Hewlett Packard Enterprise

HPE ProLiant DL365 Gen11 Server User Guide

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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.

Notices

Acknowledgments

Table of contents

Component identification

Front panel components

8SFF/8SFF + 2SFF

Item	Description
1	Serial number/iLO information pull tab
2	Display port (optional) [1]
3	Optical drive (optional) [1]
4	USB 2.0 port (optional) [1]
5	System Insight Display module
6	iLO Service Port [2]
7	USB 3.2 Gen1 port
8	Drive bays

[1] Optional 2SFF drive bays in 8SFF + 2SFF model

[2] The operating system does not recognize this port as a USB port.

20 EDSFF
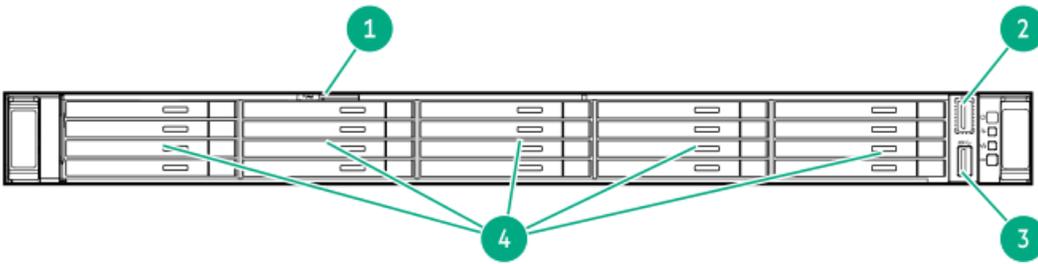
Item	Description
1	Serial number/iLO information pull tab
2	iLO Service Port [1]
3	USB 3.2 Gen1 port
4	Drive bays

[1] The operating system does not recognize this port as a USB port.

Front panel LEDs and buttons

Item	Description	Status
1	Power On/Standby button and system power LED [1]	Solid green = System on Flashing green = Performing power on sequence Solid amber = System in standby Off = No power present [1]
2	Health LED [1]	Solid green = Normal Flashing green = iLO is rebooting. Flashing amber = System degraded Flashing red = System critical [2]
3	NIC status LED [1]	Solid green = Link to network Flashing green = Network active Off = No network activity
4	UID button/LED [3]	Solid blue = Activated Flashing blue: • 1 Hz = Remote management or firmware upgrade in progress • 4 Hz = iLO manual reboot sequence initiated • 8 Hz = iLO manual reboot sequence in progress Off = Deactivated

[1] Facility power is not present, power cord is not attached, no power supplies are installed, power supply failure has occurred, or the power button cable is disconnected.

[2] If the health LED indicates a degraded or critical state, review the system IML or use iLO to review the system health status.

[3] When all four LEDs described in this table flash simultaneously, a power fault has occurred.

Rear panel components
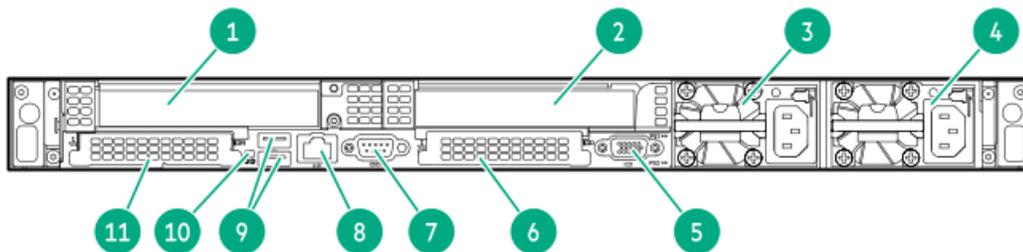
Item	Description
1	Slot 1 PCIe x16
2	Slot 2 PCIe x16
3	Power supply 2 (PS2)
4	Power supply 1 (PS1)
5	Video (VGA) port
6	OCP slot 22
7	Serial port (optional)
8	iLO Management Port
9	USB 3.2 Gen1 ports
10	UID LED
11	OCP slot 21

Rear panel LEDs
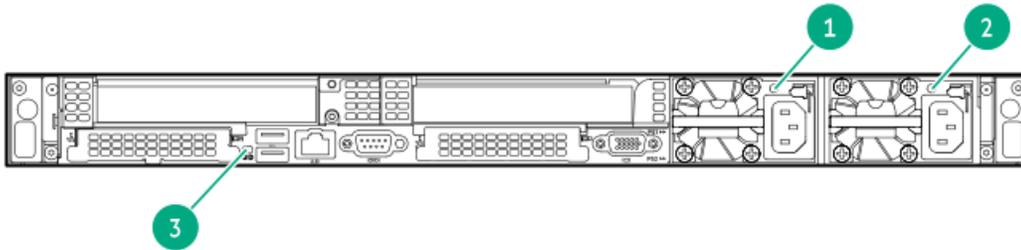
Item	Description	Status
1	Power supply 2 LED	Solid green = Normal Off = One or more of the following conditions exists: • AC power unavailable • Power supply failed • Power supply in standby mode • Power supply exceeded current limit
2	Power supply 1 LED	Solid green = Normal Off = One or more of the following conditions exists: • AC power unavailable • Power supply failed • Power supply in standby mode • Power supply exceeded current limit
3	UID LED	Solid blue = Identification is activated. Flashing blue = System is being managed remotely. Off = Identification is deactivated.

System board components
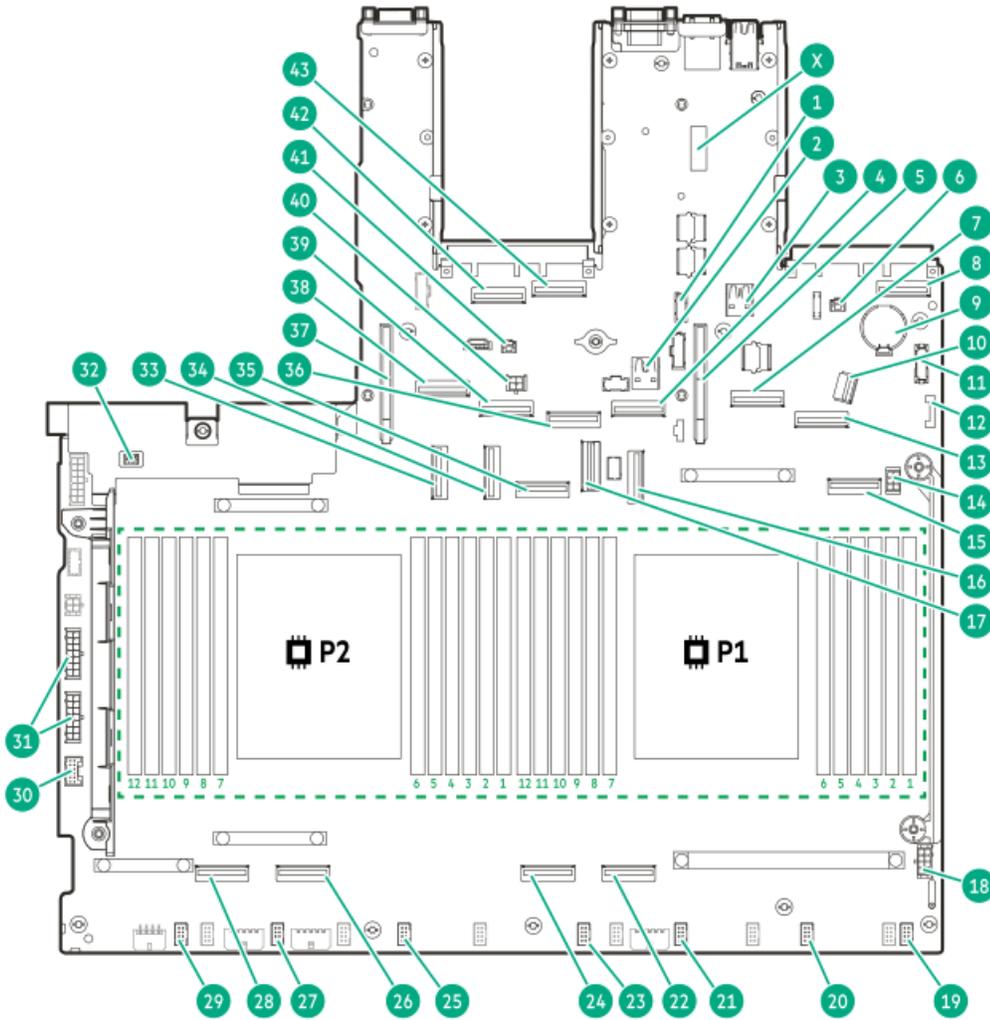
Item	Description
1	Serial port connector
2	Internal USB 3.2 Gen1 port
3	Internal USB 3.2 Gen1 port
4	NVMe/SATA port 1A
5	Primary riser connector
6	OCP slot 21 backup power connector
7	NVMe port 7A
8	OCP slot 21 x16 upgrade connector
9	System battery
10	Front I/O connector
11	Front DisplayPort/ USB 2.0 connector
12	SID connector
13	NVMe port 6A
14	ODD / 2 SFF power connector
15	NVMe port 4A
16	NVMe / SATA port 9A
17	NS204i-u signal connector
18	GPU riser power connector

Item	Description
19	Fan connector 7
20	Fan connector 6
21	Fan connector 5
22	NVMe port 2A
23	Fan connector 4
24	NVMe port 3A
25	Fan connector 3
26	NVMe port 2B
27	Fan connector 2
28	NVMe port 3B
29	Fan connector 1
30	Energy pack connector
31	Backplane / GPU power connector
32	Chassis intrusion detection switch connector
33	NVMe port 7B
34	NVMe port 6B
35	NVMe port 4B
36	NVMe port 5B
37	Secondary riser connector
38	NVMe port 9B
39	NVMe port 8B
40	Smart NIC mode 2 power connector
41	OCP slot 22 backup power connector
42	OCP slot 22 port 1
43	OCP slot 22 port 2
x	System maintenance switch

Subtopics

System maintenance switch descriptions
DIMM label identification
DIMM slot numbering
Processor and socket components

System maintenance switch descriptions

Table 1. System maintenance switch

Position	Functions: OFF = Default ON - Activates the function
1	iLO security override
5	Password disabled
6	Reset configuration

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.

- Memory speed and server-specific DIMM population rules for HPE servers using AMD EPYC 7004 Series processor, see the relevant memory technical paper.

Both resources can be found on the Hewlett Packard Enterprise website:

https://www.hpe.com/docs/server-memory
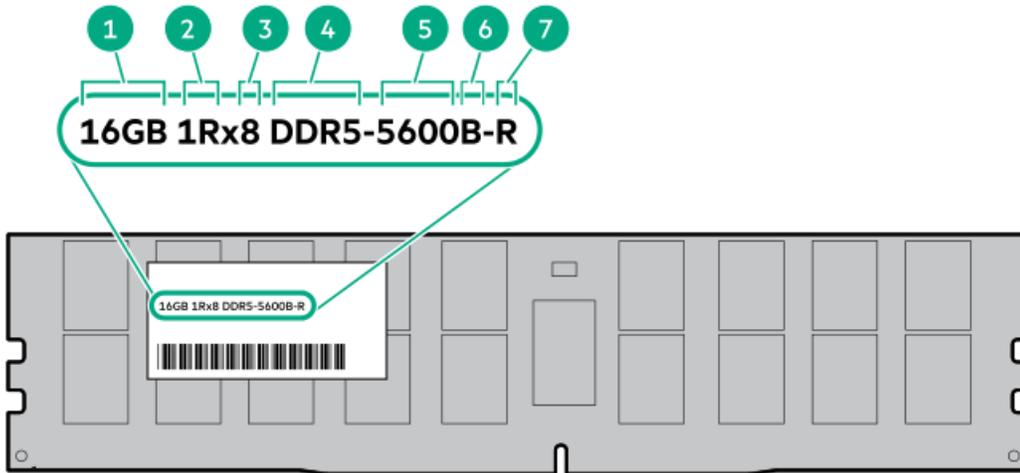
Item	Description	Example
1	Capacity [1]	16 GB
		32 GB
		64 GB
		96 GB
		128 GB
		256 GB
2	Rank	1R—Single rank
		2R—Dual rank
		4R—Quad rank
		8R—Octal rank
3	Data width on DRAM	x4—4-bit
		x8—8-bit
4	Memory generation	PC5—DDR5
5	Maximum memory speed [1]	4800 MT/s
		5600 MT/s
		6400 MT/s
6	CAS latency	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.
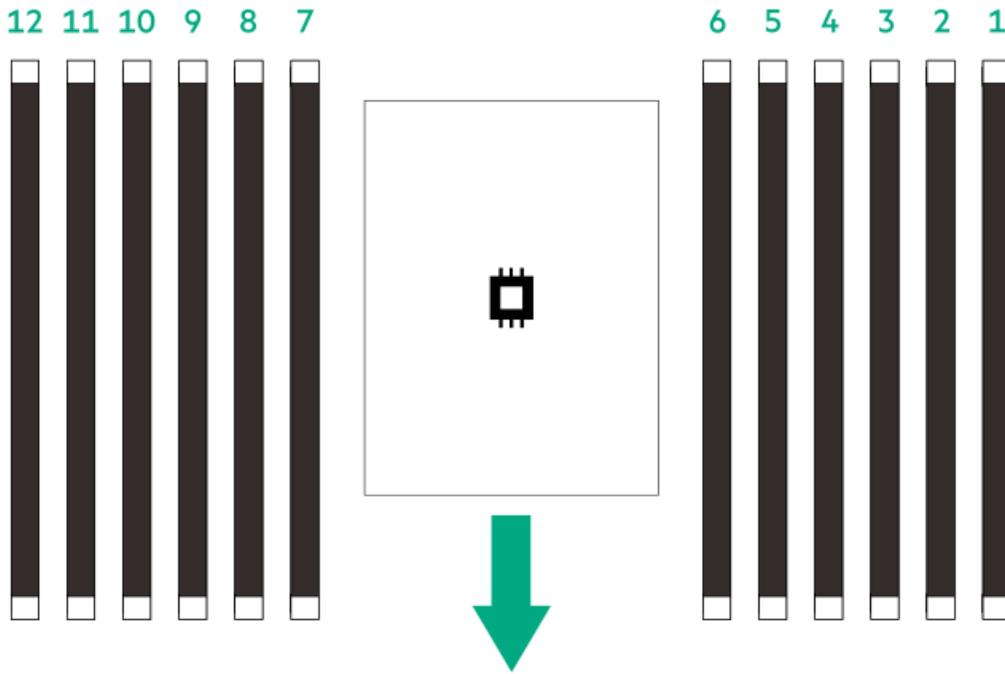
Processor and socket components
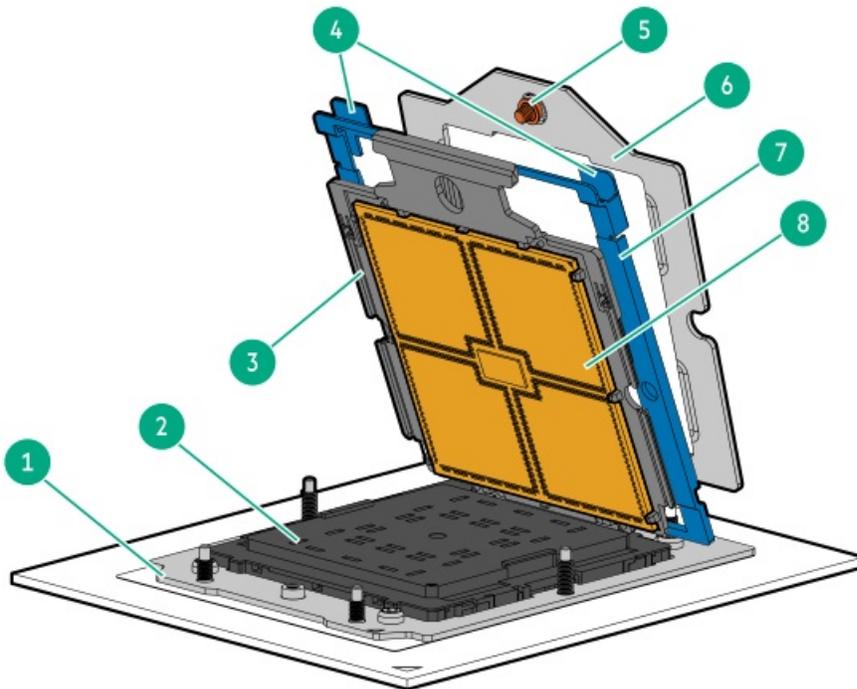
Item	Description
1	Processor socket
2	Pin field cover cap
3	Processor carrier
4	Rail frame lift tabs
5	Retention frame screw (T-20)
6	Retention frame
7	Rail frame
8	Processor

Device numbers

8 SFF device bay numbering

8 SFF + 2 SFF device bay numbering
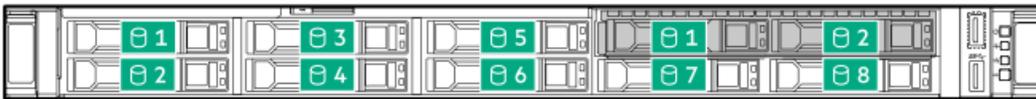
20 EDSFF device bay numbering
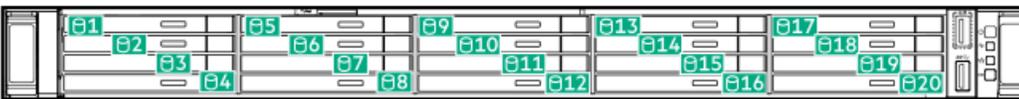
Drives

Subtopics

HPE Basic Drive LED definitions

EDSFF SSD LED definitions

HPE NS204i-u Boot Device LED definitions

HPE Basic Drive LED definitions

SFF basic drive carrier

Item	LED	Status	Definition
1	Fault or Locate	Solid amber	This drive has failed, is unsupported, or is invalid.
		Solid blue	A management application has identified the drive and the drive is operating normally.
		Flashing amber or blue (1 flash per second)	The drive has failed, or a predictive failure alert has been received for this drive. A management application has also identified the drive.
		Flashing amber (1 flash per second)	A predictive failure alert has been received for this drive. Replace the drive as soon as possible.
		Off	The drive is operating normally.
2	Online or Activity	Solid green	The drive is online and not active.
		Flashing green (1 flash per second)	The drive is doing one of the following: • Rebuilding or performing a RAID • Performing a stripe size migration • Performing a capacity expansion • Performing a logical drive extension • Erasing • Activating a replacement drive
		Flashing green (4 flashes per second)	The drive is operating normally.
		Off	The drive is not configured or is a spare drive.

EDSFF SSD LED definitions

This server supports hot-plug Enterprise and Data Center Standard Form Factor (EDSFF) drives, specifically, E3.S PCIe5 NVMe SSDs. The EDSFF drive carrier has two LEDs:

● Amber/blue LED—Managed by the drive backplane in conjunction with the storage controller and is used to indicate drive status.

● Green LED—Managed by the drive itself and indicates the drive activity.

Item	LED	State	Definition
1	Fault/Locate	Solid amber	This drive has failed, is unsupported, or is invalid.
		Solid blue	The drive is operating normally and being identified by a management application.
		Flashing amber/blue (1 flash per second)	The drive has failed, or a predictive failure alert has been received for this drive. The drive has also been identified by a management application.
		Flashing amber (1 flash per second)	A predictive failure alert has been received for this drive. Replace the drive as soon as possible.
		Off	The drive is operating normally and not being identified by a management application.
2	Online/Activity	Solid green	The drive is online and has no activity.
		Flashing green (4 flashes per second)	The drive is operating normally and has activity.
		Off	No power present.

HPE NS204i-u Boot Device LED definitions

Item	LED	Status	Definition
A	Fault or Locate	Solid amber	Drive has failed, unsupported, or invalid.
		Solid blue	Drive is operating normally.
		Flashing amber or blue (one flash per second)	Drive has failed, or a predictive failure alert is received for the drive.
		Flashing amber (one flash per second)	Drive predictive failure alert is received. Replace the drive as soon as possible.
		Off	Drive is operating normally and is not identified by any application.
B	Online/Activity	Solid green	Drive is online and has no activity.
		Flashing green (one flash per second)	Drive is doing one of the following: • Rebuilding or performing a RAID • Erasing
		Flashing green (4 flashes per second)	Drive is operating normally and has activity.
		Off	Drive is not configured by a RAID controller.

Fan bay numbering

Front of server
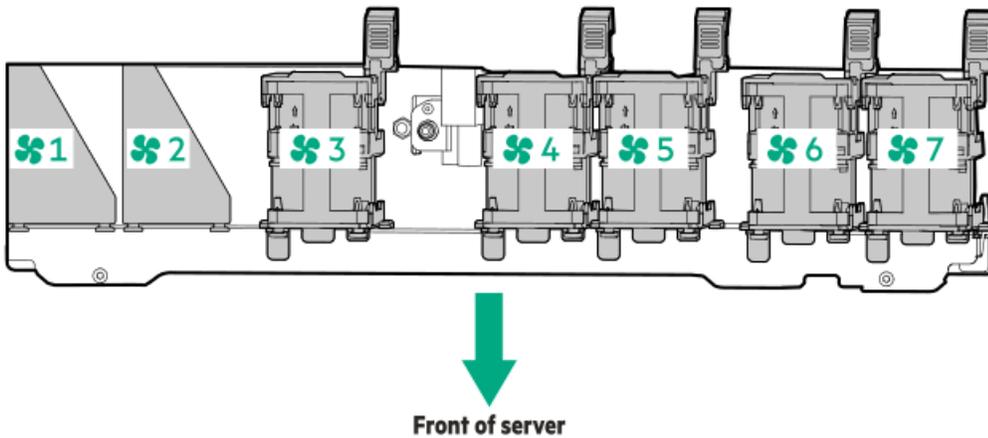
DSC-25 2-port SFP28 card ports and LEDs

Ports
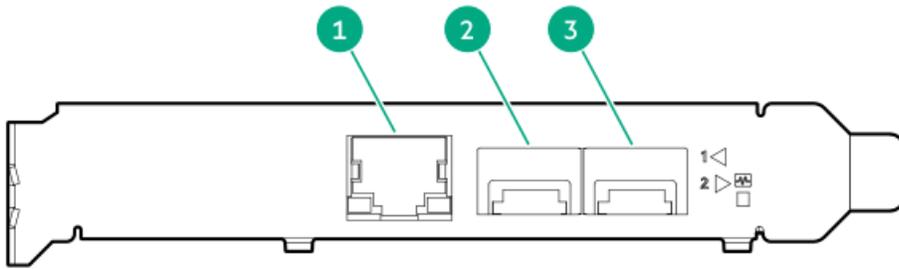
Item	Port	Description
1	Management port	1GbE RJ45
2	Network interface port	10/25G SFP+ based
3	Network interface port	10/25G SFP+ based

LEDs

The HPE for Pensando DSP DSC-25 2p SFP28 card is a dual-port, single-slot, half-height, half-length (HHHL) SFP28 network adapter. It has LEDs for Link (L) and Activity (A) for each port. A half-height bracket is shown in the following illustration with SFP28 ports and LEDs.
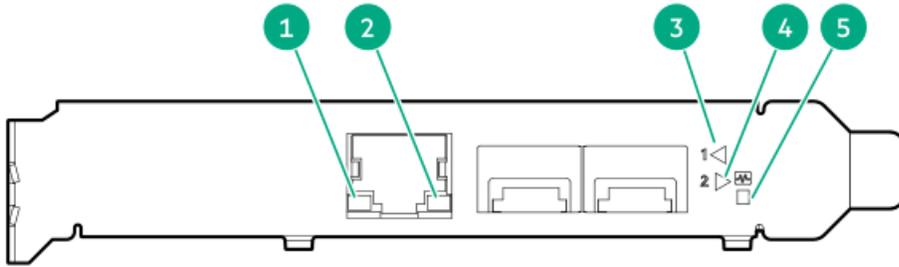
Item	LED	Status	Description
1	Management Port Activity LED	Off	No activity
		Flashing	Passing traffic; flashing frequency indicates traffic intensity
2	Management Port Link LED	Off	A link has not been established
		Solid green	Valid Ethernet link
3	SFP Port 1 Link/Activity LED	Off	A link has not been established
		Solid green	Valid Ethernet link
		Flashing green	Passing traffic; flashing frequency indicates traffic intensity
		Solid amber	Link fault
4	SFP Port 2 Link/Activity LED	Off	A link has not been established
		Solid green	Valid Ethernet link
		Flashing green	Passing traffic; flashing frequency indicates traffic intensity
		Solid amber	Link fault
5	System status LED	Off	System is not powered
		Solid amber	Power is up, software has not booted yet
		Solid green	System is up and fully operational

Processor and socket components
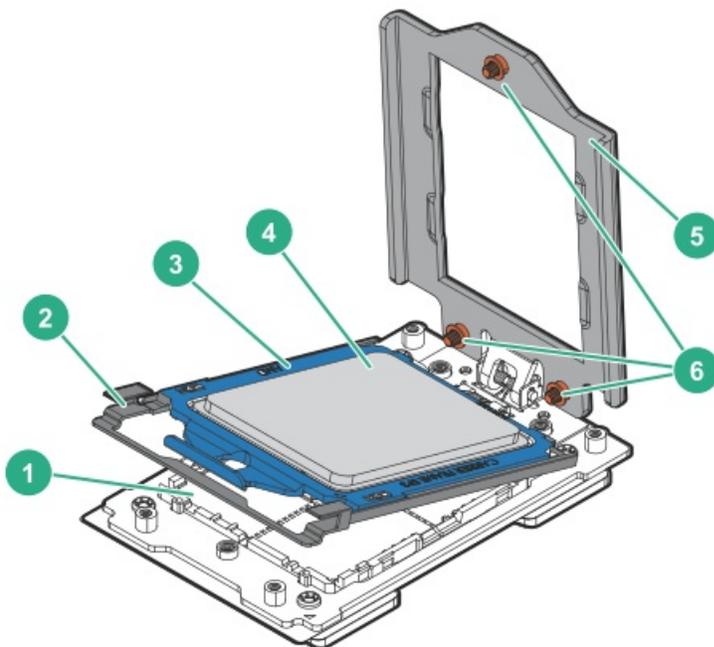
Item	Description
1	Pin field
2	Rail frame
3	Carrier frame
4	Processor
5	Force frame
6	Captive screws (Torx T-20)

HPE NS204i-u Boot Device components
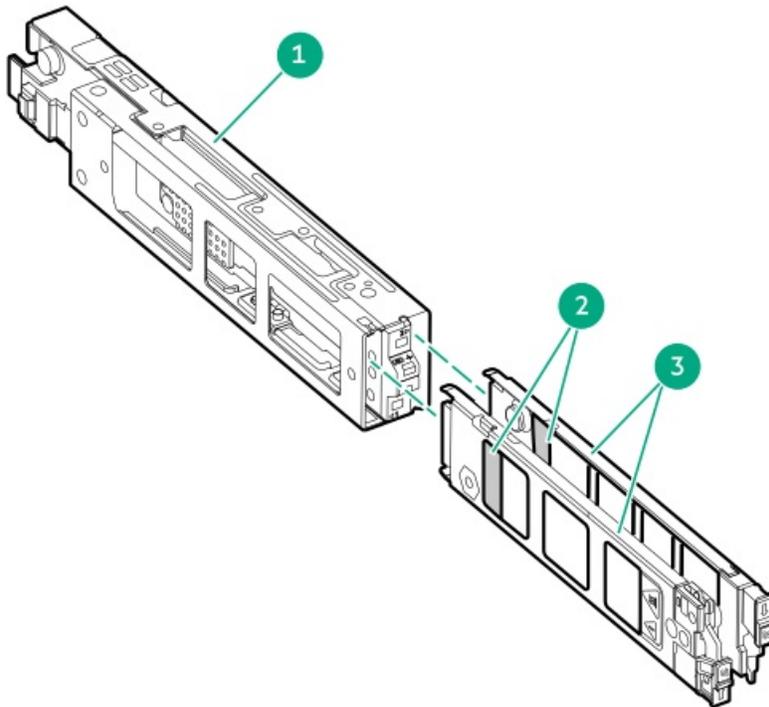
Item	Description
1	Boot device cage
2	M.2 slots
3	Boot device carriers

Subtopics

HPE NS204i-u Boot Device LED definitions

HPE NS204i-u Boot Device LED definitions
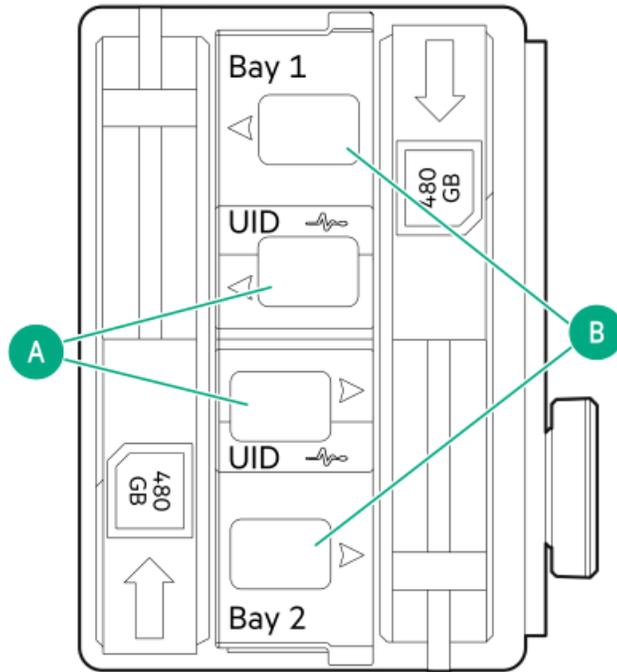
> ✎ **NOTE**
>
> The bay number can be found on the SSD carrier handle.

