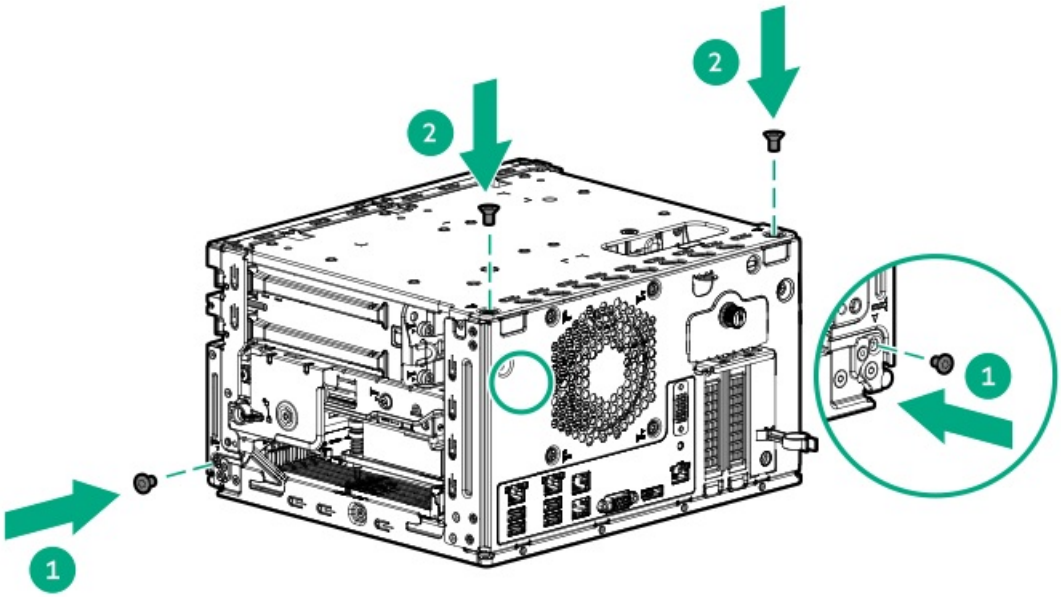
   Close the chassis:

   a. Ensure that all cables are secured by cable clamps or metal tabs.

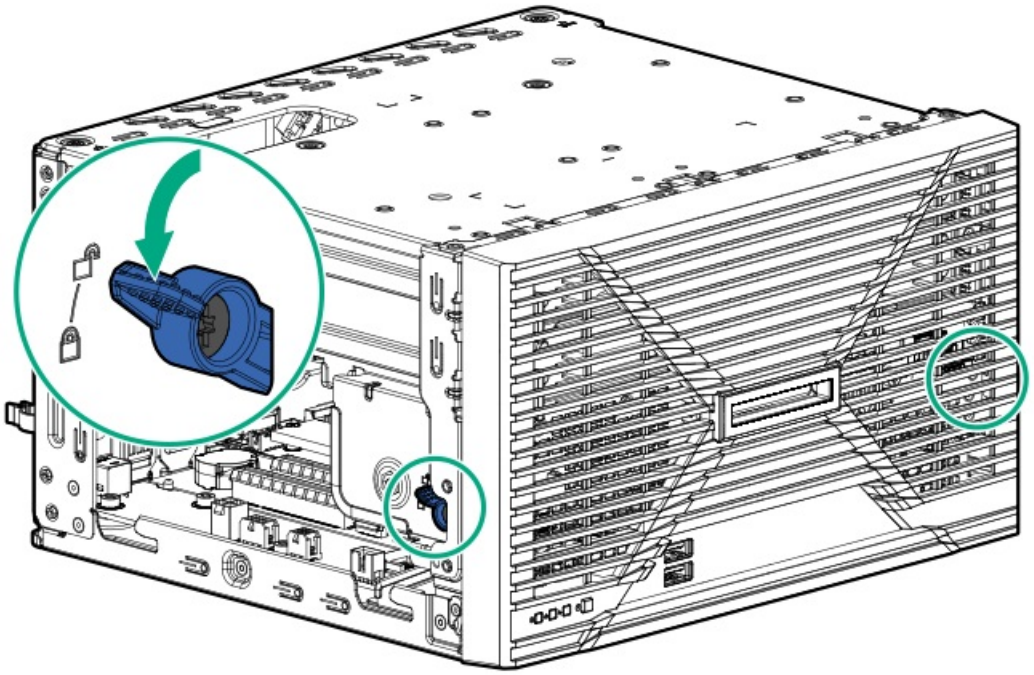
   b. Pivot the upper half of the chassis inward to close the chassis.



c. Install the chassis screws.



2. Install the front bezel.
3. If you prefer to secure the bezel to the chassis, switch the bezel locks downward.



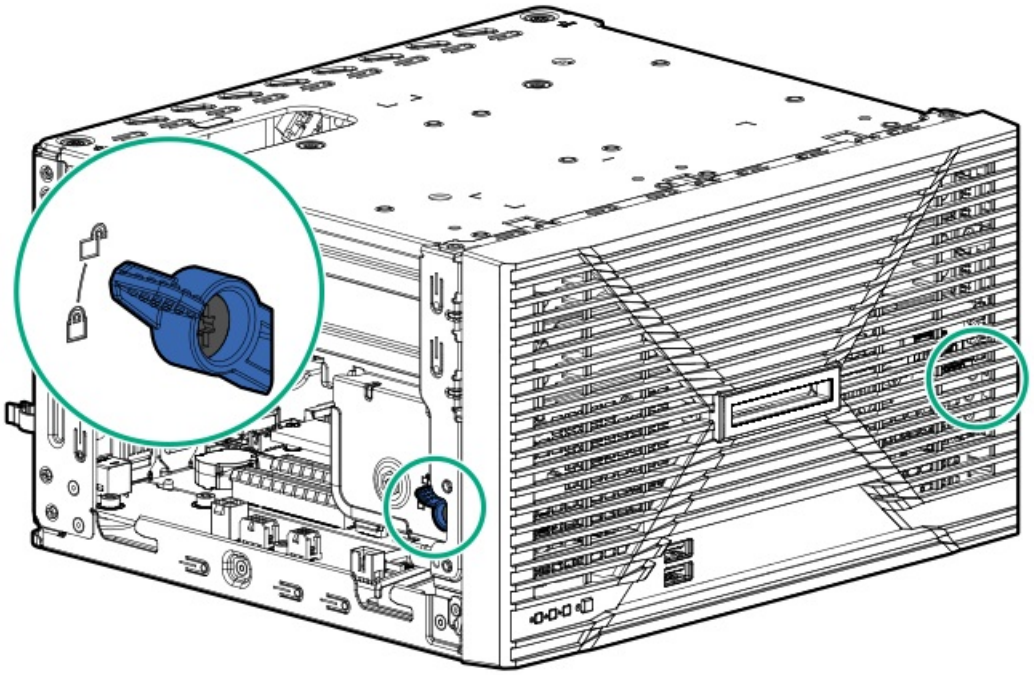
4. Install the chassis cover.
5. If removed, install the security padlock and/or the Kensington security lock.

   For more information, see the lock documentation.
6. Connect all peripheral cables to the server.
7. Connect the power adapter to the server, and then secure the power adapter cord in the power cord clamp.
8. Connect the power cord to the AC source.
9. Power up the server.

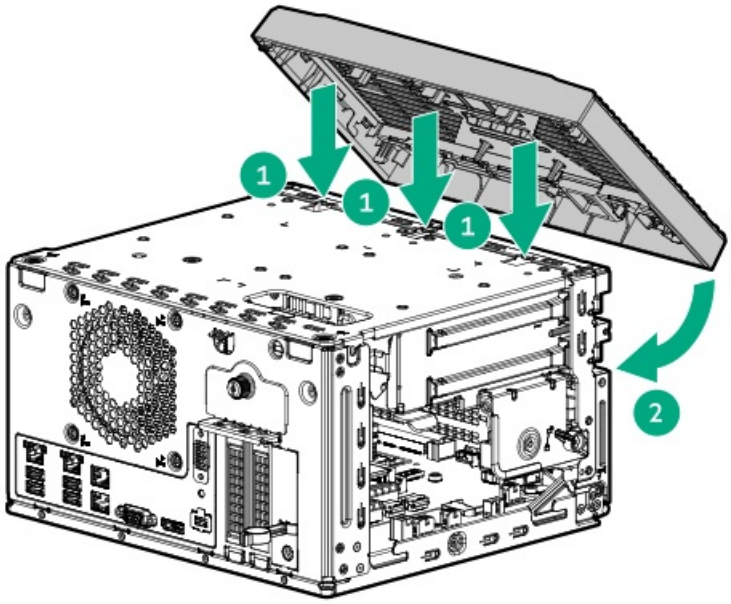
Install the front bezel

Procedure

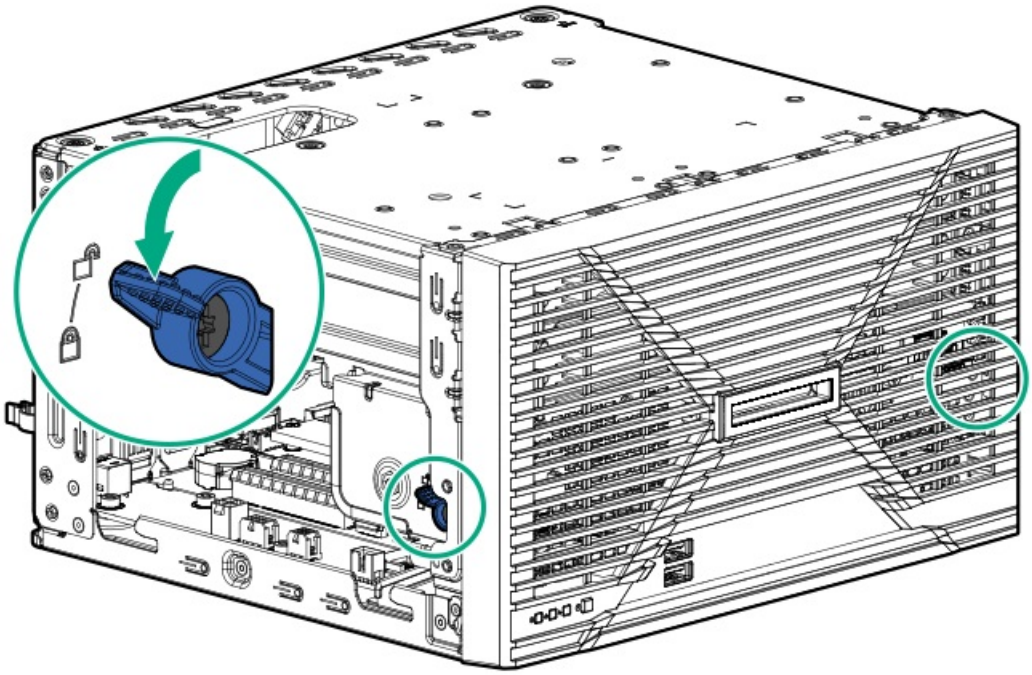
1. Make sure that the bezel locks are in the unlocked position.



2. Install the front bezel:
   a. Insert the bezel tabs to their chassis openings.
   b. Pivot the bottom part of the bezel downward.



3. If you prefer to secure the bezel to the chassis, switch the bezel locks downward.



4. Install the chassis cover .
5. If removed, install the security padlock and/or the Kensington security lock.

   For more information, see the lock documentation.
6. Connect all peripheral cables to the server.
7. Connect the power adapter to the server, and then secure the power adapter cord in the power cord clamp.
8. Connect the power cord to the AC source.
9. Power up the server.

Install the chassis cover

Prerequisites

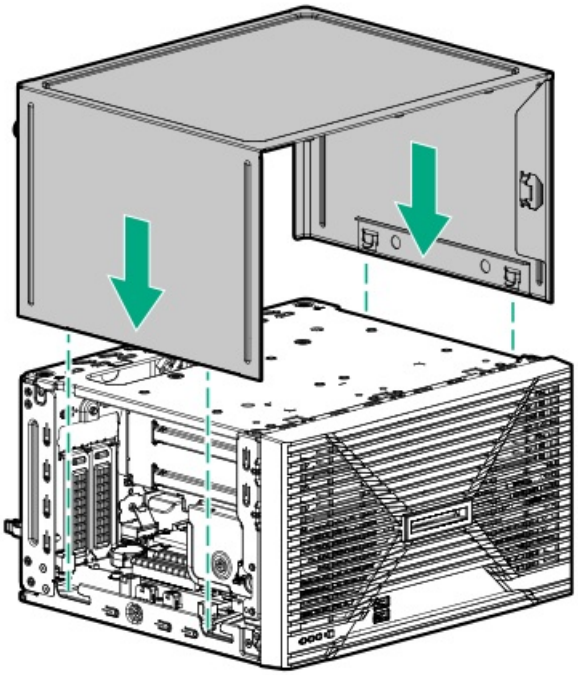
Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

About this task

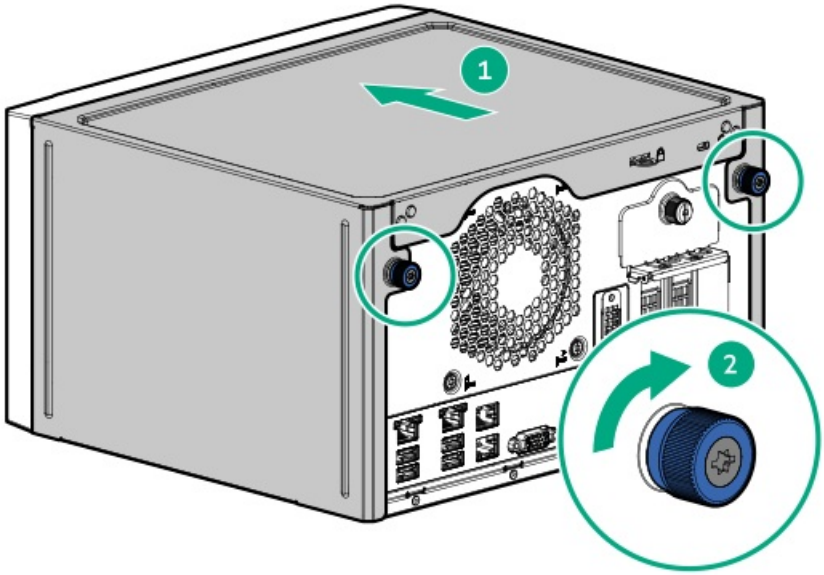
CAUTION: A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

1. Install the chassis cover:
   a. Insert the cover tabs to their chassis openings. Make sure that the cover is flushed against the top of the chassis.



b. Slide the chassis cover towards the front panel, and then tighten the cover thumbscrews.



2. If removed, install the security padlock and/or the Kensington security lock.

   For more information, see the lock documentation.

3. Connect all peripheral cables to the server.
4. Connect the power adapter to the server, and then secure the power adapter cord in the power cord clamp.
5. Connect the power cord to the AC source.
6. Power up the server.

Power up the server

Procedure

- Press the Power On/Standby button.
- Use the virtual power button through iLO 6.

Hardware options installation

This chapter provides instructions for installing supported hardware options. To ensure proper server deployment and operation, Hewlett Packard Enterprise recommends installing only HPE-validated hardware options. To see the list of validated options for this server, see the product QuickSpecs on the HPE ProLiant MicroServer Gen11 website:

https://www.hpe.com/servers/microserver-gen11

To view the warranty for your server and supported options, see Warranty information.

Subtopics

Server data backup

To avoid data loss, make sure to back up all server data before installing or removing a hardware option, performing a server maintenance, or a troubleshooting procedure.

Server data in this context refers to information that may be required to return the system to a normal operating environment after completing a hardware maintenance or troubleshooting procedure. This information may include:

- User data files
- User account names and passwords
- Application settings and passwords
- Component drivers and firmware
- TPM recovery key/password
- BIOS configuration settings—Use the backup and restore function in UEFI System Utilities. For more information, see the UEFI user guide (https://www.hpe.com/info/UEFI-manuals).
  - Custom default system settings
  - Security passwords including those required for power-on and BIOS admin access, persistent memory, and Server Configuration Lock (for HPE Trusted Supply Chain servers)
  - Server serial number and the product ID
- iLO-related data—Use the iLO backup and restore function. For more information, see the iLO user guide

(https://www.hpe.com/support/ilo6).

- iLO license
- Customer iLO user name, password, and DNS name
- iLO configuration settings

- For servers managed by HPE GreenLake for Compute Ops Management , make sure that you have your HPE GreenLake account ID. For more information, see the HPE GreenLake for Compute Ops Management Getting Started Guide :

  https://www.hpe.com/info/com-gsg

Hardware option installation guidelines

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

CAUTION:
To avoid data loss, Hewlett Packard Enterprise recommends that you back up all server data before installing or removing a hardware option, or performing a server maintenance or troubleshooting procedure.

CAUTION:
To prevent damage to electrical components, properly ground the server before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

- Install any hardware options before initializing the server.
- If multiple options are being installed, read the installation instructions for all the hardware options to identify similar steps and streamline the installation process.
- If the hardware option installation involves internal cabling, review the Cabling guidelines.

Hewlett Packard Enterprise product QuickSpecs

To learn more about your product, search the Hewlett Packard Enterprise website (https://www.hpe.com/info/quickspecs) for the product QuickSpecs:

- Supported options
- Supported configurations
- Component compatibility
- New features
- Specifications
- Part numbers

Wall mounting option

Use the wall mounting option kit to support the following:

- Mounting the server on a brick/concrete wall or wooden wall. The option kit does not support mounting on a dry wall.
- Mounting the server on a VESA mount. The option kit does not include VESA mounts.

Subtopics

Wall mount installation site guidelines

Observe the following when determining the installation site for the wall mount:

- Make sure that there is a minimum clearance of 30.00 cm (11.81 in) around the ventilation openings.

  The server draws in cool air through the ventilation openings on the front and expels warm air through the ventilation openings on the back. Do not block these openings. Failure to observe this caution will result in improper airflow and insufficient cooling that can lead to thermal damage.
- Consider the effort required for installing and removing the server from the wall mount for servicing, as well as the rear panel cabling connections.
- Make sure that there is a reliable power source within 1.80 m (5.91 ft) of the server location.
- Make sure that the mounting surface can support five times the combined weight of the server and the wall mounting hardware. Do not install the wall mount where this weight cannot be supported.

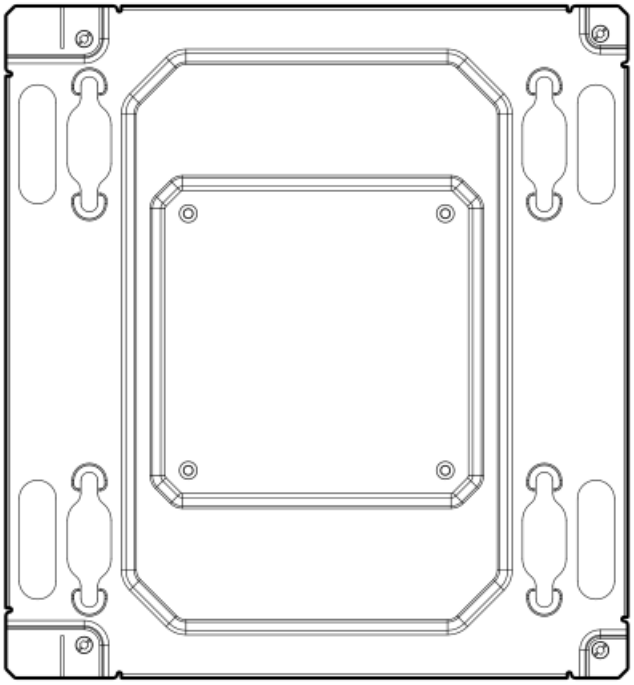
Wall mounting hardware

The wall mount option kit does not include fasteners for wall mounting. Note the following:

- Use appropriate fasteners and anchors for mounting on a brick / concrete wall or wood wall.
- For mounting on a wood wall, anchors are not required.

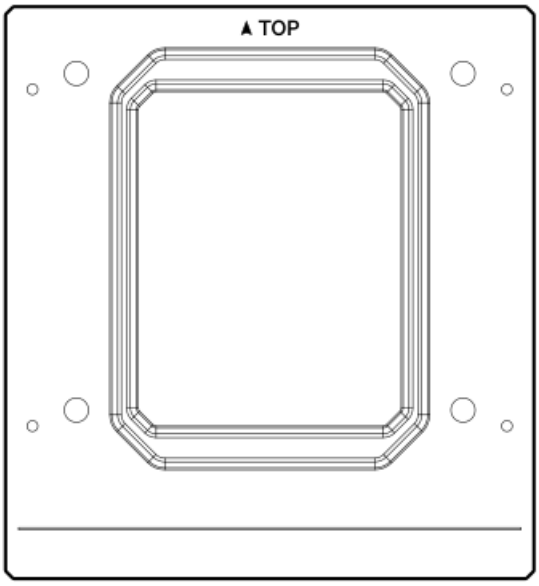
Wall mount converter bracket

The wall mount converter bracket attaches to the bottom of the server. Before installing the bracket, review the Wall mount converter bracket.

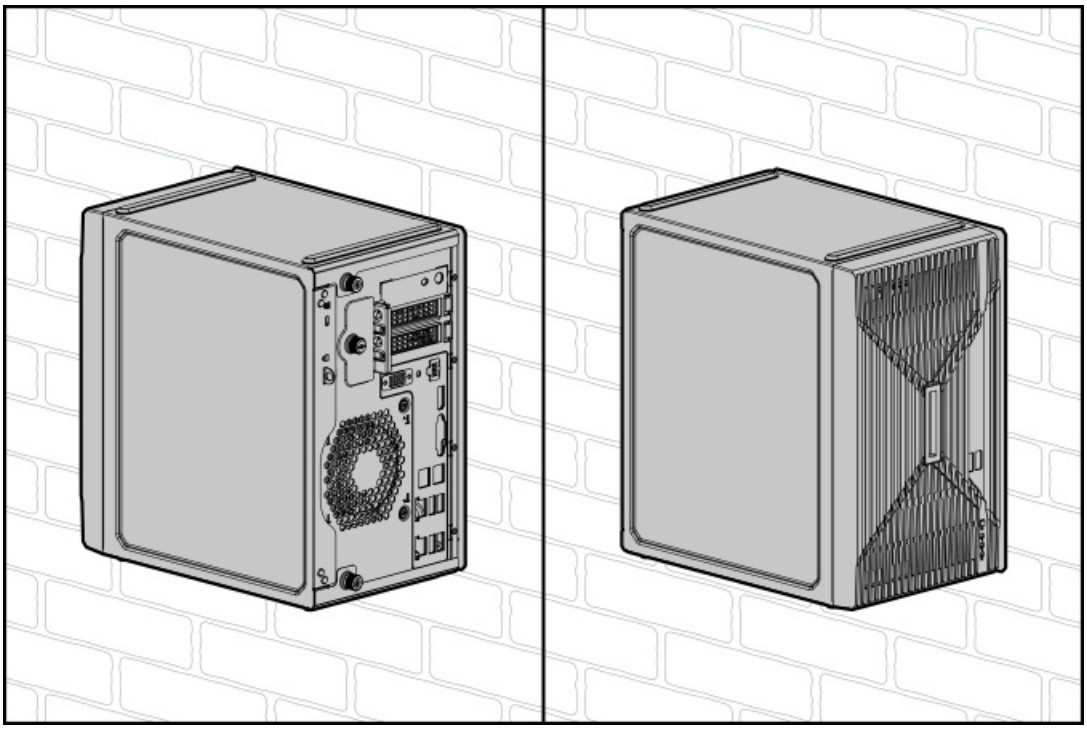


Wall mount base bracket

The wall mount base bracket is screwed to the mount surface. This wall mount base bracket can only be installed in a single orientation—the arrow on the top side of the wall mount base bracket must be pointing up.

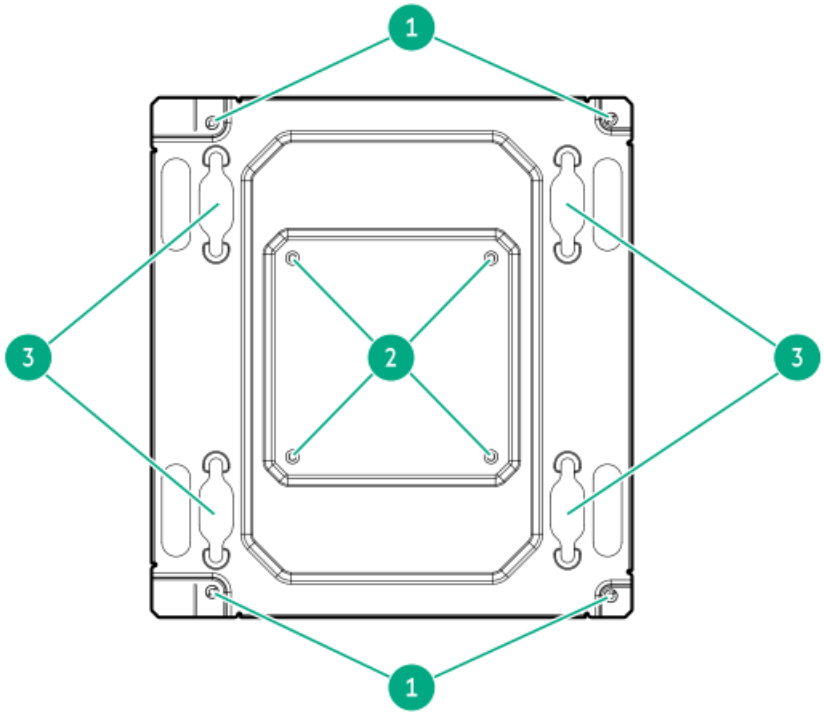


When the server is installed on the wall mount, the server front bezel can face either left or right.



Subtopics

Wall mount converter bracket



Item	Description
1	Converter bracket captive screws
2	VESA mount screw holes, 100 mm x 100 mm (3.94 in x 3.94 in) *
3	Wall mount holes

* The VESA mounting screws are included in the accessory bag. When the server is installed on a VESA mount, the server front bezel can face either left or right.

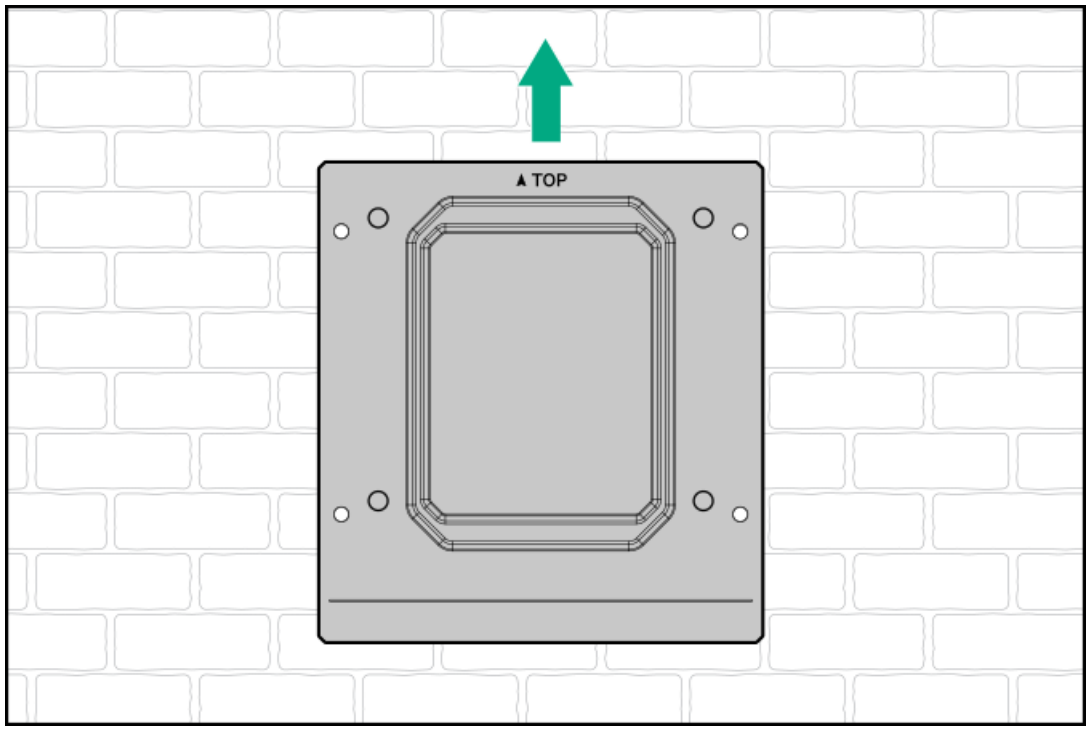
Installing the wall mount base bracket on the wall

Prerequisites

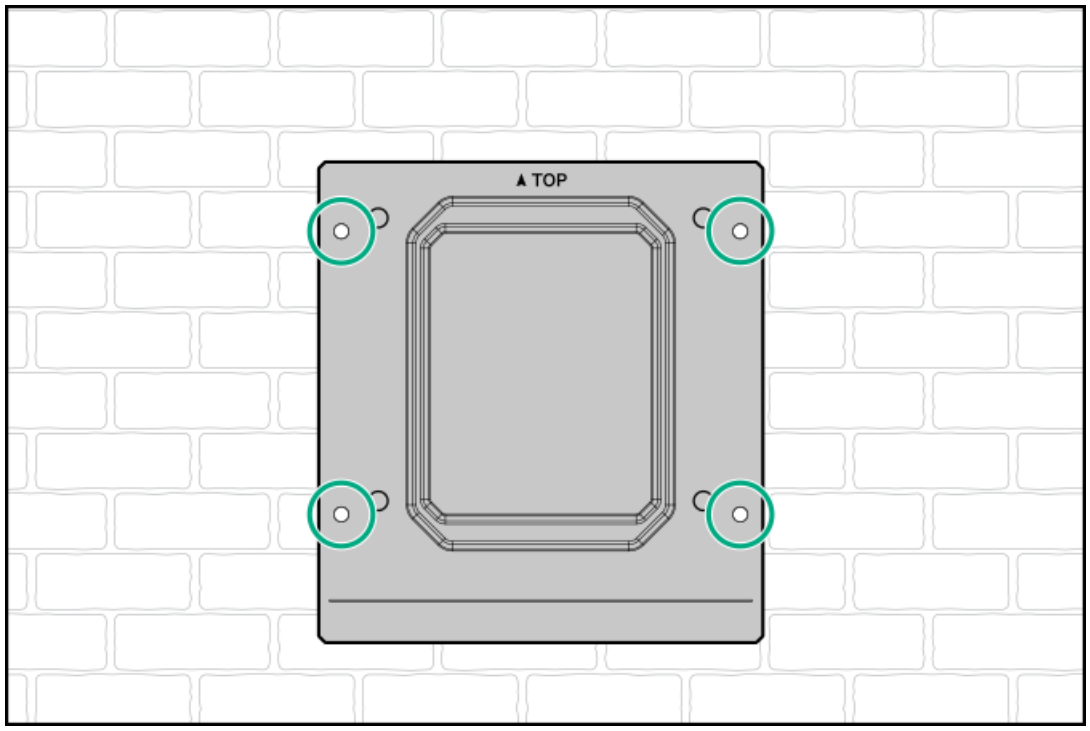
- Before installing the wall mount base bracket, review the following:
  - Wall mount installation site guidelines
  - Wall mounting hardware
- The wall mount kit does not include fasteners for wall mounting. Before you perform this procedure, make sure that you have the following items available:
  - For concrete / brick wall installation:
    - M4 x 25 mm self-tapping screws
    - Screw anchors for all materials
  - For wooden wall installation: M4 x 25 mm self-tapping screws

Procedure

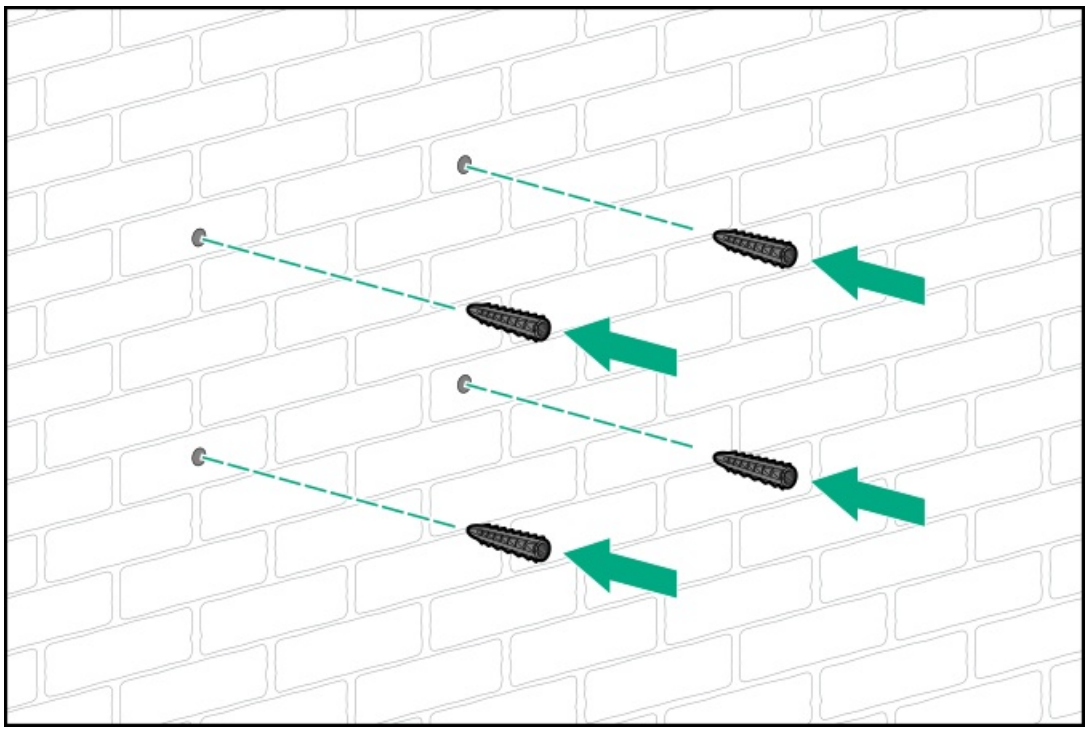
1. Hold the wall mount base bracket against the wall surface with the arrow pointing up.



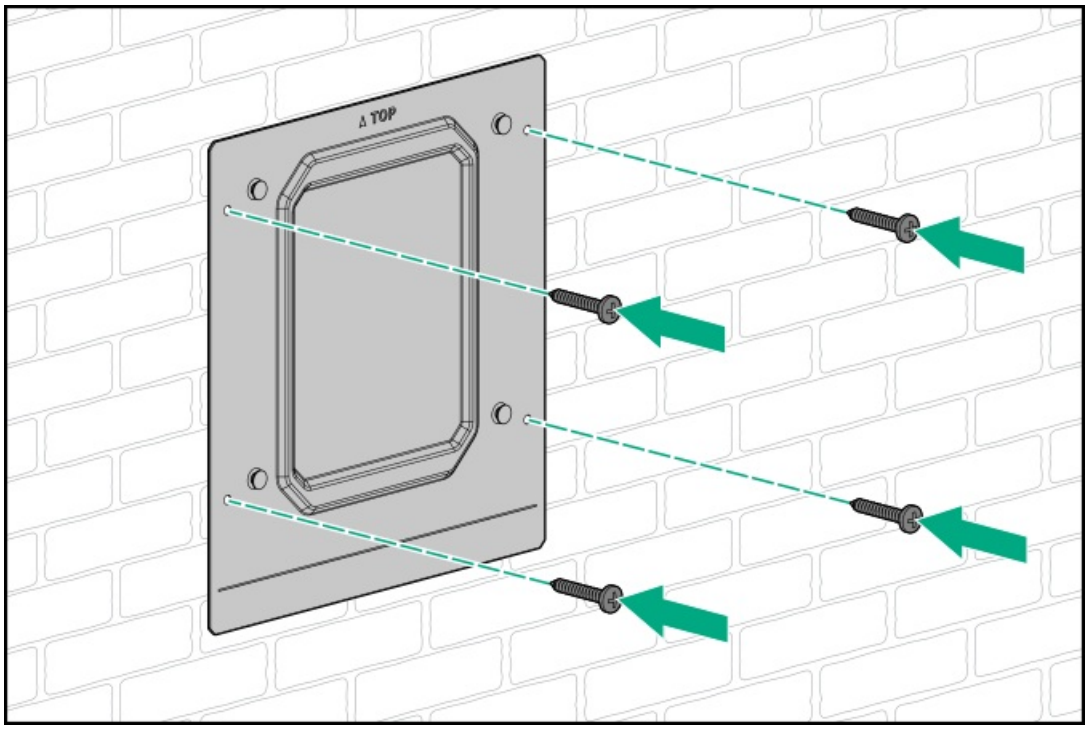
2. Mark all four screw mounting positions on the wall.



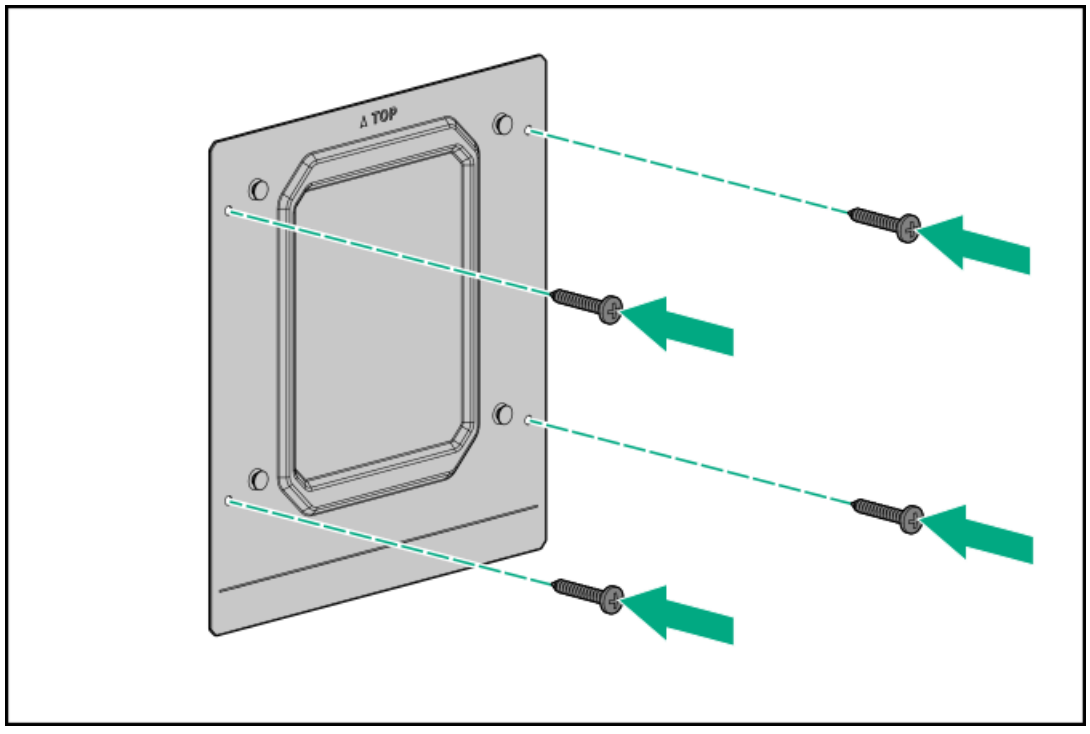
3. Use a level to ensure that the mounting positions are perfectly straight.
4. To install on a brick / concrete wall:
   a. Drill four pilot holes with a diameter of 6 mm (0.24 in). To install anchors, the pilot holes need to be the same size and length as the anchors.
   b. Use a small wire brush to clean the pilot holes.
   c. Use a hammer to install the anchors in the pilot holes.



   d. Install the wall mount bracket on the wall.



5. To install on a wooden wall:
   a. Drill four pilot holes with a diameter of 3 mm (0.16 in) and a depth equal to the length of the screws.
   b. Use a small wire brush to clean the pilot holes. Anchors are not required.
   c. Install the wall mount bracket on the wall.



6. Completely tighten all four wall mount screws.

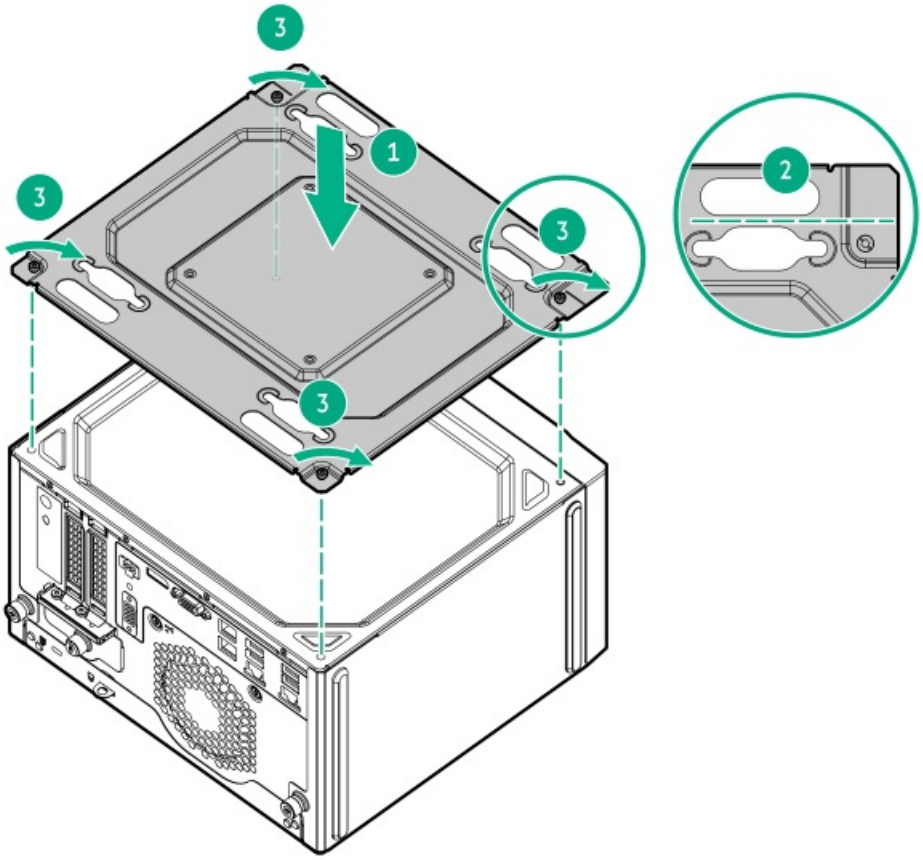
Installing the wall mount converter bracket

Prerequisites

- Before installing the wall mount converter bracket, review the Wall mounting hardware.
- Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

Procedure

1. Place the server upside down on a flat and level surface.
2. If needed, note the iLO login information on the label for later use. This label will be covered up by the converter bracket.
3. Install the wall mount converter bracket:
   a. Place the converter bracket on top of the server.
   b. Align the guiding line on the converter bracket with the seam between the front bezel and the chassis
   c. Tighten the captive screws.



Installing the server on the wall mount base bracket

Prerequisites

Before installing the server on the wall mount base bracket, review the following:

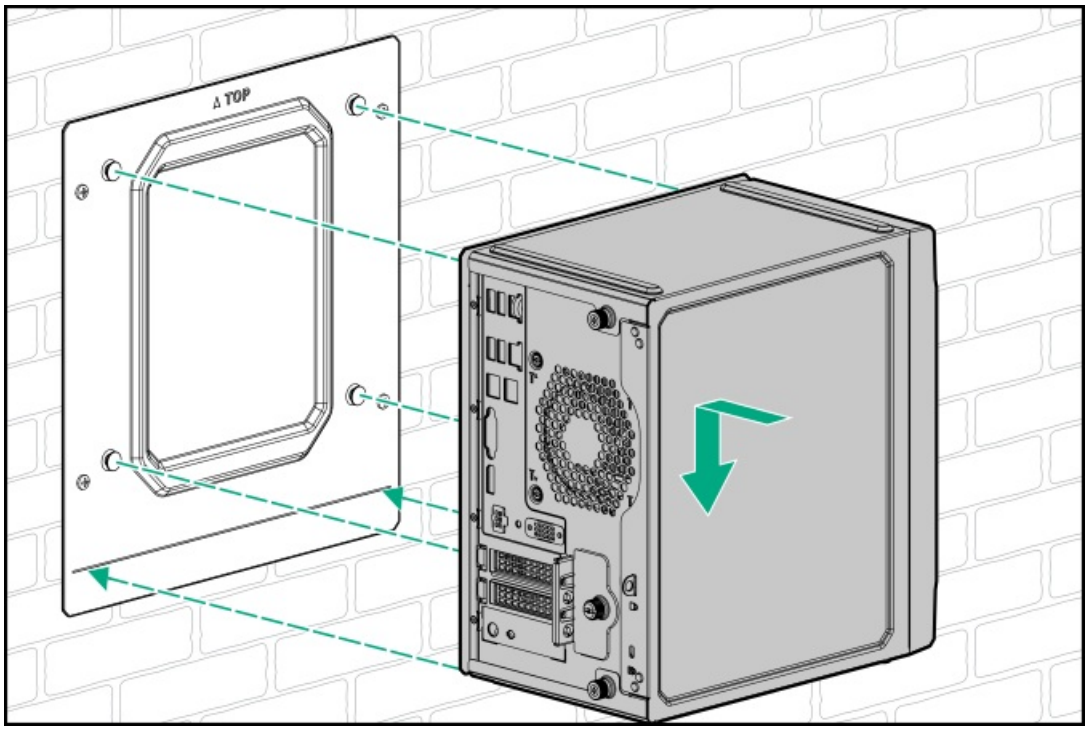
- Wall mount installation site guidelines
- Wall mounting hardware

Procedure

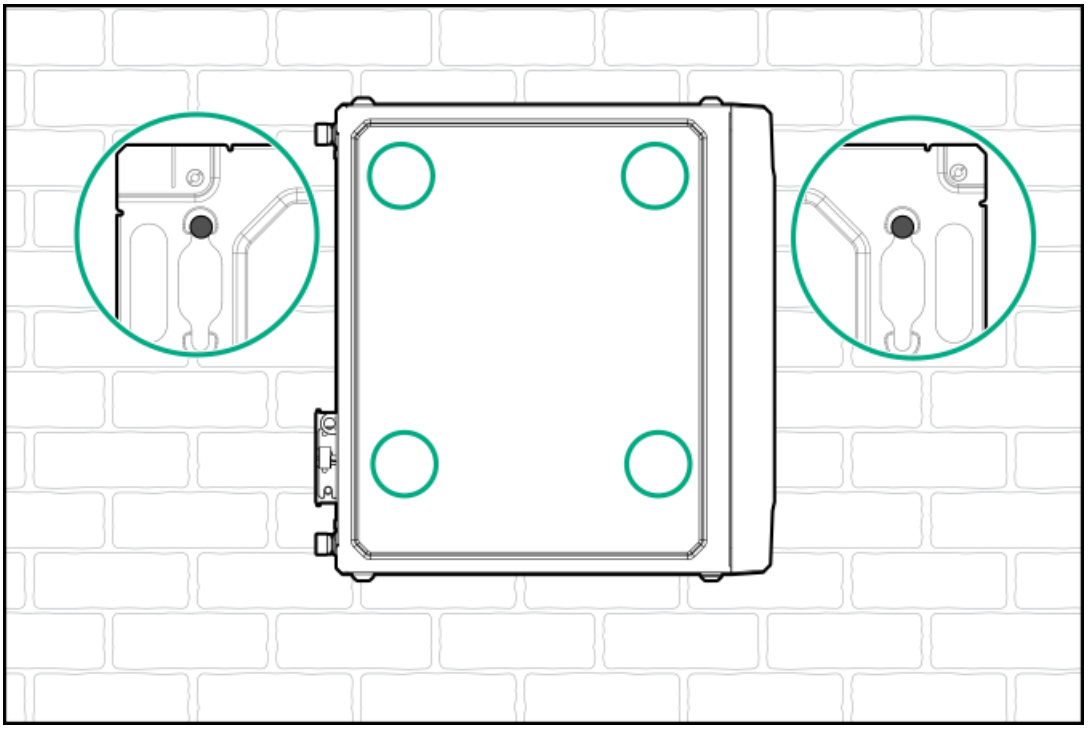
1. With the server front bezel facing either left or right, attach the server to the wall mount:

   a. Align the converter bracket alignment holes with the spools on the wall mount, and the server bottom edge with the guiding line on the wall mount base bracket.

   b. Attach the server to the base bracket, and slide the server downward to lock it into place.