Item	LED	Status	Definition
A	Fault or Locate	Solid amber	Drive has failed, unsupported, or invalid.
		Solid blue	Drive is operating normally.
		Flashing amber or blue (one flash per second)	Drive has failed, or a predictive failure alert is received for the drive.
		Flashing amber (one flash per second)	Drive predictive failure alert is received. Replace the drive as soon as possible.
		Off	Drive is operating normally and is not identified by any application.
B	Online/Activity	Solid green	Drive is online and has no activity.
		Flashing green (one flash per second)	Drive is doing one of the following: • Rebuilding or performing a RAID • Erasing
		Flashing green (4 flashes per second)	Drive is operating normally and has activity.
		Off	Drive is not configured by a RAID controller.

Setup

Subtopics

[Operational requirements](#)
[Server warnings and cautions](#)
[Rack warnings](#)
[Electrostatic discharge](#)

Operational requirements

Subtopics

Space and airflow requirements

To allow for servicing and adequate airflow, observe the following space and airflow requirements when installing the server in an indoor commercial rack:

- 63.50 cm (25.00 in) in front of the rack

- 76.20 cm (30.00 in) behind the rack

- 121.90 cm (48.00 in) from the back of the rack to the back of another rack or row of racks

Observe the following:

- Servers draw in cool air through the front of the rack and expel warm air through the rear. The front and rear rack doors must be adequately ventilated to allow ambient air to enter the cabinet. The rear door must be adequately ventilated to allow the warm air to escape from the cabinet.

  ⚠ **CAUTION**

  To prevent improper cooling and damage to the equipment, do not block the ventilation openings.

  ⚠ **CAUTION**

  When the vertical space in the rack is not filled by a server or rack component, the gaps between the components can cause changes in airflow through the rack and around the servers. Cover all gaps with blanking panels to maintain proper airflow. Using a rack without blanking panels results in improper cooling which can lead to thermal damage.

- If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and prevent damage to the equipment:

  - Front and rear doors—If the 42U rack includes closing front and rear doors, you must allow 5,350 sq cm (830 sq in) of holes evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation).

  - Side—The clearance between the installed rack component and the side panels of the rack must be a minimum of 7.00 cm (2.75 in).

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

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.

Connecting a DC power cable to a DC power source

> **⚠ WARNING**
>
> To reduce the risk of electric shock or energy hazards:
>
> - This equipment must be installed by trained service personnel, as defined by the NEC and IEC 60950-1, Second Edition, the standard for Safety of Information Technology Equipment.
>
> - Connect the equipment to a reliably grounded Secondary circuit source. A Secondary circuit has no direct connection to a Primary circuit and derives its power from a transformer, converter, or equivalent isolation device.
>
> - The branch circuit overcurrent protection must be rated 27 A.

> **⚠ WARNING**
>
> When installing a DC power supply, the ground wire must be connected before the positive or negative leads.

> **⚠ WARNING**
>
> Remove power from the power supply before performing any installation steps or maintenance on the power supply.

> **⚠ CAUTION**
>
> The server equipment connects the earthed conductor of the DC supply circuit to the earthing conductor at the equipment. For more information, see the documentation that ships with the power supply.

> **⚠ CAUTION**
>
> If the DC connection exists between the earthed conductor of the DC supply circuit and the earthing conductor at the server equipment, the following conditions must be met:
>
> - This equipment must be connected directly to the DC supply system earthing electrode conductor or to a bonding jumper from an earthing terminal bar or bus to which the DC supply system earthing electrode conductor is connected.
>
> - This equipment should be located in the same immediate area (such as adjacent cabinets) as any other equipment that has a connection between the earthed conductor of the same DC supply circuit and the earthing conductor, and also the point of earthing of the DC system. The DC system should be earthed elsewhere.
>
> - The DC supply source is to be located within the same premises as the equipment.
>
> - Switching or disconnecting devices should not be in the earthed circuit conductor between the DC source and the point of connection of the earthing electrode conductor.

To connect a DC power cable to a DC power source:

1. Cut the DC power cord ends no shorter than 150 cm (59.06 in).

2. If the power source requires ring tongues, use a crimping tool to install the ring tongues on the power cord wires.

   > **ⓘ IMPORTANT**
   >
   > The ring terminals must be UL approved and accommodate 12 gauge wires.

   > **ⓘ IMPORTANT**
   >
   > The minimum nominal thread diameter of a pillar or stud type terminal must be 3.5 mm (0.138 in); the diameter of a screw type terminal must be 4.0 mm (0.157 in).

3. Stack each same-colored pair of wires and then attach them to the same power source. The power cord consists of three wires (black,

red, and green).

For more information, see the documentation that ships with the power supply.

Server warnings and cautions

⚠️ **WARNING**

This server is heavy. To reduce the risk of personal injury or damage to the equipment:

- Observe local occupational health and safety requirements and guidelines for manual material handling.

- Get help to lift and stabilize the product during installation or removal, especially when the product is not fastened to the rails. Hewlett Packard Enterprise recommends that a minimum of two people are required for all rack server installations. A third person may be required to help align the server if the server is installed higher than chest level.

- Use caution when installing the server in or removing the server from the rack; it is unstable when not fastened to the rails.

⚠️ **WARNING**

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

⚠️ **WARNING**

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

⚠️ **WARNING**

To reduce the risk of fire or burns after removing the energy pack:

- Do not disassemble, crush, or puncture the energy pack.

- Do not short external contacts.

- Do not dispose of the energy pack in fire or water.

- Do not expose the energy pack to low air pressure as it might lead to explosion or leakage of flammable liquid or gas.

- Do not expose the energy pack to temperatures higher than 60°C (140°F).

After power is disconnected, battery voltage might still be present for 1s to 160s.

⚠️ **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**

Do not operate the server for long periods with the access panel open or removed. Operating the server in this manner results in improper airflow and improper cooling that can lead to thermal damage.

Rack warnings

> ⚠️ **WARNING**
>
> To reduce the risk of personal injury or damage to the equipment, be sure that:
>
> - The leveling jacks are extended to the floor.
>
> - The full weight of the rack rests on the leveling jacks.
>
> - The stabilizing feet are attached to the rack if it is a single-rack installation.
>
> - The racks are coupled together in multiple-rack installations.
>
> - Only one component is extended at a time. A rack may become unstable if more than one component is extended for any reason.

> ⚠️ **WARNING**
>
> To reduce the risk of personal injury or equipment damage when unloading a rack:
>
> - At least two people are needed to safely unload the rack from the pallet. An empty 42U rack can weigh as much as 115 kg (253 lb), can stand more than 2.1 m (7 ft) tall, and might become unstable when being moved on its casters.
>
> - Never stand in front of the rack when it is rolling down the ramp from the pallet. Always handle the rack from both sides.

> ⚠️ **WARNING**
>
> To reduce the risk of personal injury or damage to the equipment, adequately stabilize the rack before extending a component outside the rack. Extend only one component at a time. A rack may become unstable if more than one component is extended.

> ⚠️ **WARNING**
>
> When installing a server in a telco rack, be sure that the rack frame is adequately secured at the top and bottom to the building structure.

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.

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
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

Setting up the server

Prerequisites

Before setting up the server:

- Download the latest Service Pack for ProLiant (SPP):

  https://www.hpe.com/servers/spp

  You might be prompted for your HPE credentials.

- Verify that your OS or virtualization software is supported:

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

- Review the UEFI Deployment Guide for HPE ProLiant Gen11 Servers and HPE Synergy:

  https://www.hpe.com/support/UEFIGen11-UG-en

  If the UEFI requirements are not met, you might experience boot failures or other errors when installing the operating system.

- If needed, do one of the following to download the storage driver:

  - Download it from the Hewlett Packard Enterprise Support Center website:

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

  - Extract it from the SPP.

- Read the operational requirements for the server.

- Read the safety and compliance information on the HPE website:

  https://www.hpe.com/support/safety-compliance-enterpriseproducts

Procedure

1. Unbox the server and verify the contents:

   - Server

   - Power cord

   - Rack rail hook-and-loop strap

   - Rack-mounting hardware (optional)

   - 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. Install the server into the rack.

4. Press the Power On/Standby button.

5. Decide how to manage the server:

   - Locally: Use a KVM switch or a connect a keyboard, monitor, and mouse.

   - 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 management 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:

- The iLO host name is on the serial number/ iLO information pull tab on the front panel.

- 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.

- The default login credentials are on the serial number/ iLO information pull tab on the front panel.

    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.

6. Configure the initial server setup.

7. Set up the storage.

8. Deploy an OS or virtualization software.

9. After the OS is installed, update the drivers.

Selecting boot options in UEFI Boot Mode

About this task

On servers operating in UEFI Boot Mode, the boot controller and boot order are set automatically.

Procedure

1. Press the Power On/Standby button.

2. During the initial boot:

- To modify the server configuration ROM default settings, press the **F9** key in the ProLiant POST screen to enter the UEFI System Utilities screen. By default, the System Utilities menus are in the English language.

- If you do not need to modify the server configuration and are ready to install the system software, press the **F10** key to access Intelligent Provisioning.

Results

For more information on automatic configuration, see the UEFI documentation on the Hewlett Packard Enterprise website.

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

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.

Operations

Subtopics

Power up the server

Procedure

- Press the Power On/Standby button.

- Use the virtual power button through iLO 6.

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.
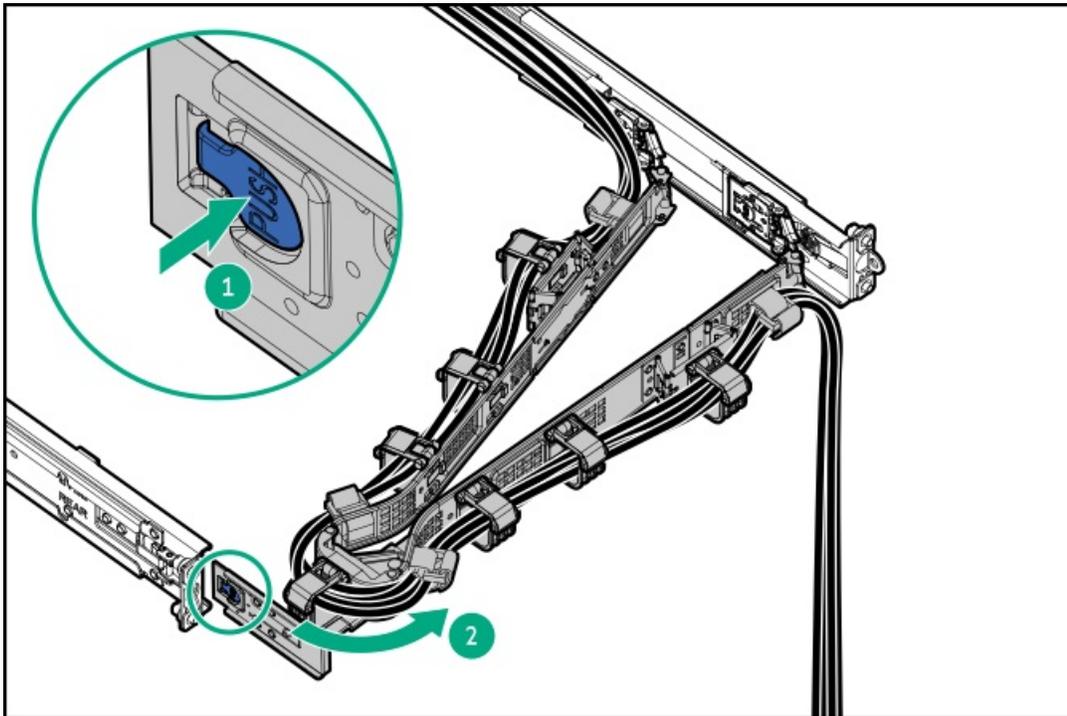
Open the cable management arm

Procedure

1. Press and hold the blue **PUSH** button on the retention bracket.

2. Swing the arm away from the rear panel.

Extend the server from the rack

Prerequisites

Before you perform this procedure, review the:

- Rack warnings

- Server warnings and cautions

About this task

If the cable management arm option is installed, you can extend the server without powering down the server or disconnecting peripheral cables and power cords. These steps are only necessary with the standard cable management solution.

Procedure

1. Power down the server.

2. Disconnect all peripheral cables and power cords.

3. Loosen the front panel thumbscrews.

    > ⚠️ **WARNING**
    >
    > To reduce the risk of personal injury, be careful when pressing the server rail-release latches and sliding the server into the rack. The sliding rails could pinch your fingers.

4. Extend the server on the rack rails until the server rail-release latches engage.

5. After the installation or maintenance procedure, slide the server into the rack:

    a. Slide the server fully into the rack.

  b. Secure the server by tightening the thumbscrews.

6. Connect the peripheral cables and power cords.

Remove the server from the rack

Prerequisites

Before you perform this procedure, review the:

- Rack warnings

- Server warnings and cautions

About this task

> ⚠️ **WARNING**
>
> To reduce the risk of personal injury or equipment damage, be sure that the rack is adequately stabilized before extending anything from the rack.

Procedure

1. Power down the server.

2. Release the cable management arm.

3. Disconnect the cabling from the rear panel.

4. Extend the server from the rack.

5. Remove the server from the rack:
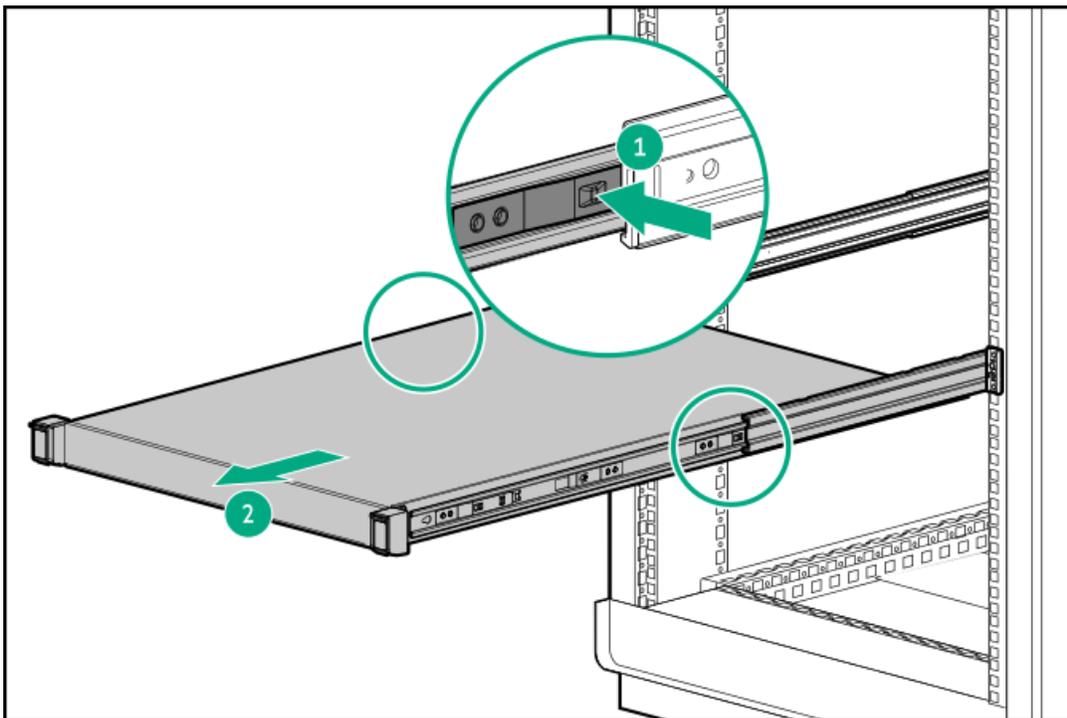
6. Place the server on a sturdy, level surface.

Remove the front bezel

Procedure

1. If installed, remove the Kensington security lock.

   For more information, see the lock documentation.

2. Press the bezel release latch (callout 1), and then pivot the bezel open (callout 2).

3. Release the right side of the bezel from the front panel (callout 3).

Remove the access panel

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**
>
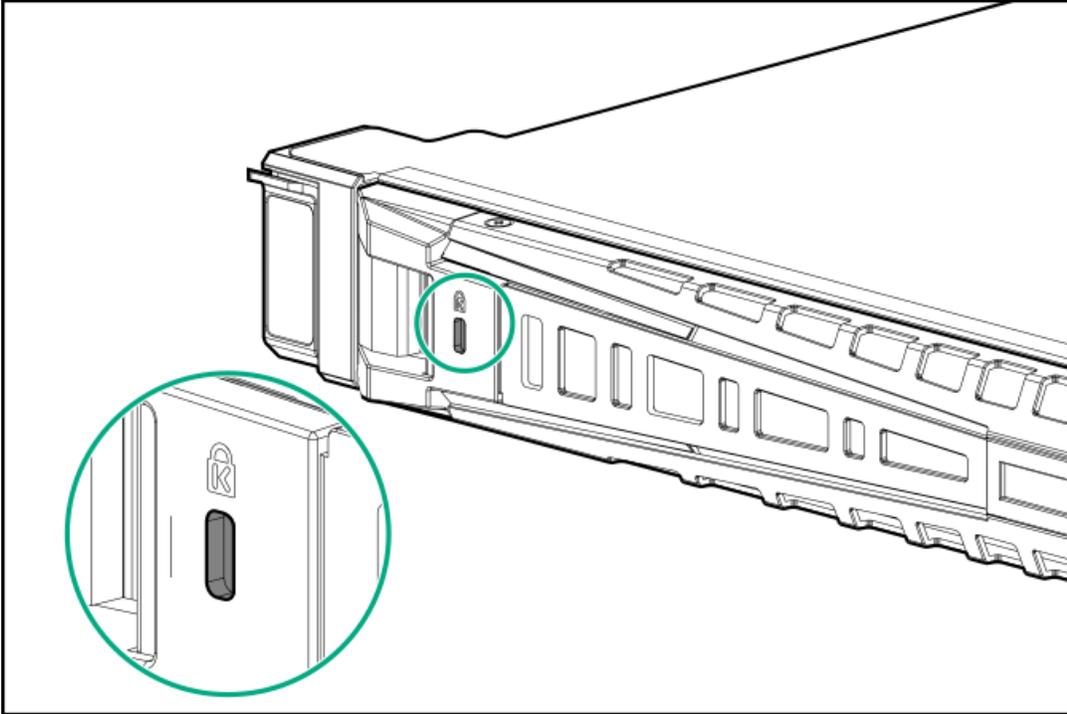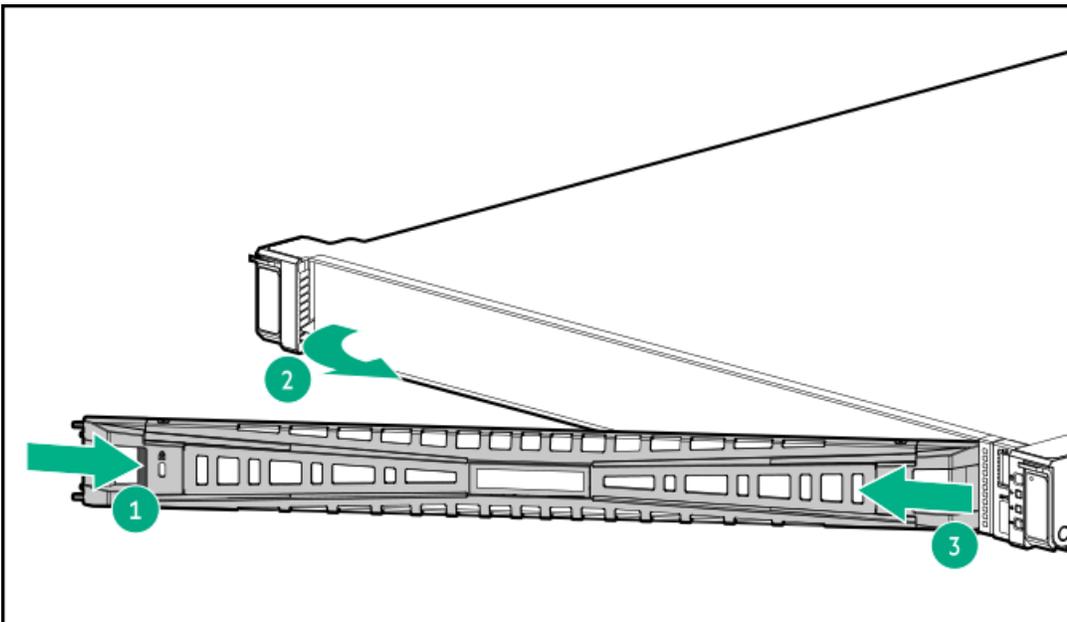> Do not operate the server for long periods with the access panel open or removed. Operating the server in this manner results in improper airflow and improper cooling that can lead to thermal damage.

Procedure

1. Power down the server.

2. Extend the server from the rack.

3. Open or unlock the locking latch, slide the access panel to the rear of the chassis, and remove the access panel.

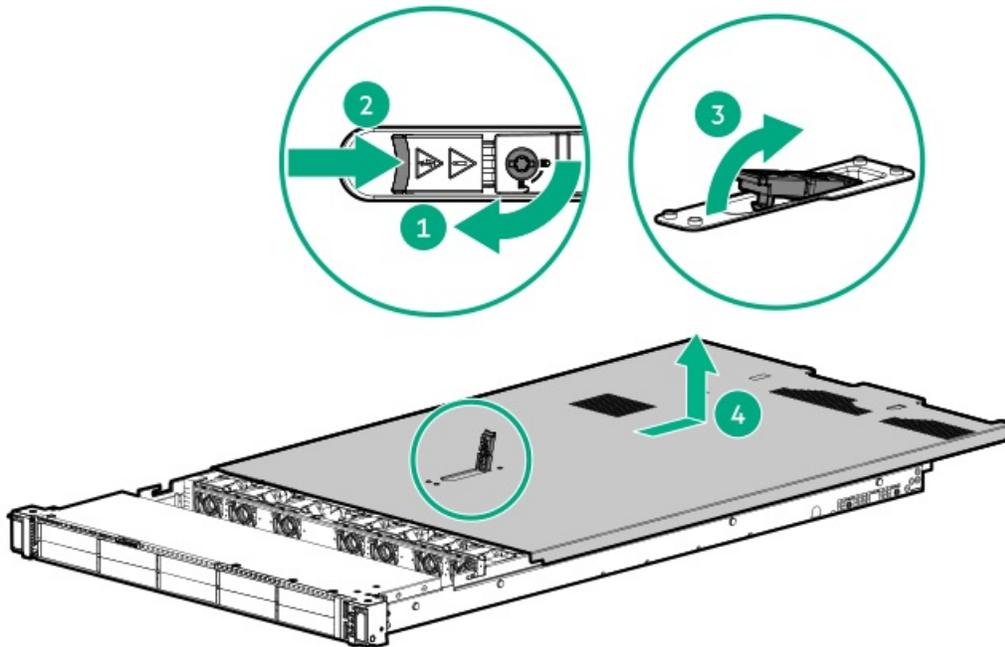# Remove the hot-plug fan

About this task

> ⚠️ **CAUTION**
>
> Do not operate the server for long periods with the access panel open or removed. Operating the server in this manner results in improper airflow and improper cooling that can lead to thermal damage.

> ⓘ **IMPORTANT**
>
> For optimum cooling, install fans in all primary fan locations.

Procedure

1. Extend the server from the rack.

2. Remove the access panel.

3. Remove the fan.

> **(!)** **IMPORTANT**
>
> When a hot-plug fan is removed, the other fans in the server will increase speed to compensate.

> **⚠ CAUTION**
>
> To avoid server shutdown, a fan must be replaced within 60 seconds of being removed.
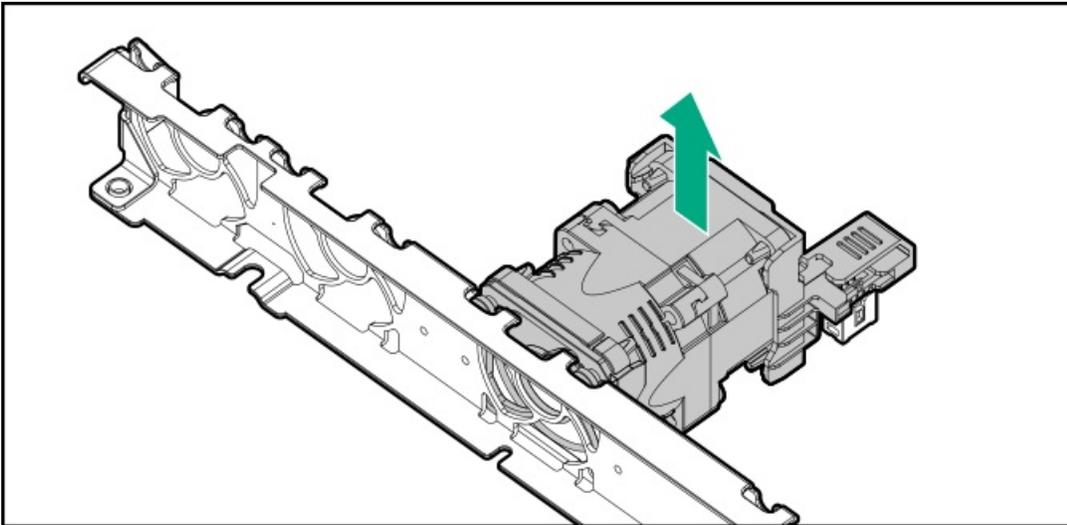
Remove the primary PCI riser cage

About this task

> **⚠ CAUTION**
>
> To prevent damage to the server or expansion boards, power down the server and remove all AC power cords before removing or installing the PCI riser cage.

Procedure

1. Back up all server data.

2. Power down the server.

3. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

4. Do one of the following:

    a. Extend the server from the rack.

    b. Remove the server from the rack.

5. Remove the access panel).

6. Remove the PCI riser cage.
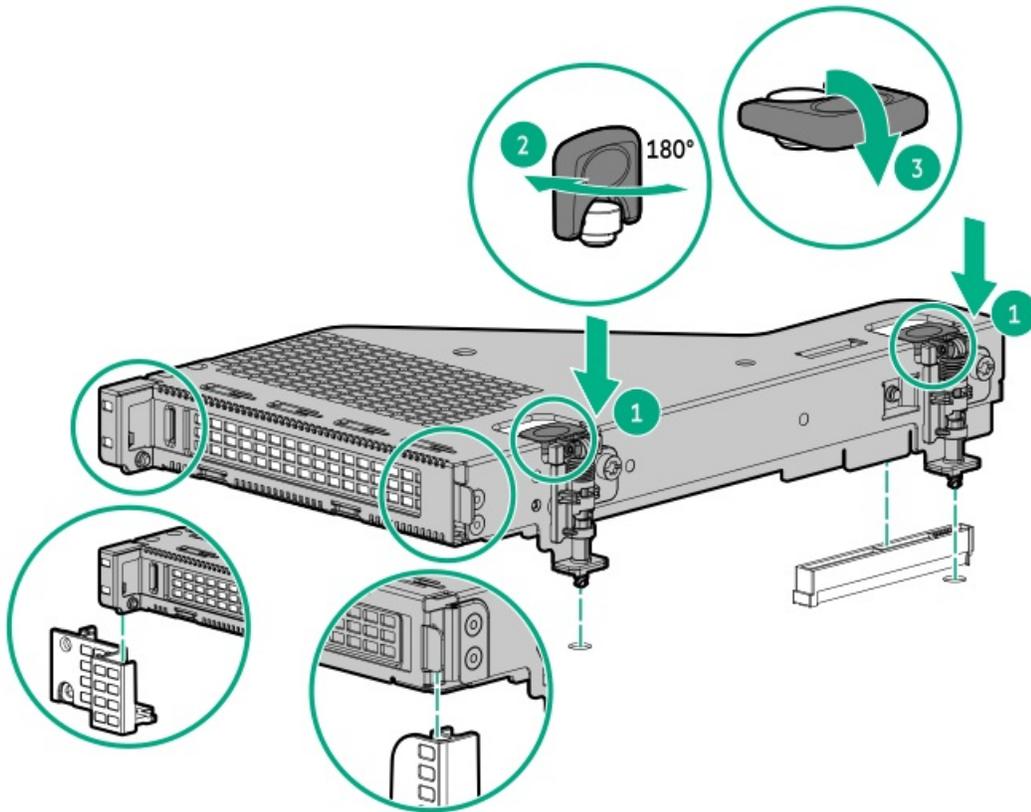
Remove the secondary PCI riser cage

About this task

> ⚠ **CAUTION**
>
> To prevent damage to the server or expansion boards, power down the server and remove all AC power cords before removing or installing the PCI riser cage.

Procedure

1. Back up all server data.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Do one of the following:

   a. Extend the server from the rack.

   b. Remove the server from the rack (Remove the server from the rack).

5. Remove the access panel.

6. Disconnect any cables connected to the PCI riser cage.

7. Remove any expansion boards.

8. Remove the PCI riser cage.
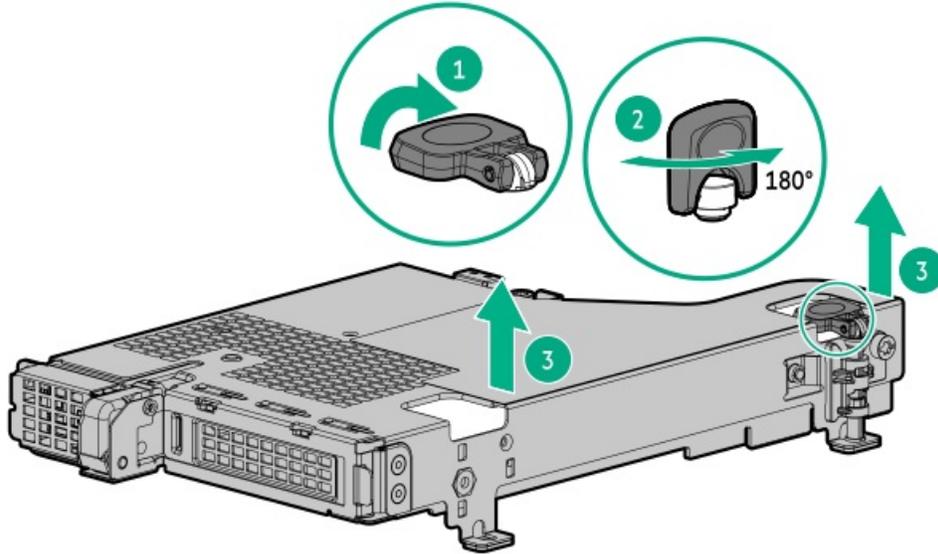
Remove the 8SFF drive backplane

Procedure

1. Back up all server data.

2. <u>Power down the server</u>.

3. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

4. Do one of the following:

    a. <u>Extend the server from the rack</u>.

    b. Remove the server from the rack (<u>Remove the server from the rack</u>).

5. <u>Remove the access panel</u>.

6. Remove all drives.

7. Disconnect and remove all cables connected to the drive backplane.

8. Remove the 8 SFF SAS/SATA drive backplane.
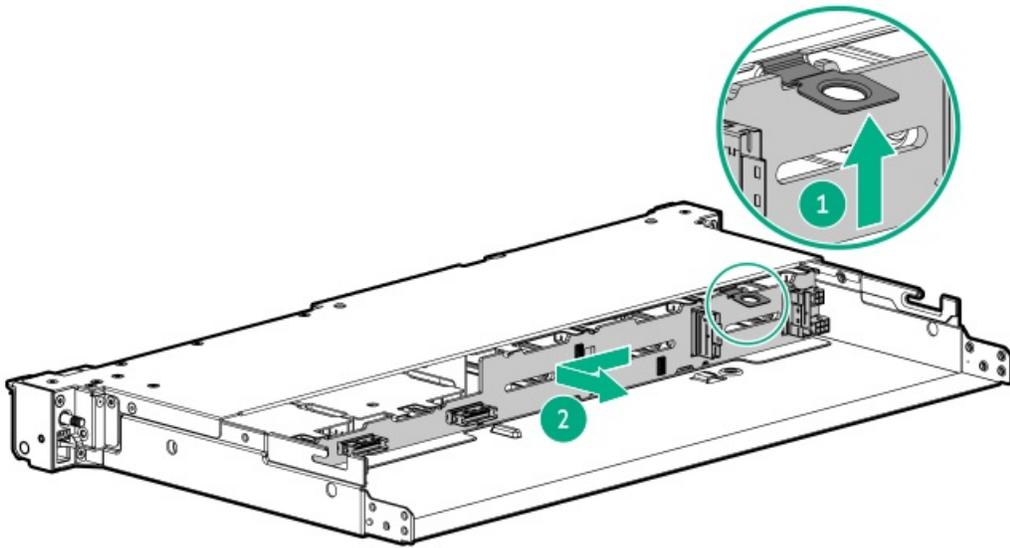
Install the primary PCI riser cage

Procedure

1. Install the PCI riser cage.
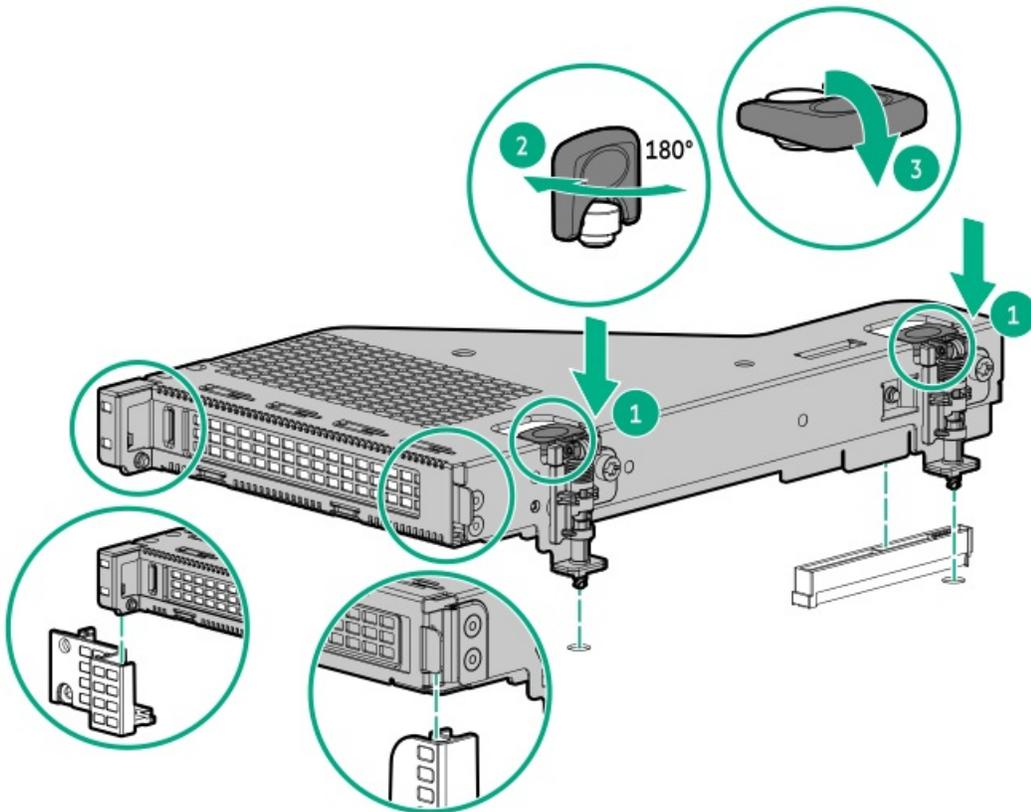
2. Install the access panel.

3. Install the server into the rack.

4. Connect each power cord to the server.

5. Connect each power cord to the power source.

6. Power up the server (Power up the server).

Install the secondary PCI riser cage

Procedure

1. Install the riser cage.
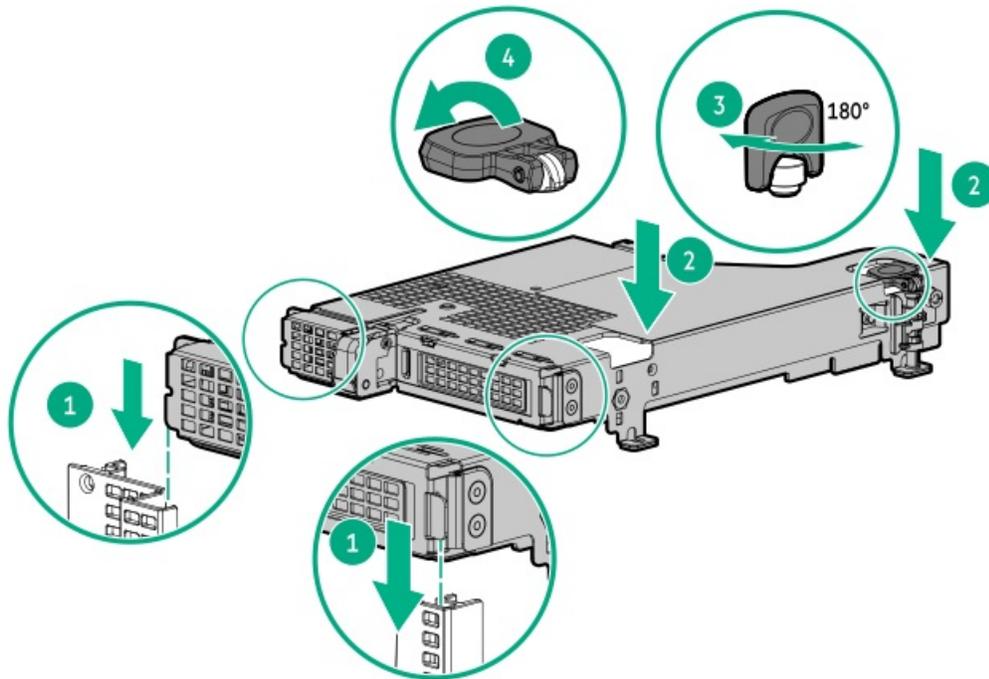
2. If needed, install expansion boards.

3. Install the access panel (Install the access panel).

4. Install the server into the rack.

5. Connect each power cord to the server.

6. Connect each power cord to the power source.

7. Power up the server (Power up the server).

Install the access panel

Procedure

1. Place the access panel on top of the server with the latch open.

   Allow the panel to extend past the rear of the server approximately 1.25 cm (0.5 in).

2. Push down on the latch.

   The access panel slides to a closed position.

3. Tighten the security screw on the latch, if needed.
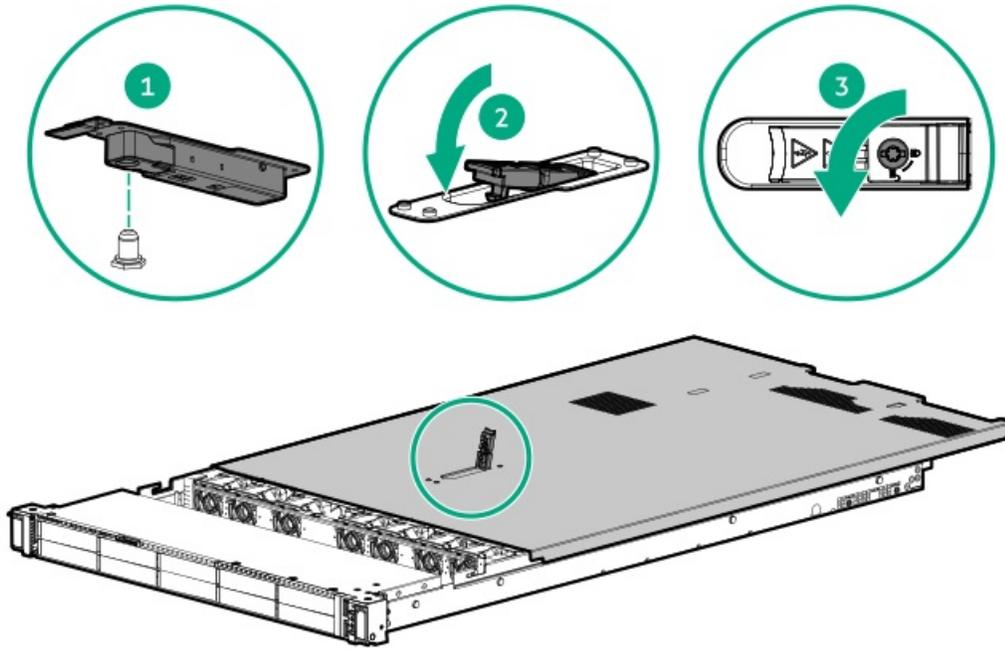
Installing the front bezel option

Procedure

1. Attach the front bezel to the right chassis ear.

2. Press and hold the front bezel release latch.

3. Close the front bezel.
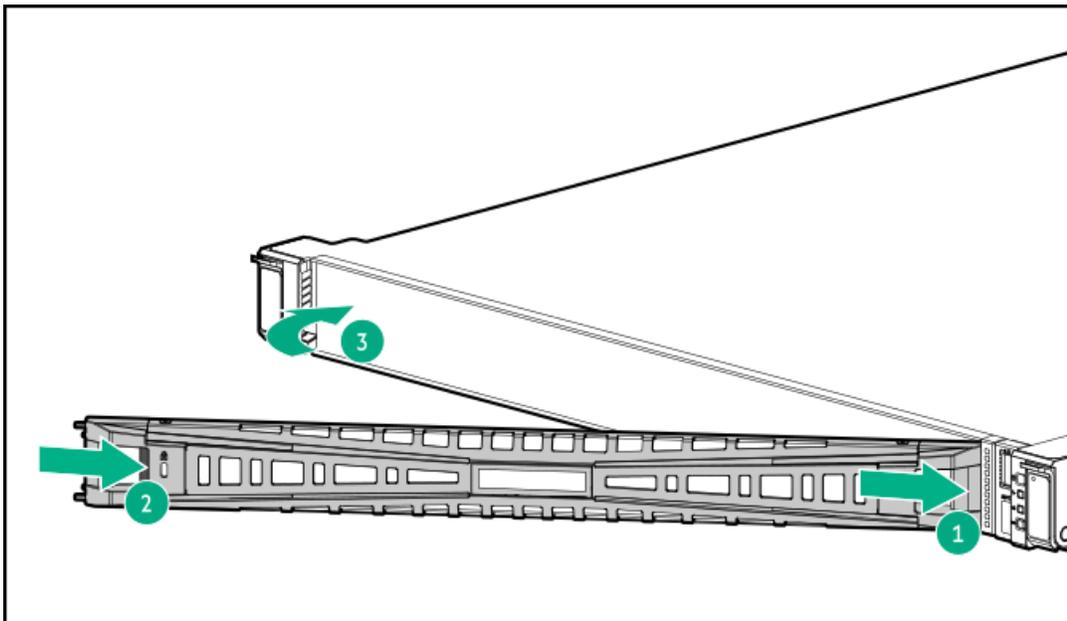
4. (Optional) Install the Kensington security lock.

For more information, see the lock documentation.

Results

The installation procedure is complete.

Hardware options installation

Subtopics

[Server data backup](#)

[Hewlett Packard Enterprise product QuickSpecs](#)

[Introduction](#)

[Power supply options](#)

[Memory options](#)

[Installing the high performance fan](#)

[Drive options](#)

[Universal media bay options](#)

[Riser and riser cage options](#)

[Storage controller options](#)

[Processor and heatsink options](#)

[Installing the Systems Insight Display power module](#)

[Installing the serial port](#)

[Installing the Chassis Intrusion Detection switch option](#)

[Energy pack options](#)

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

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

Introduction

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.

> ⚠ **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 prevent damage to electrical components, properly ground the server before beginning any installation procedure. Improper grounding can cause electrostatic discharge.**

Power supply options

Depending on the installed options and the regional location where the server was purchased, the server can be configured with one of the supported power supplies.

Subtopics

Power supply warnings and cautions
DC power supply warnings and cautions
Connecting a DC power cable to a DC power source
Installing a redundant hot-plug power supply
Installing the HPE 1600 W Flex Slot -48 VDC hot-plug power supply

Power supply warnings and cautions

⚠️ **WARNING**

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

- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.

- Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.

- Unplug the power cord from the power supply to disconnect power to the equipment.

- Do not route the power cord where it can be walked on or pinched by items placed against it. Pay particular attention to the plug, electrical outlet, and the point where the cord extends from the server.

⚠️ **WARNING**

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

⚠️ **CAUTION**

Mixing different types of power supplies in the same server might:

- Limit or disable some power supply features including support for power redundancy.

- Cause the system to become unstable and might shut down.

To ensure access to all available features, all power supplies in the same   server should have the same output and efficiency ratings. Verify that all power supplies have the same part number and label color.

DC power supply warnings and cautions

⚠️ **WARNING**

To reduce the risk of electric shock, be sure that the cable grounding kit is properly installed and connected to a suitable protective earth terminal before connecting the power source to the rack.

CAUTION

This equipment is designed to permit the connection of the earthed conductor of the DC supply circuit to the earthing conductor at the equipment. If this connection is made, all the following must be met:

- This equipment must be connected directly to the DC supply system earthing electrode conductor or to a bonding jumper from an earthing terminal bar or bus to which the DC supply system earthing electrode conductor is connected.

- This equipment must be located in the same immediate area (such as adjacent cabinets) as any other equipment that has a connection between the earthed conductor of the same DC supply circuit and the earthing conductor, and also the point of earthing of the DC system. The DC system must be earthed elsewhere.

- The DC supply source is to be located within the same premises as the equipment.

- Switching or disconnecting devices must not be in the earthed circuit conductor between the DC source and the point of connection of the earthing electrode conductor.

Connecting a DC power cable to a DC power source

About this task

WARNING

To reduce the risk of electric shock or energy hazards:

- This equipment must be installed by trained service personnel, as defined by the NEC and IEC 60950-1/IEC 62368-1, the standard for Safety of Information Technology Equipment.

- Connect the equipment to a reliably grounded secondary circuit source. A secondary circuit has no direct connection to a primary circuit and derives its power from a transformer, converter, or equivalent isolation device.

- The overcurrent protection for the DC source must not exceed 45 A.

WARNING

When installing a DC power supply, the ground wire must be connected before the positive or negative leads.

WARNING

Remove power from the power supply before performing any installation steps or maintenance on the power supply.

CAUTION

The server equipment connects the earthed conductor of the DC supply circuit to the earthing conductor at the equipment. For more information, see the documentation that ships with the power supply.

> **CAUTION**
>
> If a DC connection exists between the earthed conductor of the DC supply circuit and the earthing conductor at the server equipment, the following conditions must be met:
>
> - This equipment must be connected directly to the DC supply system earthing electrode conductor or to a bonding jumper from an earthing terminal bar or bus to which the DC supply system earthing electrode conductor is connected.
>
> - Locate the equipment in the same immediate area (such as adjacent cabinets) as any other equipment that has a connection between the earthed conductor of the same DC supply circuit and the earthing conductor, and also the point of earthing of the DC system. The DC system must be earthed elsewhere.
>
> - The DC supply source is to be located within the same premises as the equipment.
>
> - Switching or disconnecting devices should not be in the earthed circuit conductor between the DC source and the point of connection of the earthing electrode conductor.

Procedure

1. Cut the DC power cord ends no shorter than 150 cm (59.06 in).

   > **IMPORTANT**
   >
   > The ring terminals must be UL approved and accommodate 12 gauge wires.

   > **IMPORTANT**
   >
   > The minimum nominal thread diameter of a pillar or stud type terminal must be 3.5 mm (0.138 in). The diameter of a screw type terminal must be 5.0 mm (0.197 in).

2. If the power source requires ring tongues, use a crimping tool to install the ring tongues on the power cord wires.

3. Stack each same-colored pair of wires and then attach them to the same power source. The power cord consists of three wires (black, red, and green).

   For more information, see the documentation that ships with the power supply.

Installing a redundant hot-plug power supply

Prerequisites

Before installing this option, be sure you have the following:

The components included with the hardware option kit

Procedure

1. Observe the following alerts:

   > **CAUTION**
   >
   > All power supplies installed in the server must have the same output power capacity. Verify that all power supplies have the same part number and label color. The system becomes unstable and may shut down when it detects mismatched power supplies.
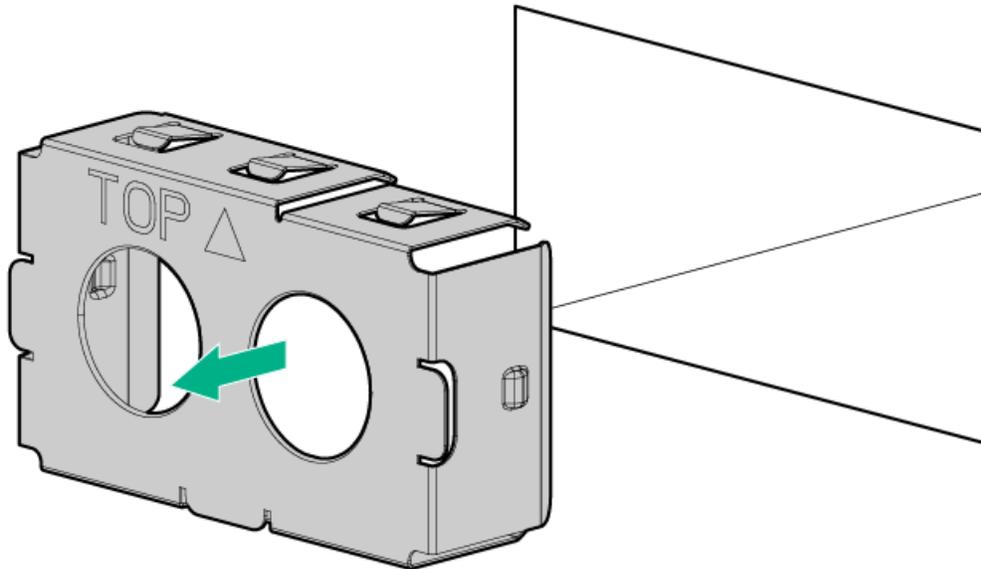
> ⚠️ **CAUTION**
>
> To prevent improper cooling and thermal damage, do not operate the server unless all bays are populated with either a component or a blank.

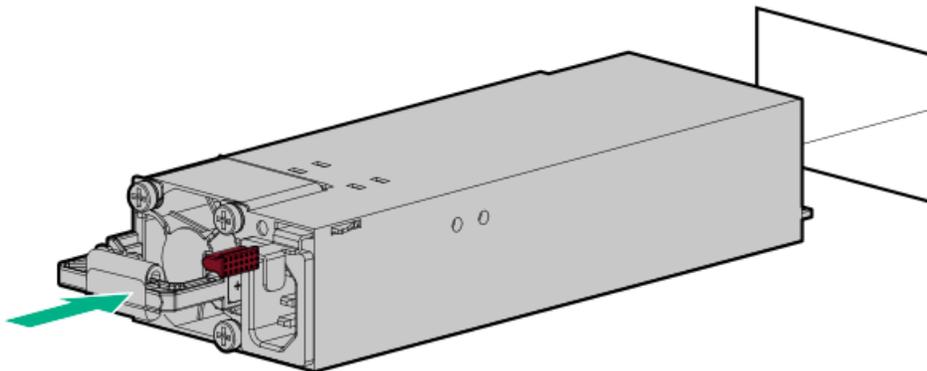2. Power down the server.

3. Remove the blank.

> ⚠️ **WARNING**
>
> To reduce the risk of personal injury from hot surfaces, allow the power supply, power supply blank, or dual slot power supply adapter to cool before touching it.

4. Insert the power supply into the power supply bay until it clicks into place.


5. Connect the power cord to the power supply.

6. Secure the power cord in the strain relief strap attached to the power supply handle:

   a. Unwrap the strain relief strap from the power supply handle.

> ⚠️ **CAUTION**
>
> 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.

    b. Secure the power cord with the strain relief strap. Roll the extra length of the strap around the power supply handle.
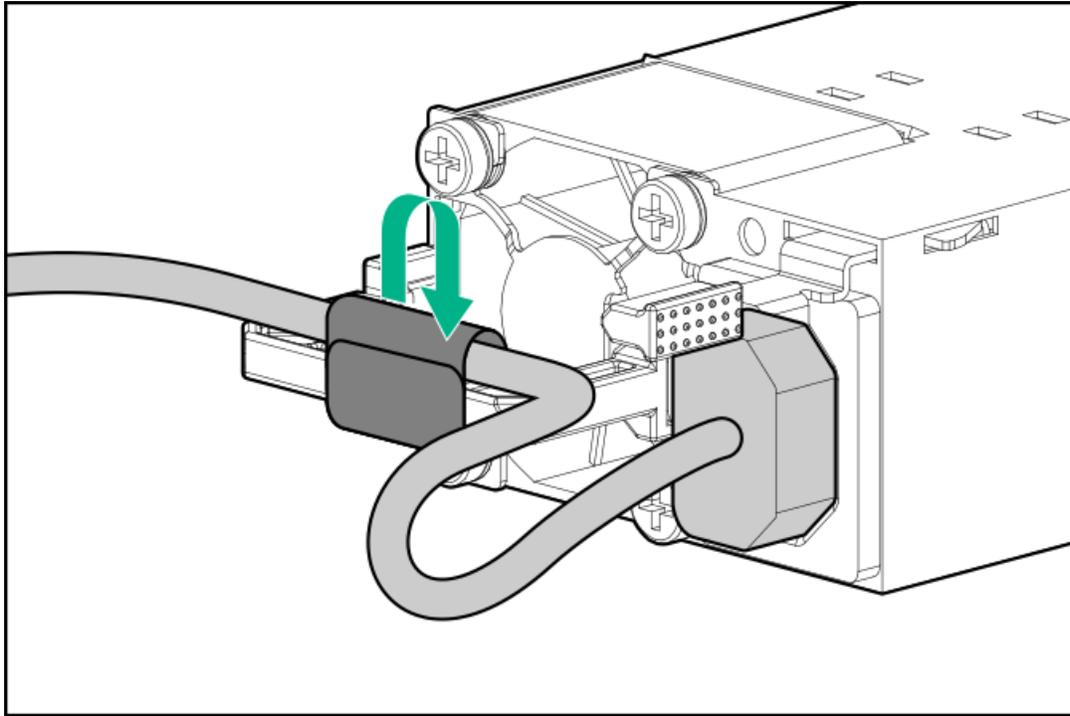
7. Route the power cord. Use best practices when routing power cords and other cables. A cable management arm is available to help with routing. To obtain a cable management arm, contact a Hewlett Packard Enterprise authorized reseller.

8. Connect the power cord to the AC power source.

9. Be sure that the power supply LED is green .

Results

The installation procedure is complete.

Installing the HPE 1600 W Flex Slot -48 VDC hot-plug power supply

Prerequisites

- Before you perform this procedure, make sure that you have a Phillips No. 1 screwdriver available.

- Before installing a power supply option, review the following:

  - Power supply warnings and cautions

  - DC power supply warnings and cautions

About this task

> **⚠ WARNING**
>
> To reduce the risk of electric shock, fire, and damage to the equipment, you must install this product in accordance with the following guidelines:
>
> - The HPE 1600 W Flex Slot -48 VDC hot-plug power supply is intended only for installation in Hewlett Packard Enterprise servers located in a restricted access location.
>
> - The HPE 1600 W Flex Slot -48 VDC hot-plug power supply is not intended for direct connection to the DC supply branch circuit. Only connect this power supply to a power distribution unit (PDU) that provides an independent overcurrent-protected output for each DC power supply. Each output overcurrent-protected device in the PDU must be suitable for interrupting fault current available from the DC power source and must be rated no more than 45 A.
>
> - The PDU output must have a shut-off switch or a circuit breaker to disconnect power for each power supply. To completely remove power from the power supply, disconnect power at the PDU. The end product may have multiple power supplies. To remove all power from the product, disconnect the power for each power supply.
>
> - In accordance with applicable national requirements for Information Technology Equipment and Telecommunications Equipment, this power supply only connects to DC power sources that are classified as SELV or TNV. Generally, these requirements are based on the International Standard for Information Technology Equipment, IEC 60950-1/IEC 62368-1. In accordance with local and regional electric codes and regulations, the DC source must have one pole (Neutral/Return) reliably connected to earth ground.
>
> - You must connect the power supply ground screw located on the front of the power supply to a suitable ground (earth) terminal. In accordance with local and regional electric codes and regulations, this terminal must be connected to a suitable building ground (earth) terminal. Do not rely on the rack or cabinet chassis to provide adequate ground (earth) continuity.

> **⚠ WARNING**
>
> To reduce the risk of personal injury from hot surfaces, allow the power supply, power supply blank, or dual slot power supply adapter to cool before touching it.
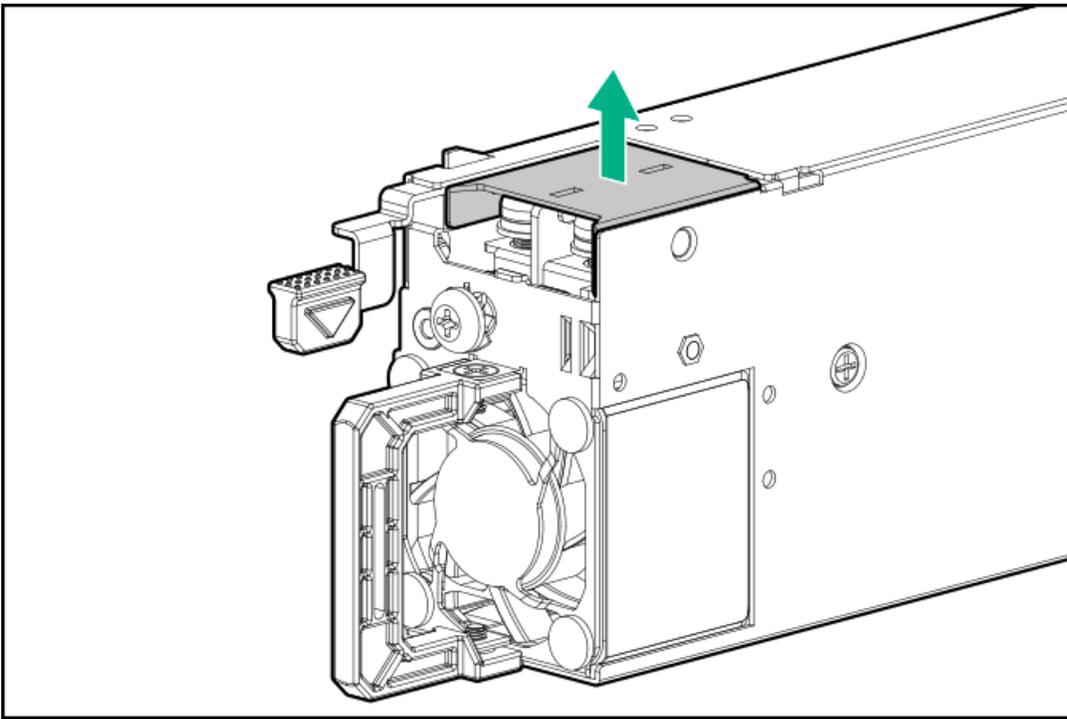
> **⚠ CAUTION**
>
> To prevent improper cooling and thermal damage, do not operate the server unless all bays are populated with either a component or a blank.
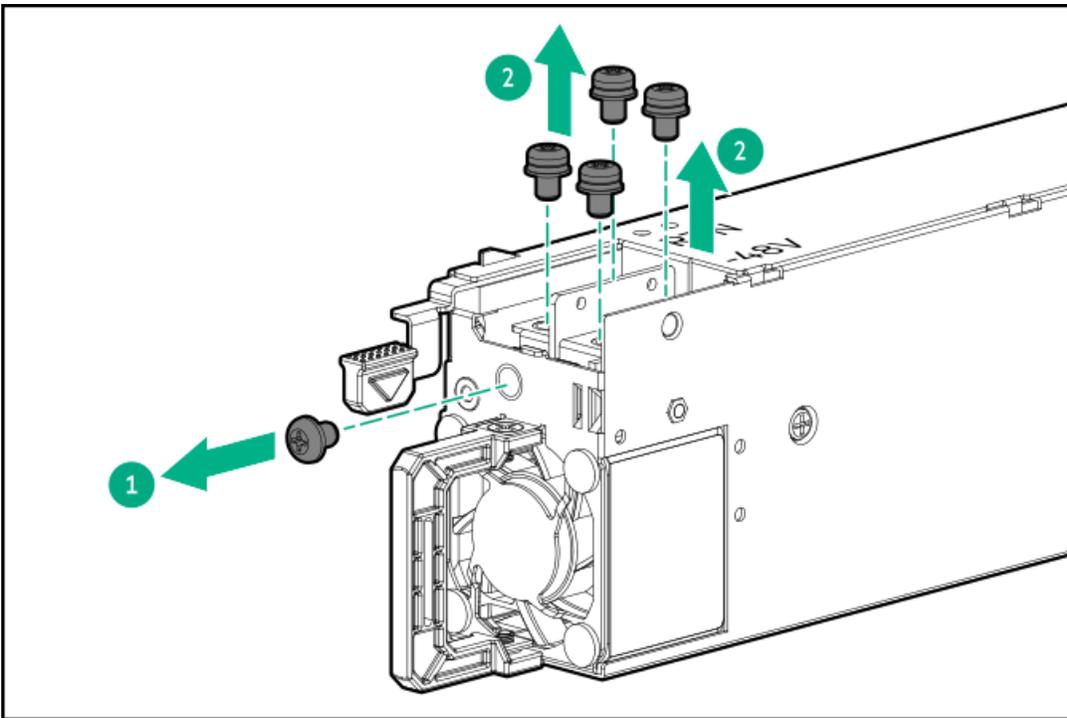
Procedure

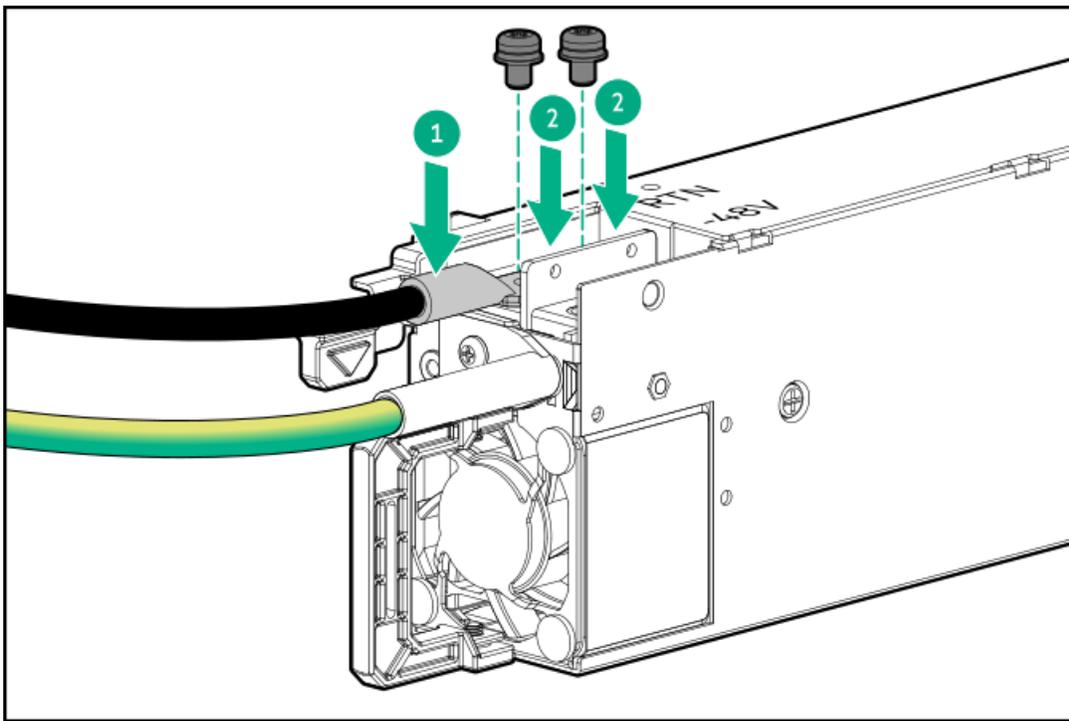1. Remove the protective cover from the power supply.

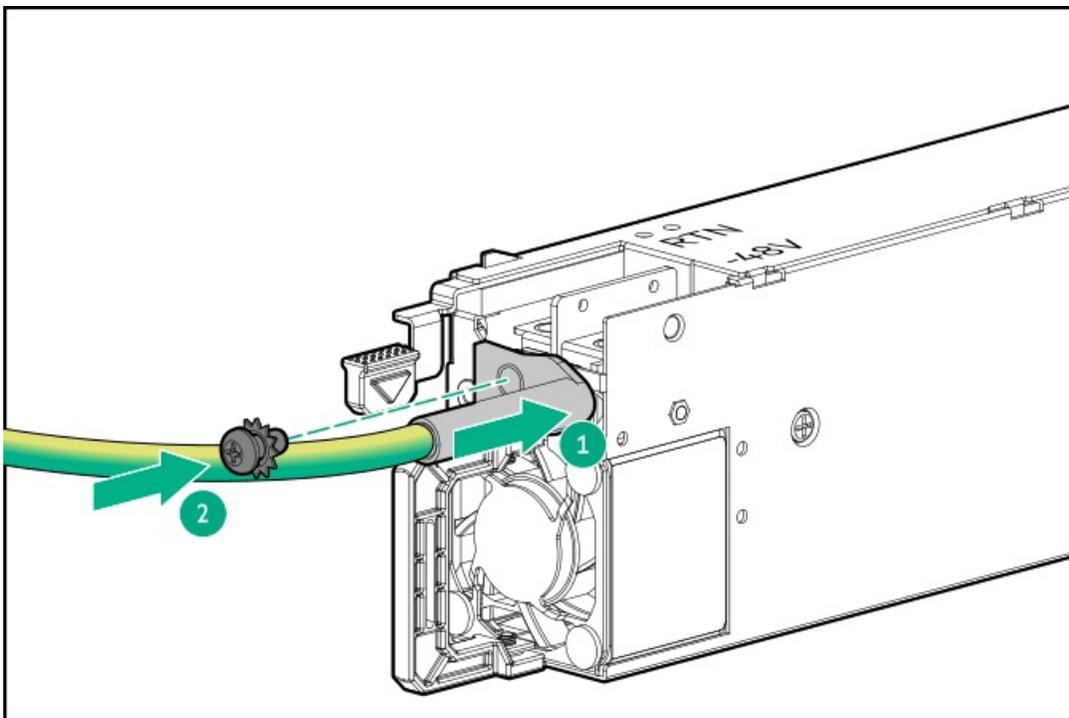2. Remove the ground wire screw, and then remove the return wire and line wire screws.

3. Install the return wire (black):

    a. Insert the return wire into the RTN slot on the DC power supply.

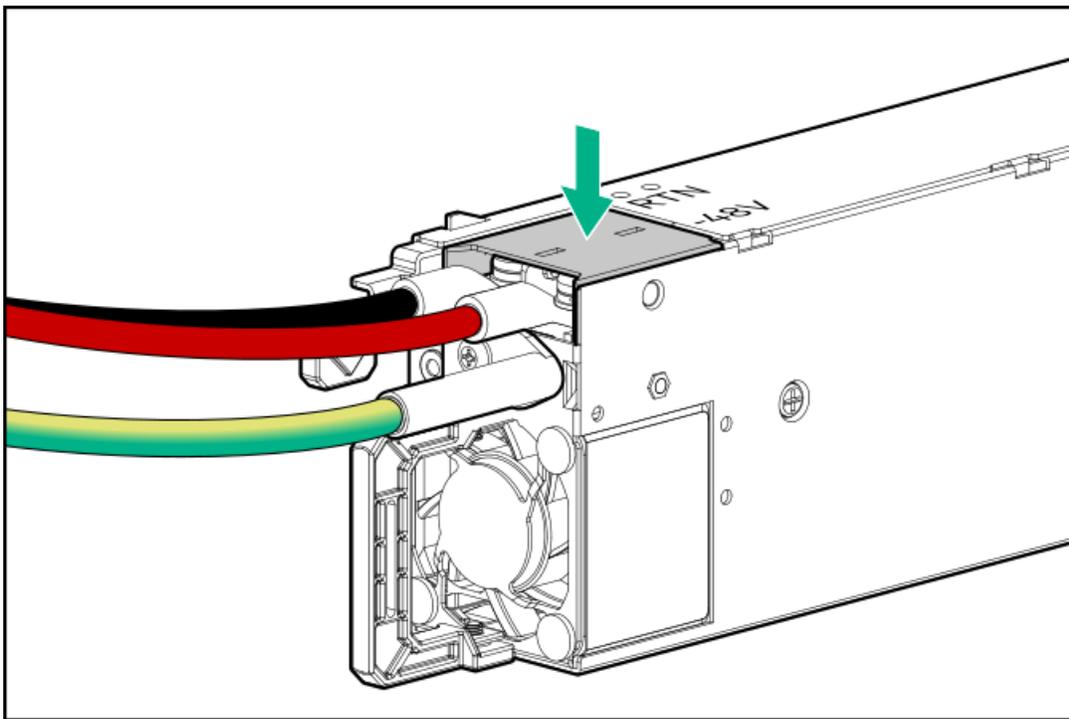   b. Tighten the screw with 0.98 N-m (8.68 lbf-in).

4. Attach the ground wire (green and yellow) to the DC power supply and tighten the screw and washer with 1.47 N-m (13 lbf-in).

5. Install the protective cover on the DC power supply.

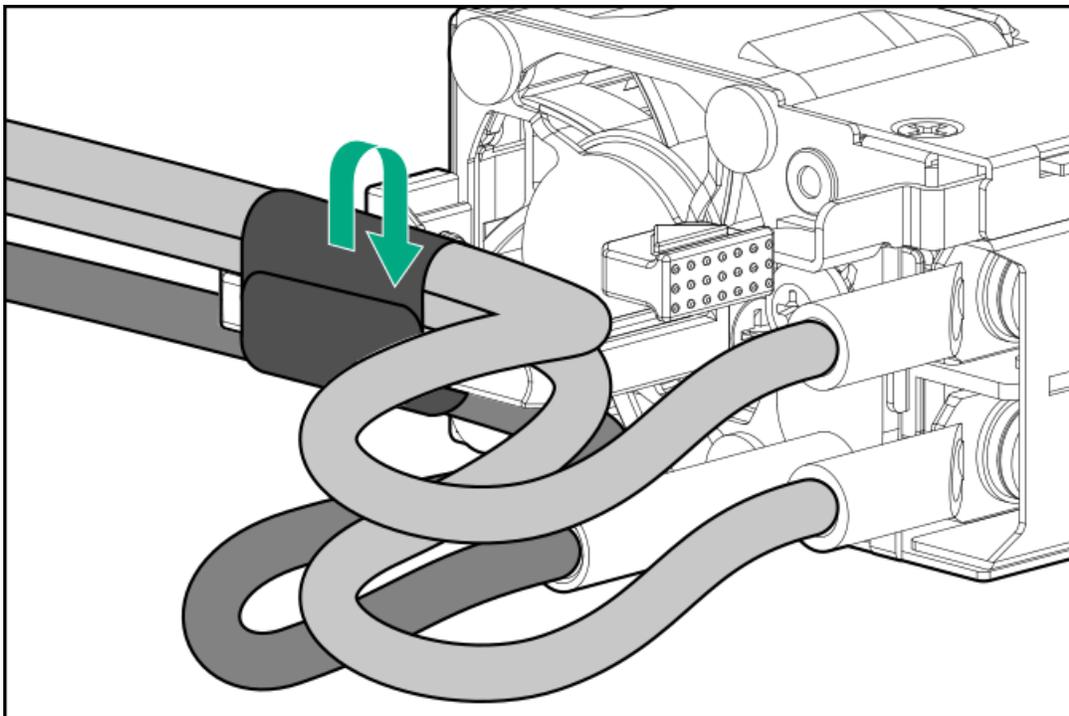   Make sure that the protective cover is locked.

6. Secure the ground, positive return, and negative input wires in the strain relief strap.
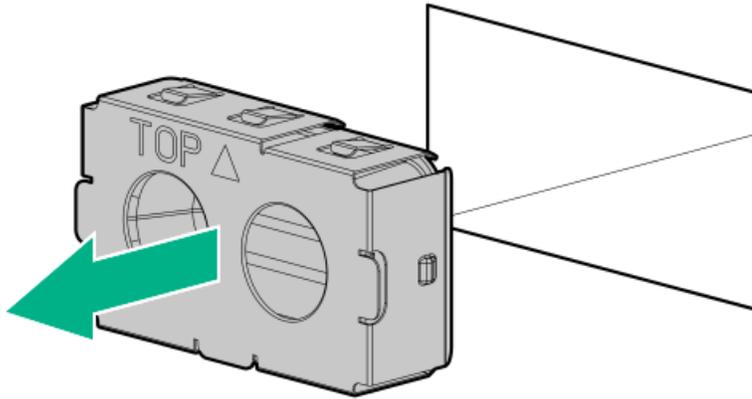
> ⚠ **CAUTION**
>
> Avoid tight bend radii to prevent damaging the internal wires of a power cord or a server cable. Never bend power cords and server cables tight enough to cause a crease in the sheathing.
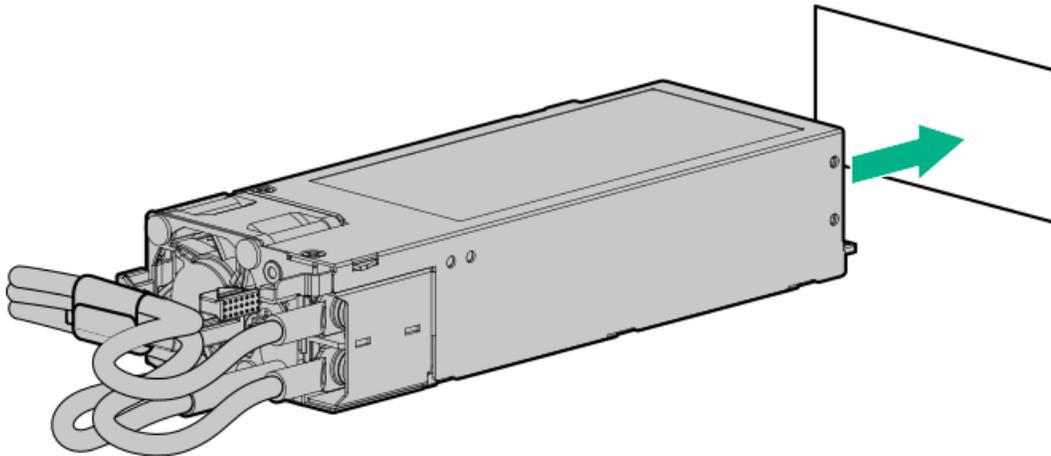

7. If you are installing a power supply in the power supply bay 2, remove the power supply blank.

Retain the blank for future use.

8. Immediately slide the power supply into the bay until it clicks into place.

9. Make sure the -48 V DC power source is off or the PDU breaker is in the off position, and then connect the power cord to the -48 V DC power source or PDU.

10. Turn on the -48 V power source or switch the PDU breaker to the on position to supply -48 V to the power supply.

11. Connecting a DC power cable to a DC power source

12. Make sure that the power supply LED is green.

Results

The installation procedure is complete.

Memory options

> ! **IMPORTANT**
>
> This server does not support mixing LRDIMMs and RDIMMs. Attempting to mix any combination of these DIMMs can cause the server to halt during BIOS initialization. All memory installed in the server must be of the same type.

Subtopics

DIMM population information

DIMM population information

For specific DIMM population information, see the DIMM population guidelines on the Hewlett Packard Enterprise website (**https://www.hpe.com/docs/server-memory**).

HPE SmartMemory speed and population information

For information about memory speed and server-specific DIMM population rules for HPE servers using AMD EPYC 7004 Series processor, 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://support.hpe.com/hpesc/public/docDisplay?docId=emr_na-c00868283**).

Installing a DIMM

Prerequisites

- Be sure you have the components included with the hardware option kit.

- See the memory population guidelines.

About this task

The server supports up to 24 DIMMs.

Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Do one of the following:

   a. Extend the server from the rack.

   b. Remove the server from the rack.

4. Remove the access panel.

5. Open the DIMM slot latches.

6. Install the DIMM.
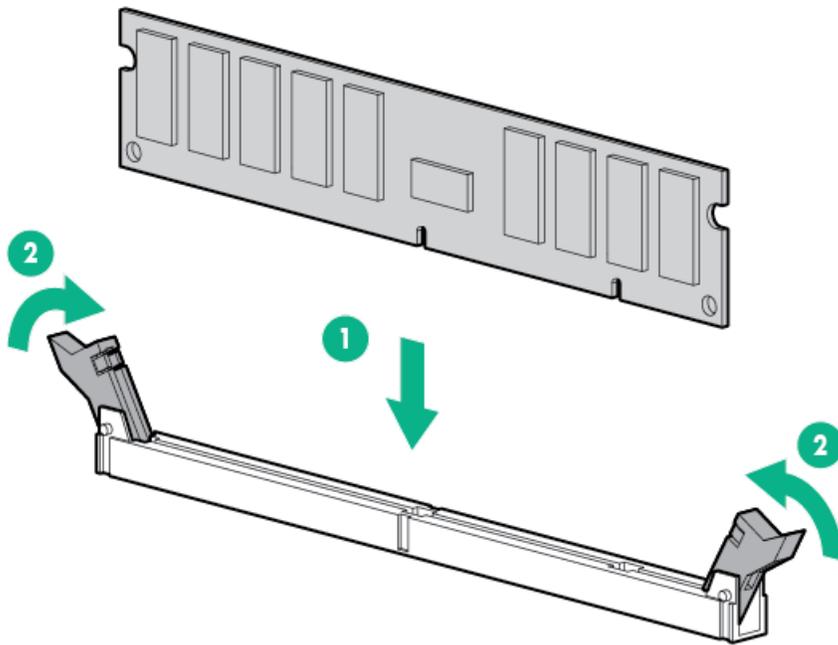
7. Install the access panel.

8. Install the server in the rack.

9. Connect each power cord to the server.

10. Connect each power cord to the power source.

11. Power up the server.

Results

Use the BIOS/Platform Configuration (RBSU) in the UEFI System Utilities to configure the memory mode.

For more information about LEDs and troubleshooting failed DIMMs, see "Systems Insight Display combined LED descriptions."

Installing the high performance fan

Prerequisites

Before proceeding with the installation, review the .

About this task

> ⚠️ **CAUTION**
>
> To prevent improper cooling and thermal damage, do not operate the server unless all bays are populated with either a component or a blank.

> ⚠️ **CAUTION**
>
> After removing a hot-plug fan, install the new fan within 60 seconds. Failure to replace the fan within 60 seconds will cause the operating system to gracefully shut down.

> ⓘ **IMPORTANT**
>
> The fan setup can either be standard, single-rotor fans or high performance, dual-rotor fans. Do not mix fan types in the same server.

Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Remove the server from the rack.

5. Place the server on a flat, level work surface.

6. Remove the access panel .

7. Remove a standard or high performance fan.
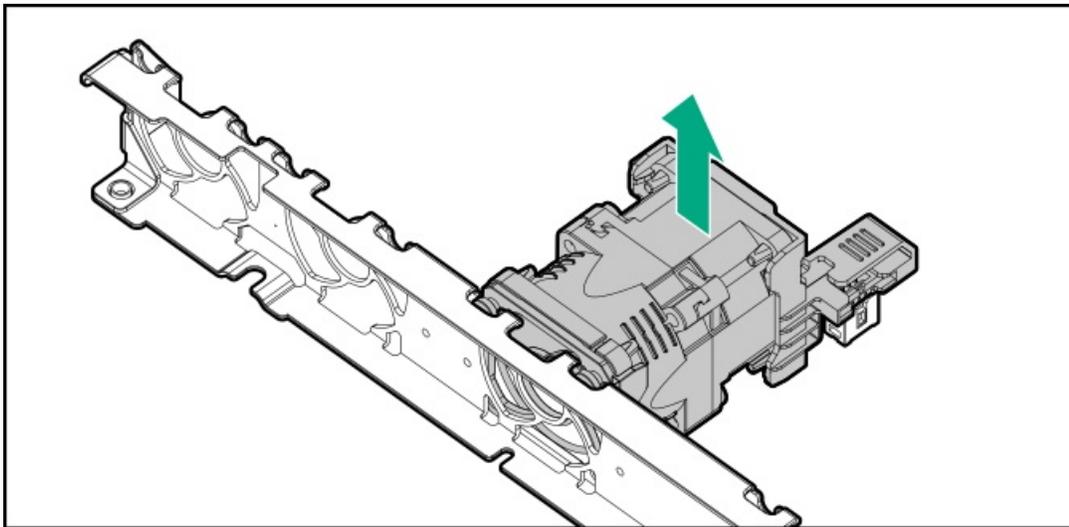
8. Install the standard or high performance fan.

   Make sure that the fan is firmly seated on its system board connector.
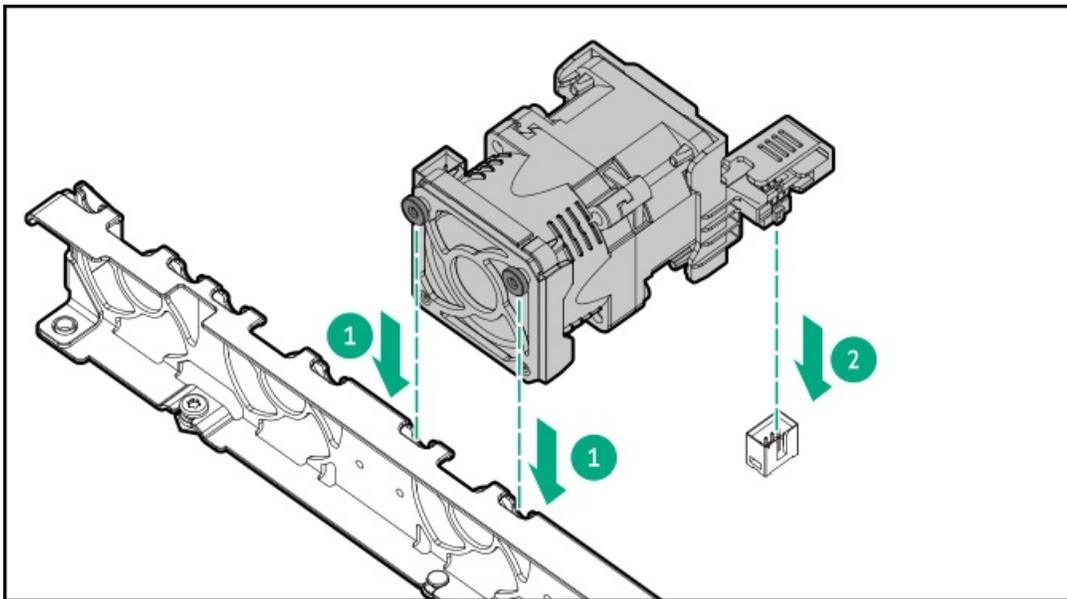
Drive options

Depending on the configuration, this server supports SAS, SATA, NVMe, and M.2 drives. For more information on drive support, see the product QuickSpecs.

When adding hard drives to the server, observe the following general guidelines:

- The system automatically sets all device numbers.

- For drive numbering, see Drive bay numbering.

- If using only one hard drive, install it in the bay with the lowest device number.

- To provide the greatest storage space efficiency, group identical capacity drives into the same drive array.

- The NVMe SSD is a PCIe bus device. Do not remove NVMe drives without allowing the device to cease activity. Removing the drive while active can cause data loss.

Subtopics

Hot-plug drive guidelines
Installing a hot-plug SAS, SATA or NVMe drive
Installing an E3.S 1T drive
Installing an 8 SFF optical drive

Hot-plug drive guidelines

When adding drives to the server, observe the following general guidelines:

- The system automatically sets all device numbers.

- If only one drive is used, install it in the bay with the lowest device number.

- Drives should be the same capacity to provide the greatest storage space efficiency when drives are grouped together into the same drive array.

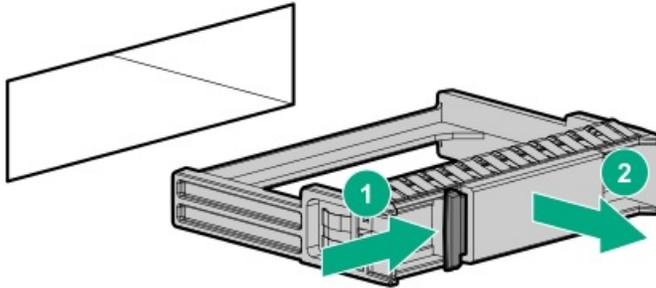# Installing a hot-plug SAS, SATA or NVMe drive

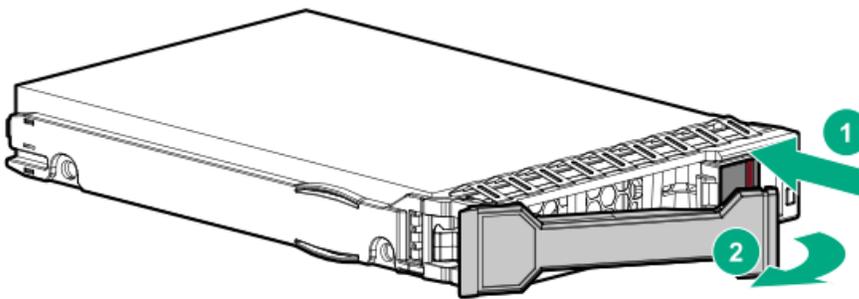## About this task

> ⚠️ **CAUTION**
>
> To prevent improper cooling and thermal damage, do not operate the server unless all drive and device bays are populated with either a component or a blank.
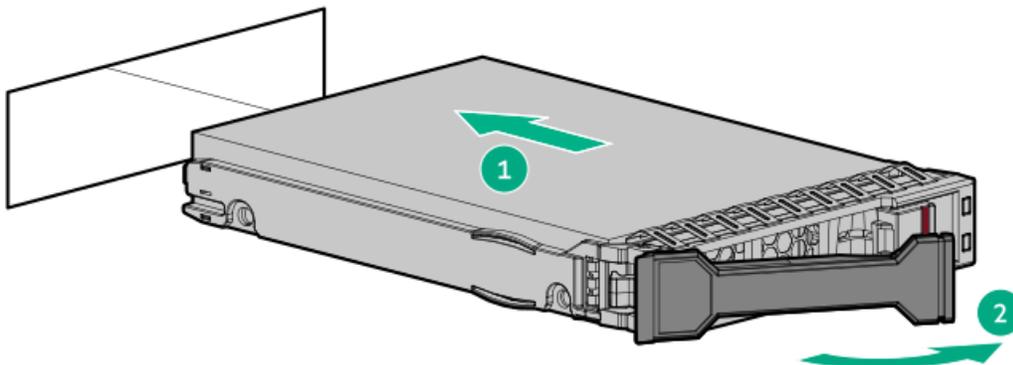
Procedure

1. Remove the drive blank:

2. Prepare the drive.

3. Install the drive.

4. Determine the status of the drive from the drive LED definitions .

Installing an E3.S 1T drive

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.
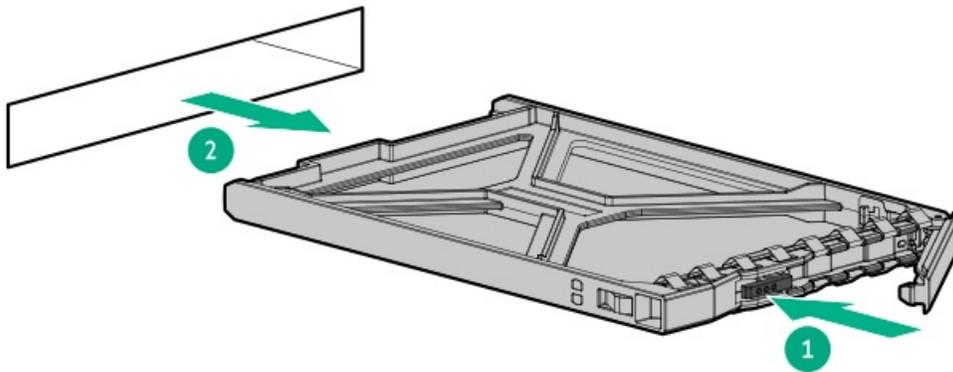
> **CAUTION**
>
> To prevent improper cooling and thermal damage, do not operate the server unless all bays are populated with either a component or a blank.
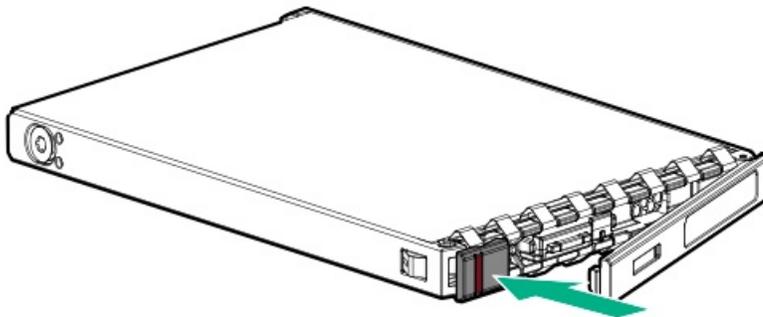
Procedure

1. Back up all server data.

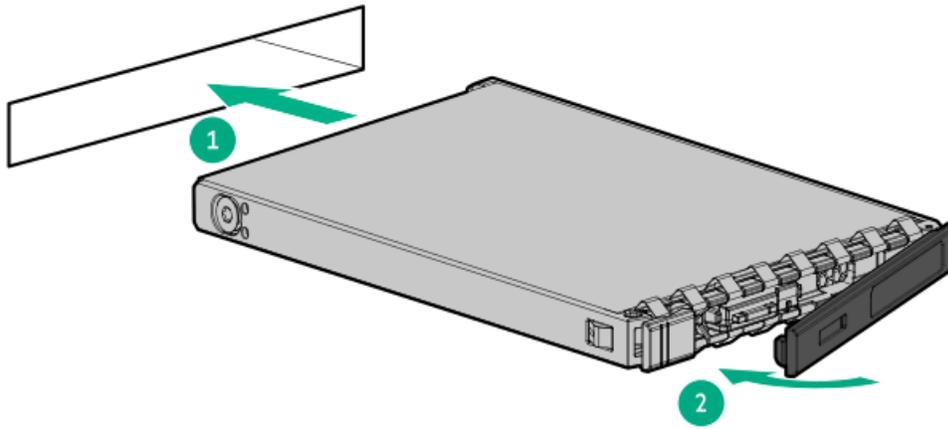2. If installed, remove the front bezel.