2. Verify that the server converter bracket is fully engaged with the spools on the wall mount base bracket.



Drive support information

This server has four drive bays that support:

- Non-hot-plug 3.5-inch LFF SATA hard drives
- Non-hot-plug 2.5-inch SFF SATA hard drives and solid-state drives (SSD)

  2.5-inch SFF drive configurations require the LFF-to-SFF drive converter option.

The embedded Intel VROC for HPE Gen11 (Intel VROC) supports software RAID for direct attached SATA drives.

Install an HPE type-p PCIe plug-in storage controller option to support SAS drives and hardware RAID.

Subtopics

Drive installation guidelines

- Populate drive bays based on the drive numbering sequence. Start from the drive bay with the lowest device number.
- All drives grouped into the same drive array must meet the following criteria:
  - They must be either all hard drives or all solid-state drives.
  - Drives should be the same capacity to provide the greatest storage space efficiency when drives are grouped together into the same drive array.
- The system automatically sets all device numbers.

Installing an LFF drive

Prerequisites

- Before you perform this procedure, review the Drive installation guidelines.
- Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

About this task

CAUTION: A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

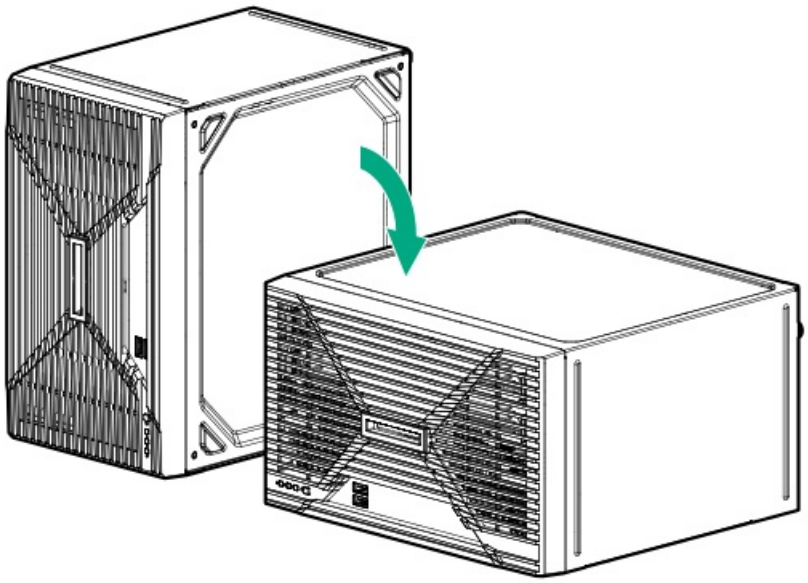
The LFF drives supported in this server do not require a drive caddy or a drive carrier to install. You only have to use the drive mounting screws on the chassis.

Procedure

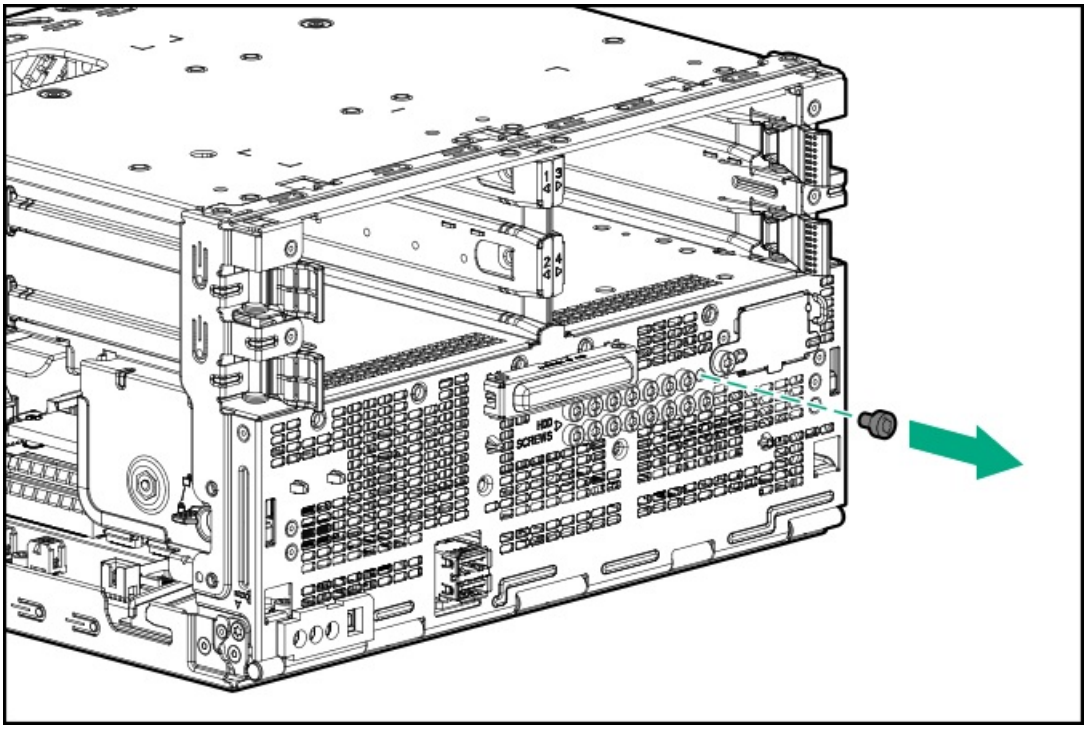
1. Power down the server.
2. Disconnect the power cord from the AC source.
3. Remove the power adapter cord from the power cord clamp, and then disconnect the power adapter from the server.
4. Disconnect all peripheral cables from the server.
5. If installed, unlock and remove the security padlock and/or the Kensington security lock.

For more information, see the lock documentation.

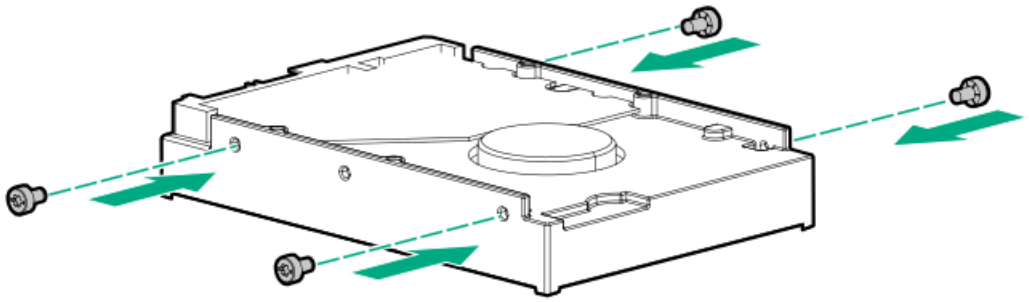
6. If the server is installed in the wall mount, remove the server from the wall mount .
7. If the server is in a vertical orientation, position the server in a horizontal orientation.



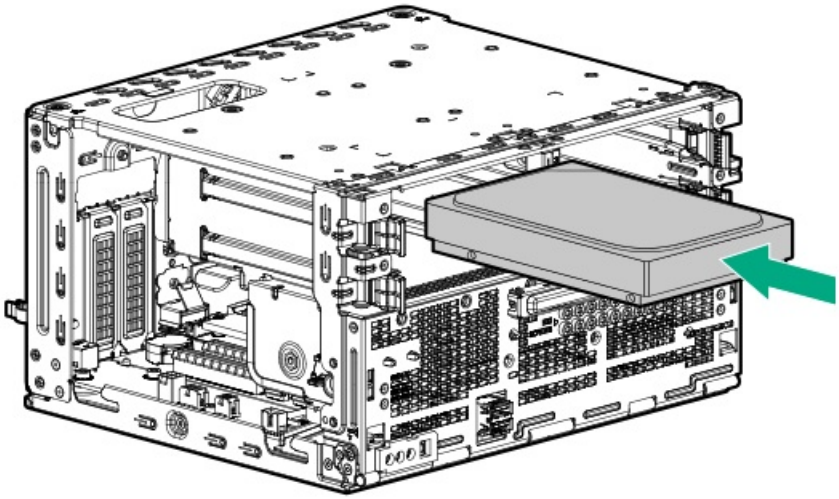
8. Remove the chassis cover .
9. Remove the front bezel.
10. Remove four drive screws from the front panel.



11. Install the screws in the drive.



12. Slide the drive into the bay until it clicks into place.



13. Install the front bezel.
14. Install the chassis cover.
15. If removed, install the security padlock and/or the Kensington security lock.

    For more information, see the lock documentation.
16. Connect all peripheral cables to the server.
17. Connect the power adapter to the server, and then secure the power adapter cord in the power cord clamp.
18. Connect the power cord to the AC source.
19. Power up the server.
20. Determine the status of the server drives.
21. To configure the drive arrays, see the relevant controller guide.

Results

The installation is complete.

Installing an SFF drive

Prerequisites

- Before you perform this procedure, review the Drive installation guidelines.
- Before you perform this procedure, make sure that you have the following items available:
  - T-10 Torx screwdriver
  - T-15 Torx screwdriver
  - Phillips No. 1 screwdriver—This tool is required if you plan to install a 2.5-inch drive that ships with its own carrier.
  - SFF drive converter option kit

About this task

CAUTION: A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

To install SFF hard drives or SSDs, use the LFF-to-SFF drive converter option.

In general, SFF drives require as little as half the power and generate less heat than LFF drives.

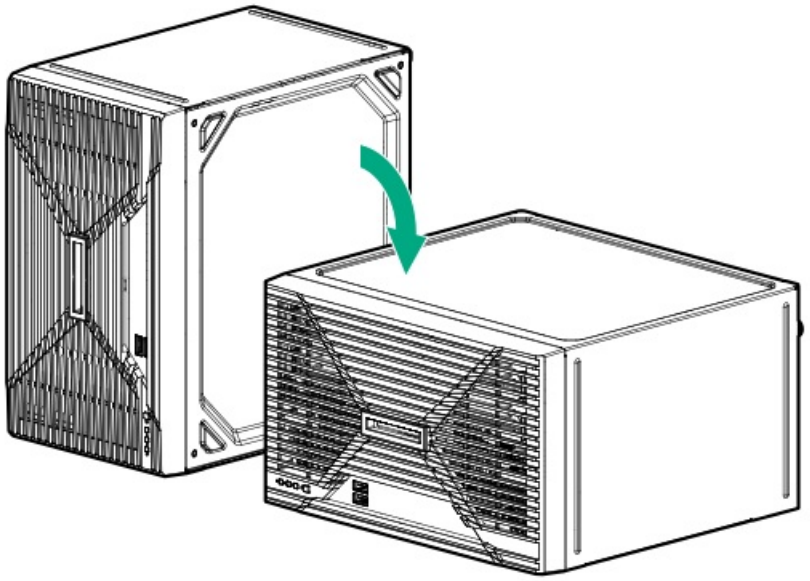
SSDs have no moving parts. Information is stored in microchips. Traditional hard drives use a mechanical arm with a read/write head to move around and read information from the right location on a rotating storage platter. This lack of rotating media in an SSD:

- Greatly reduces the drive power consumption in the server.
- Enables an SSD to tolerate higher operating shock and vibration levels. SSDs are suitable for server workloads with highly random data under a variety of write-workload applications.

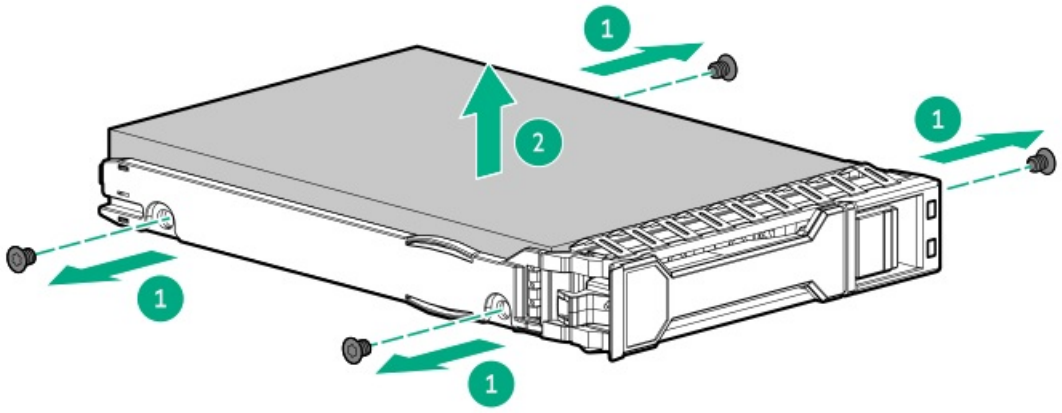
Procedure

1. Power down the server.
2. Disconnect the power cord from the AC source.
3. Remove the power adapter cord from the power cord clamp, and then disconnect the power adapter from the server.
4. Disconnect all peripheral cables from the server.
5. If installed, unlock and remove the security padlock and/or the Kensington security lock.

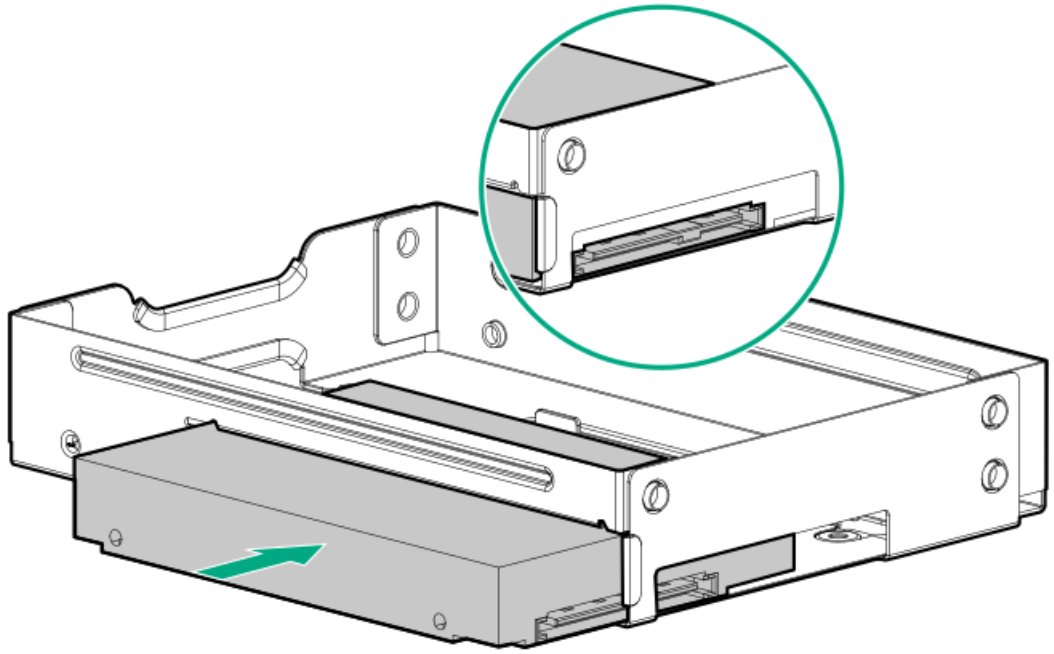
   For more information, see the lock documentation.
6. If the server is installed in the wall mount, remove the server from the wall mount .
7. If the server is in a vertical orientation, position the server in a horizontal orientation.



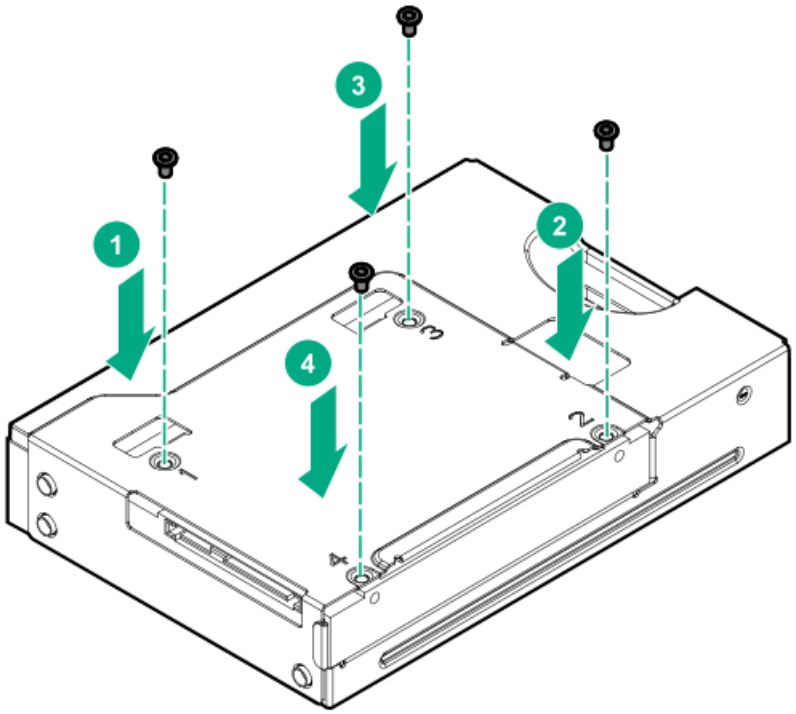
8. Remove the chassis cover.
9. Remove the front bezel.
10. If the drive you are installing has its own carrier, remove the carrier.



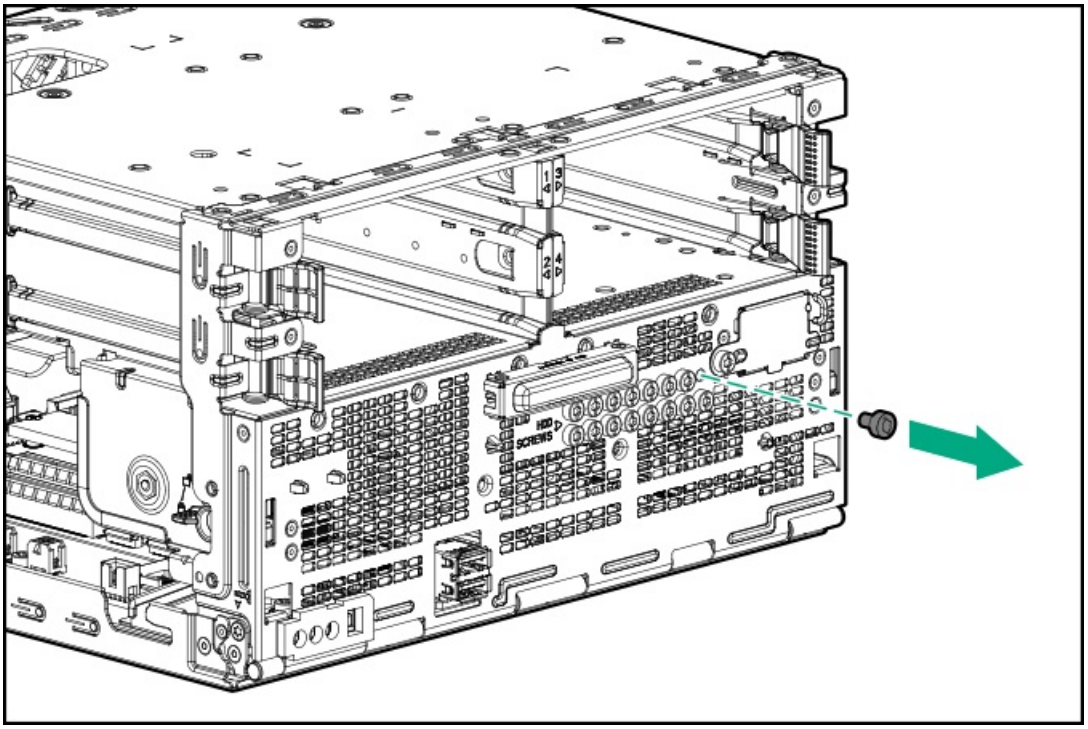
11. Install the SFF drive in the drive converter tray.



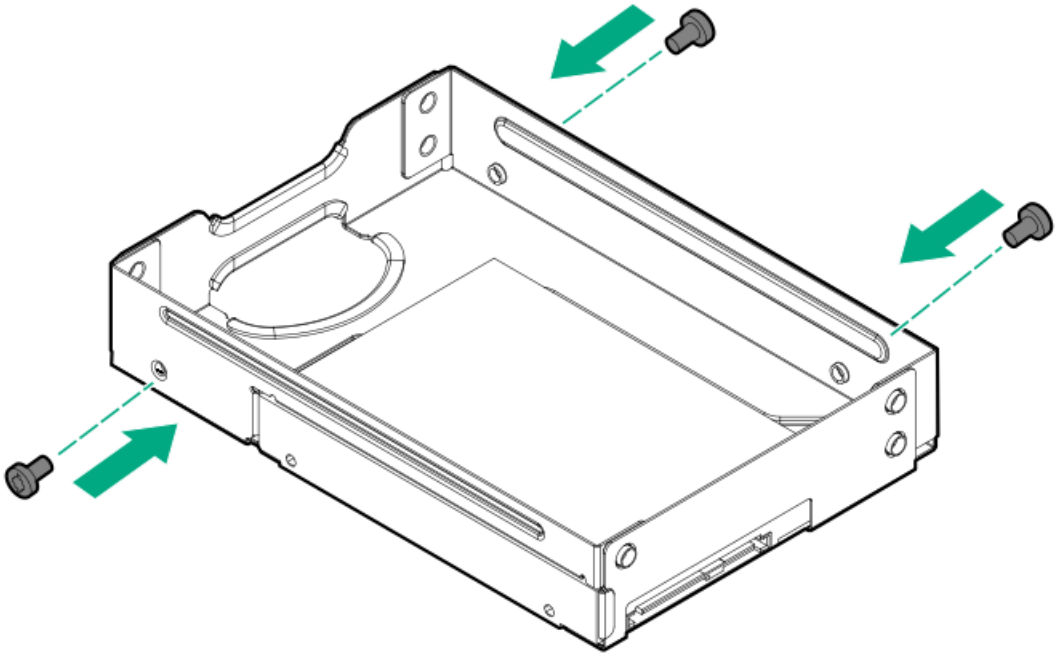
12. To install the screws included in the converter kit, follow the callout sequence in the following illustration.



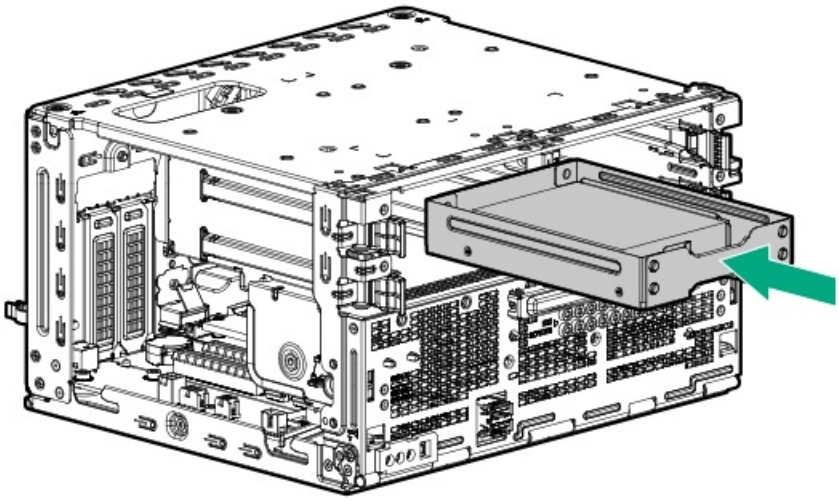
13. Remove three drive screws from the front panel.