3. Remove the drive blank.

   Retain the blank for future use.

4. Prepare the drive.

5. Install the drive.

> **NOTE**
>
> To make sure that the drive has installed successfully, make sure that the latch is engaged with the drive cage.

6. Determine the status of the drive from the drive LED definition .

7. Install the front bezel.

8. To configure drive arrays, see the relevant storage controller guide .

Results

The installation procedure is complete.

Installing an 8 SFF optical drive

Prerequisites

Before installing an optical drive, be sure the 8 SFF display port/USB/optical blank option is installed. For more information, see Installing an 8 SFF display port/USB/optical blank option.

Procedure

1. Remove the universal media bay blank.

   Retain the screws and blank. These screws will be used to secure the new optical drive cage.
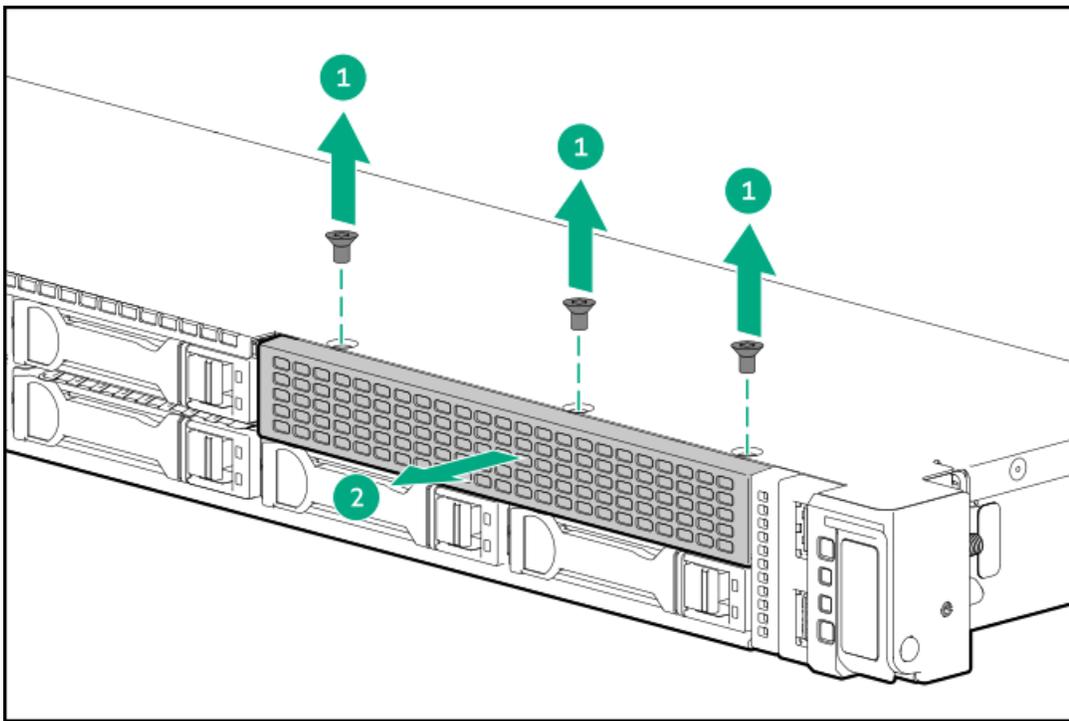
2. Remove the optical drive bay blank from the drive cage.

   Retain the blank for future use.
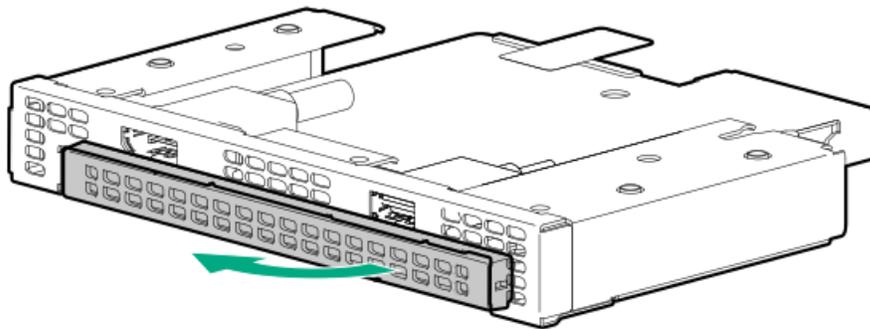
3. Install the optical drive bracket.

4. Install the optical drive in the optical drive cage.

5. Install the optical drive cage in the universal media bay.

6. Connect the optical drive cable.
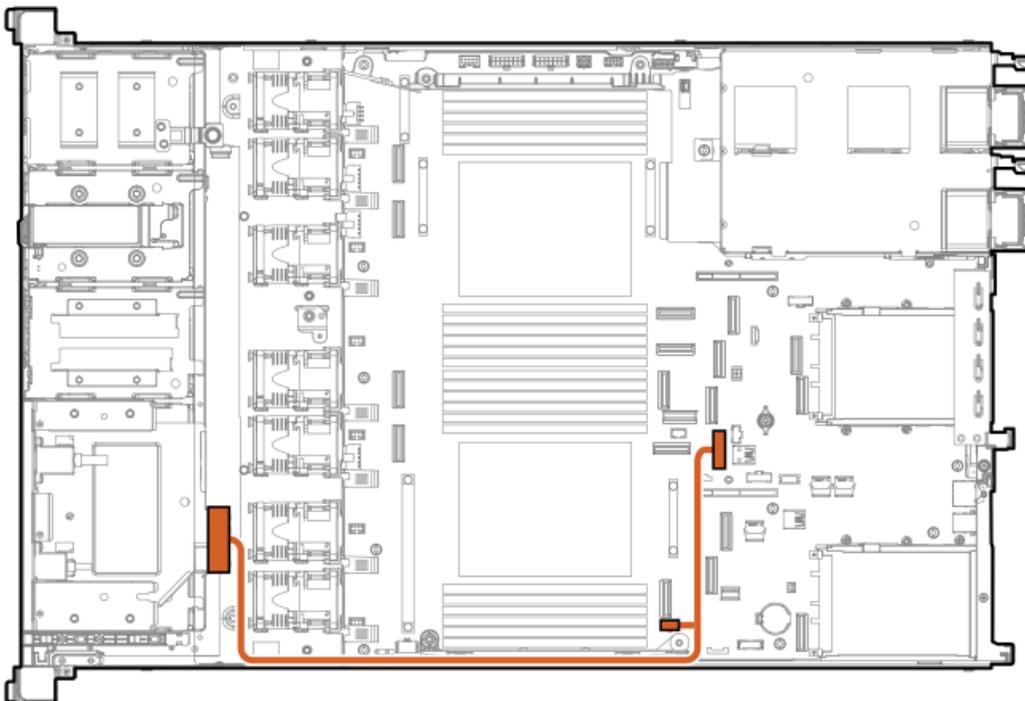
Universal media bay options

Subtopics

Installing a 2 SFF SAS/SATA/NVMe drive cage

Prerequisites

Universal media bay options are compatible only with the 8 SFF chassis.

Be sure that you have the following:
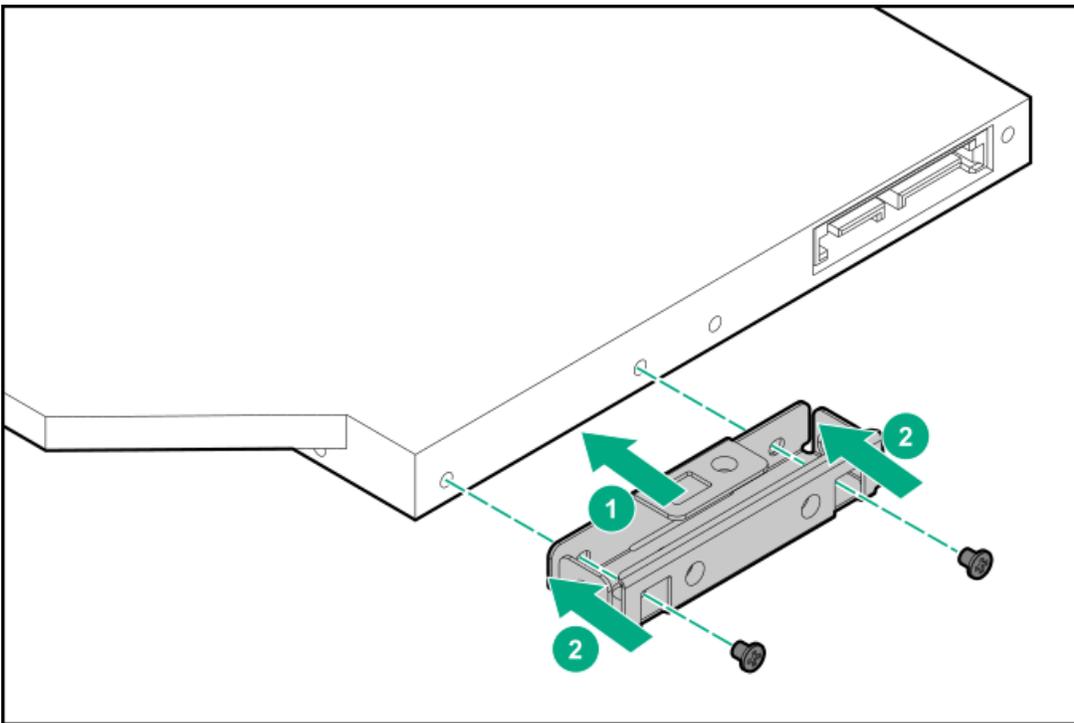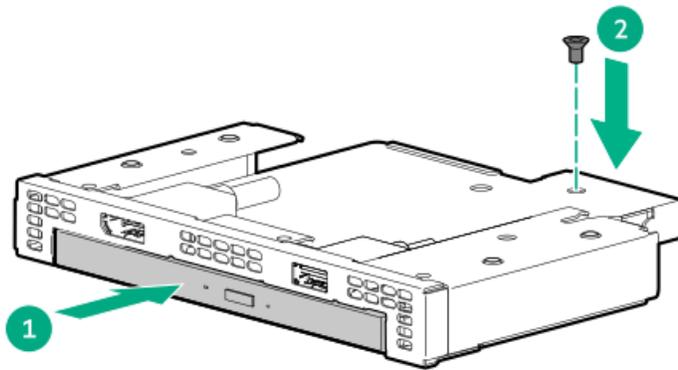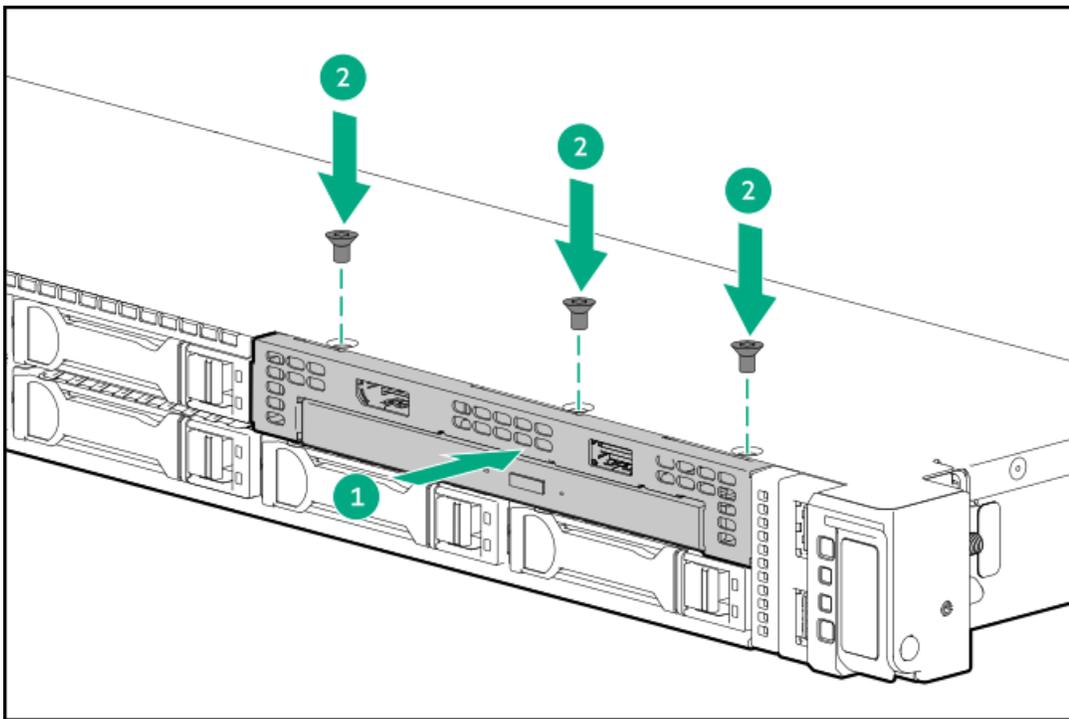
- The components included with the hardware option kit

- T-10 Torx screwdriver

- Additional cables, as needed. For more information, see Cabling diagrams.

- 2 SFF SAS, SATA, or NVMe drives or blanks

   For more information, contact a Hewlett Packard Enterprise authorized reseller.

Procedure

1. Back up all server data.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Do one of the following:

   a. Extend the server from the rack.

   b. Remove the server from the rack.

5. Remove the access panel.

6. Remove the universal media bay blank.

7. Install the 2 SFF SAS/SATA/NVMe drive cage.
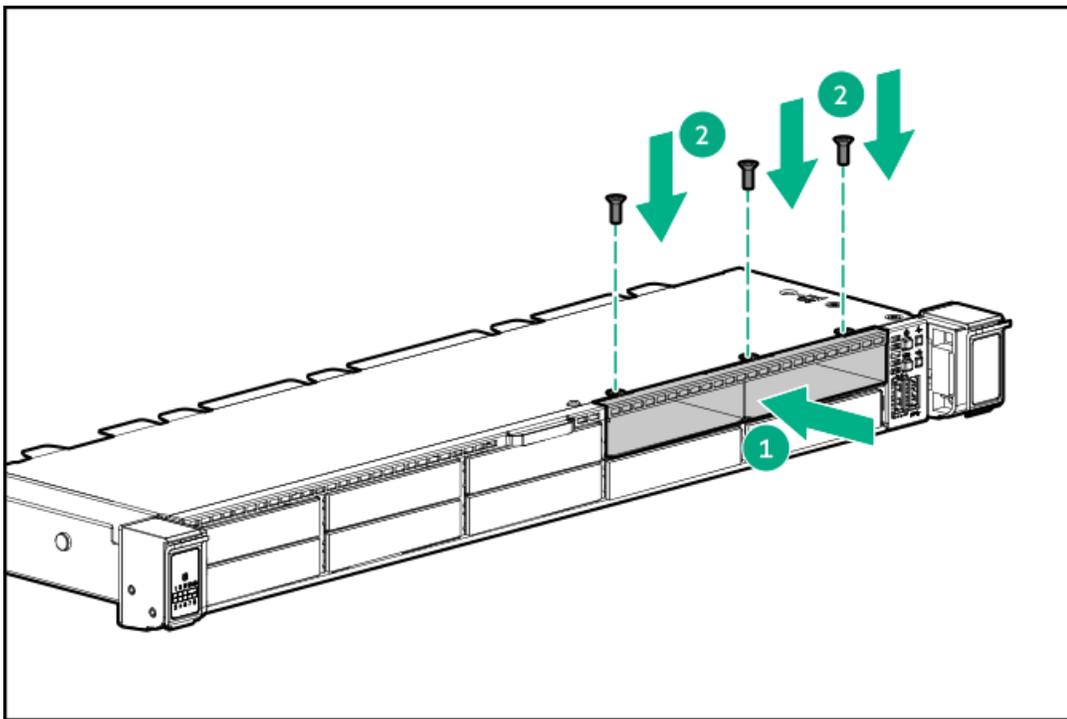
8. Route and connect the data and power cables.

   For more information, see <u>2 SFF Drive controller cabling</u> or <u>2 SFF: NVMe drive direct attach cabling</u>

9. <u>Install the access panel</u>.

10. Install the server in the rack.

11. Connect each power cord to the server.

12. Connect each power cord to the power source.

13. <u>Power up the server</u>.

14. Install drives.

Installing an 8 SFF display port/USB/optical blank option

Prerequisites

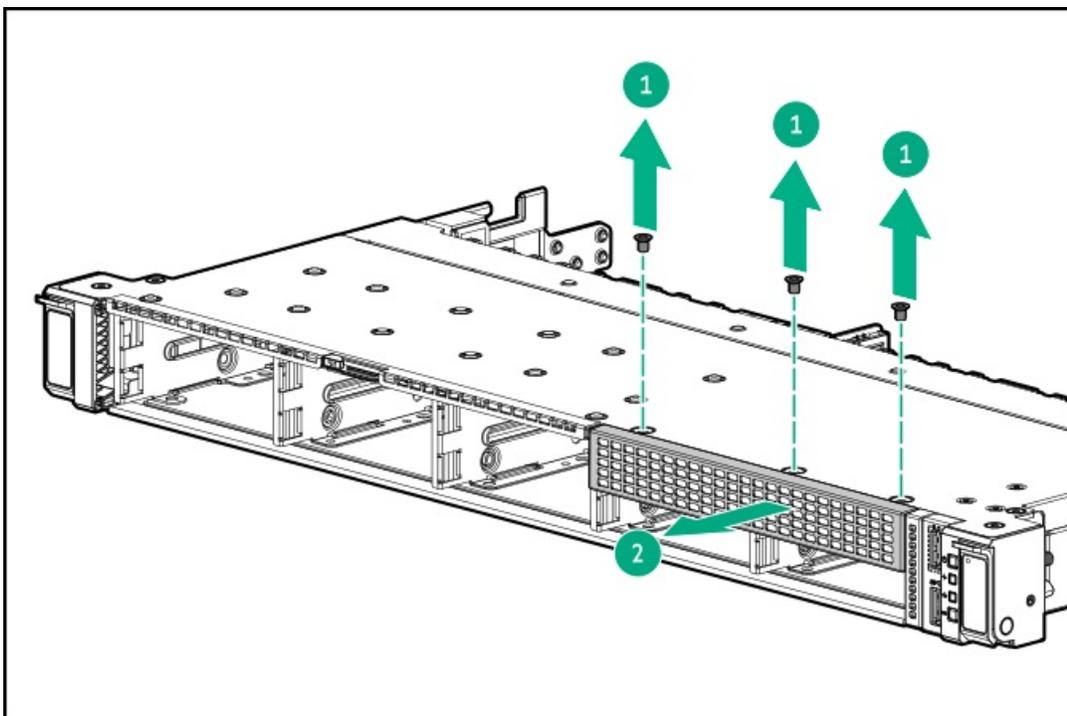Before installing this option, be sure that you have the following:

- The components included with the hardware option kit

- T-10 Torx screwdriver

- An optical drive, if installing

  For more information, contact a Hewlett Packard Enterprise authorized reseller.

Procedure

1. Back up all server data.

2. Power down the server (<u>Power down the server</u>).

3. Remove all power:

   a. Disconnect each power cord from the power source.

b.   Disconnect each power cord from the server.

4.   Do one of the following:

a.   Extend the server from the rack (Extend the server from the rack).

b.   Remove the server from the rack (Remove the server from the rack).

5.   Remove the access panel (Remove the access panel).

6.   Remove the universal media bay blank.
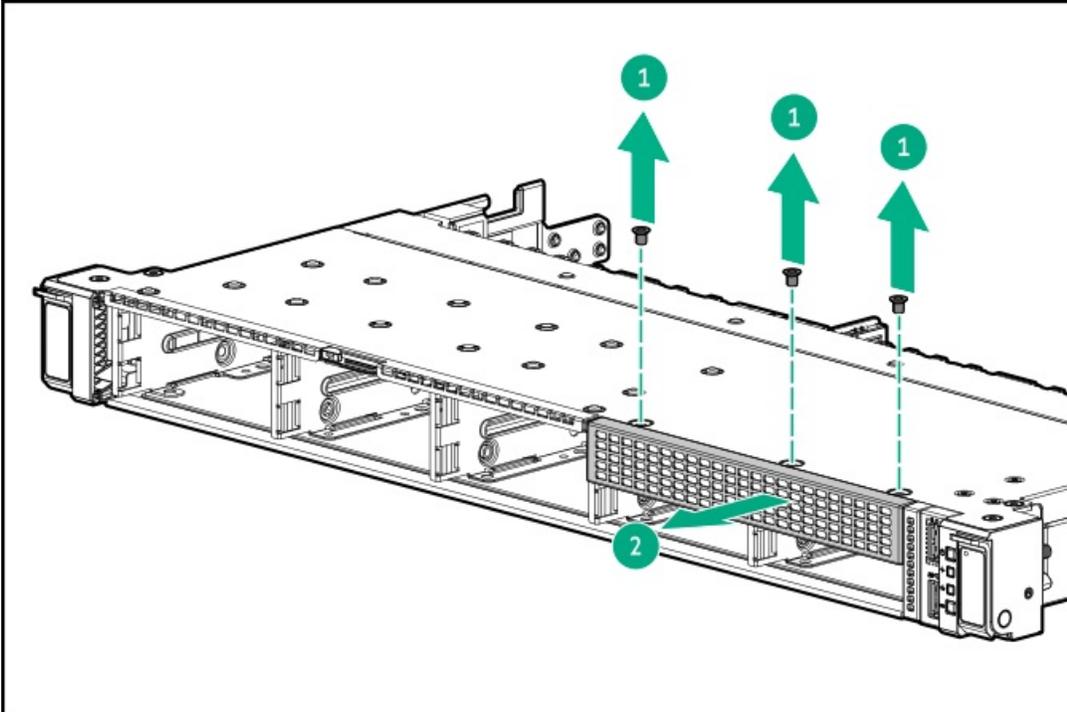
7.   Install the 8 SFF display port/USB/optical blank option.
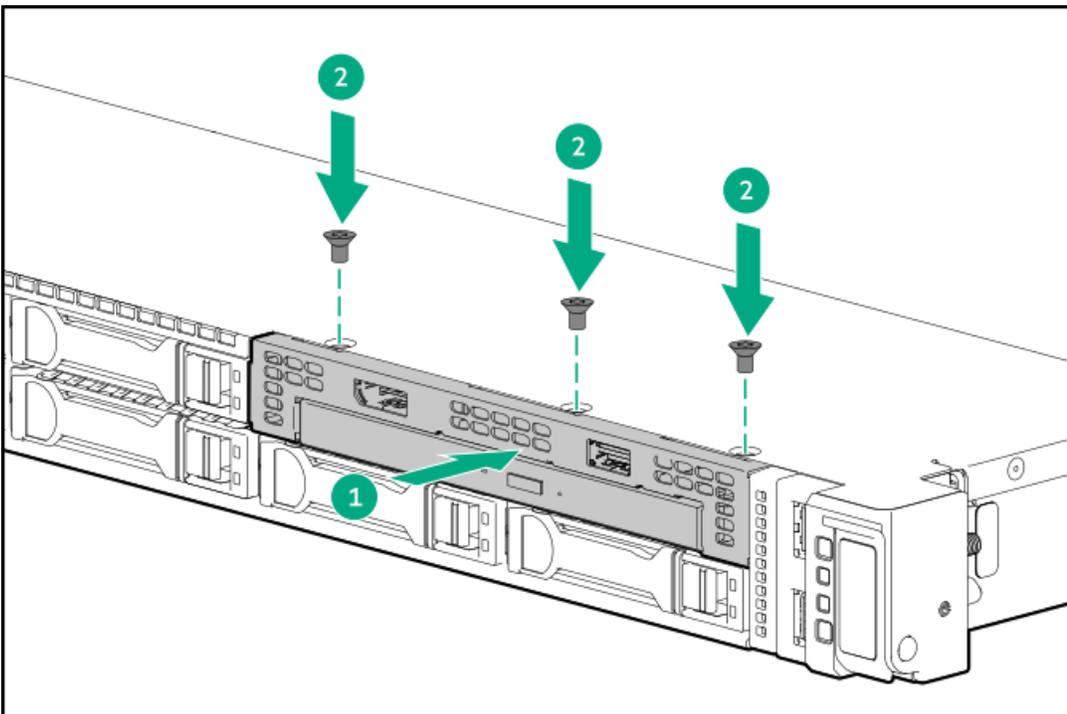
8.   Route and connect the data cable.
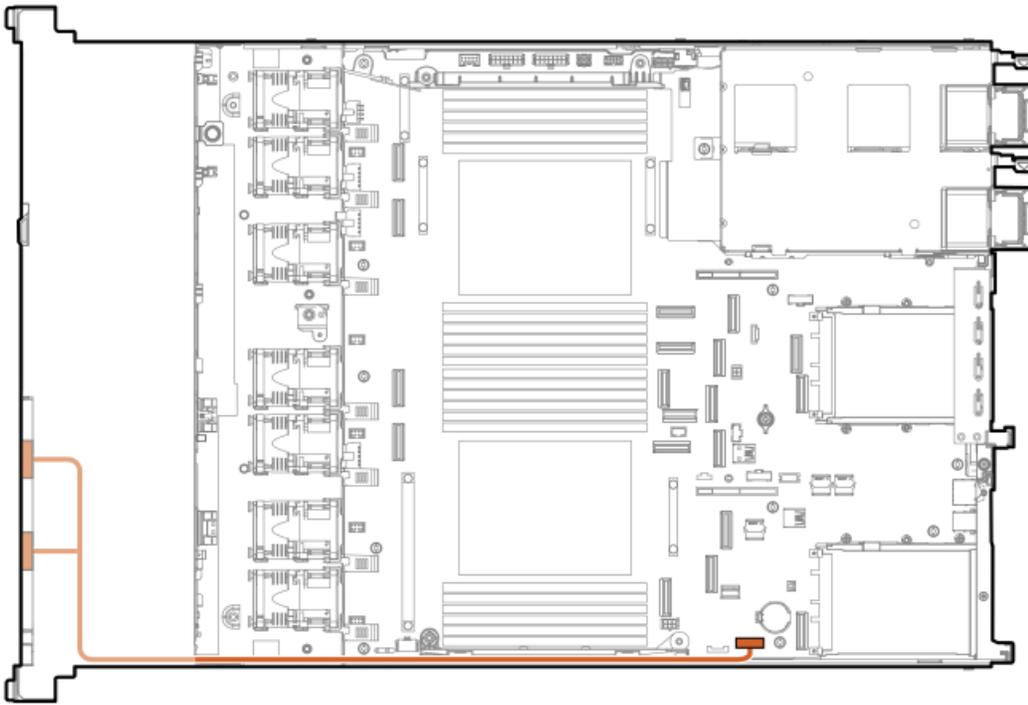
9. If needed, install an optical drive.

Riser and riser cage options

This server supports the following:

- Primary riser

  - Supports full-height riser cage

- Secondary riser

  - Supports full-height riser cage

  - Supports HPE NS204i Boot Device + secondary low-profile riser cage

Subtopics

Installing an expansion card

Installing an accelerator or GPU

Installing the HPE NS204i Boot Device on the NS204i-u + secondary low-profile riser

Installing an expansion card

About this task

> ⚠️ **WARNING**
>
> To reduce the risk of personal injury, electric shock, or damage to the equipment, remove power from the server by removing the power cord. The front panel Power On/Standby button does not shut off system power. Portions of the power supply and some internal circuitry remain active until AC power is removed.

Procedure

1. Power down the server.

2. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

3. Do one of the following:

    a. Extend the server from the rack.

    b. Remove the server from the rack.