14. Install the three screws removed from the front panel on the left and right sides of the drive converter tray.



15. Slide the drive converter tray into the bay until it clicks into place.



16. Install the front bezel.
17. Install the chassis cover.
18. If removed, install the security padlock and/or the Kensington security lock.

    For more information, see the lock documentation.
19. Connect all peripheral cables to the server.
20. Connect the power adapter to the server, and then secure the power adapter cord in the power cord clamp.
21. Connect the power cord to the AC source.
22. Power up the server.
23. Determine the status of the server drives.
24. To configure the drive arrays, see the relevant controller guide.

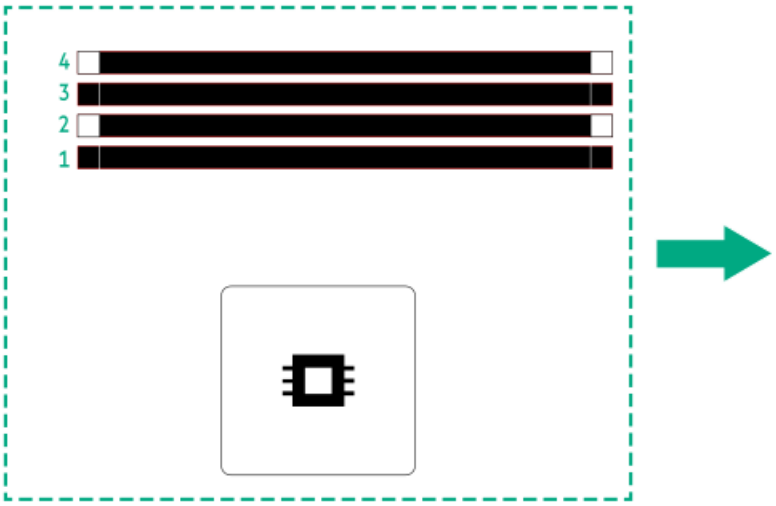
Results

The installation is complete.

Memory option

The server has four DIMM slots supporting DDR5 UDIMM with ECC. Non-ECC UDIMM is not supported .

The arrow points to the front of the server.

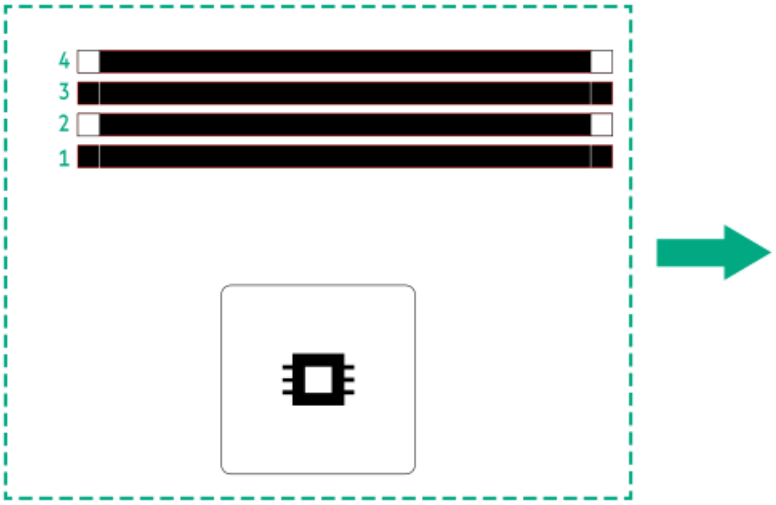


Subtopics

DIMM population information
DIMM installation guidelines
Installing a DIMM

DIMM population information

The arrow points to the front of the server.



Number of DIMM(s) to populate	Slot 1	Slot 2	Slot 3	Slot 4
1		✔		
2		✔		✔
4	✔	✔	✔	✔

For detailed DIMM population and memory speed information, see the relevant memory technical paper in:

https://www.hpe.com/docs/server-memory

DIMM installation guidelines

When handling a DIMM, observe the following:

- Observe antistatic precautions.
- Handle the DIMM only along the edges.
- Do not touch the components on the sides of the DIMM.
- Do not touch the connectors on the bottom of the DIMM.
- Never wrap your fingers around a DIMM.
- Never bend or flex the DIMM.

When installing a DIMM, observe the following:

- To align and seat the DIMM, use two fingers to hold the DIMM along the side edges.
- To seat the DIMM, use two fingers to apply gentle pressure along the top of the DIMM.

For more information, see the Hewlett Packard Enterprise website (**https://www.hpe.com/support/DIMM-20070214-CN**).

Installing a DIMM

Prerequisites

Before you perform this procedure, review the:

- DIMM population information
- DIMM installation guidelines

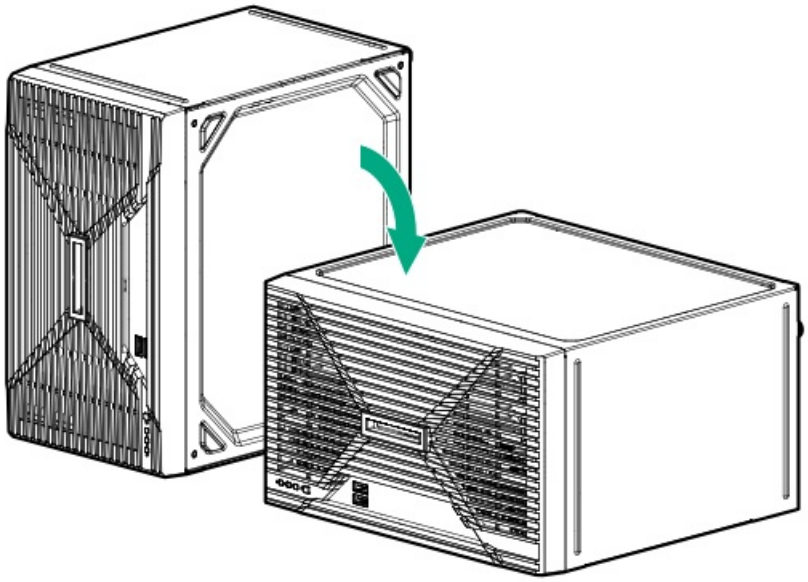
About this task

CAUTION: A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

1. Power down the server.
2. Disconnect the power cord from the AC source.
3. Remove the power adapter cord from the power cord clamp, and then disconnect the power adapter from the server.
4. Disconnect all peripheral cables from the server.
5. If installed, unlock and remove the security padlock and/or the Kensington security lock.

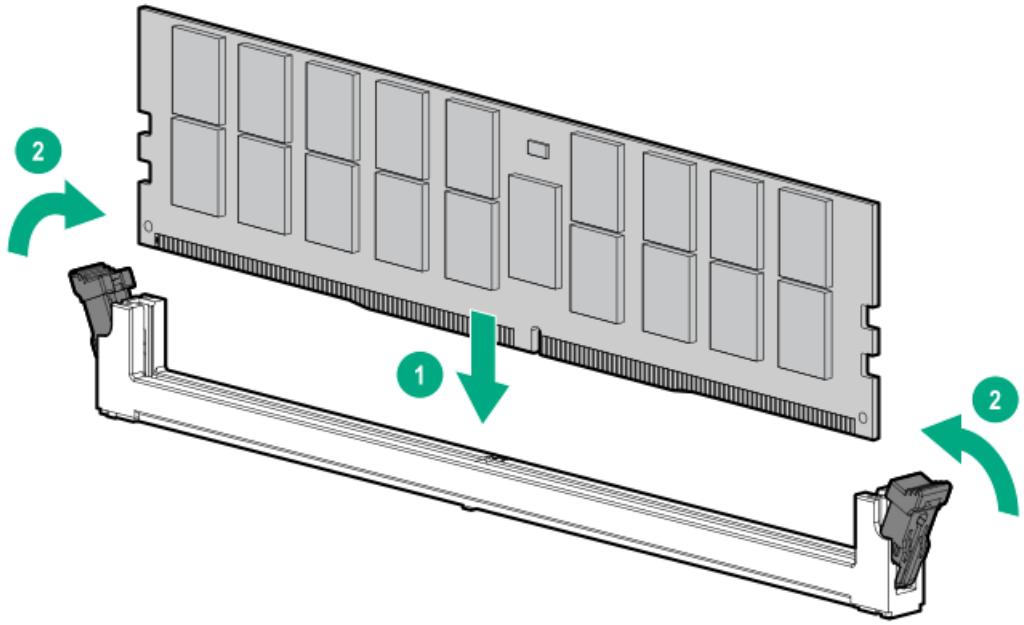
   For more information, see the lock documentation.
6. If the server is installed in the wall mount, remove the server from the wall mount .
7. If the server is in a vertical orientation, position the server in a horizontal orientation.



8. Remove the chassis cover .
9. Remove the front bezel.
10. Open the chassis .
11. Install the DIMM:
    a. Open the DIMM slot latches.
    b. Align the notch on the bottom edge of the DIMM with the keyed surface of the DIMM slot, and then fully press the DIMM into the slot until the latches snap back into place.

       The DIMM slots are structured to ensure proper installation. If you try to insert a DIMM but it does not fit easily into the slot, you

might have positioned it incorrectly. Reverse the orientation of the DIMM and insert it again.



12. Close the chassis.
13. Install the front bezel.
14. Install the chassis cover.
15. If removed, install the security padlock and/or the Kensington security lock.

    For more information, see the lock documentation.
16. Connect all peripheral cables to the server.
17. Connect the power adapter to the server, and then secure the power adapter cord in the power cord clamp.
18. Connect the power cord to the AC source.
19. Power up the server.
20. To configure the memory settings:
    a. From the boot screen, press **F9** to access UEFI System Utilities.
    b. From the System Utilities screen, select System Utilities > System Configuration > BIOS/Platform Configuration (RBSU) > Memory Options.

Results

The installation is complete.

Storage controller options

The server supports the following storage controllers:

- Intel VROC for HPE Gen11 (Intel VROC)—Provides enterprise-level hybrid RAID support for direct attached SATA drives.
- HPE Smart Array E208e-p SR Gen10 controller

For more information on drive array and storage controller configuration, see Configuring storage controllers.

Subtopics

Preparing the server for storage controller installation

Prerequisites

Before beginning this procedure, download the Service Pack for ProLiant (SPP) from the Hewlett Packard Enterprise website (https://www.hpe.com/servers/spp/download).

Procedure

1. If the server was previously configured:
   a. Back up data on the system.
   b. Close all applications.
   c. Ensure that users are logged off and that all tasks are completed on the server.

   CAUTION: In systems that use external data storage, be sure that the server is the first unit to be powered down and the last to be powered back up. Taking this precaution ensures that the system does not erroneously mark the drives as failed when the server is powered up.
2. If the server firmware is not the latest revision, update the firmware.
3. If the new controller is the new boot device, install the controller drivers.

Installing a type-p plug-in storage controller converter cable option

Prerequisites

- Review the System board components.
- Before you perform this procedure, make sure that you have the following items available:
  - Compatible controller cable option
  - T-10 Torx screwdriver
  - T-15 Torx screwdriver
  - Phillips No. 1 screwdriver—This tool is required if you plan to replace the default bracket on the storage controller.

About this task

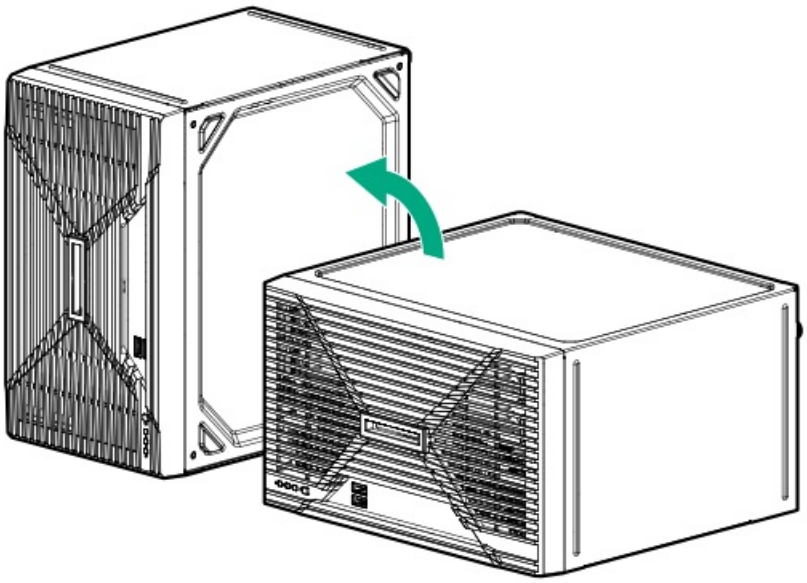
CAUTION: To prevent improper cooling and thermal damage, do not operate the server unless all PCIe slots have either a riser slot blank or an expansion card installed.

CAUTION: A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

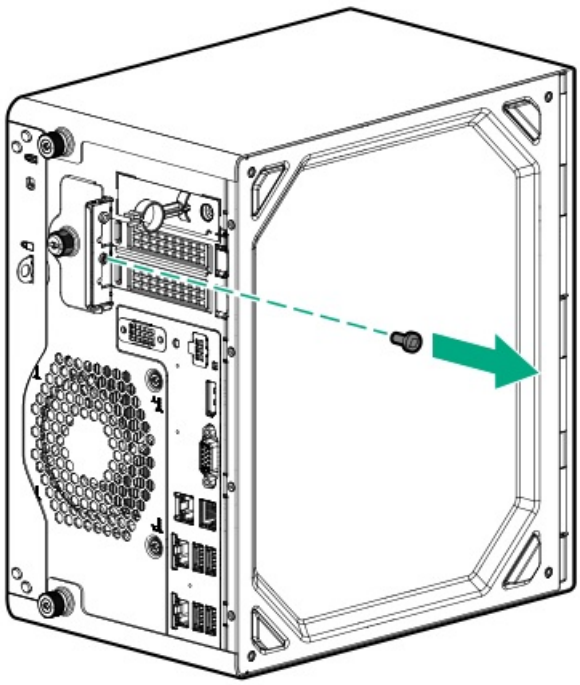
1. Power down the server.
2. Disconnect the power cord from the AC source.
3. Remove the power adapter cord from the power cord clamp, and then disconnect the power adapter from the server.
4. Disconnect all peripheral cables from the server.
5. If installed, unlock and remove the security padlock and/or the Kensington security lock.

   For more information, see the lock documentation.
6. If the server is installed in the wall mount, remove the server from the wall mount .
7. If the server is in a horizontal orientation, position the server in a vertical orientation.

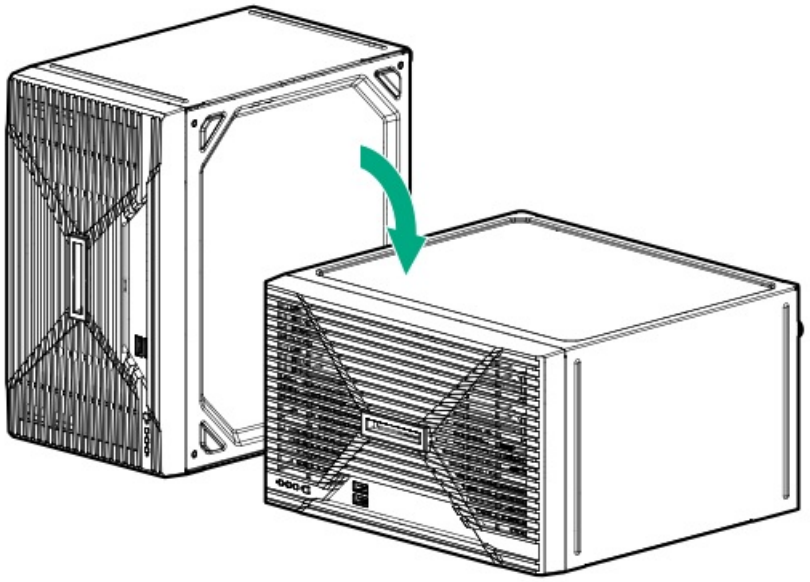


8. Remove the screw from the expansion slot blank.

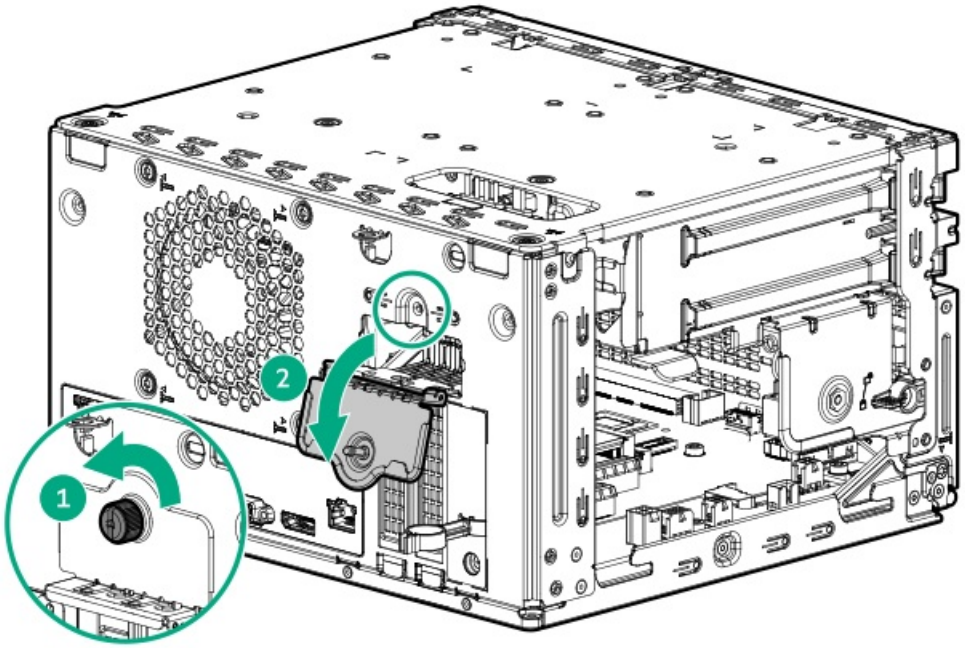
   Retain the screw for later use.



9. Position the server back in a horizontal orientation.

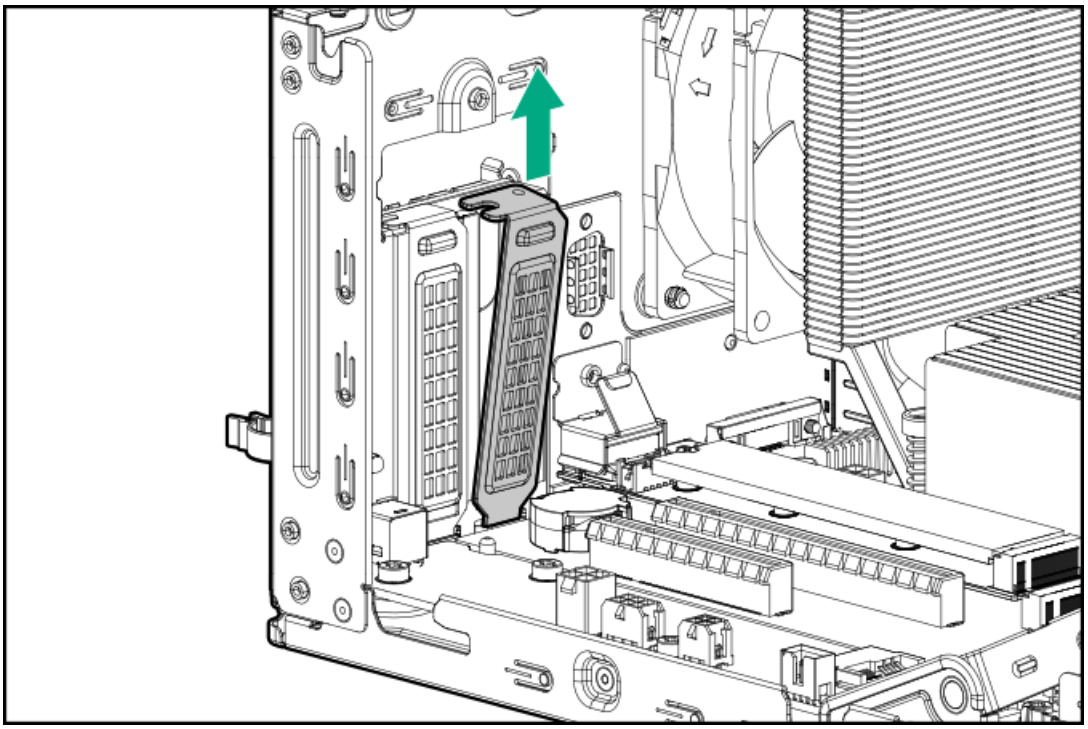


10. Remove the chassis cover.
11. Remove the front bezel.
12. Unfasten the PCIe blank retainer:
    a. Loosen the retainer thumbscrew.
    b. Flip the retainer downward.

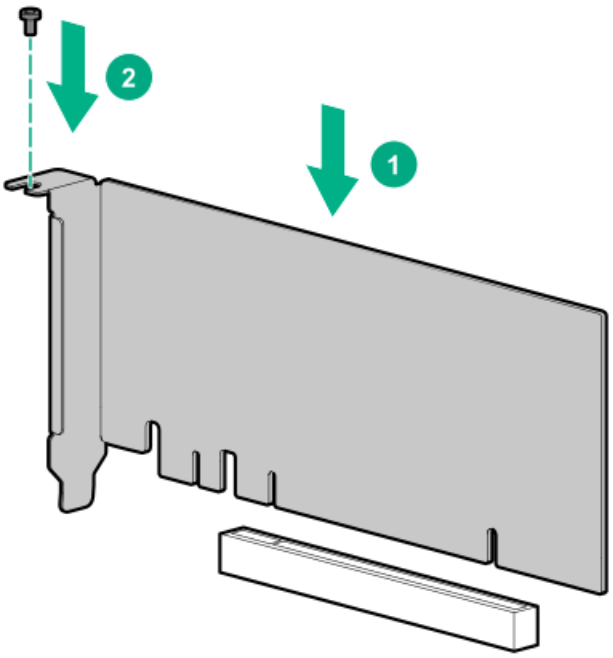


13. Open the chassis.
14. Remove the expansion slot blank.

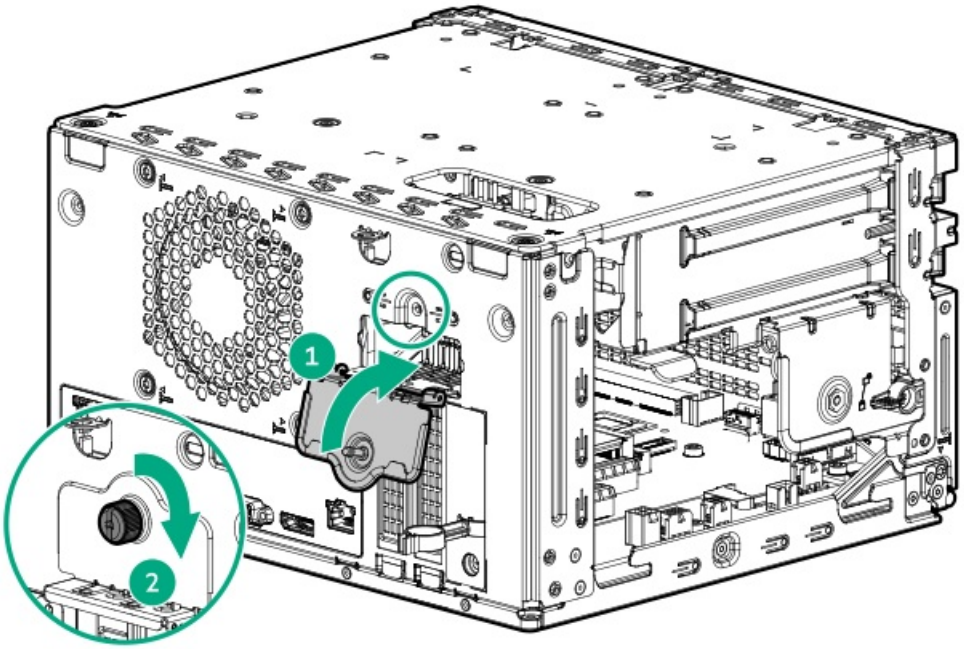
    Retain the blank for future use.



15. Install the storage controller. Make sure that the storage controller is firmly seated in the slot.



16. Disconnect the onboard SATA signal cable from the SlimSAS x4 connector on the system board .
17. Connect the storage controller cable .
18. Close the chassis.
19. Fasten the PCIe blank retainer:
    a. Flip the retainer upward.
    b. Tighten the retainer thumbscrew.



20. Install the front bezel.
21. Install the chassis cover.
22. If removed, install the security padlock and/or the Kensington security lock.

    For more information, see the lock documentation.
23. Connect all peripheral cables to the server.
24. Connect the power adapter to the server, and then secure the power adapter cord in the power cord clamp.
25. Connect the power cord to the AC source.
26. Power up the server.
27. To configure the controller, see the relevant controller guide.

Results

The installation is complete.

Expansion card options

The server supports the installation of half-height, half-length (low-profile) PCIe expansion / add-in (AIC) cards such as:

- HPE type-p storage controller
- Ethernet adapter

For more information on the expansion options validated for this server, see the server QuickSpecs on the Hewlett Packard Enterprise website:

https://www.hpe.com/info/quickspecs

Subtopics

Installing an expansion card

Installing an expansion card

Prerequisites

- Review the System board components.
- Before you perform this procedure, make sure that you have the following items available:
  - T-10 Torx screwdriver
  - Phillips No. 1 screwdriver—This tool is required if you plan to replace the default bracket on the expansion card.

About this task

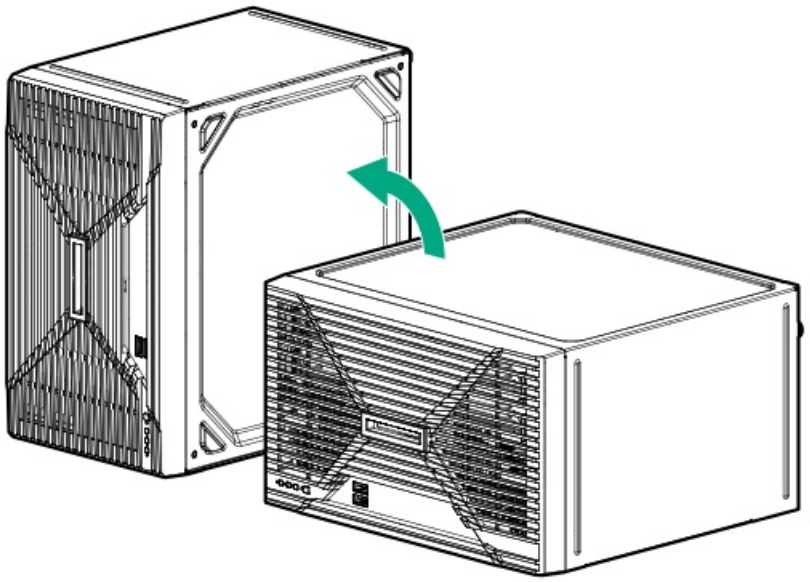
CAUTION: To prevent improper cooling and thermal damage, do not operate the server unless all PCIe slots have either a riser slot blank or an expansion card installed.

CAUTION: A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

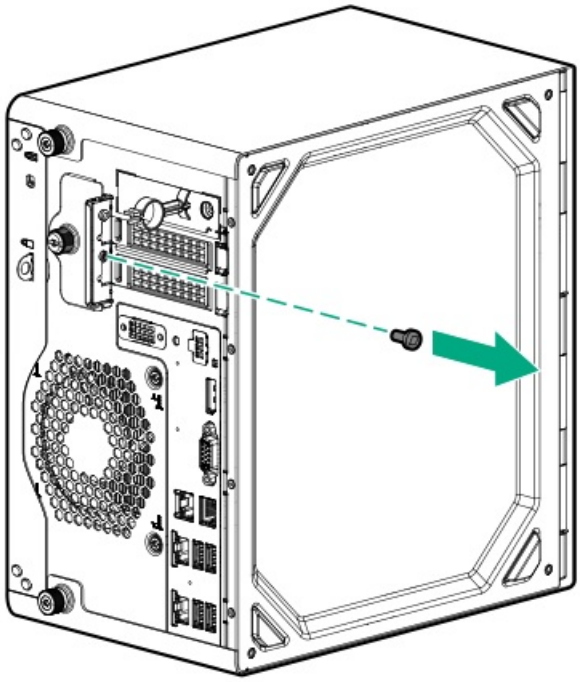
1. Power down the server.
2. Disconnect the power cord from the AC source.
3. Remove the power adapter cord from the power cord clamp, and then disconnect the power adapter from the server.
4. Disconnect all peripheral cables from the server.
5. If installed, unlock and remove the security padlock and/or the Kensington security lock.

   For more information, see the lock documentation.
6. If the server is installed in the wall mount, remove the server from the wall mount .
7. If the server is in a horizontal orientation, position the server in a vertical orientation.

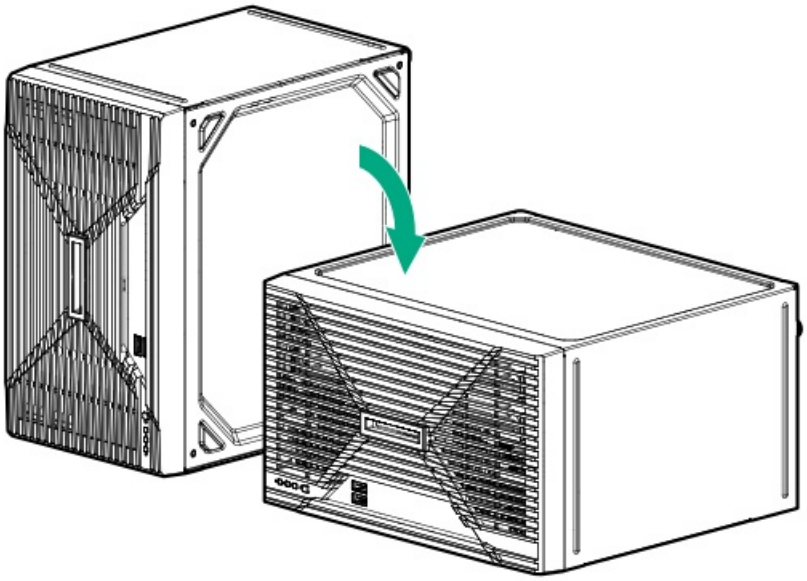


8. Remove the screw from the expansion slot blank.

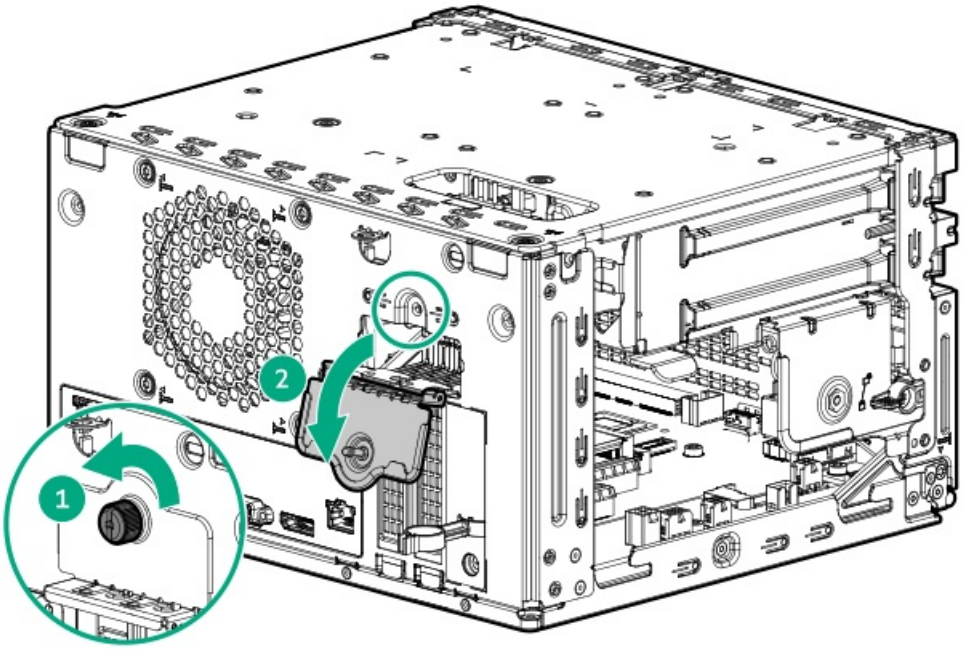
   Retain the screw for later use.



9. Position the server back in a horizontal orientation.

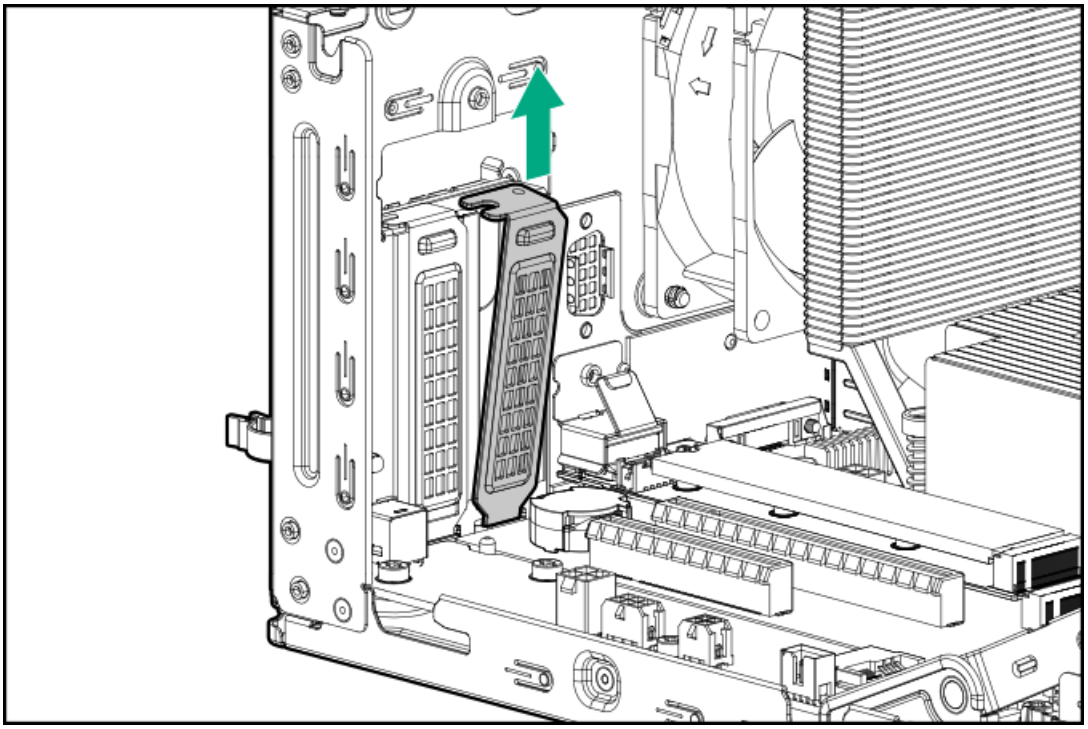


10. Remove the chassis cover.
11. Remove the front bezel.
12. Unfasten the PCIe blank retainer:
    a. Loosen the retainer thumbscrew.
    b. Flip the retainer downward.



13. Open the chassis.
14. Remove the expansion slot blank.

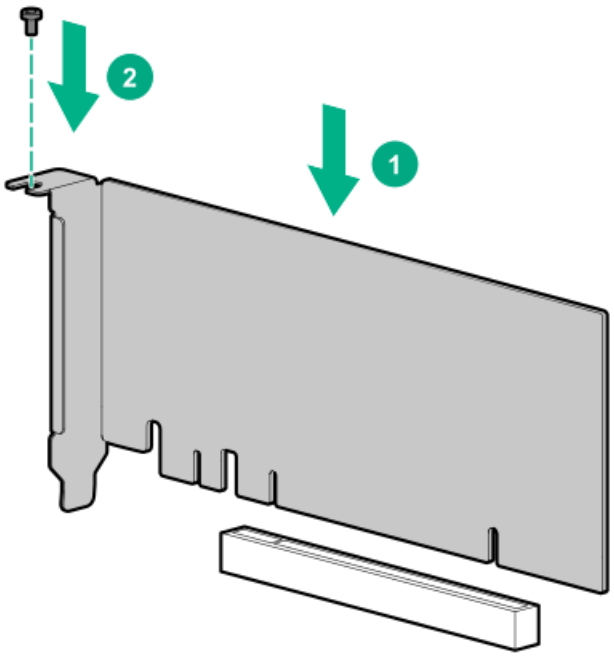
    Retain the blank for future use.



15. Make sure that any switches or jumpers on the expansion card are set properly.

    For more information, see the documentation that ships with the option.
16. Install the expansion card.

    Make sure that the card is seated firmly in the slot.



17. Connect all necessary internal cabling to the expansion card.

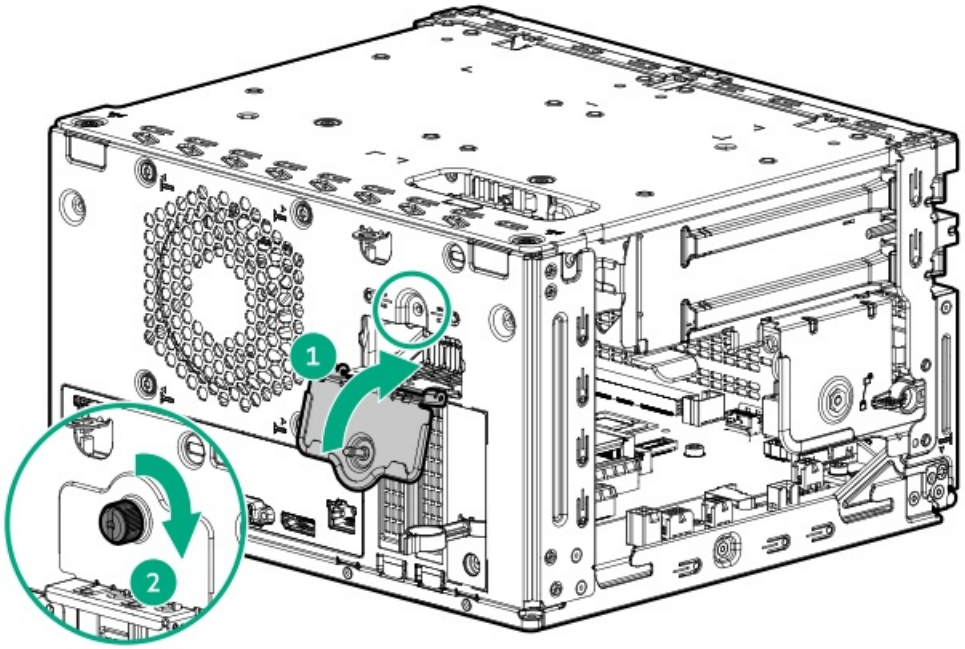
    For more information on these cabling requirements, see the documentation that ships with the option.

18. Close the chassis.

19. Fasten the PCIe blank retainer:

    a. Flip the retainer upward.

    b. Tighten the retainer thumbscrew.



20. Install the front bezel.

21. Install the chassis cover.

22. Connect all necessary external cabling to the expansion card.

For more information on these cabling requirements, see the documentation that ships with the option.

23. If removed, install the security padlock and/or the Kensington security lock.

    For more information, see the lock documentation.

24. Connect all peripheral cables to the server.
25. Connect the power adapter to the server, and then secure the power adapter cord in the power cord clamp.
26. Connect the power cord to the AC source.
27. Power up the server.

Results

The installation is complete.

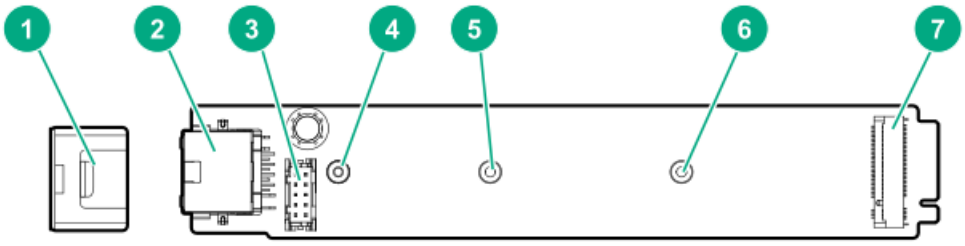
iLO-M.2-serial module option

Install the multifunction iLO-M.2-serial module to support the following:

- NVMe SSD in 2280 or 22110 form factor
- Serial port
- iLO dedicated network port

Subtopics

iLO-M.2-serial module components



Item	Description
1	Module stabilizer
2	iLO dedicated network port
3	Serial port cable connector
4	Standoff for the M.2 22110 SSD
5	Standoff for the M.2 2280 SSD
6	Standoff for the M.2 2242 SSD [1]
7	M.2 slot

1 Not for use in this server

Installing the iLO-M.2-serial module

Prerequisites

Before you perform this procedure, make sure that you have the following items available:

- Spudger or any small prying tool
- T-15 Torx screwdriver
- 4.775 mm hex screwdriver—This tool is required for installing the serial port cable.

About this task

CAUTION: A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

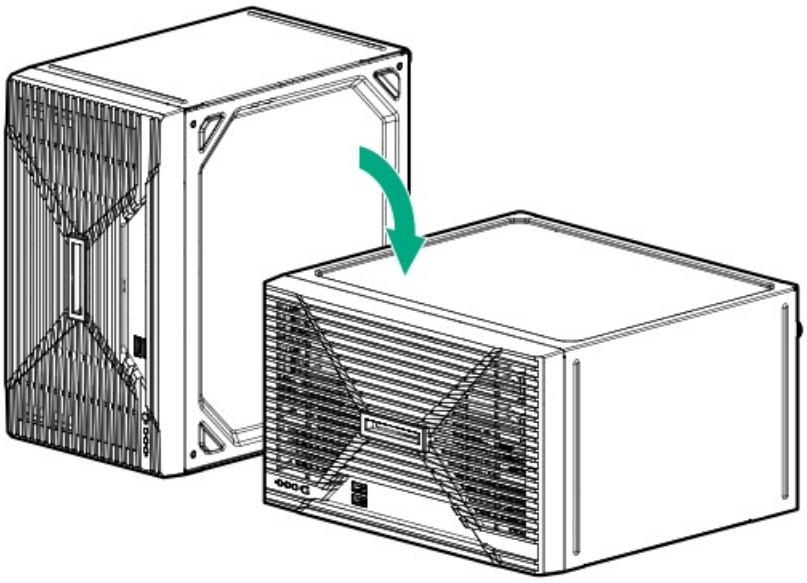
CAUTION:

The port blank provides EMI shielding and helps maintain proper thermal status inside the server. Do not operate the server when a port blank is removed without the corresponding I/O port option installed.

Procedure

1. Power down the server.
2. Disconnect the power cord from the AC source.
3. Remove the power adapter cord from the power cord clamp, and then disconnect the power adapter from the server.
4. Disconnect all peripheral cables from the server.
5. If installed, unlock and remove the security padlock and/or the Kensington security lock.

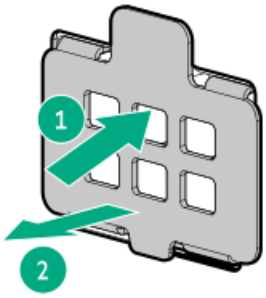
   For more information, see the lock documentation.
6. If the server is installed in the wall mount, remove the server from the wall mount .
7. If the server is in a vertical orientation, position the server in a horizontal orientation.



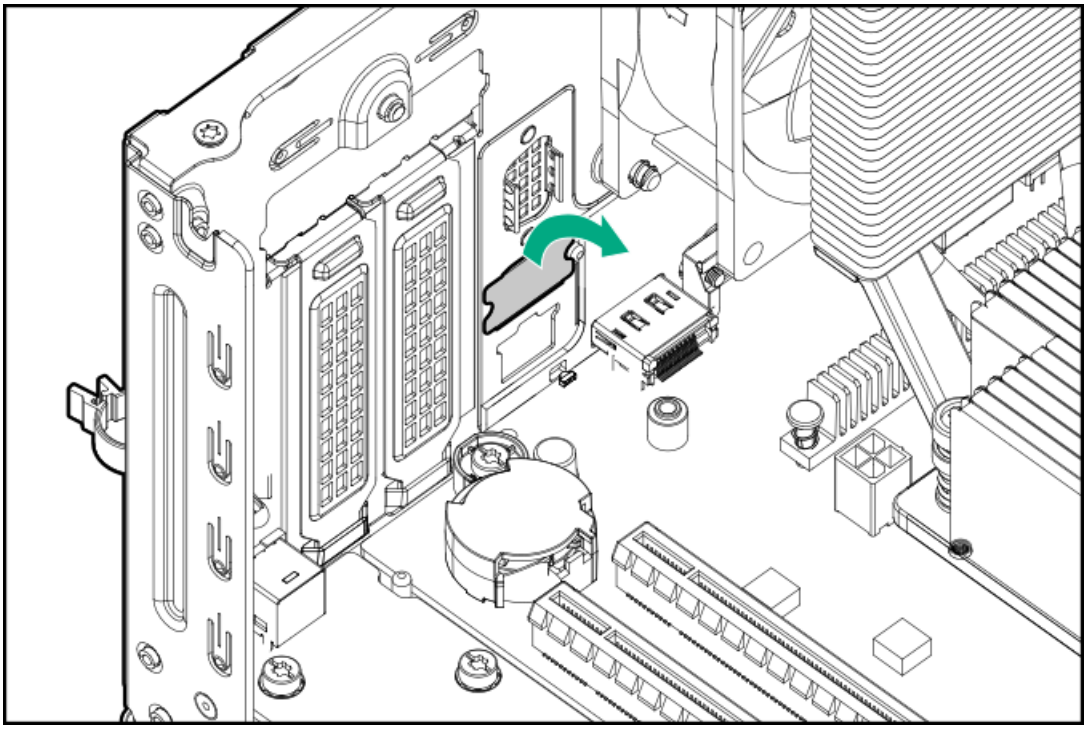
8. Remove the chassis cover.
9. Remove the front bezel.
10. Open the chassis.

Installing the iLO-M.2-serial module

11. If installed, remove the expansion card from the PCIe Slot 1.
12. Remove the iLO dedicated network port blank:
    a. Use a spudger to pry the blank from the chassis.
    b. Remove the blank.