4. Remove the access panel.

5. Remove the riser cage.
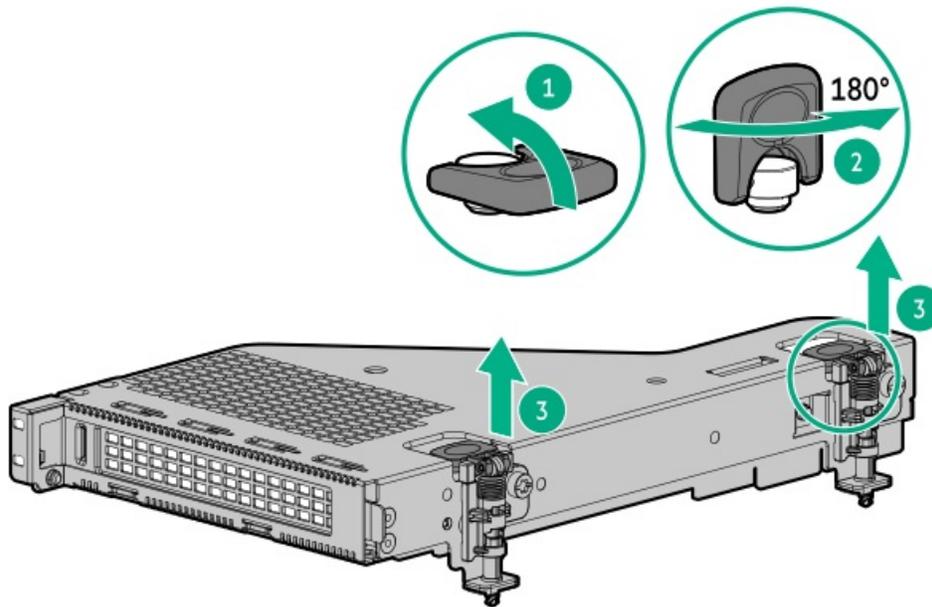
6. Install the expansion card.
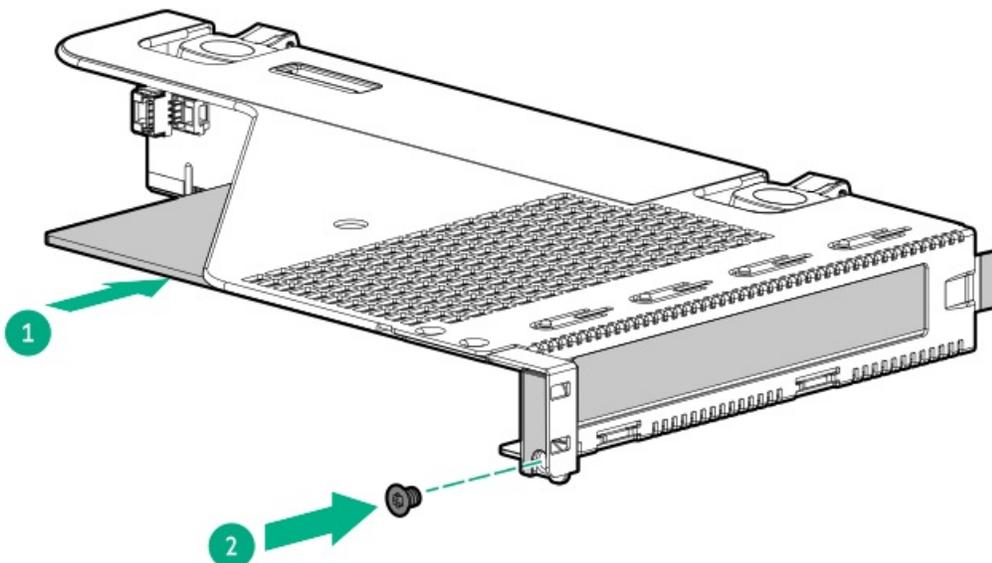
7. Install the riser cage.
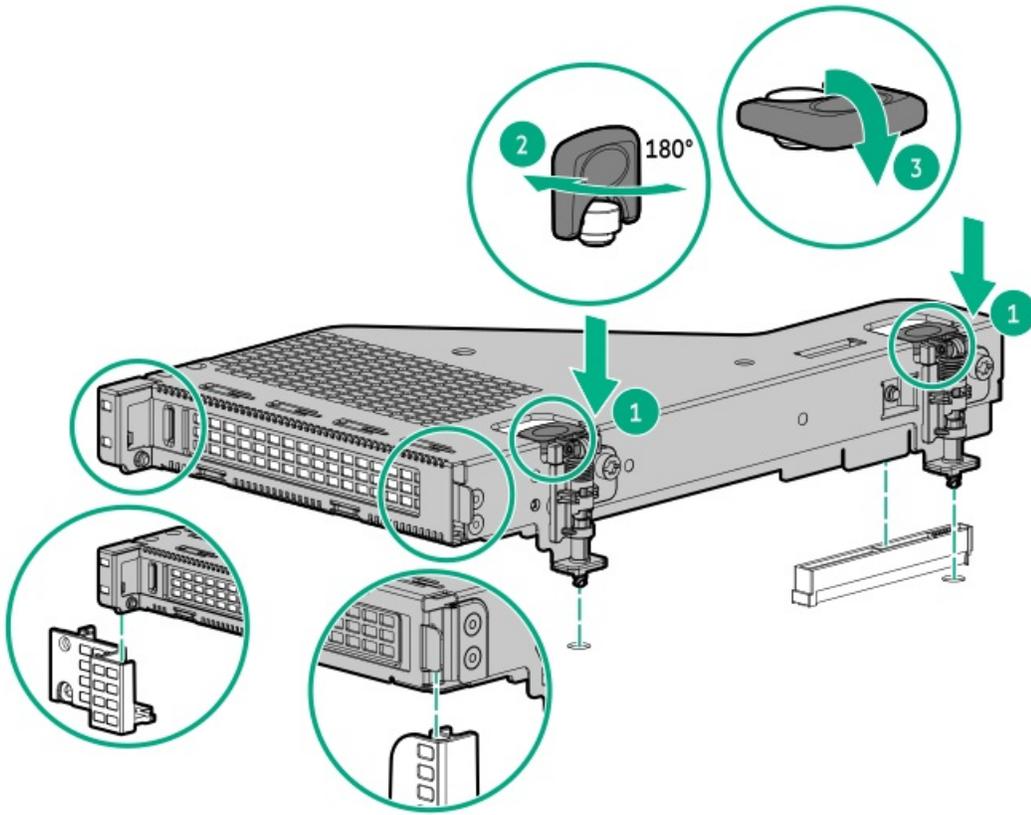
Installing an accelerator or GPU

Prerequisites

Before installing this option, do the following:

- Be sure that the power supplies support the installation of this option. For more information, see the **Hewlett Packard Enterprise Configurator website**.

- Be sure that you have the following items:

  - The components included with the GPU enablement option kit

  - T-15 Torx screwdriver

About this task

Use these instructions to install accelerator options, including GPUs, in the server.

Procedure

1. Observe the following alerts:

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

2. Back up all server data.

3. Power down the server (Power down the server).

4. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

5. Do one of the following:

   a. Extend the server from the rack (Extend the server from the rack).

   b. Remove the server from the rack (Remove the server from the rack).

6. Remove the access panel (Remove the access panel).

7. Remove the existing rear guide bracket from the card, if installed.

8. Install the card in the riser cage, and then connect any required cables, if applicable.

Installing the HPE NS204i Boot Device on the NS204i-u + secondary low-profile riser

Prerequisites

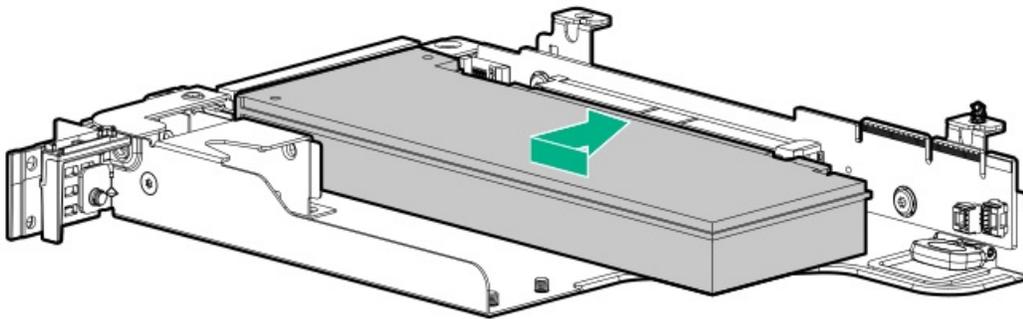- Before beginning installation, make sure that the server is updated with the latest operating system firmware and drivers.

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

About this task

Note the following information about the HPE NS204i Boot Device option:

- The HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device (NS204i-u) is a PCIe3 x4 custom form-factor module that includes two hot pluggable 2280 M.2 NVMe SSDs.

- HPE NS204i-u Boot Device enables the deployed OS to be mirrored through a dedicated hardware RAID 1.

- HPE NS204i-u Boot Device auto-creates a RAID1 volume during boot, therefore does not require configuration.

- HPE NS204i-u Boot Device is compatible with the following native OS:

  ○ Windows

- ○ Linux

- ○ VMware

- HPE NS204i-u Boot Device uses native inbox OS NVMe drivers.

- To prevent improper cooling and thermal damage, if the HPE NS204i Boot Device assembly is not install in the riser cage, install the HPE NS204i Boot Device cage slot blank.

- Identify the HPE NS204i Boot Device components.

> ⚠ **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 SSDs on the boot device carrier.

2. Power down the server.

3. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

6. Place the server on a flat, level work surface.

7. Remove the access panel.

8. Remove the secondary riser cage blank.

9. Remove the default secondary riser cage bracket.

    Retain the screws and bracket. These screws will be used to secure the new NS204i-u + secondary low-profile riser cage bracket.
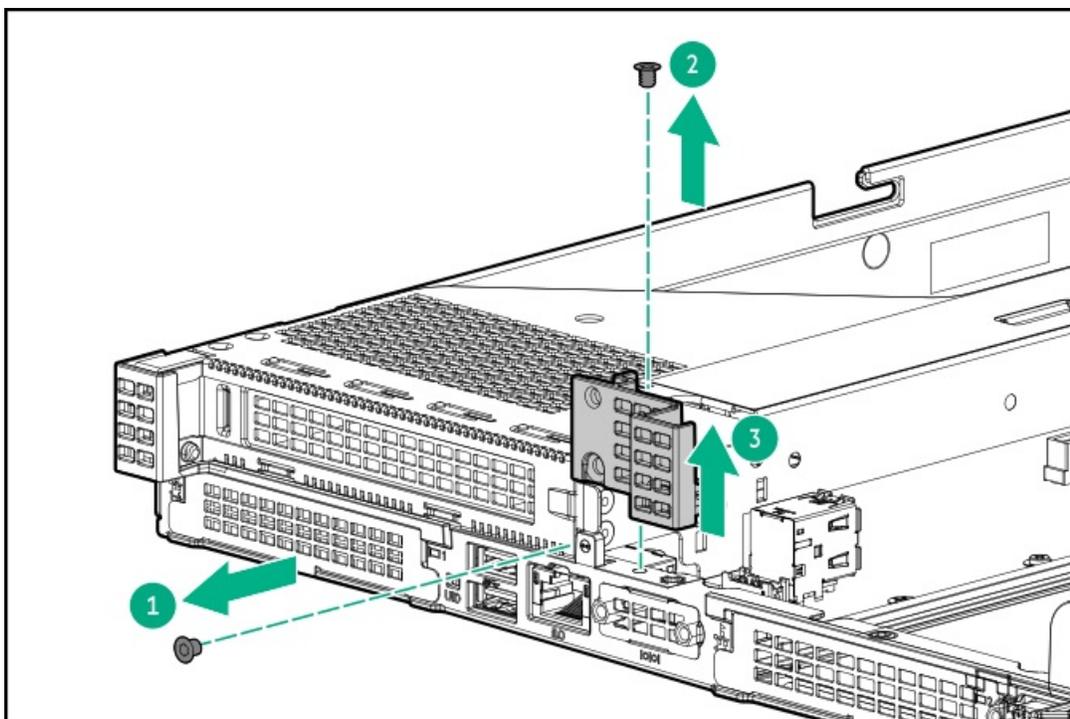
10. Install the NS204i + secondary low-profile riser cage bracket.
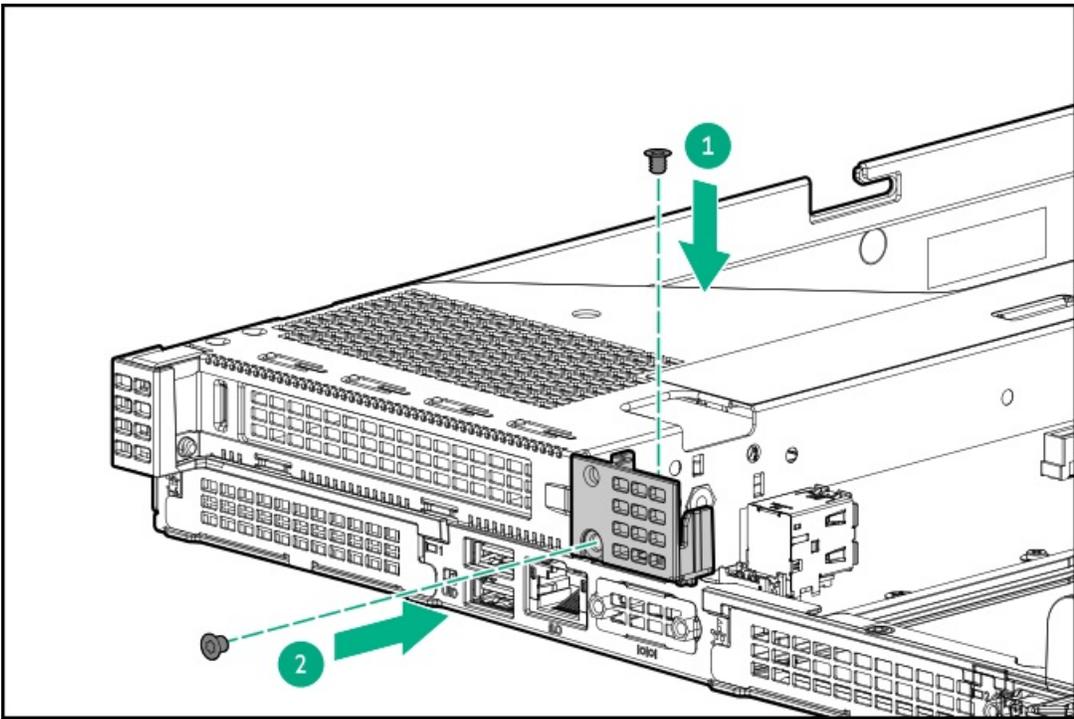
11. Install the boot device in the riser cage:

    a. Position the latch end of the boot device on the rear side of the riser cage.

    b. Install the boot device screws.
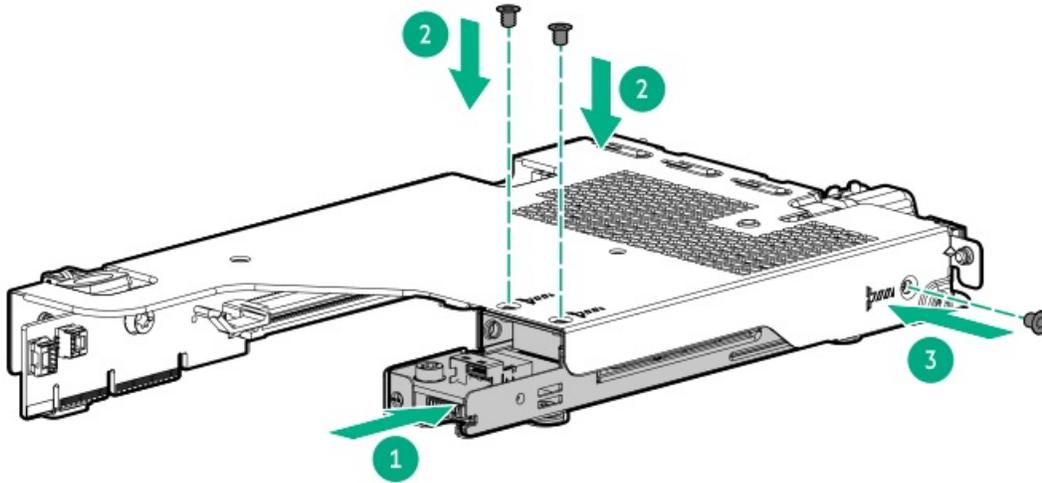
12. To prevent hot-plug access to the SSDs on the boot device, install the security cover. After the security cover is installed, the hot-plug feature of the boot device is disabled.
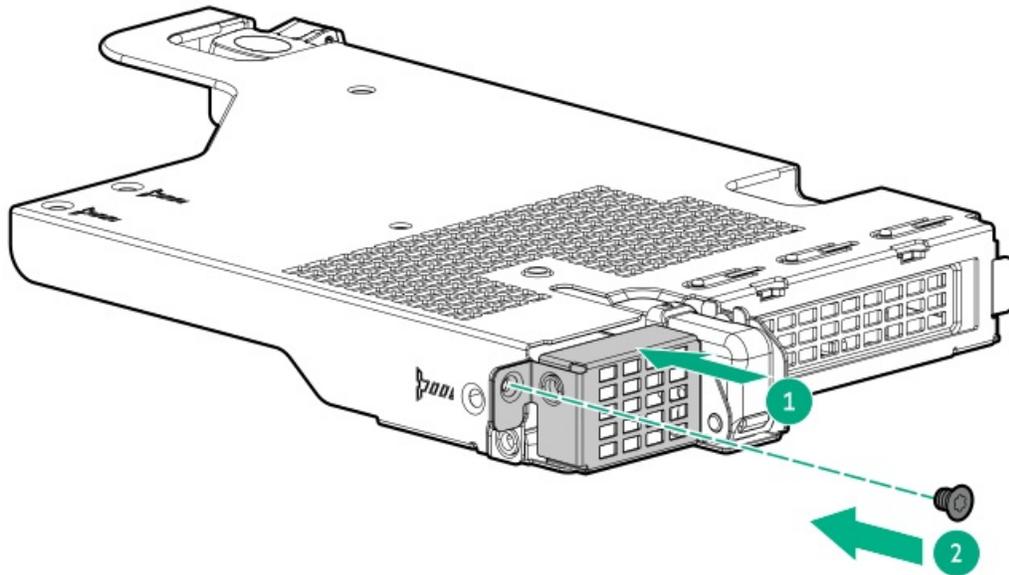
13. Install the NS204i-u + secondary low-profile riser cage.

14. Connect the power and signal cables to the HPE NS204i Boot Device.

15. Install the access panel.

16. Install the server into the rack.

17. Connect all peripheral cables to the server.

18. Connect the power cords:

    a. Connect each power cord to the server.

    b. Connect each power cord to the power source.

19. Verify the Online/Activity LEDs on the HPE NS204i Boot Device are in solid green.

Results

The installation is complete.

Subtopics

Installing boot device drives

Installing boot device drives

Prerequisites

Before you perform this procedure, make sure that you have a Phillips No. 1 screwdriver available.

Procedure

1. Push the button to pull out the carrier.
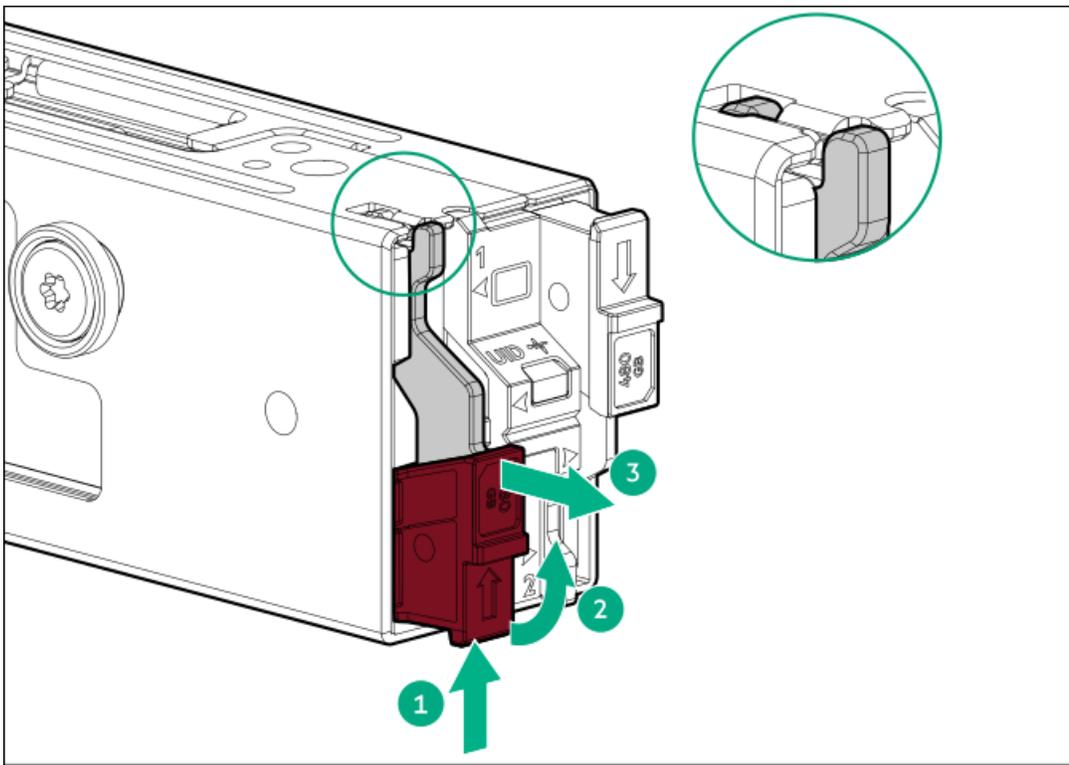
2. Remove the SSD mounting screw.
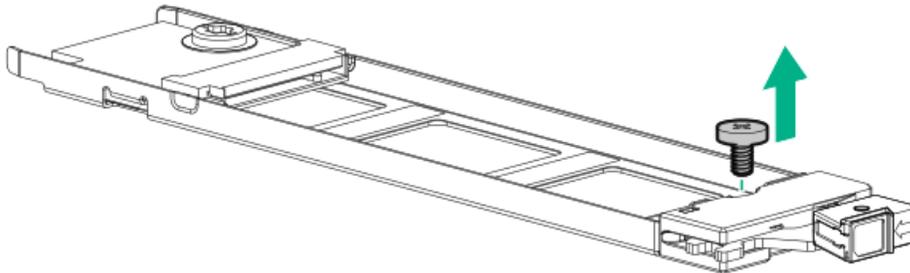
3. Insert the SSD into the M.2 slot at a 45° angle.

4. Carefully press the SSD down to the horizontal position.

5. Install the SSD mounting screw.
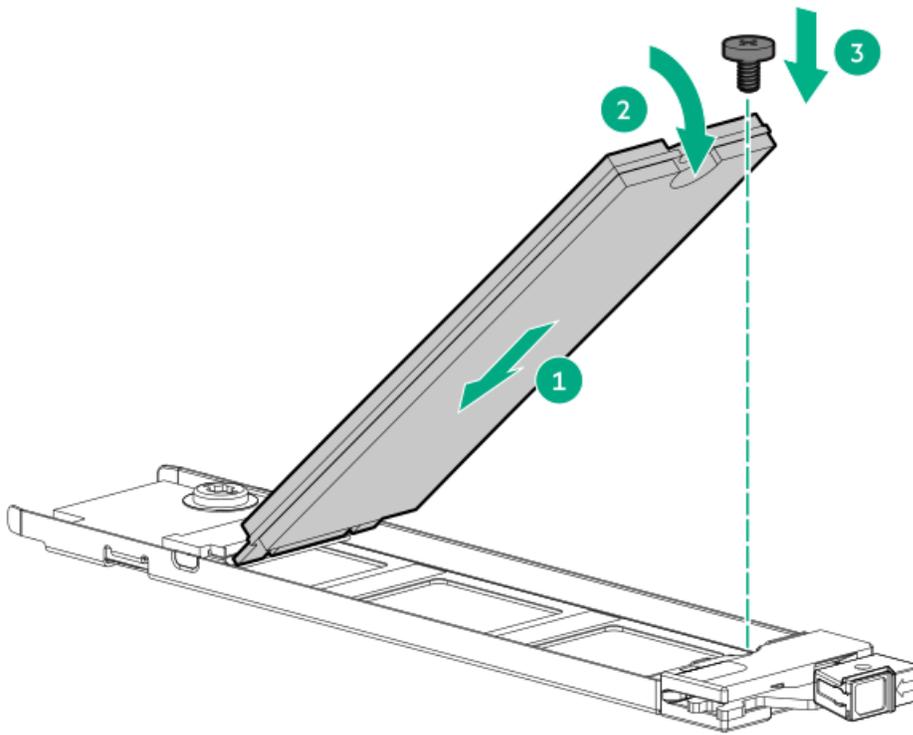
6. If the second M.2 SSD is installed on the carrier assembly, repeat steps 1 and 2.

7. Align and install the drive carrier.
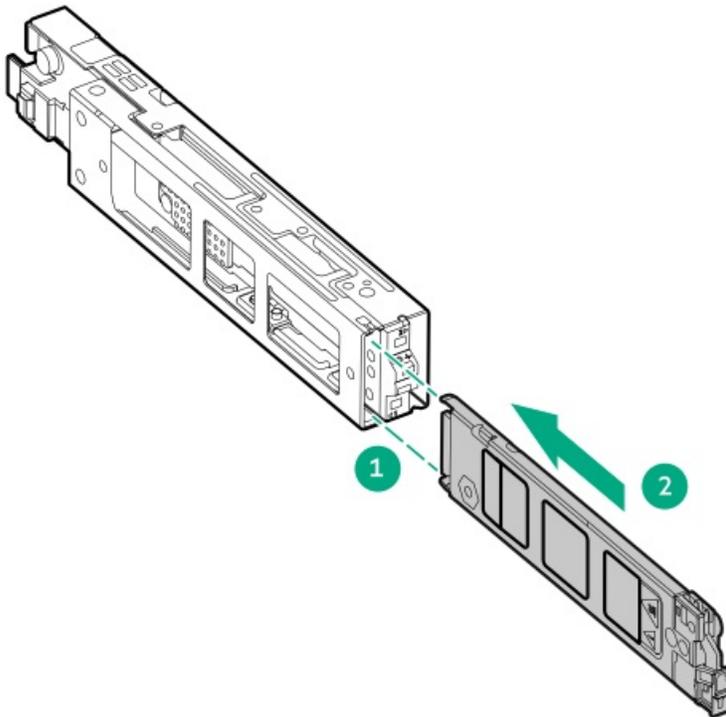
8. Slide the carrier inside the boot device cage and push the button. There will be an audible click when the latch locks into place. Ensure that the latch is fully engaged.
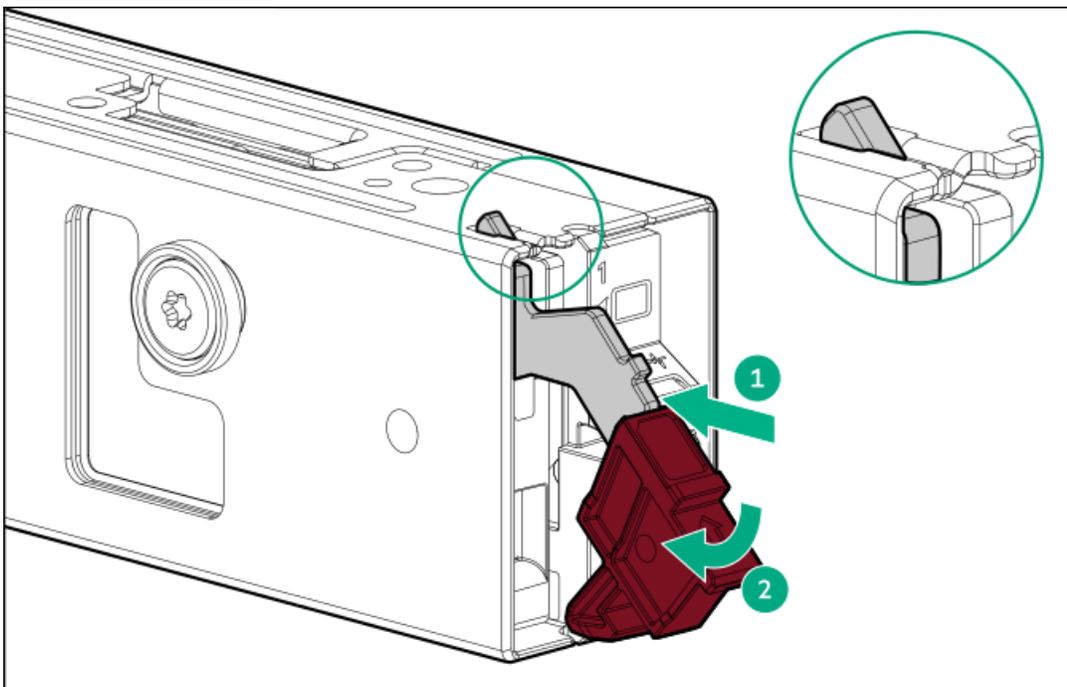
Storage controller options

This server has no embedded software RAID support. Direct attached SATA drives operate in AHCI mode.

To support hardware RAID, install a storage controller option:

- HPE MR type-o and type-p Gen11 controllers

- HPE SR type-p Gen11 controllers

- HPE SR type-p Gen10 Plus controllers

When a tri-mode storage controller option is used together with a U.3 drive backplane, the system will support mixed drive configuration.

Subtopics

Preparing the server for storage controller installation

Installing a type-p storage controller option

Installing a type-o storage controller

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 storage controller option

Prerequisites

Before installing this option, be sure you that have the following:

- The components included with the hardware option kit
- T-10 Torx screwdriver

Procedure

1. Observe the following alerts:

> ⚠️ **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 prevent damage to electrical components, properly ground the server before beginning any installation procedure. Improper grounding can cause electrostatic discharge.

2. Back up all server data.

3. Power down the server.

4. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

5. Do one of the following:

   a. Extend the server from the rack.

   b. Remove the server from the rack.

6. Remove the access panel.

7. Do one of the following:

   - To install a controller in slot 1 of the primary riser:

   a. Remove the primary PCI riser cage.