13. Remove the tape above the iLO dedicated network port opening.

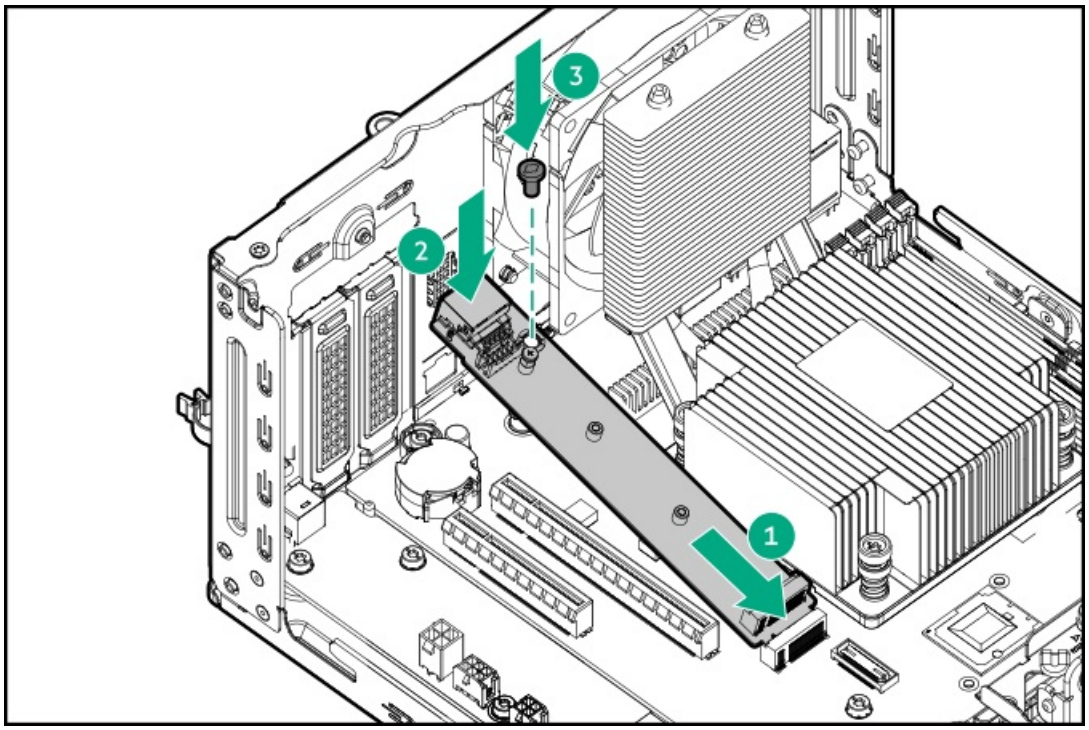


14. Install the iLO-M.2-serial module:

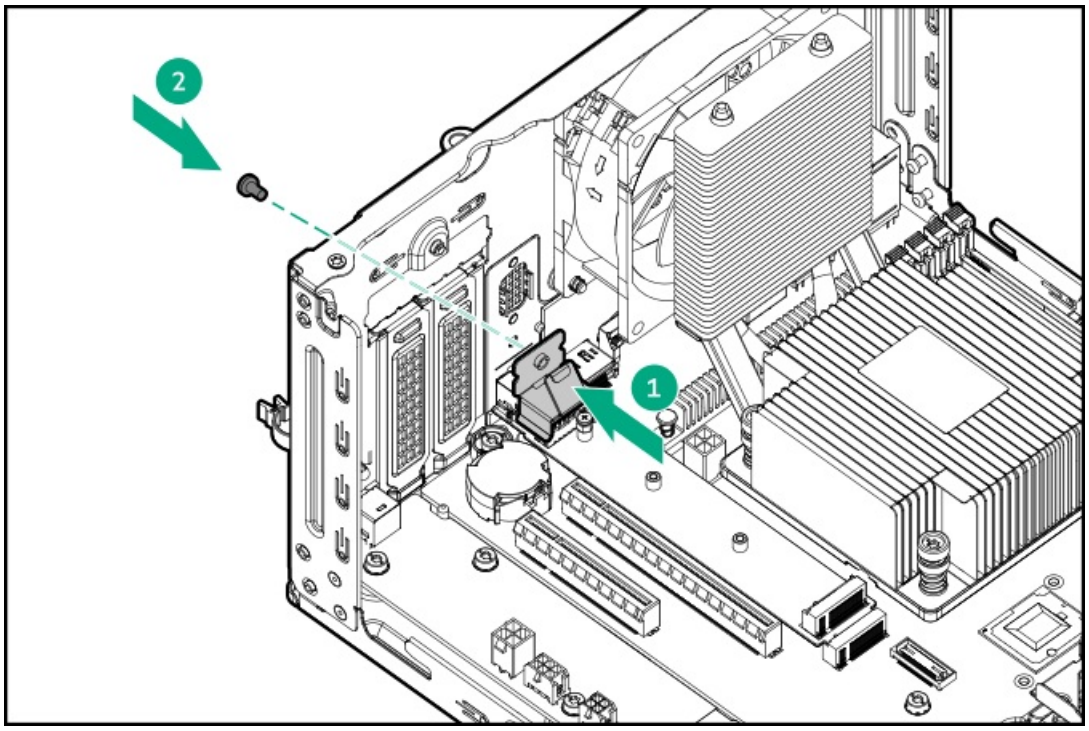
    a. Insert the module into the M.2 slot at a 45° angle.

    b. Carefully press the module down in a horizontal position.

    c. Install the module screw that is included in the module kit.



    d. Install the module stabilizer.

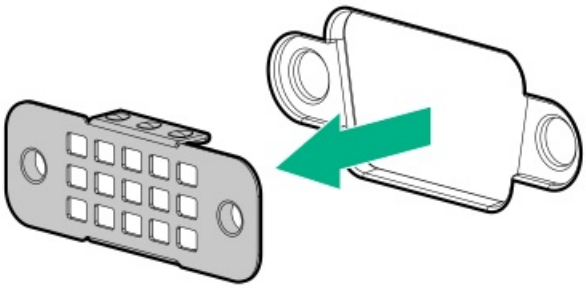


15. (Optional) Install an M.2 SSD on the module .

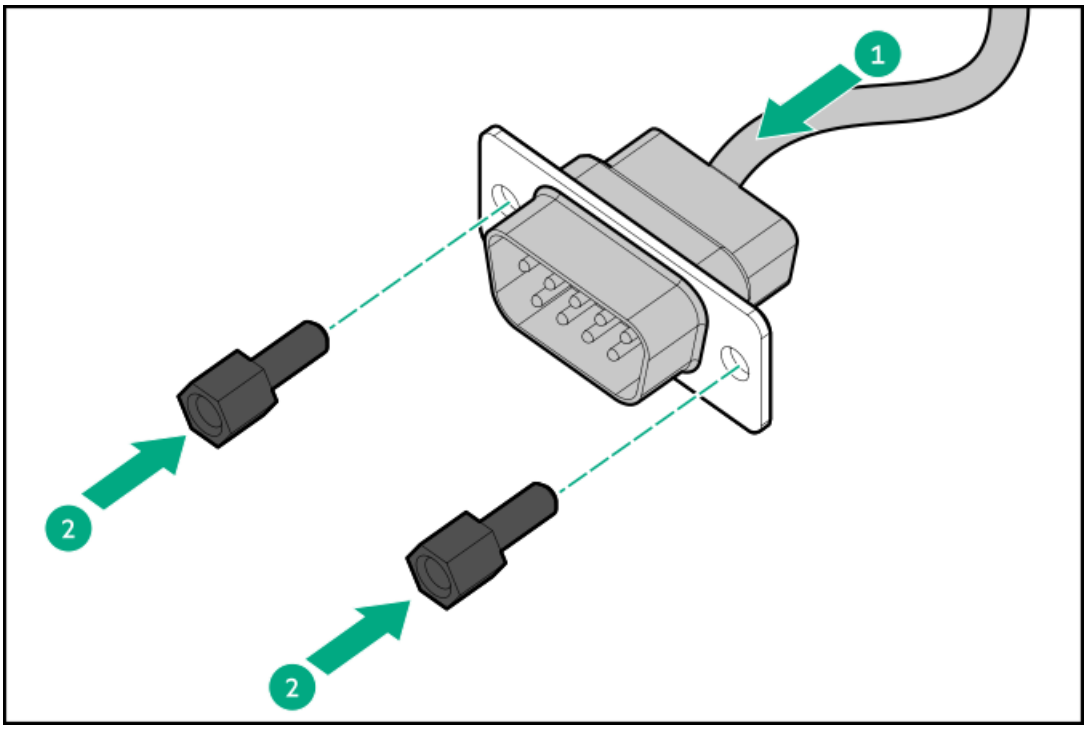
Installing the serial port

16. Remove the serial port blank.

    Retain the blank for future use.



17. Install the serial port cable:
    a. Insert the serial port into the rear panel opening.
    b. Install the hex screws.



18. Connect the serial port cable to the iLO-M.2-serial module.

Completing the installation

19. Close the chassis.
20. Install the front bezel.
21. Install the chassis cover.
22. If removed, install the security padlock and/or the Kensington security lock.

    For more information, see the lock documentation.
23. Connect all peripheral cables to the server.
24. Connect the power adapter to the server, and then secure the power adapter cord in the power cord clamp.
25. Connect the power cord to the AC source.
26. Power up the server.

Enabling the iLO dedicated network port

27. **IMPORTANT:**

    If the iLO configuration settings are reset to the default values, remote access to the machine will be lost. Access the physical machine and repeat the procedure described in this section to re-enable the iLO dedicated network port.

    The iLO dedicated network port is the default system iLO port.

    If the iLO-M.2-serial module is installed, the onboard NIC 1 / iLO shared port also supports iLO connection.

    a. From the boot screen, press **F9** to access the UEFI System Utilities.

    b. From the System Utilities screen, select System Configuration > iLO 6 Configuration Utility > Network Options.

    c. Set the Network Interface Adapter field to ON, and then press **Enter**.

    d. Press **F10** to save your changes.

    e. Press **Enter** to reboot the iLO settings.

f. Press **Esc** until the main menu is appeared.

g. Select Reboot the System to exit the utility and resume the boot process.

The IP address of the iLO dedicated network port appears on the POST screen on the subsequent boot-up. Access the Network Options screen again to view this IP address for later reference.

Configuring the serial port

28. To configure the serial port setting:

a. From the boot screen, press **F9** to access the UEFI System Utilities.

b. From the System Utilities screen, select System Configuration > BIOS/Platform Configuration (RBSU) > System Options > Serial Port Options > Embedded Serial Port.

c. Select a setting.

d. Press **F12** key to save your selection.

e. Click Yes-Save Changes.

f. Click Reboot.

Results

The installation is complete.

M.2 SSD option

The M.2 slot on the system board does not support direct SSD installation. This slot instead supports the iLO-M.2 serial module. Use this module to install an NVMe SSD in 2280 or 22110 form factor .

Install an M.2 SSD for:

- Booting up from flash solution
- Data backup/redundancy

Subtopics

Installing an M.2 SSD on the iLO-M.2-serial module

Installing an M.2 SSD on the iLO-M.2-serial module

Prerequisites

- The iLO-M.2-serial module is installed in the server .
- Before you perform this procedure, make sure that you have the following items available:
  - Phillips No. 1 screwdriver
  - 4.5 mm hex nut screwdriver—The tool is required when installing an M.2 SSD.

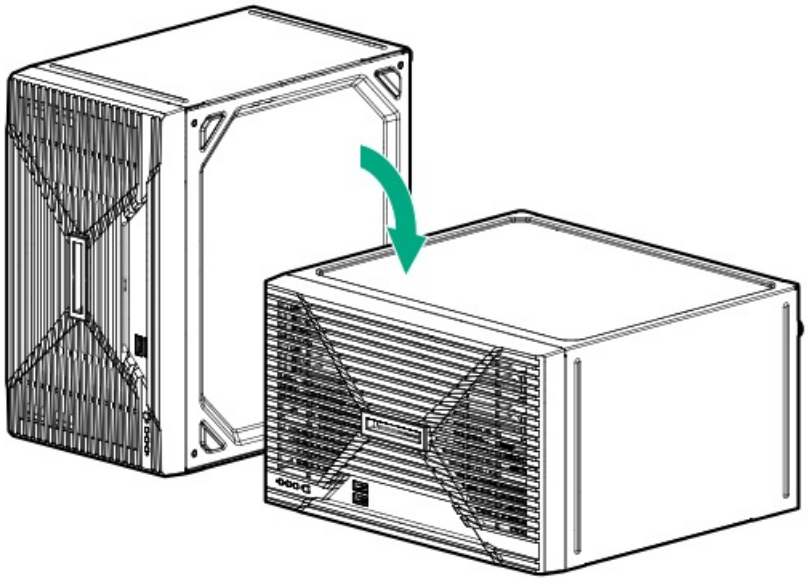
About this task

CAUTION: A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

1. Power down the server.
2. Disconnect the power cord from the AC source.
3. Remove the power adapter cord from the power cord clamp, and then disconnect the power adapter from the server.
4. Disconnect all peripheral cables from the server.
5. If installed, unlock and remove the security padlock and/or the Kensington security lock.

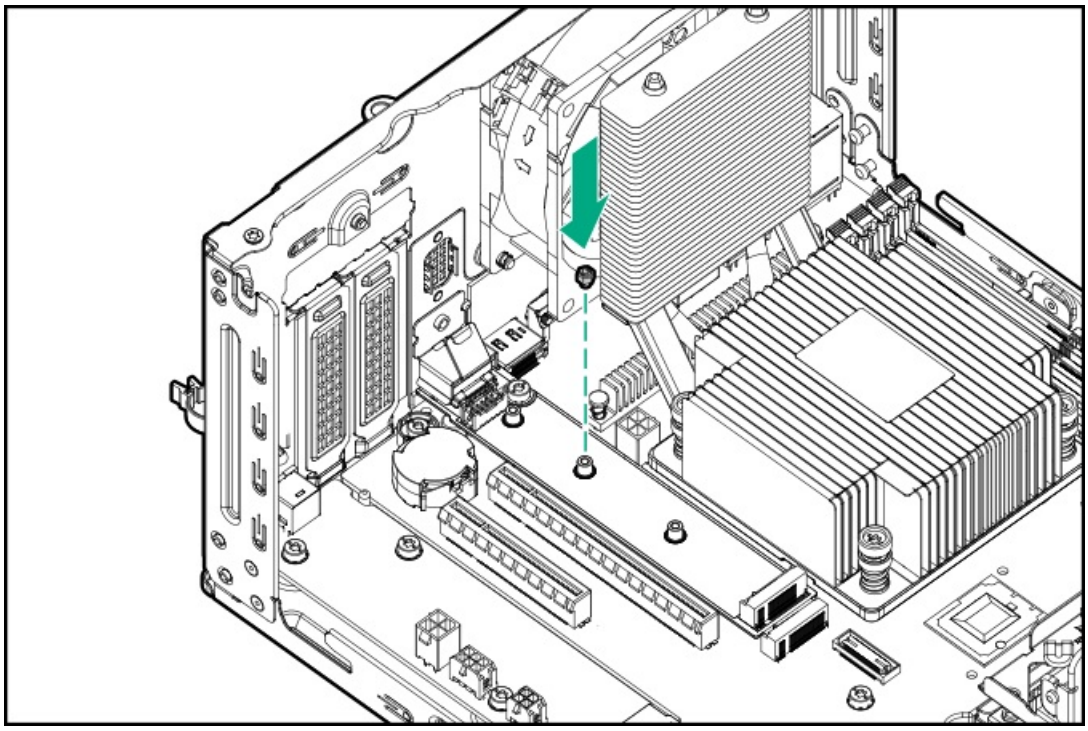
   For more information, see the lock documentation.
6. If the server is installed in the wall mount, remove the server from the wall mount .
7. If the server is in a vertical orientation, position the server in a horizontal orientation.



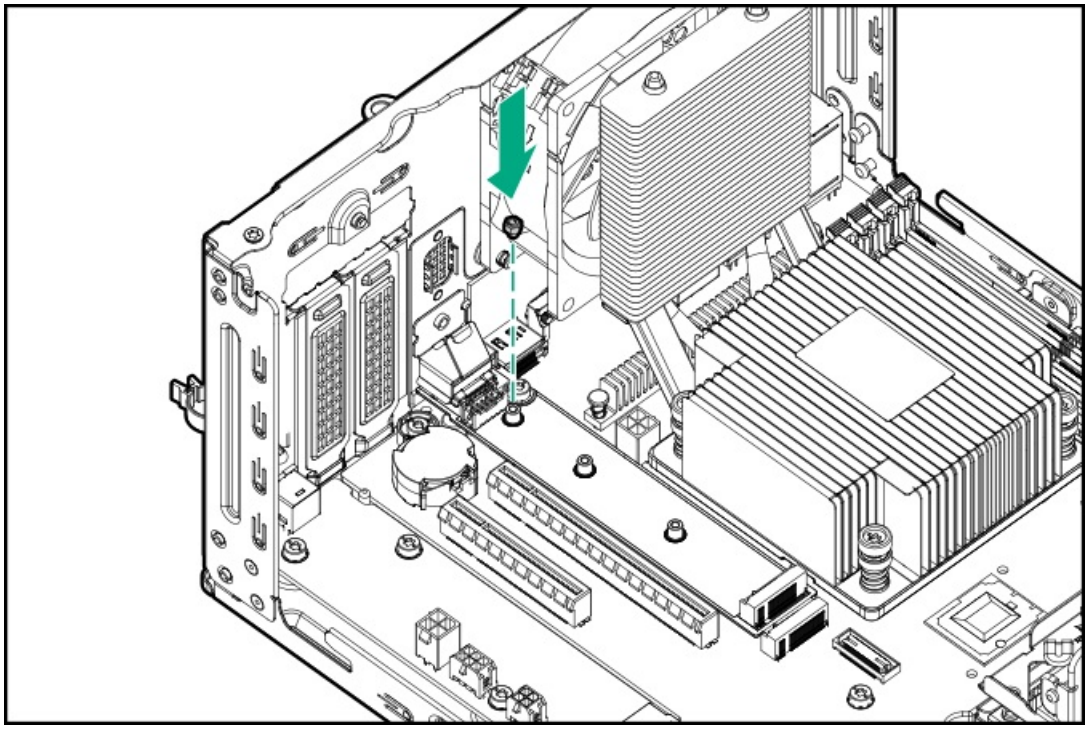
8. Remove the chassis cover .
9. Remove the front bezel.
10. Open the chassis .
11. Do the following:
    - If installed, remove the expansion card from the PCIe Slot 1.
    - If installed, disconnect the serial port cable from the iLO-M.2-serial module.

Installing the SSD

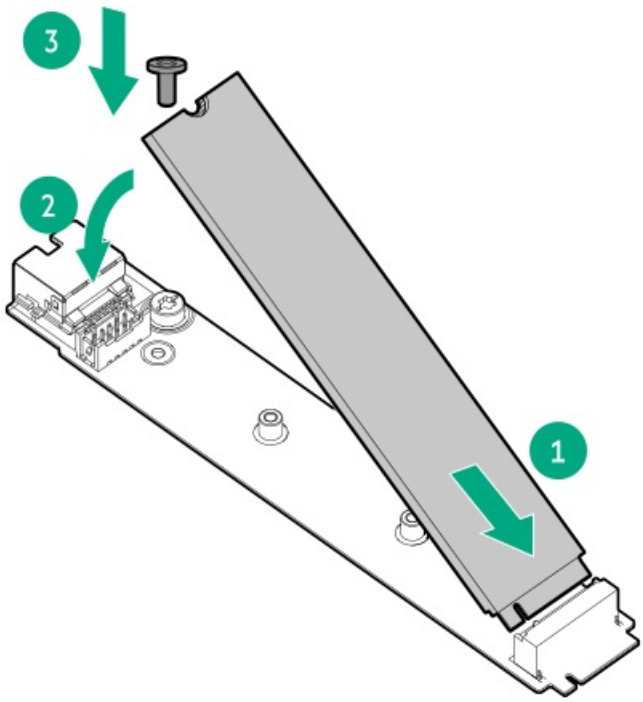
12. Install the hex nut from the iLO-M.2-serial module option kit on the M.2 standoff location.
    - M.2 2280



- M.2 22110



13. Install the SSD:
    a. Insert the SSD on the iLO-M.2 serial module at a 45° angle.
    b. Carefully press the SSD down to the horizontal position.
    c. Install the SSD mounting screw.



Completing the installation

14. Close the chassis.
15. Install the front bezel.
16. Install the chassis cover.
17. If removed, install the security padlock and/or the Kensington security lock.

    For more information, see the lock documentation.
18. Connect all peripheral cables to the server.
19. Connect the power adapter to the server, and then secure the power adapter cord in the power cord clamp.
20. Connect the power cord to the AC source.
21. Power up the server.
22. To configure the M.2 SSD, use the native OS NVMe driver. See the related OS documentation.

Results

The installation is complete.

External HPE RDX Backup System option

To install a simple, inexpensive, and reliable way to securely store your data backups, install an external HPE RDX Backup System. The backup system is a removable, ruggedized, hard disk drive system.

The backup system consists of two components:

- RDX cartridge
- RDX docking station

Hewlett Packard Enterprise recommends that no more than one HPE RDX Removable Disk Backup System be connected to a system at a time.

For more information on installing and configuring the external HPE RDX Removable Disk Backup System, see the RDX product documentation:

https://www.hpe.com/info/rdx

Cabling

This chapter includes cabling guidelines and diagrams for internal component cabling.

Subtopics

Cabling guidelines

Observe the following:

- For cable option kits, see the product QuickSpecs.
- For cable spare part numbers, see the Illustrated parts catalog in the maintenance and service guide.
- Some diagrams show alphabetical callouts such as A, B, C, etc. These callouts correspond to labels near the connectors on the cable.
- Some cables have more than one connector, such as a Y-cable, but not all connectors are used.
- The cable colors in the cabling diagrams used in this chapter are for illustration purposes only.
- Observe all guidelines when working with server cables.

Before connecting cables

- Note the port labels on the PCA components. Not all these components are used by all servers:
  - System board ports
  - Drive and power supply backplane ports
  - Expansion board ports (controllers, retimers, adapters, expanders, risers, and similar boards)
- Note the label near each cable connector. This label indicates the destination port for the cable connector.
- Some data cables are prebent. Do not unbend or manipulate the cables.
- To prevent mechanical damage or depositing oil that is present on your hands, and other contamination, do not touch the ends of the connectors.

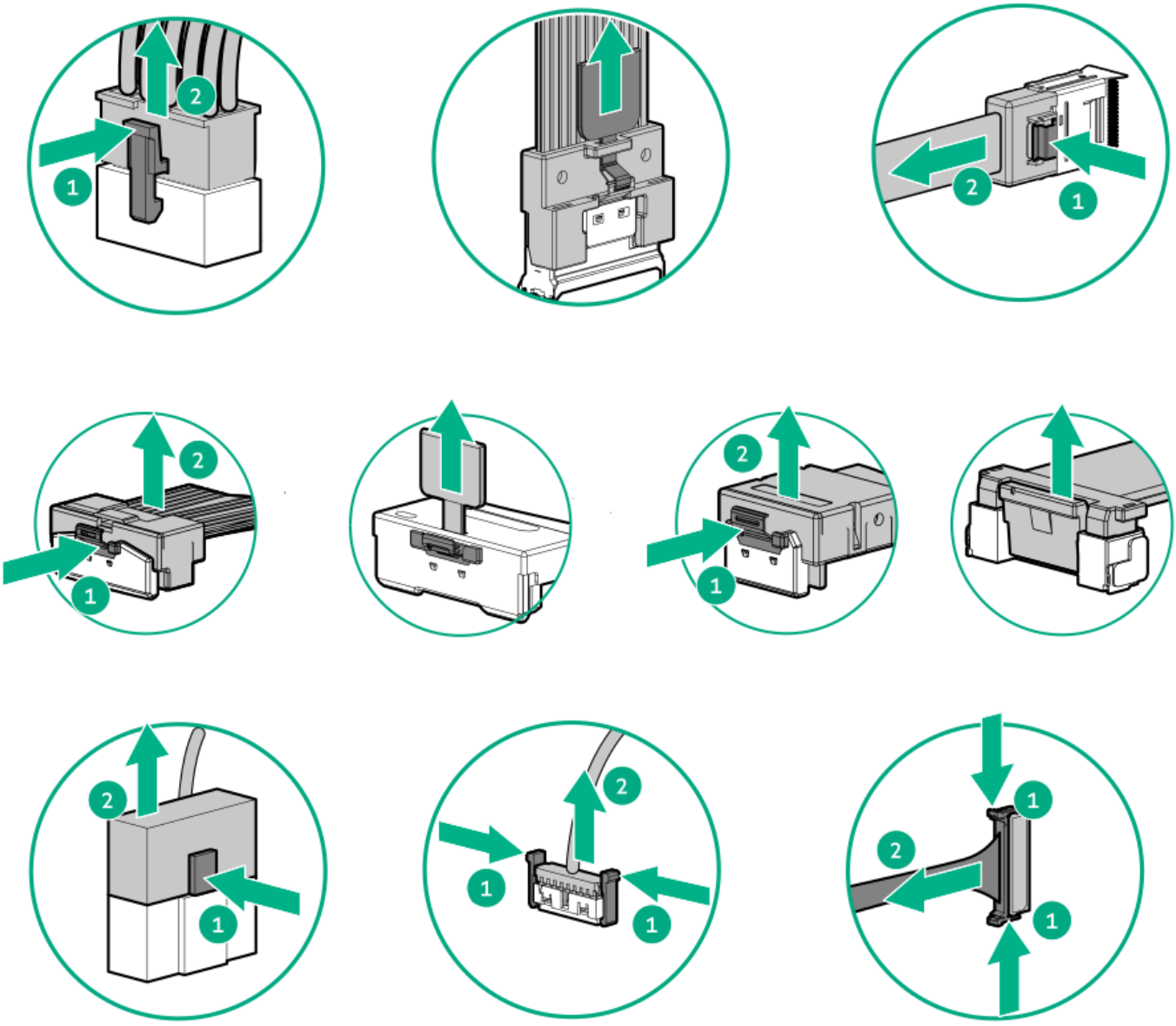
When connecting cables

- Before connecting a cable to a port, lay the cable in place to verify the length of the cable.
- Use the internal cable management features to properly route and secure the cables.

- When routing cables, be sure that the cables are not in a position where they can be pinched or crimped.
- Avoid tight bend radii to prevent damaging the internal wires of a power cord or a server cable. Never bend power cords and server cables tight enough to cause a crease in the sheathing.
- Make sure that the excess length of cables is properly secured to avoid excess bends, interference issues, and airflow restriction.
- To prevent component damage and potential signal interference, make sure that all cables are in their appropriate routing position before installing a new component and before closing up the server after hardware installation/maintenance.

When disconnecting cables

- Grip the body of the cable connector. Do not pull on the cable itself because this action can damage the internal wires of the cable or the pins on the port.
- If a cable does not disconnect easily, check for any release latch that must be pressed to disconnect the cable.



- Remove cables that are no longer being used. Retaining them inside the server can restrict airflow. If you intend to use the removed cables later, label and store them for future use.

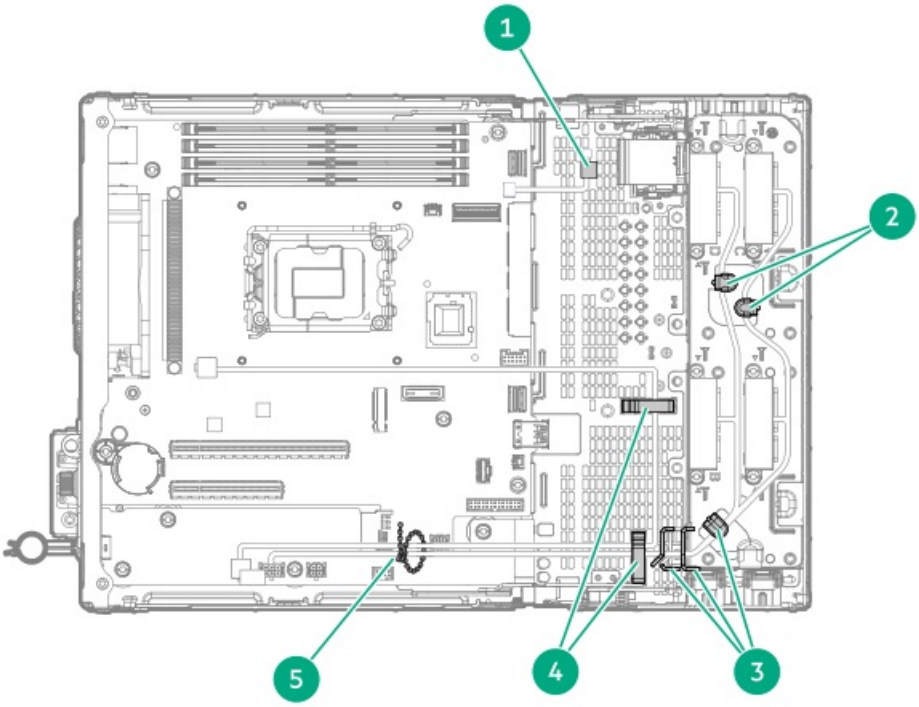
Cabling diagrams

Observe the following:

- Before cabling components, see the Cabling guidelines.
- Use the cable part number or search feature to find your diagram.

Component cabling	Cable part number
Four-bay non-hot-plug drive cabling	—
Four-bay non-hot-plug drive: Onboard SATA cables	P63969-001
Four-bay non-hot-plug drive: Type-p controller cable	P64334-001
Serial port cabling	P63693-001
Miscellaneous cabling	—
Ambient temperature sensor cable	P65284-001
Fan cable	P63537-001
4-pin processor power cable	P64322-001
4-pin PDB to system board power cable	P63697-001

Internal cabling management



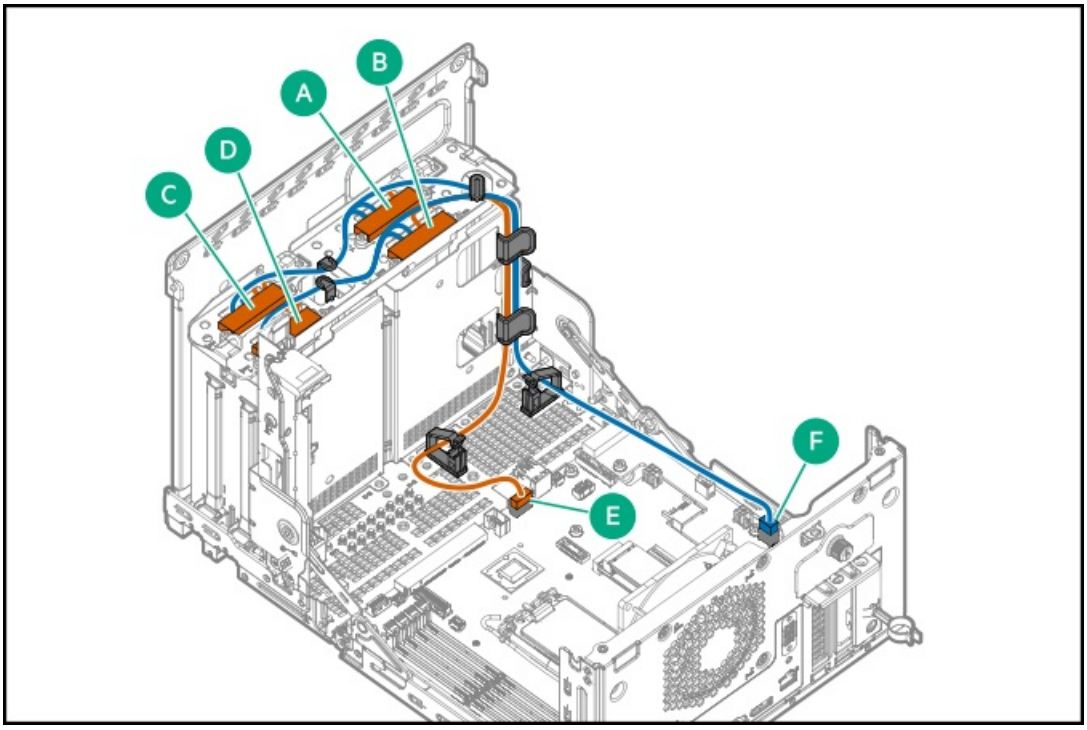
Item	Description
1	Cable clip
2	Metal tab
3	Metal tab
4	Cable clamp
5	Cable tie secures the following cables: • Fan cable • CPU power cable • System power cable • Drive power cable

Storage cabling

Subtopics

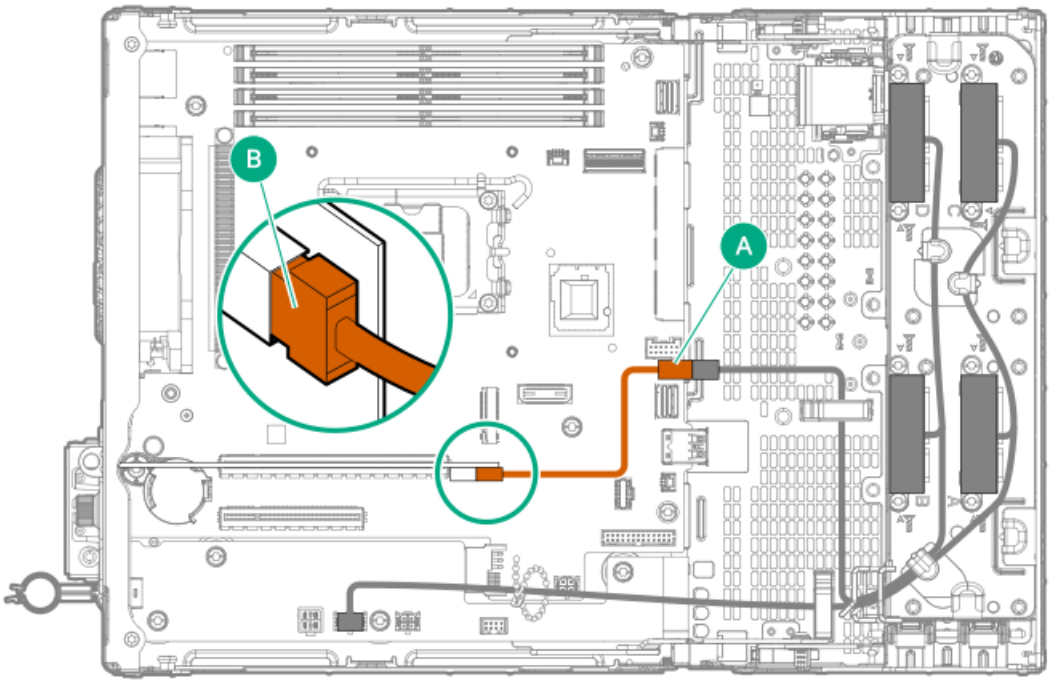
Four-bay drive cabling: Onboard SATA power and signal cabling
Four-bay drive cabling: Type-p storage controller cabling

Four-bay drive cabling: Onboard SATA power and signal cabling



Cable part number	Color	From	To
P63969-001	Orange	System board: SlimSAS x4 port	Drive bays 1–4
	Blue	PDB: Drive power connector	

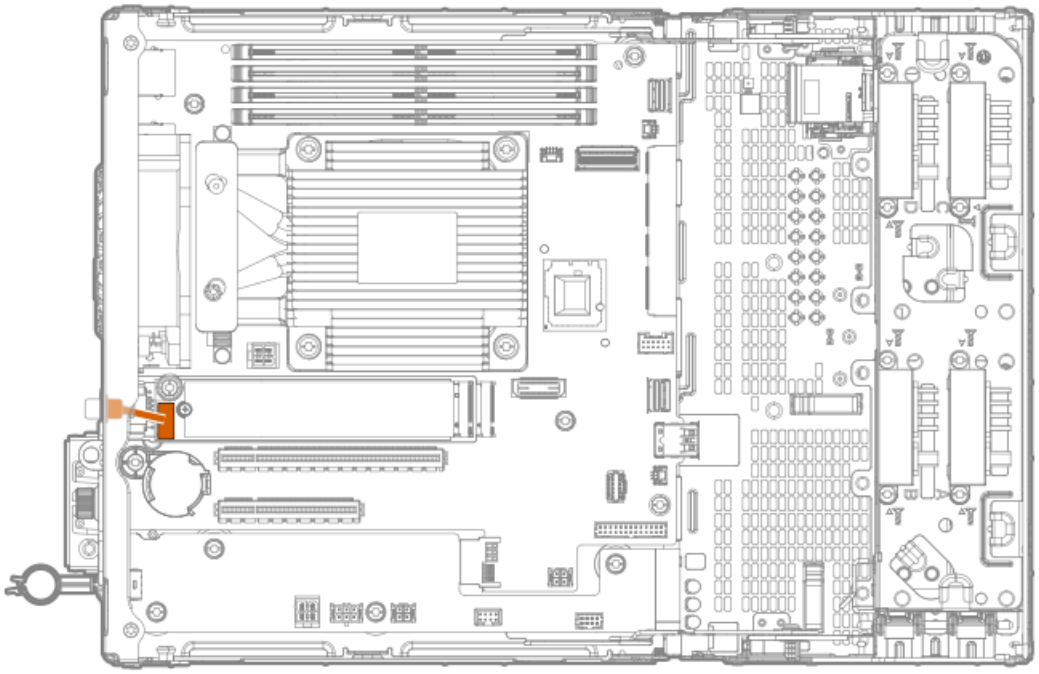
Four-bay drive cabling: Type-p storage controller cabling



Cable part number	Color	From	To
P64334-001 *	Orange	Storage controller signal connector	Onboard SATA signal cable

* Option kit: P68413-B21

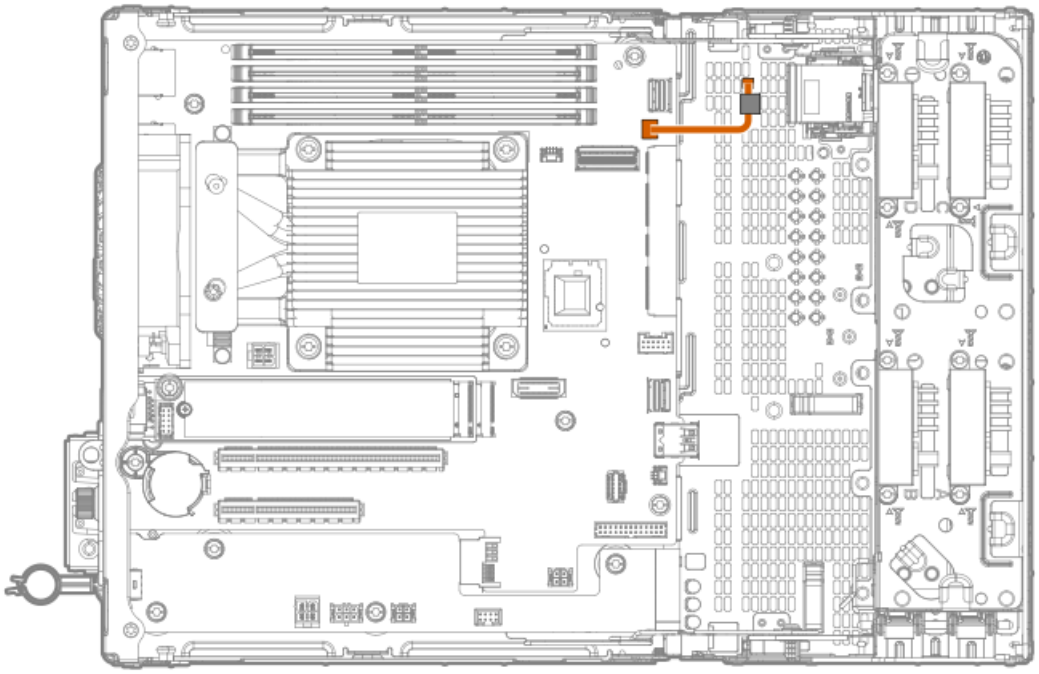
Serial port cabling



Cable part number	Color	From	To
P63693-001 *	Orange	D89 connector on the iLO-M.2-serial module	Serial port

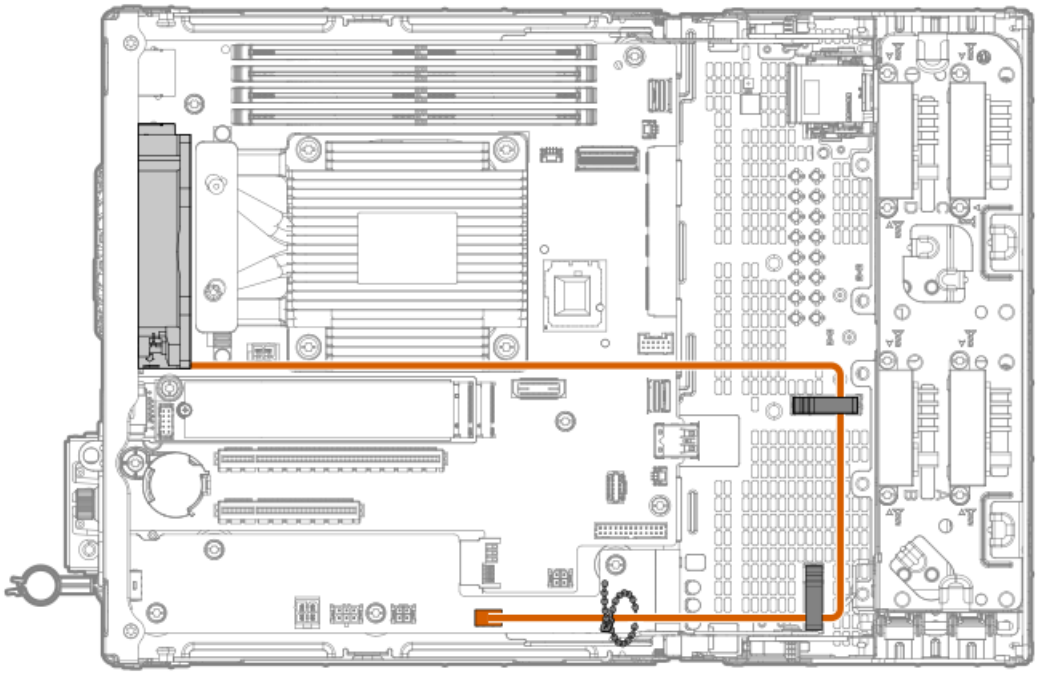
* Option kit: P65741-B21

Ambient temperature sensor cabling



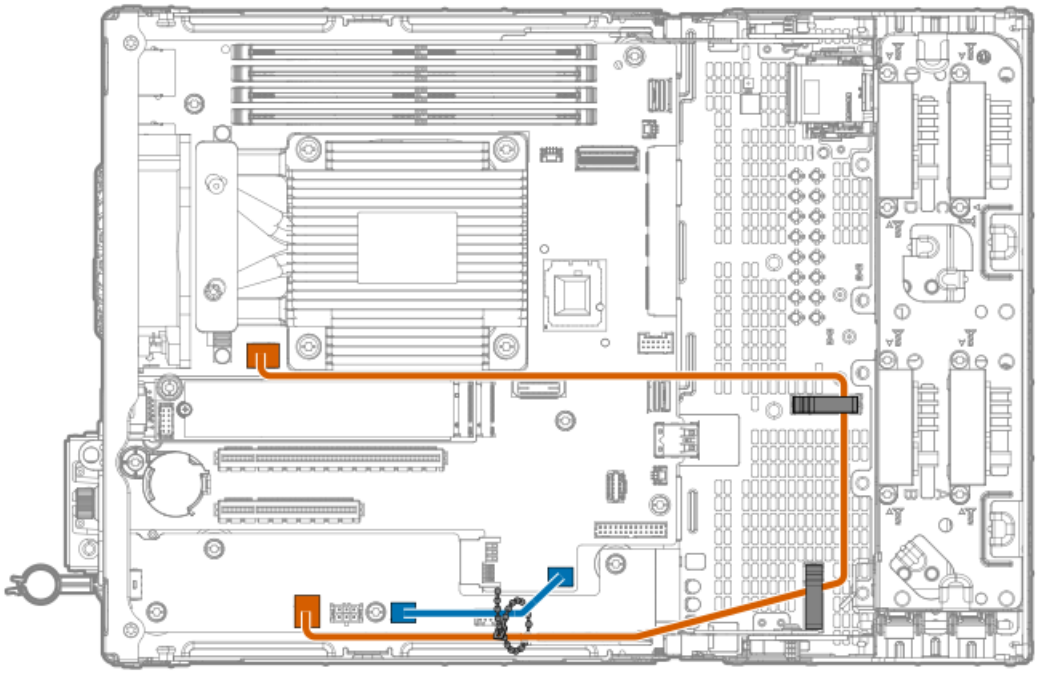
Cable part number	Color	From	To
P65284-001	Orange	System board: Ambient temperature sensor connector	Ambient temperature sensor

Fan cabling



Color	From	To
Orange	PDB: Fan connector	Fan

System power cabling



Cable part number	Cable color	From	To
P64322-001	Orange	System board: 4-pin processor power connector	PDB: 4-pin processor power connector
P63697-001	Blue	System board: 4-pin system power connector	PDB: 4-pin system power connector

Configuration resources

Use the following resources to find documentation for configuring and managing your server.

- Some utilities might not apply to your server. For information about server compatibility with the products listed in this chapter, see the product QuickSpecs (**https://www.hpe.com/info/quickspecs**).
- Products ordered from HPE Factory Express might have already been configured with some or all the configurations in this chapter. To determine if any additional setup is required, see your HPE Factory Express order.
- For the most recent changes, feature enhancements, and bug fixes, see the latest product release notes.

Subtopics

Updating firmware or system ROM

To	Use
Download service packs	Service Pack for ProLiant (SPP) https://www.hpe.com/servers/spp/download
Deploy service packs to a single server	Smart Update Manager (SUM) https://www.hpe.com/info/sum-docs
Deploy service packs to multiple servers	HPE OneView https://www.hpe.com/support/oneview-docs
Updating iLO or system firmware in a single server or multiple servers	iLO user guide https://www.hpe.com/support/ilo6
• Enable policy-based management of server or server group firmware for distributed server infrastructure • Monitor server compliance with a configured firmware baseline • Receive automatic iLO firmware updates • Receive baseline update alerts	HPE GreenLake for Compute Ops Management https://www.hpe.com/info/com-docs

Configuring the server

To configure	Use
Single server (GUI)	• Intelligent Provisioning **https://www.hpe.com/info/intelligentprovisioning/docs** • iLO remote console or web interface **https://www.hpe.com/support/ilo6** • UEFI System Utilities **https://www.hpe.com/info/UEFI-manuals** • HPE GreenLake for Compute Ops Management **https://www.hpe.com/info/com-docs**
Single server (scripting)	• RESTful Interface Tool **https://www.hpe.com/support/restfulinterface/docs** • Python iLO Redfish Library (python-ilorest-library) **https://github.com/HewlettPackard/python-ilorest-library** • Scripting Tools for Windows Powershell **https://www.hpe.com/info/powershell/docs** • iLO RESTful API **https://servermanagementportal.ext.hpe.com/docs/redfishservices/ilos/ilo6/** • HPE GreenLake for Compute Ops Management API **https://developer.greenlake.hpe.com/**
Multiple servers (either UI or scripting)	• HPE OneView [1] **https://www.hpe.com/support/oneview-docs** • HPE GreenLake for Compute Ops Management **https://www.hpe.com/info/com-docs** ◦ **Server settings:** Define server-specific parameters such as firmware baselines, and then apply them to server groups. ◦ **Server groups:** Organize servers into custom-defined sets with associated server settings, and then apply group-specific policies to create a consistent configuration across the servers in the group.

[1] For servers running HPE OneView, do not use another tool, such as iLO, to delete or change certain settings. For more information about using HPE OneView and iLO to manage the same server, see the iLO user guide at **https://www.hpe.com/support/ilo6**.