8. Remove the controller.
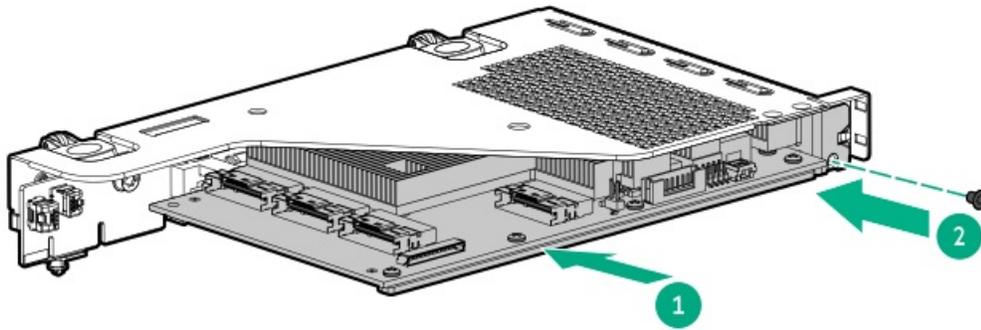
9. Install the secondary PCI riser cage.

10. Connect the cables.

- 8SFF to type-p controller cabling example:
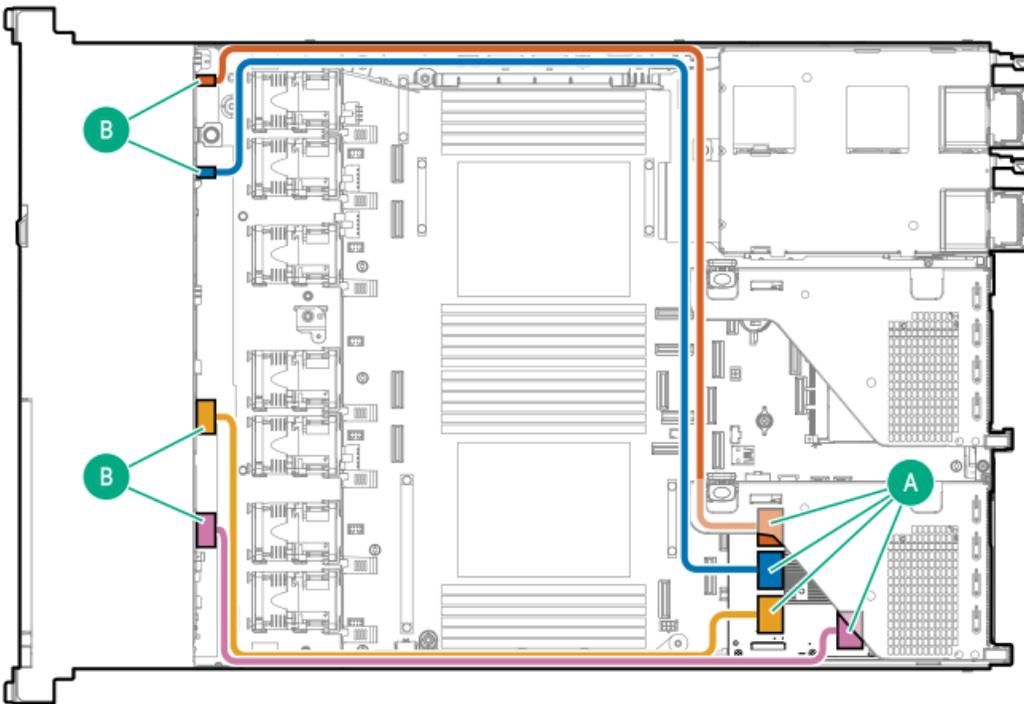
Installing a type-o storage controller

Prerequisites

Before performing this procedure, verify that you have the following items available:

- Compatible controller cables (P58075-001/P58076-001)

- Phillips No. 1 screwdriver

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. Remove the server from the rack.

3. Do one of following:

   a. Remove the PCI slot blank.

   b. Remove the secondary riser cage.

4. Remove the OCP slot blank:

   a. Remove the blank screw.

   b. Remove the blank.

   Retain the screw and blank for future use.
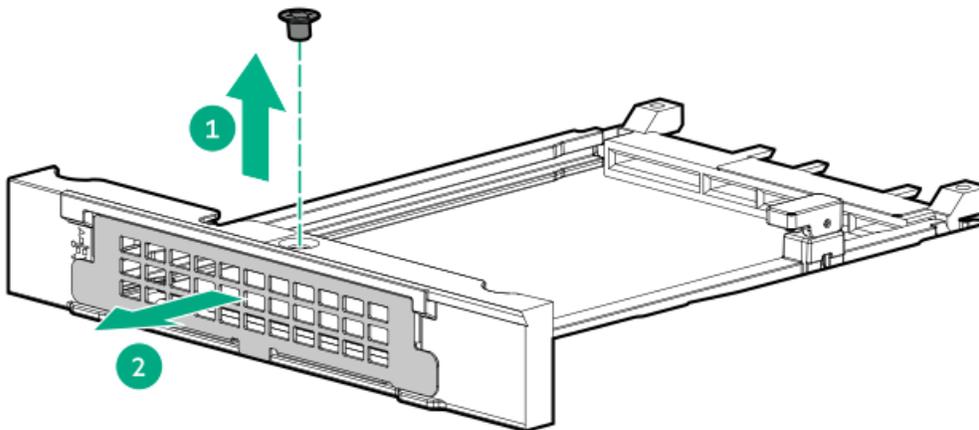
5. Install the type-o storage controller:

   a. Rotate the locking pin to the open (vertical) position.

   b. Slide the controller into the bay until it clicks into place.

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

   c. Rotate the locking pin to the close (horizontal) position.
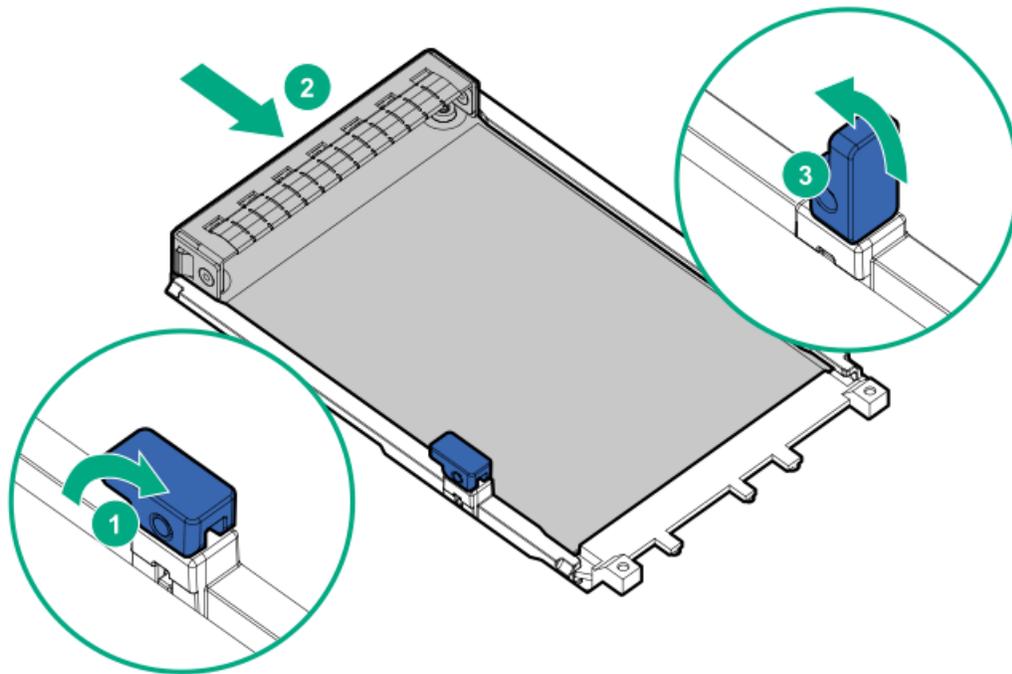
6. Cable the type-o storage controller.

7. (Optional) If the controller cable is not yet connected to the front SFF drive backplane:

   a. Remove the fan cage.

   b. Cable the MR type-o storage controller.

8. To configure the controller, see the relevant storage controller guide.

Results

The installation is complete.

Processor and heatsink options

Subtopics

> **Installing a processor**
> **Installing a heatsink**

Installing a processor

Prerequisites

Before performing this procedure, be sure that you have the components included with the hardware option kit, as well as the following items:

- T-20 Torx screwdriver

- Two 1.0 gm (0.5 ml) or four 0.5 gm (0.25 ml) of thermal grease

- Alcohol wipe

About this task

Hewlett Packard Enterprise recommends identifying the processor and socket components before performing this procedure.

Procedure

1. Observe the following alerts:

   ⚠ **CAUTION**

   To avoid damage to the processor or system board, only authorized personnel should attempt to replace or install the processor in this server.

   ⚠ **CAUTION**

   To prevent possible server malfunction and damage to the equipment, multiprocessor configurations must contain processors with the same part number.

   ⚠ **CAUTION**

   If installing a processor with a faster speed, update the system ROM before installing the processor.

   To download the firmware and view installation instructions, see the Hewlett Packard Enterprise Support Center website.

   ⚠ **CAUTION**

   THE CONTACTS ARE VERY FRAGILE AND EASILY DAMAGED. To avoid damage to the socket or processor, do not touch the contacts.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Do one of the following:

   - Extend the server from the rack.

   - Remove the server from the rack.

5. Remove the access panel.

6. Remove the air baffle

7. Remove the heatsink blank.

8. Install the processor:

   a. Hold the processor by its carrier handle.

   b. Slide the processor into the rail frame until it engages with a click sound.
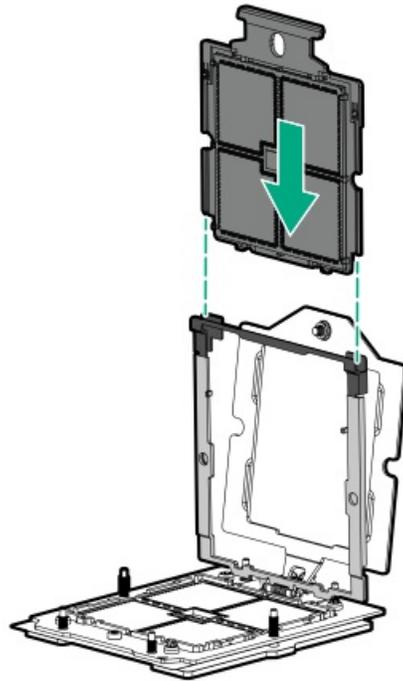
9. Hold the lift tabs and pivot the rail frame to the closed position.

   A click sound indicates that the rail frame is properly engaged.
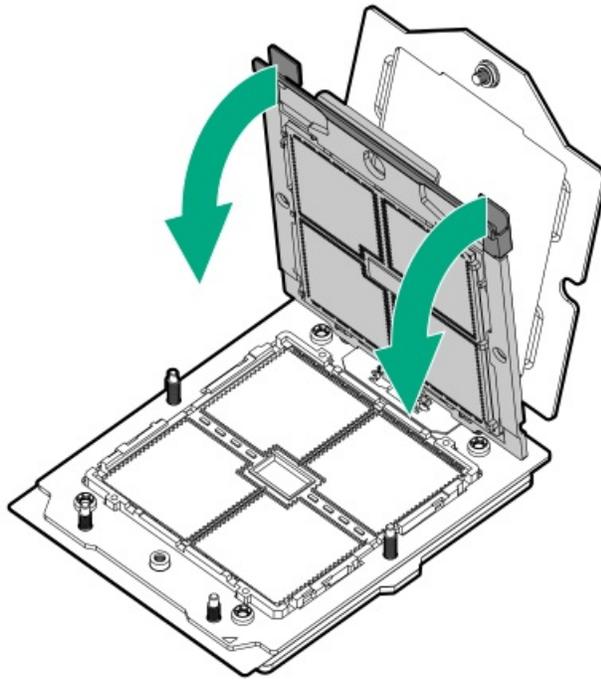
10. Close the retention frame:

   a. When using a torque screwdriver to tighten the retention frame screw, set a torque between 1.24 N-m (11 lbf-in) to 1.47 N-m (13 lbf-in).

   b. Pivot the spring-loaded retention frame downward and hold it down.

   c. Tighten the retention frame screw.
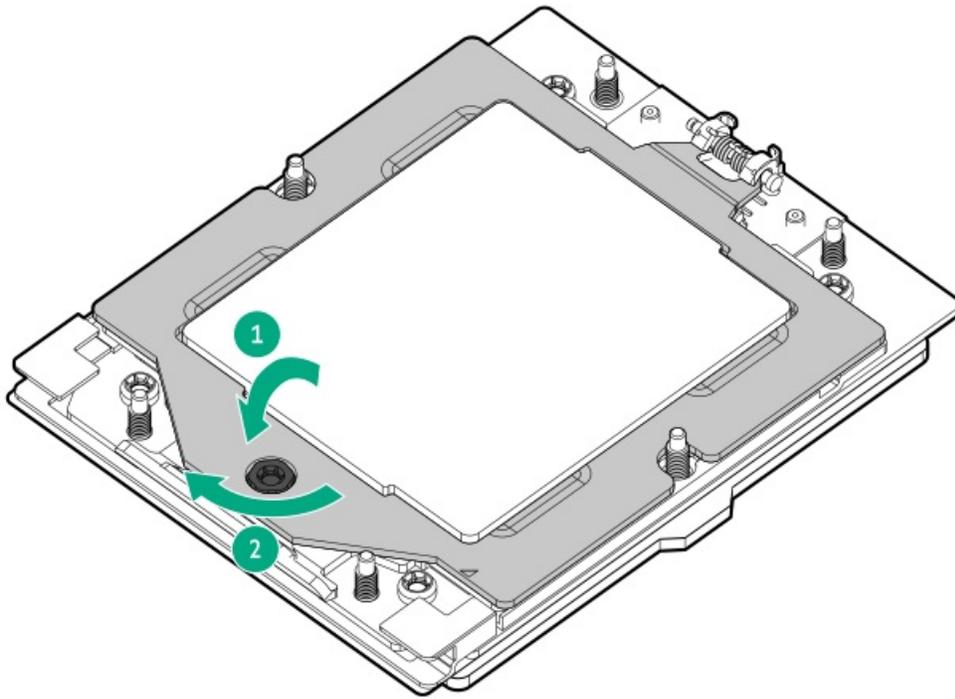
11. If you are using the same heatsink, apply the full content of the thermal grease syringes on top of the processor. Follow the pattern shown in the following image.
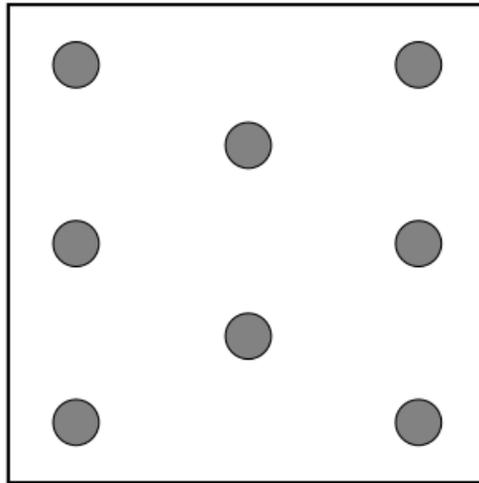
12. If you are using a new heatsink, remove the thermal interface protective cover from the heatsink.

13. Install the heatsink:

> ⚠ **CAUTION**
>
> To prevent mechanical damage or depositing oil on your hands or other contaminants to the heatsink contact surface, hold the heatsink only by the edge of its base plate. Do not touch the heatsink fins.

> ⚠️ **CAUTION**
>
> To prevent thermal failure or component damage, do not move the heatsink once the bottom of its base plate touches the top of the processor. Excessive heatsink movement can cause the thermal grease to smear and become uneven. Voids in the compound can adversely impact the transfer of heat away from the processor.

a. When using a torque screwdriver to tighten the heatsink screws, set a torque between 1.24 N-m (11 lbf-in) to 1.47 N-m (13 lbf-in) .

b. Note the **Front of server** text on the heatsink label to correctly orient the heatsink over the processor socket.

c. Position the heatsink on top of the processor, ensuring that it is properly seated before securing the screws.
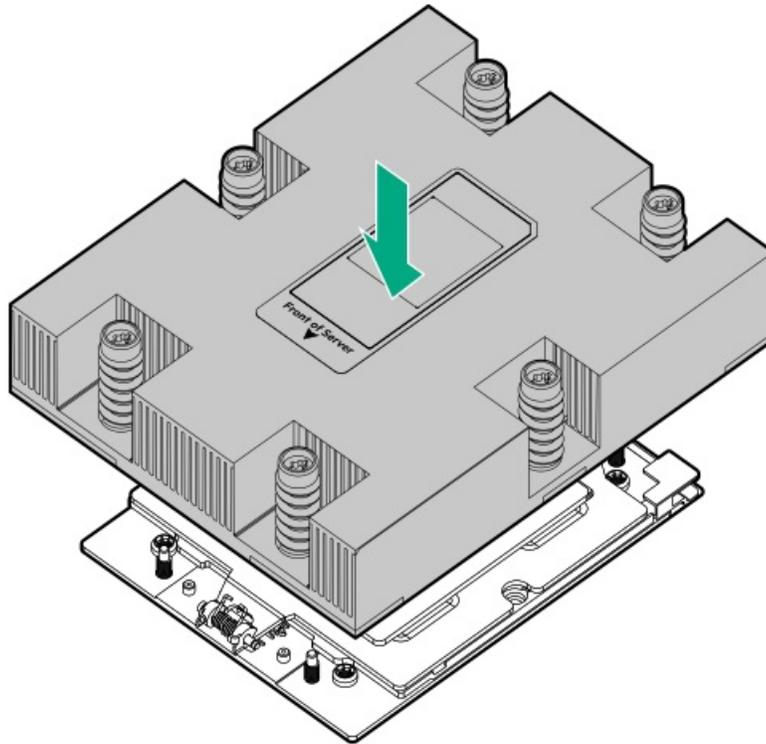
d. Tighten the heatsink screw numbers 1 and 2 (callouts 1 and 2).
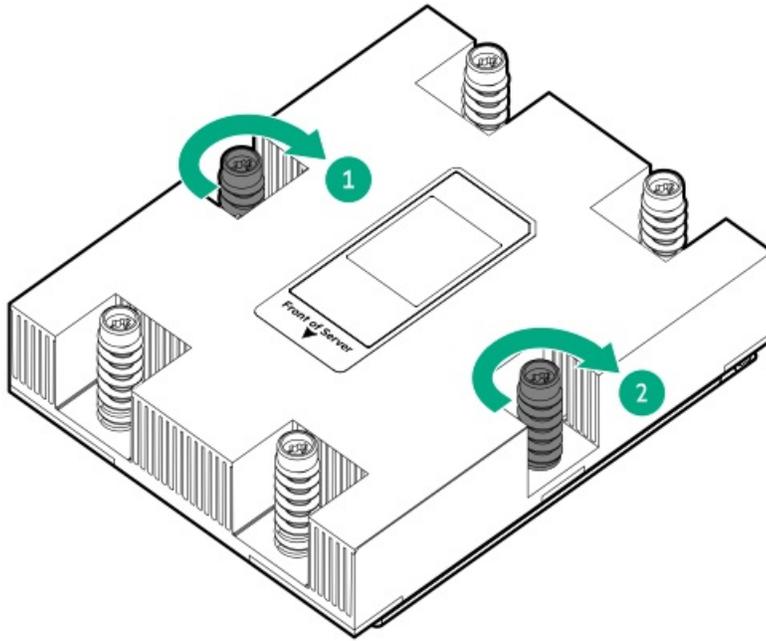
e. Tighten the heatsink screw numbers 3, 4, 5, and 6 in a diagonal manner (callouts 3 to 6).
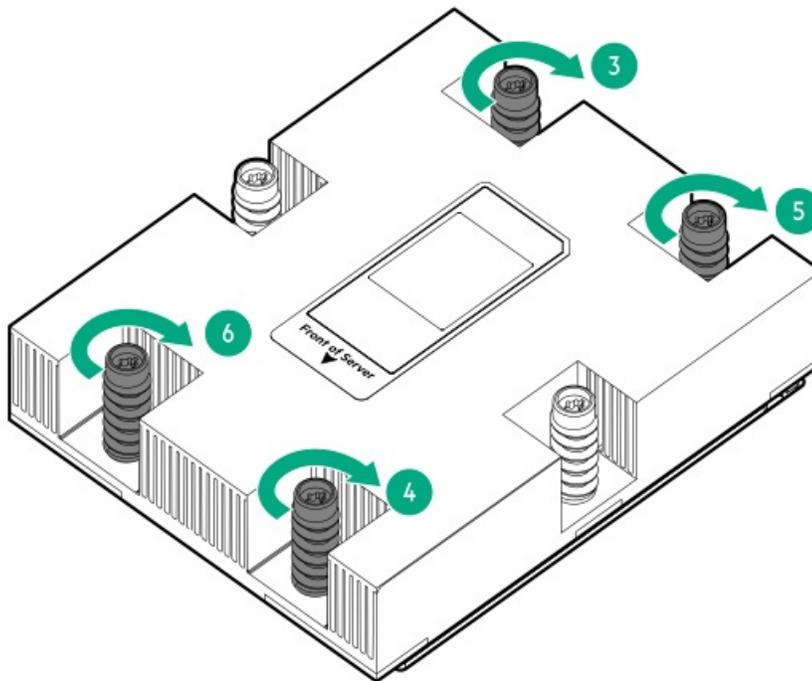
14. Remove the protective cover from the new heatsink.

15. Install the heatsink.

Installing a heatsink

Prerequisites

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

- The components included with the hardware option kit

- T-20 Torx screwdriver

- Two 1.0 gm (0.5 ml) or four 0.5 gm (0.25 ml) of thermal grease

- Alcohol wipe

About this task

This procedure shows a high-performance heatsink as an example. The installation process is the same for both the standard and high-performance heatsinks.

Before performing this procedure, Hewlett Packard Enterprise recommends identifying the processor and socket components.

Procedure

1. Power down the server.

2. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

3. Do one of the following:

    - Extend the server from the rack.

    - Remove the server from the rack.

4. Remove the access panel.

5. Remove the air baffle.

6. Allow the existing heatsink to cool.

7. Use a T-20 Torx screwdriver to loosen the captive screws in the sequence specified on the heatsink label.

> ⚠ **CAUTION**
>
> To prevent mechanical damage or depositing oil on your hands or other contaminants to the heatsink contact surface, hold the heatsink only by the edge of its base plate. Do not touch the heatsink fins.

> ⚠ **CAUTION**
>
> Heatsink screws must be tightened and loosened in alternating sequence. Do not overtighten the screws as this might damage the system board or the processor socket.
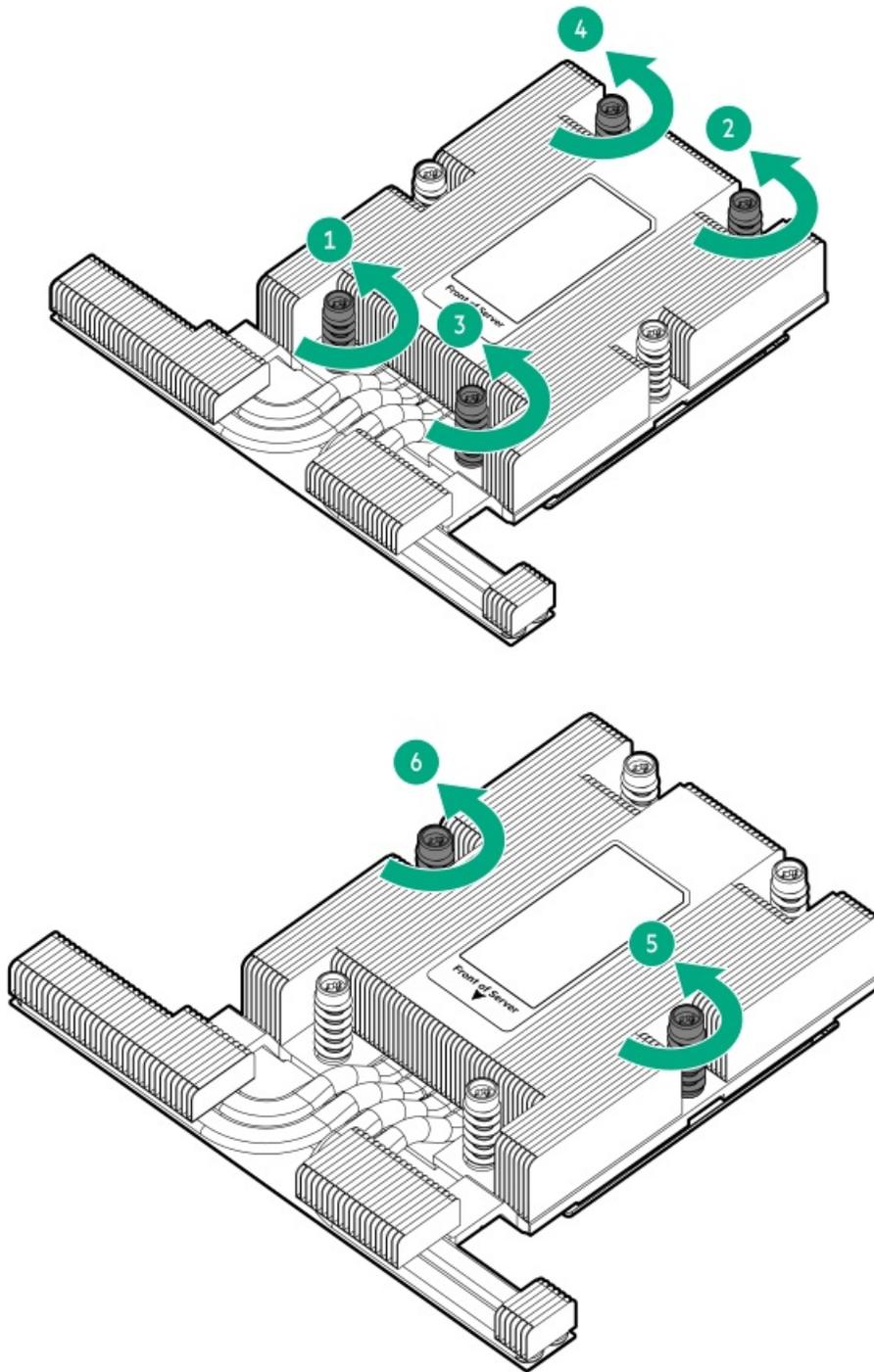
8. Lift the heatsink away from the system board.
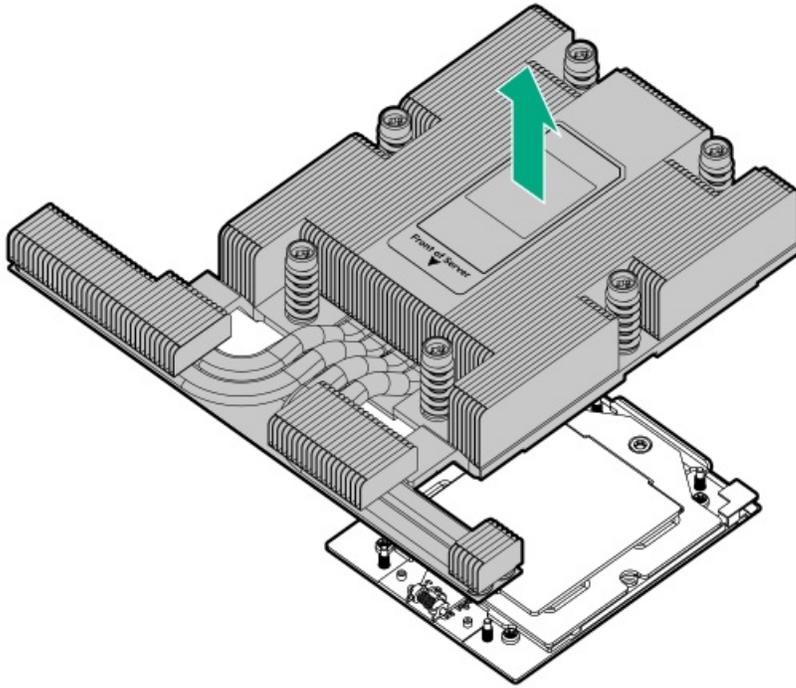
9. Place the heatsink on a flat work surface with its contact side facing upward.

10. Use an alcohol wipe to remove the existing thermal grease from the processor.

   Allow the alcohol to evaporate before continuing.

11. Remove the thermal interface protective cover from the new heatsink.

   > ⚠ **CAUTION**
   >
   > To prevent mechanical damage or depositing oil on your hands or other contaminants to the heatsink contact surface, hold the heatsink only by the edge of its base plate. Do not touch the heatsink fins.

12. Position the heatsink on top of the processor. Ensure that it is properly seated before securing the screws.

   > ⚠ **CAUTION**
   >
   > To prevent thermal failure or component damage, do not move the heatsink once the bottom of its base plate touches the top of the processor. Excessive heatsink movement can cause the thermal grease to smear and become uneven. Voids in the compound can adversely impact the transfer of heat away from the processor.

   > ⚠ **CAUTION**
   >
   > Heatsink screws must be tightened and loosened in alternating sequence. Do not overtighten the screws as this might damage the system board or the processor socket.
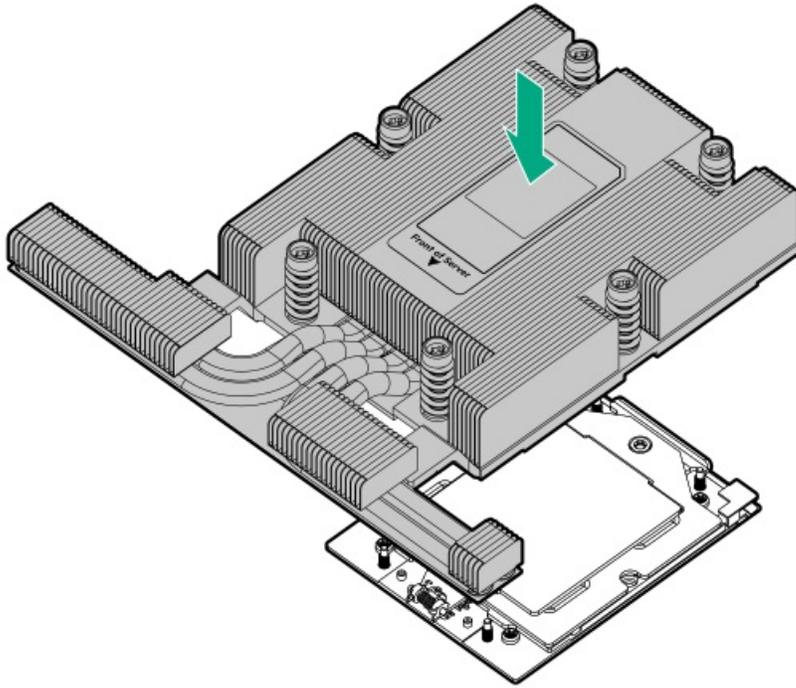
13. Use a T-20 Torx screwdriver to tighten the six captive screws in the sequence specified on the heatsink label.