Configuring storage controllers

Controller type	Documentation
HPE SR Gen10 controllers	HPE Smart Array SR Controller Gen10 User Guide https://www.hpe.com/support/SR-Gen10-UG
Intel VROC for HPE Gen11	Intel Virtual RAID on CPU for HPE Gen11 User Guide https://hpe.com/support/VROC-Gen11-UG OS-specific configuration guides: • Intel Virtual RAID on CPU (Intel VROC) for Windows User Guide https://www.intel.com/content/dam/support/us/en/documents/memory-and-storage/338065_Intel_VROC_UserGuide_Windows.pdf • Intel Virtual RAID on CPU (Intel VROC) for Linux User Guide https://www.intel.com/content/dam/support/us/en/documents/memory-and-storage/linux-intel-vroc-userguide-333915.pdf • Intel Volume Management Device Driver for VMware ESXi User Guide https://www.intel.com/content/dam/support/us/en/documents/memory-and-storage/ESXi-Intel-VROC-UserGuide.pdf

Deploying an OS

For a list of supported operating systems, see the HPE Servers Support & Certification Matrices:

https://www.hpe.com/support/Servers-Certification-Matrices

To	See
Deploy an OS using HPE GreenLake for Compute Ops Management	HPE GreenLake for Compute Ops Management User Guide https://www.hpe.com/info/com-docs
Deploy an OS using Intelligent Provisioning	Intelligent Provisioning user guide https://www.hpe.com/info/intelligentprovisioning/docs
Deploy an OS using iLO virtual media	iLO user guide https://www.hpe.com/support/ilo6
Configure the server to boot from a PXE server	UEFI System Utilities User Guide for HPE ProLiant Gen11 Servers and HPE Synergy https://www.hpe.com/support/UEFIGen11-UG-en
Configure the server to boot from a SAN	HPE Boot from SAN Configuration Guide https://www.hpe.com/info/boot-from-san-config-guide

Configuring security

To	See
Implement server security best practices.	• HPE Compute Security Reference Guide https://www.hpe.com/info/server-security-reference-en • HPE iLO 6 Security Technology Brief https://www.hpe.com/support/ilo6-security-en
Configure and use the Server Configuration Lock feature on HPE Trusted Supply Chain servers and other servers that have the Server Configuration Lock feature enabled.	Server Configuration Lock User Guide for HPE ProLiant servers and HPE Synergy https://www.hpe.com/info/server-config-lock-UG-en

Server management

To monitor	See
Single server	HPE iLO https://www.hpe.com/support/ilo6
Multiple servers	HPE OneView https://www.hpe.com/support/oneview-docs
Single or multiple servers	HPE GreenLake for Compute Ops Management https://www.hpe.com/info/com-docs

Managing Linux-based high performance compute clusters

To	Use
Provision, manage, and monitor clusters.	HPE Performance Cluster Manager https://www.hpe.com/support/hpcm_manuals
Optimize your applications.	HPE Performance Analysis Tools https://www.hpe.com/info/perftools
Optimize software library for low latency and high bandwidth, both on-node and off-node, for point-to-point and collective communications.	HPE Cray Programming Environment User Guide https://www.hpe.com/info/cray-pe-user-guides

Troubleshooting

Subtopics

NMI functionality

An NMI crash dump enables administrators to create crash dump files when a system is not responding to traditional debugging methods.

An analysis of the crash dump log is an essential part of diagnosing reliability problems, such as hanging operating systems, device drivers, and applications. Many crashes freeze a system, and the only available action for administrators is to cycle the system power. Resetting the system erases any information that could support problem analysis, but the NMI feature preserves that information by performing a memory dump before a hard reset.

To force the OS to initiate the NMI handler and generate a crash dump log, the administrator can use the iLO Generate NMI feature.

Troubleshooting resources

Troubleshooting resources are available for HPE Gen11 server products in the following documents:

- Troubleshooting Guide for HPE ProLiant Gen11 servers provides procedures for resolving common problems and comprehensive courses of action for fault isolation and identification, issue resolution, and software maintenance.

  https://www.hpe.com/info/gen11-troubleshooting

- Integrated Management Log Messages for HPE ProLiant Gen10, Gen10 Plus, and Gen11 servers and HPE Synergy provides IML messages and associated troubleshooting information to resolve critical and cautionary IML events.

  https://www.hpe.com/info/Troubleshooting-IML-en

System battery replacement

If the server no longer automatically displays the correct date and time, then replace the battery that provides power to the real-time clock. Under normal use, battery life is 5–10 years.

Subtopics

System battery information

The server contains an internal lithium manganese dioxide, a vanadium pentoxide, or an alkaline battery that provides power to the real-time clock.

WARNING: If this battery is not properly handled, a risk of fire or burning exists. 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 expose the battery to low air pressure as it might lead to explosion or leakage of flammable liquid or gas.
- Do not disassemble, crush, puncture, short external contacts, or dispose of the battery in fire or water.

Removing and replacing the system battery

Prerequisites

Before you perform this procedure, make sure that you have the following items available:

- T-15 Torx screwdriver
- Spudger or any small prying tool

About this task

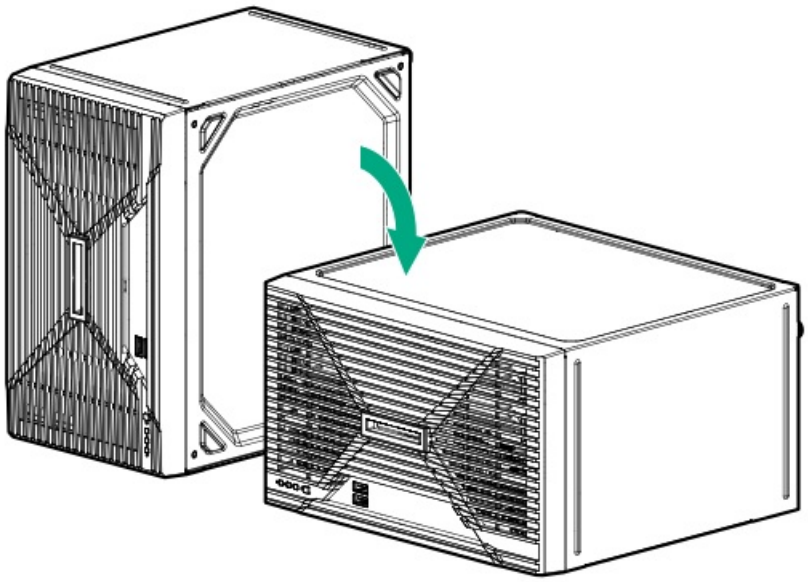
IMPORTANT: After replacing the system battery and applying power, wait for 10 minutes before powering on the server. This lead time is required for the server to reset and reinitialize the iLO configuration settings stored in SRAM.

CAUTION: A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

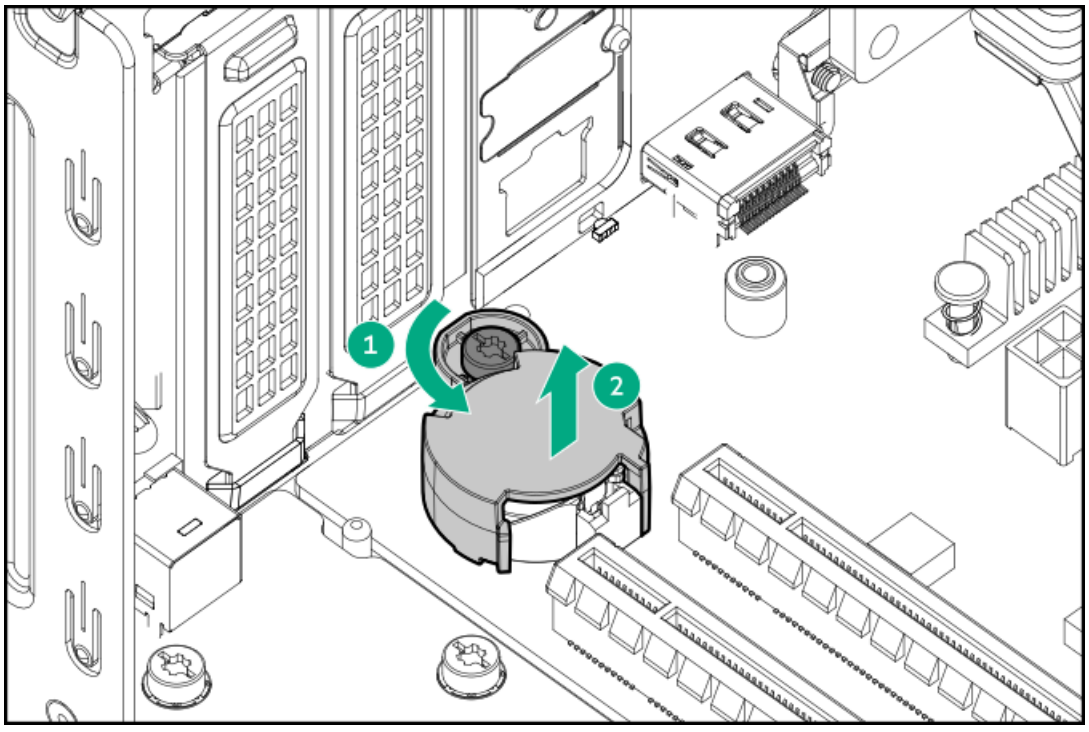
1. Power down the server.
2. Disconnect the power cord from the AC source.
3. Remove the power adapter cord from the power cord clamp, and then disconnect the power adapter from the server.
4. Disconnect all peripheral cables from the server.
5. If installed, unlock and remove the security padlock and/or the Kensington security lock.

   For more information, see the lock documentation.
6. If the server is installed in the wall mount, remove the server from the wall mount .
7. If the server is in a vertical orientation, position the server in a horizontal orientation.



8. Remove the chassis cover.
9. Remove the front bezel.
10. Open the chassis.
11. Locate the battery on the system board.
12. If installed, remove the expansion cards from PCIe Slot 1 and 2.
13. Remove the system battery cover:
    a. Loosen the system battery cover screw.
    b. Lift the cover from the system battery.

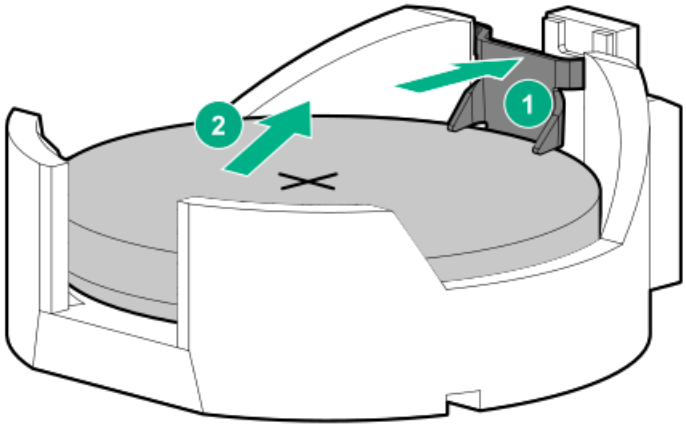
    Retain the cover for later use.



14. Remove the system battery:

a. Use a small flat-bladed, nonconductive tool to press the battery latch.

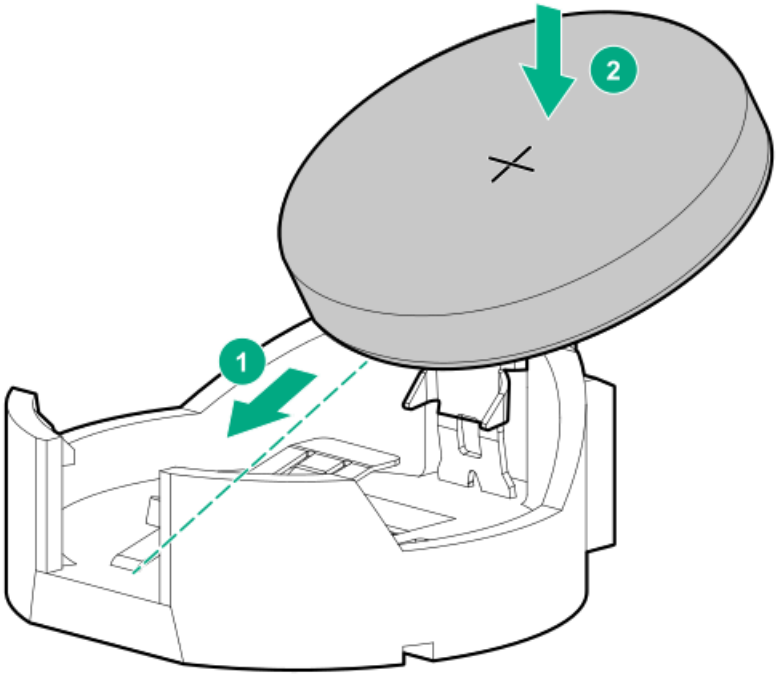
b. Remove the system battery from the socket.



15. Install the system battery:

a. With the side of the battery showing the "+" sign facing up, insert the battery into the socket.

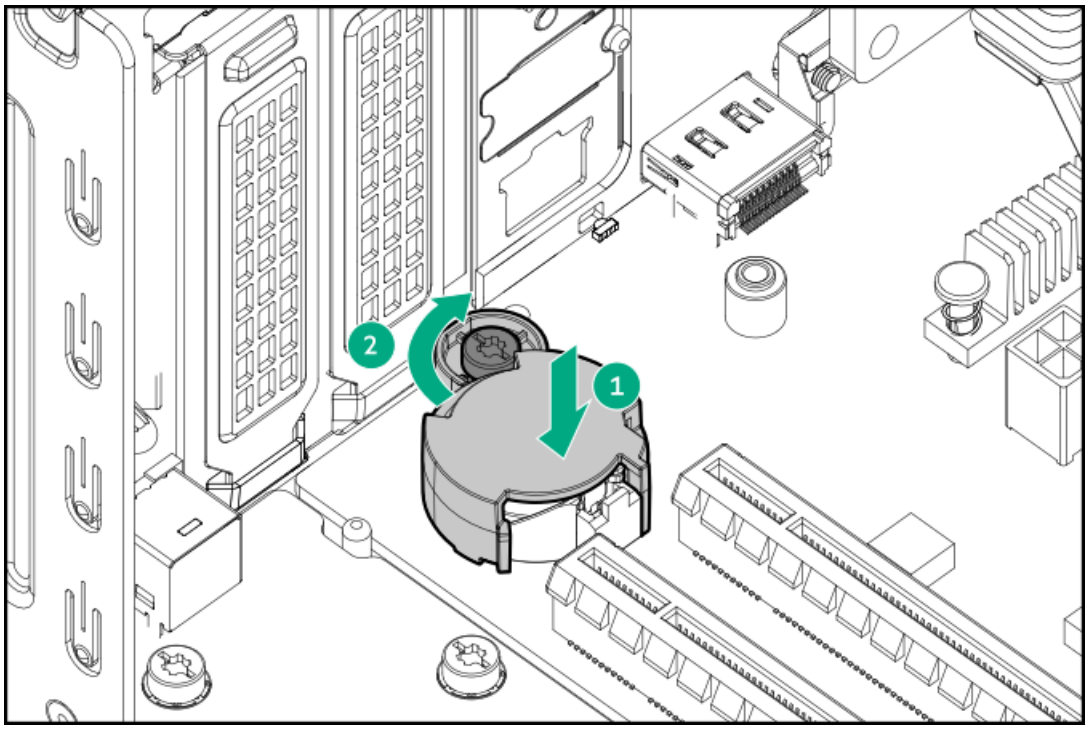
b. Press the system battery down until it clicks into place.



16. Install the system battery cover:

a. Attach the cover on the system battery socket.

b. Tighten the cover screw.



17. If removed, install the expansion cards.
18. Close the chassis.
19. Install the front bezel.
20. Install the chassis cover.
21. If removed, install the security padlock and/or the Kensington security lock.

    For more information, see the lock documentation.
22. Connect all peripheral cables to the server.
23. Connect the power adapter to the server, and then secure the power adapter cord in the power cord clamp.
24. Connect the power cord to the AC source.
25. Wait for 10 minutes for the server to reset and reinitialize the iLO configuration settings stored in SRAM.

    IMPORTANT: If iLO security is disabled, the configuration will not be restored. To restore the configuration manually, see **https://www.hpe.com/support/ilo6**.
26. Power up the server.
27. Properly dispose of the old battery.

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

Results

The procedure is complete.

Safety, warranty, and regulatory information

Subtopics

Regulatory information

To view the regulatory information for your product, view the Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products, available at the Hewlett Packard Enterprise Support Center:

https://www.hpe.com/support/Safety-Compliance-EnterpriseProducts

Additional regulatory information

Hewlett Packard Enterprise is committed to providing our customers with information about the chemical substances in our products as needed to comply with legal requirements such as REACH (Regulation EC No 1907/2006 of the European Parliament and the Council). A chemical information report for this product can be found at:

https://www.hpe.com/info/reach

For Hewlett Packard Enterprise product environmental and safety information and compliance data, including RoHS and REACH, see:

https://www.hpe.com/info/ecodata

For Hewlett Packard Enterprise environmental information, including company programs, product recycling, and energy efficiency, see:

https://www.hpe.com/info/environment

Subtopics

VCCI-B notice for products that comply with CISPR 32

この装置は、クラスＢ機器です。この装置は、住宅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

Notices for Eurasian Economic Union

EAC

Manufacturer and Local Representative Information

Manufacturer information:

Hewlett Packard Enterprise Company, 1701 E Mossy Oaks Road, Spring, TX 77389 U.S.

Local representative information Russian:

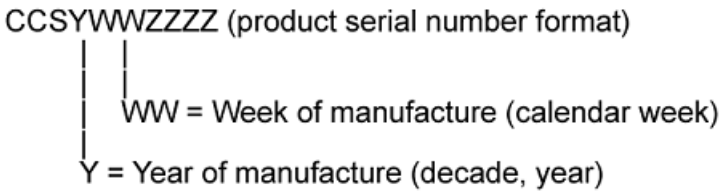
- **Russia**
  ООО "Хьюлетт Паккард Энтерпрайз", Российская Федерация, 125171, г. Москва, Ленинградское шоссе, 16А, стр.3, Телефон: +7 499 403 4248 Факс: +7 499 403 4677
- **Kazakhstan**
  ТОО «Хьюлетт-Паккард (К)», Республика Казахстан, 050040, г. Алматы, Бостандыкский район, проспект Аль-Фараби, 77/7, Телефон/факс: + 7 727 355 35 50

Local representative information Kazakh:

- **Russia**
  ЖШС "Хьюлетт Паккард Энтерпрайз", Ресей Федерациясы, 125171, Мәскеу, Ленинград тас жолы, 16А блок 3, Телефон: +7 499 403 4248 Факс: +7 499 403 4677
- **Kazakhstan**
  ЖШС «Хьюлетт-Паккард (К)», Қазақстан Республикасы, 050040, Алматы к., Бостандык ауданы, Әл-Фараби даңғ ылы, 77/7, Телефон/факс: +7 727 355 35 50

Manufacturing date:

The manufacturing date is defined by the serial number.



If you need help identifying the manufacturing date, contact **tre@hpe.com**.

Turkey RoHS material content declaration

Türkiye Cumhuriyeti: AEEE Yönetmeliğine Uygundur

Ukraine RoHS material content declaration

Обладнання відповідає вимогам Технічного регламенту щодо обмеження використання деяких небезпечних речовин в електричному та електронному обладнанні, затвердженого постановою Кабінету Міністрів України від 3 грудня 2008 № 1057

Warranty information

To view the warranty information for your product, see the **warranty check tool**.

Specifications

Subtopics

Environmental specifications

Specifications	Value
Temperature range*	—
Operating	10°C to 35°C (50°F to 95°F)
Nonoperating	-30°C to 60°C (-22°F to 140°F)
Relative humidity (noncondensing)	—
Operating	8% to 90% 28°C (82.4°F) maximum wet bulb temperature, noncondensing
Nonoperating	5% to 95% 38.7°C (101.7°F) maximum wet bulb temperature, noncondensing
Altitude	—
Operating	3050 m (10,000 ft) This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1,500 ft/min).
Nonoperating	9144 m (30,000 ft) Maximum allowable altitude change rate is 457 m/min (1,500 ft/min).

Standard operating support

10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1,000 ft) above sea level to a maximum of 3,050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 20°C/hr (36°F/hr). The upper limit and rate of change may be limited by the type and number of options installed.

System performance during standard operating support might be reduced if operating above 30°C (86°F).

Extended ambient operating support

For approved hardware configurations, the supported system inlet range is extended to be:

- 5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2,953 ft) to a maximum of 3050 m (10,000 ft).
- 40°C to 45°C (104°F to 113°F) at sea level with an altitude derating of 1.0°C per every 125 m (1.8°F per every 410 ft) above 900 m (2953 ft) to a maximum of 3,050 m (10,000 ft).

The approved hardware configurations for this system are listed in the Extended Ambient Temperature Guidelines for Gen11 HPE ProLiant servers:
https://www.hpe.com/support/ASHRAEGen11

Mechanical specification

Dimension	Value
Height	15.40 cm (6.06 in)
Depth	26.10 cm (10.28 in)
Width	24.90 cm (9.82 in)
Weight, minimum (one drive and one DIMM installed, no iLO-M.2-serial module, or expansion cards installed)	5.70 kg (12.56 lb)
Weight, maximum (four drives, four DIMMs, iLO-M.2-serial module, and an expansion card installed)	8.52 kg (18.78 lb)

AC power adapter specifications

Specification	Value
Input characteristics	
Rated input voltage	100–240 V AC
Rated input frequency	50–60 Hz
Input current	2.5 A at 90 V AC
Rated input power	210 W at 90 V AC
Efficiency	>88% at full load
Output characteristics	
Output voltage	19.5 V
Output current	9.23 A
Rated output power	180 W

Websites

General websites

Single Point of Connectivity Knowledge (SPOCK) Storage compatibility matrix

https://www.hpe.com/storage/spock

Product white papers and analyst reports

https://www.hpe.com/us/en/resource-library

For additional websites, see Support and other resources.

Product websites

HPE ProLiant MicroServer Gen11 user documents

https://www.hpe.com/info/microservergen11-docs

Support and other resources

Subtopics

Accessing Hewlett Packard Enterprise Support

- For live assistance, go to the Contact Hewlett Packard Enterprise Worldwide website:

  https://www.hpe.com/info/assistance

- To access documentation and support services, go to the Hewlett Packard Enterprise Support Center website:

  https://www.hpe.com/support/hpesc

Information to collect

- Technical support registration number (if applicable)
- Product name, model or version, and serial number
- Operating system name and version
- Firmware version
- Error messages
- Product-specific reports and logs
- Add-on products or components
- Third-party products or components

HPE product registration

To gain the full benefits of the Hewlett Packard Enterprise Support Center and your purchased support services, add your contracts and products to your account on the HPESC.

- When you add your contracts and products, you receive enhanced personalization, workspace alerts, insights through the dashboards, and easier management of your environment.
- You will also receive recommendations and tailored product knowledge to self-solve any issues, as well as streamlined case creation for faster time to resolution when you must create a case.

To learn how to add your contracts and products, see https://www.hpe.com/info/add-products-contracts.

Accessing updates

- Some software products provide a mechanism for accessing software updates through the product interface. Review your product

documentation to identify the recommended software update method.

- To download product updates:

  Hewlett Packard Enterprise Support Center

  https://www.hpe.com/support/hpesc

  My HPE Software Center

  https://www.hpe.com/software/hpesoftwarecenter

- To subscribe to eNewsletters and alerts:

  https://www.hpe.com/support/e-updates

- To view and update your entitlements, and to link your contracts and warranties with your profile, go to the Hewlett Packard Enterprise Support Center More Information on Access to Support Materials page:

  https://www.hpe.com/support/AccessToSupportMaterials

> **IMPORTANT:**
> Access to some updates might require product entitlement when accessed through the Hewlett Packard Enterprise Support Center. You must have an HPE Account set up with relevant entitlements.

Customer self repair

Hewlett Packard Enterprise customer self repair (CSR) programs allow you to repair your product. If a CSR part needs to be replaced, it will be shipped directly to you so that you can install it at your convenience. Some parts do not qualify for CSR.

For more information about CSR, contact your local service provider.

Remote support

Remote support is available with supported devices as part of your warranty or contractual support agreement. It provides intelligent event diagnosis, and automatic, secure submission of hardware event notifications to Hewlett Packard Enterprise, which initiates a fast and accurate resolution based on the service level of your product. Hewlett Packard Enterprise strongly recommends that you register your device for remote support.

If your product includes additional remote support details, use search to locate that information.

HPE Get Connected

https://www.hpe.com/services/getconnected

HPE Tech Care Service

https://www.hpe.com/services/techcare

HPE Complete Care Service

https://www.hpe.com/services/completecare

Documentation feedback

Hewlett Packard Enterprise is committed to providing documentation that meets your needs. To help us improve the documentation, use

the Feedback button and icons (at the bottom of an opened document) on the Hewlett Packard Enterprise Support Center portal (**https://www.hpe.com/support/hpesc**) to send any errors, suggestions, or comments. This process captures all document information.