    When using a torque wrench to tighten the screws, apply a torque of 1.58 N-m (14 lbf-in).
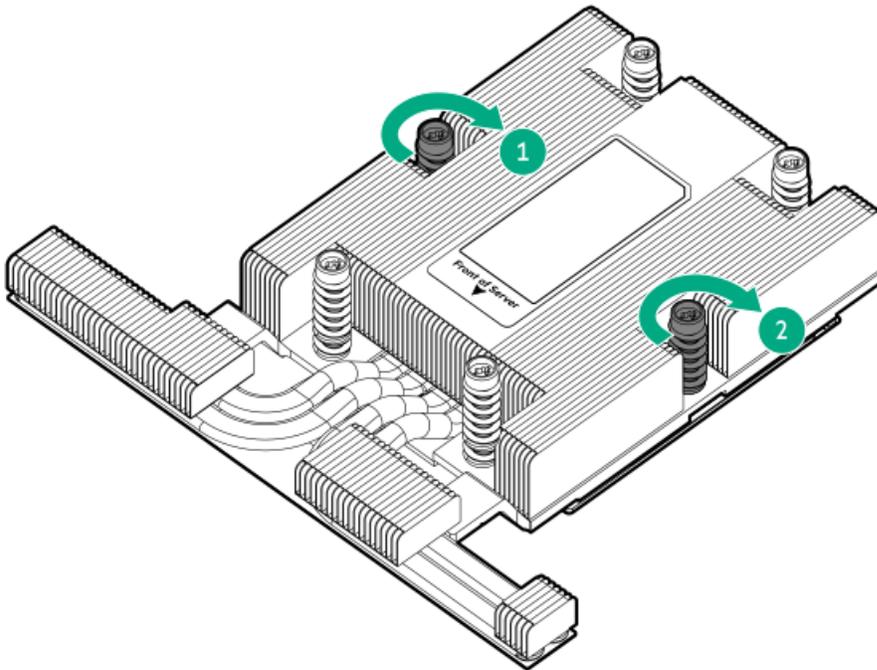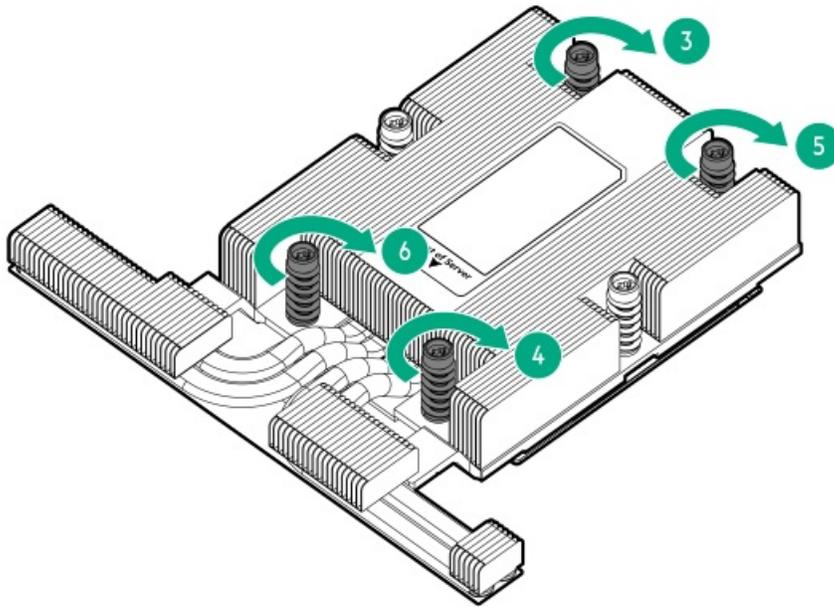
Installing the Systems Insight Display power module

Prerequisites

Before installing this option, be sure you have the following:

- The components included with the hardware option kit
- T-10 Torx screwdriver

Procedure

1. Observe the following alerts:

   > ⚠ **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 prevent damage to electrical components, properly ground the server before beginning any installation procedure. Improper grounding can cause electrostatic discharge.

2. Back up all server data.

3. Power down the server (Power down the server).

4. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

5. Do one of the following:

    a. Extend the server from the rack.

    b. Remove the server from the rack.

6. Remove the access panel.

7. Route the SID cable through the opening in the front of the server.

8. Install the SID module into the front panel.

9. Using a T-10 Torx screwdriver, secure the SID module to the chassis with the screws from the kit.
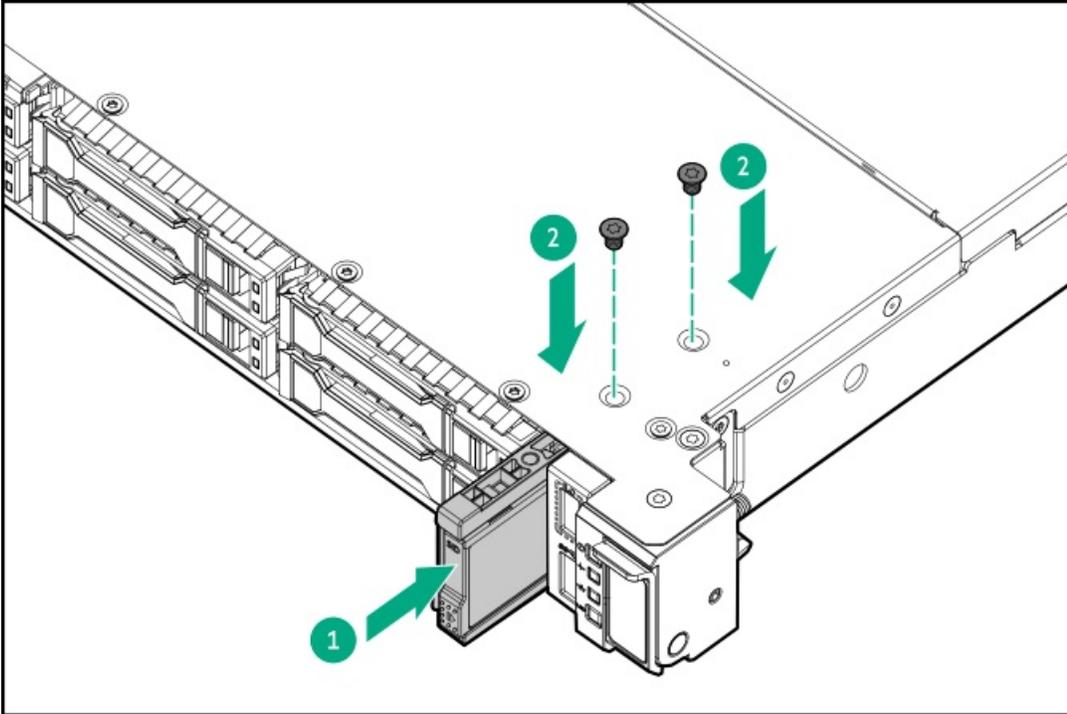
10. Connect the SID cables to the front power button/USB 3.2 Gen1 connector on the system board.
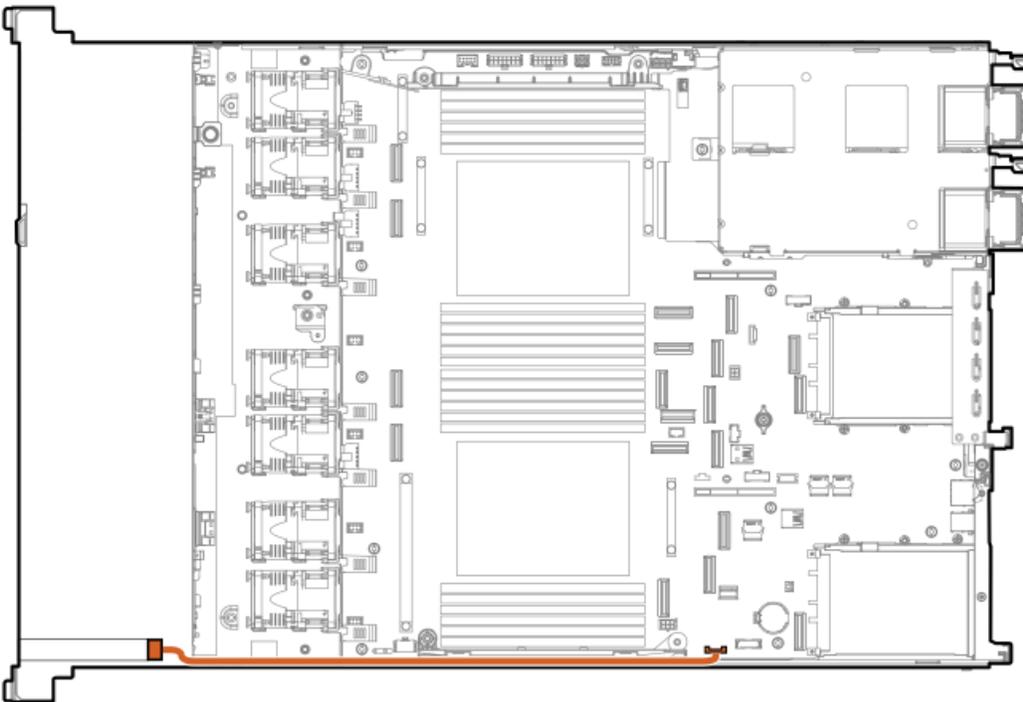
Installing the serial port

Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Do one of the following:

   - Extend the server from the rack.

   - Remove the server from the rack.

4. Remove the access panel.

5. If installed, remove the secondary riser cage.

6. Remove the serial port blank.
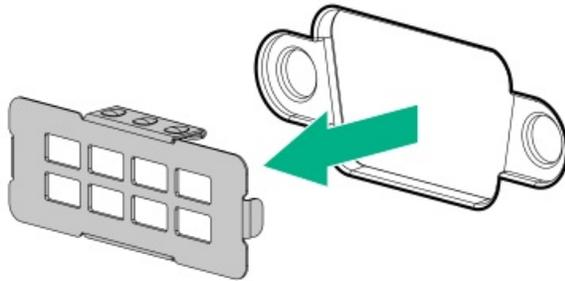
7. Install the serial port.
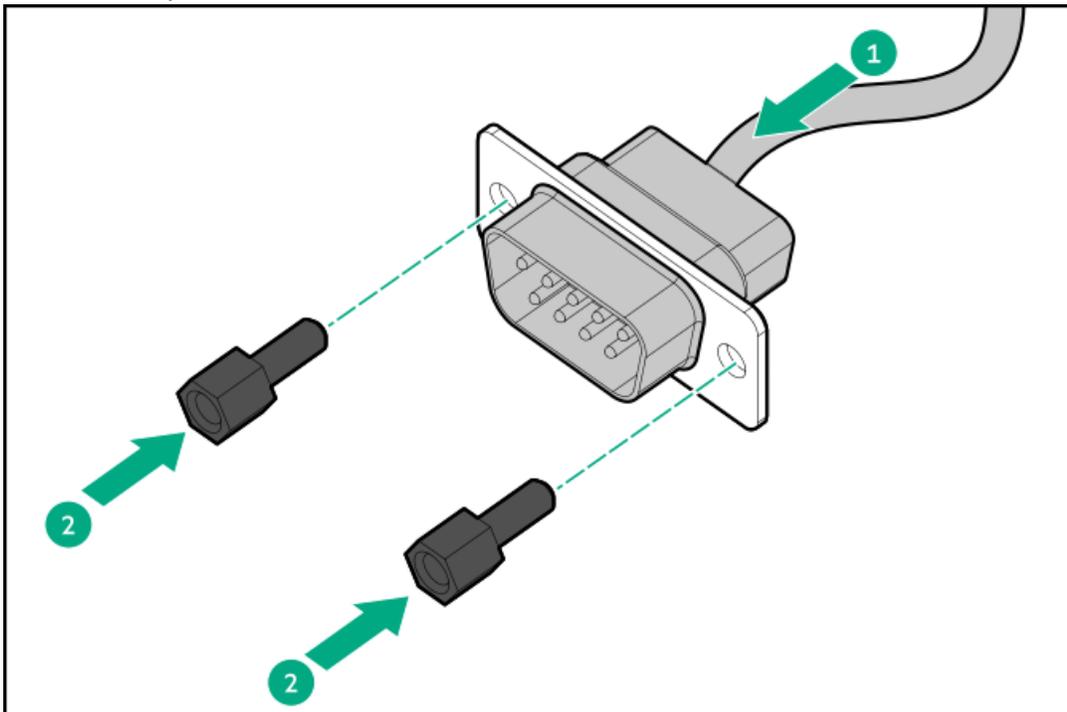
8. Connect the cable to the system board.

Results

The installation is complete.

Installing the Chassis Intrusion Detection switch option

Prerequisites

Before installing this option, verify that you have all of the components included with the hardware option kit.

Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Do one of the following:

   a. Extend the server from the rack.

   b. Remove the server from the rack.

4. Remove the access panel.

5. Install the switch.
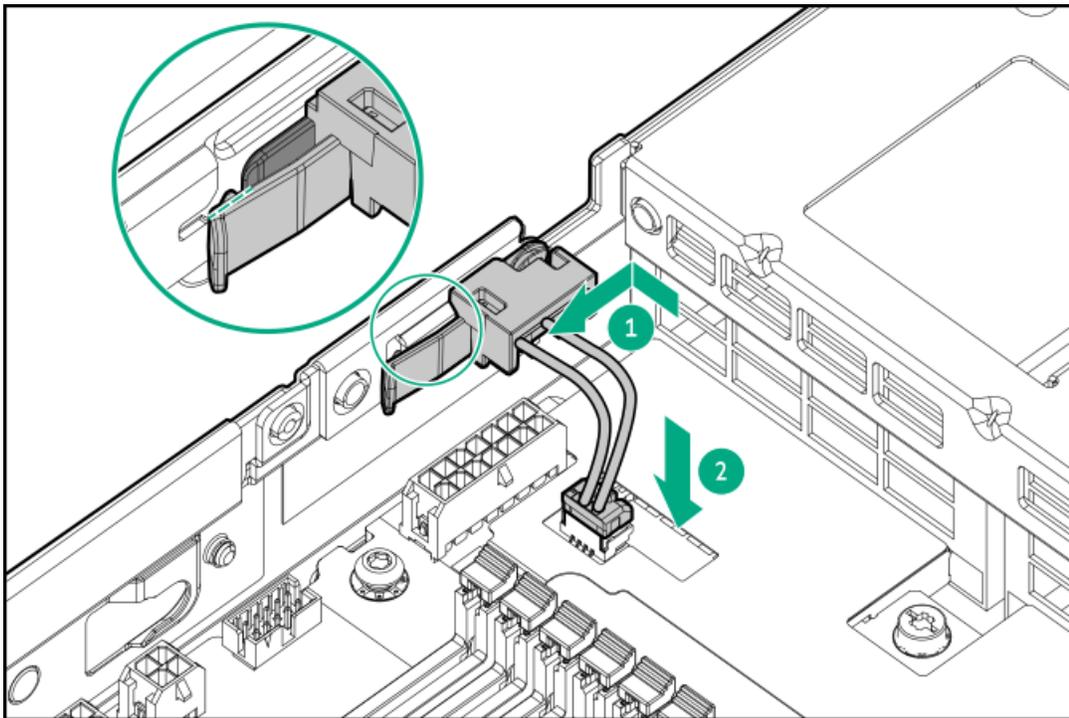
Energy pack options

If there is an unplanned server power outage, the flash-backed write cache (FBWC) feature of   HPE storage controllers requires a centralized backup power source to back up the write cache data in a flash device. This server supports the following power options—collectively

known as energy pack:

- HPE Smart Storage Battery
- HPE Smart Storage Hybrid Capacitor

One energy pack supports multiple devices. After it is installed, the status of the energy pack appears in   HPE iLO. For more information, see the iLO user guide:

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

Subtopics

HPE Smart Storage Battery
HPE Smart Storage Hybrid Capacitor
Minimum firmware versions
Installing an energy pack

HPE Smart Storage Battery

The HPE Smart Storage Battery supports the following devices:

- HPE Smart Array SR controllers
- HPE Smart Array MR controllers

A single 96 W battery can support up to 24 devices.

After the battery is installed, it might take up to two hours to charge. Controller features requiring backup power are not re-enabled until the battery is capable of supporting the backup power.

This server supports the 12 W HPE Smart Storage Battery with the 230 mm cable.

This server supports the 96 W HPE Smart Storage Battery with the 260 mm cable.

HPE Smart Storage Hybrid Capacitor

The HPE Smart Storage Hybrid Capacitor supports the following devices:

- HPE SR controllers
- HPE MR controllers

The capacitor pack can support up to two devices.

This server supports the HPE Smart Storage Hybrid Capacitor with the 260 mm cable.

Before installing the HPE Smart Storage Hybrid Capacitor, verify that the system BIOS meets the minimum firmware requirements to support the capacitor pack.

> ⚠ **IMPORTANT**
>
> If the system BIOS or controller firmware is older than the minimum recommended firmware versions, the capacitor pack will only support one device.

The capacitor pack is fully charged after the system boots.

Minimum firmware versions

Product	Minimum firmware version
Server system ROM	1.12
HPE MR type-o and type-p Gen11 controllers	52.22.3-4650
HPE SR900 series type-p Gen11 controllers	03.01.14.062

Installing an energy pack

Prerequisites

Before installing this option, be sure you that have the components included with the hardware option kit.

Procedure

1. Power down the server (Power down the server).

2. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

3. Do one of the following:

    a. Extend the server from the rack.

    b. Remove the server from the rack.

4. Remove the access panel.

5. Install the energy pack and connect the energy pack cable using the energy pack extension cable in the cable kit.
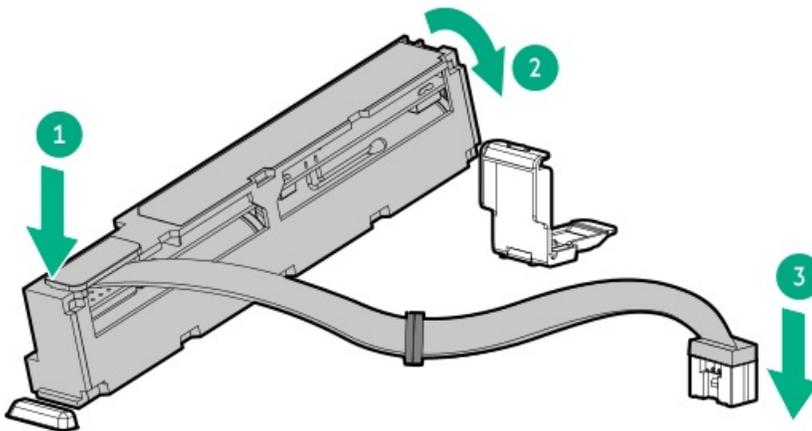
> **⚠ IMPORTANT**
>
> To enable SmartCache or CacheCade in a P-class type-p Smart Array controller, you must:
>
> - Connect the controller backup power cable to the controller backup power connector on the system or riser board.
>
> - Connect the energy pack cable to the energy pack connector on the system board.
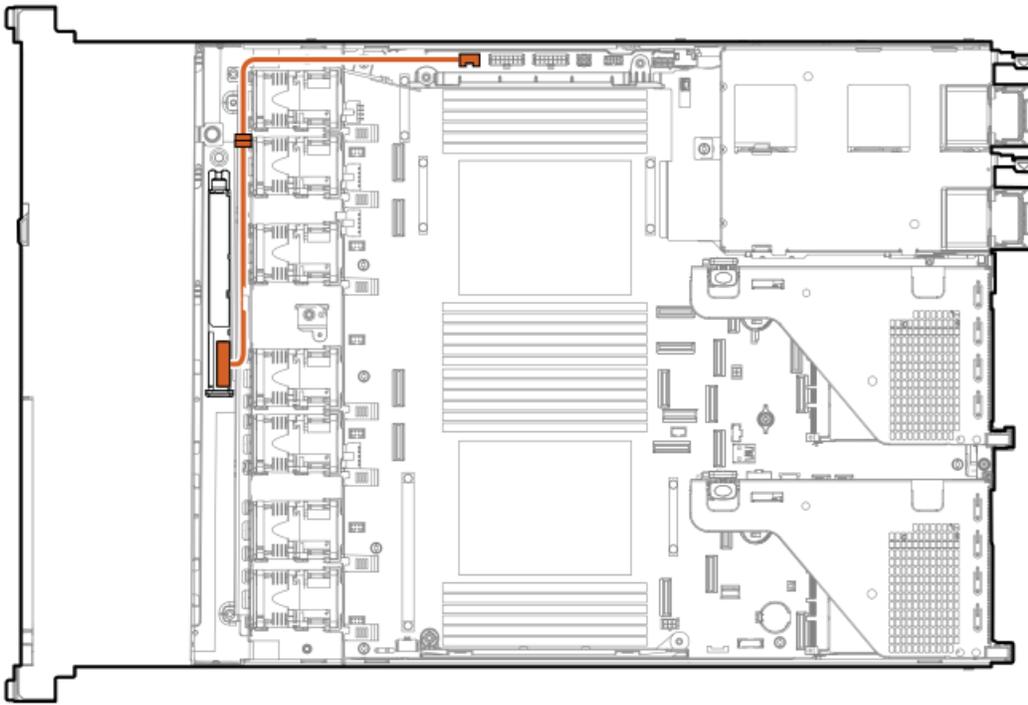
Cabling

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

Subtopics

Cabling guidelines
Cabling diagrams

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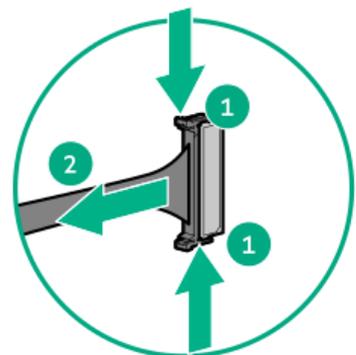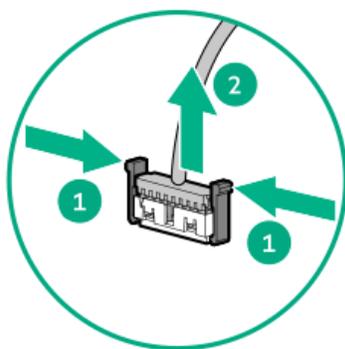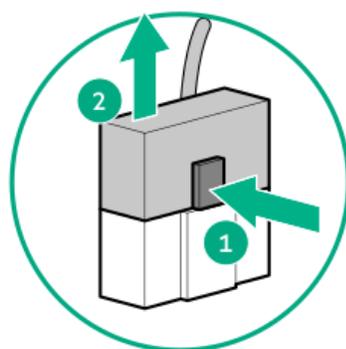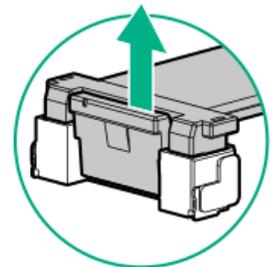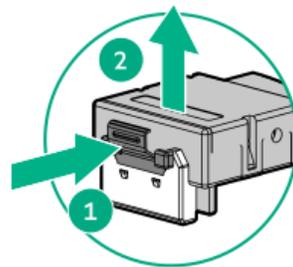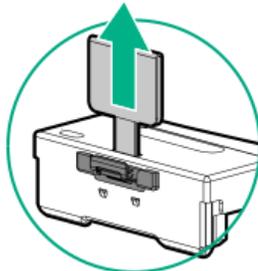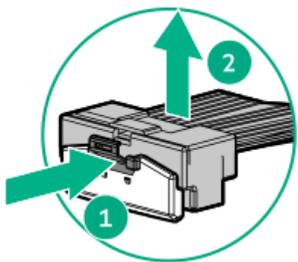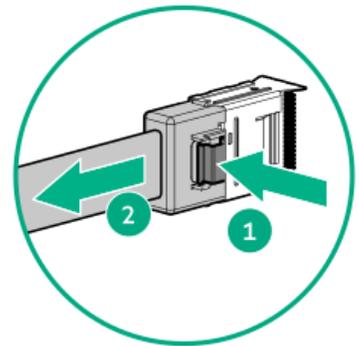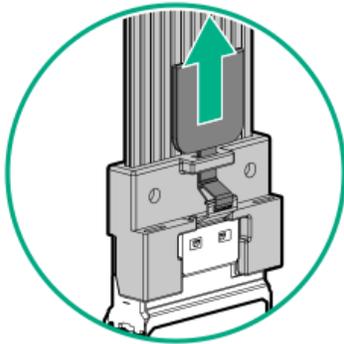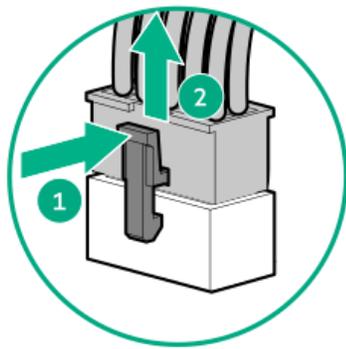
- Remove cables that are no longer being used. Retaining them inside the server can restrict airflow. If you intend to use the removed cables later, label and store them for future use.

Cabling diagrams

Observe the following:

Component cabling	Cable part number
2 SFF drive power cabling	P54591-001
4 SFF drive power cabling	P62878-001
8 SFF drive power cabling	P57306-001
20 EDSFF drive power cabling	P57315-001
8 SFF: SAS/SATA cabling to box 1	P57307-001

Component cabling	Cable part number
8 SFF: Box 1 to Primary riser	P57076-001
2 SFF: Box 2 to Primary riser	P57041-001
GPU power cabling	P57338-001
GPU for Smart Array cabling	P69542-001
	P57057-001
	P58145-002
	P57334-002
Type-p controller cabling	P57070-001
	P57057-001
	P57076-001
	P57041-001
Type-o controller cabling	P58152-001
2 SFF: NVMe Direct attach cabling - 1 processor	P57311-001
4 SFF: NVMe Direct attach cabling	P62877-001
8 SFF: SAS/SATA to OCP	P57079-001
8 SFF: NVME Direct attach cabling - 1 processor	P57308-001
	P57309-001
8 SFF: NVME Direct attach cabling - 2 processors	P57309-001
	P57310-001
EDSFF Direct attach cabling	P57313-001
	P57314-001
8 SFF: U.3 to OCP1 Y cable	P57334-001
	P57335-001
E3.S drive cabling	P58129-001
	P58130-001
Energy pack cabling	P58176-001
HPE NS204i Boot Device cabling on the secondary riser cage	P54087-001
	P54088-001
System Insight Display cabling	P48971-001
Chassis intrusion switch cabling	P47751-001
Serial port cabling	873747-001
Optical drive cabling	P57326-001
Slot 21 OCP NIC 3.0 x16 upgrade cabling	P58174-001
Slot 22 OCP NIC 3.0 x16 upgrade cabling	P58173-001
	P58174-001
XGMI cabling	P64556-001

Subtopics

Drive power cabling

2 SFF drive power cable
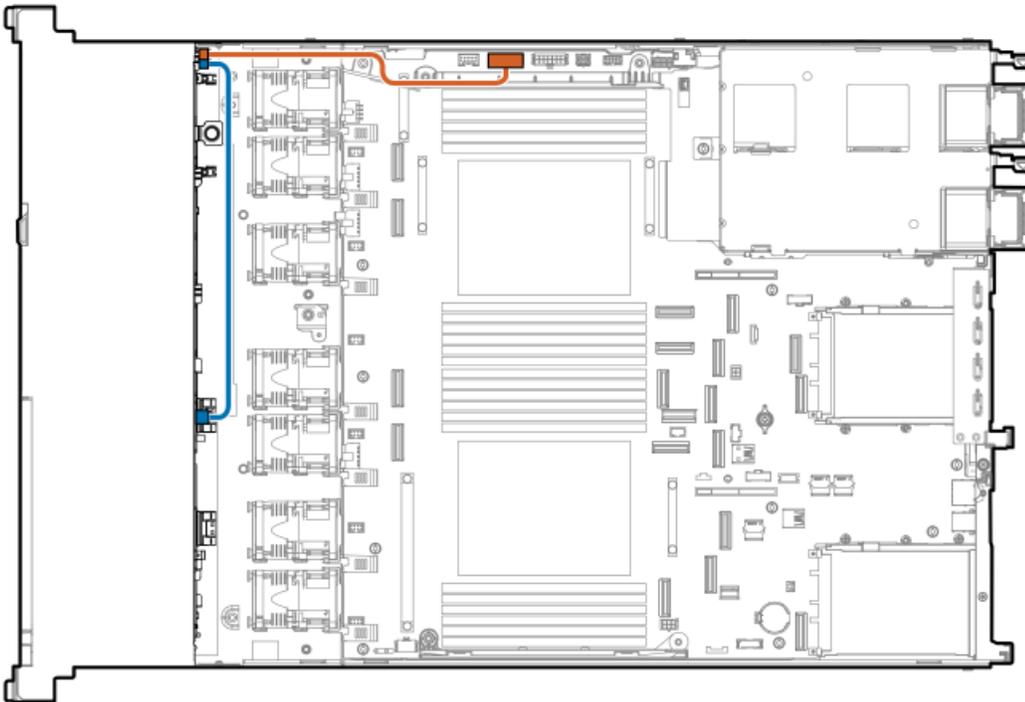
Cable part number	Cable color	From	To
P54591-001 [1]	Blue	8 SFF Box 1 backplane	2 SFF Box 2 backplane

[1]   Option kits: P55023-B21, P55025-B21

4 SFF drive power cable
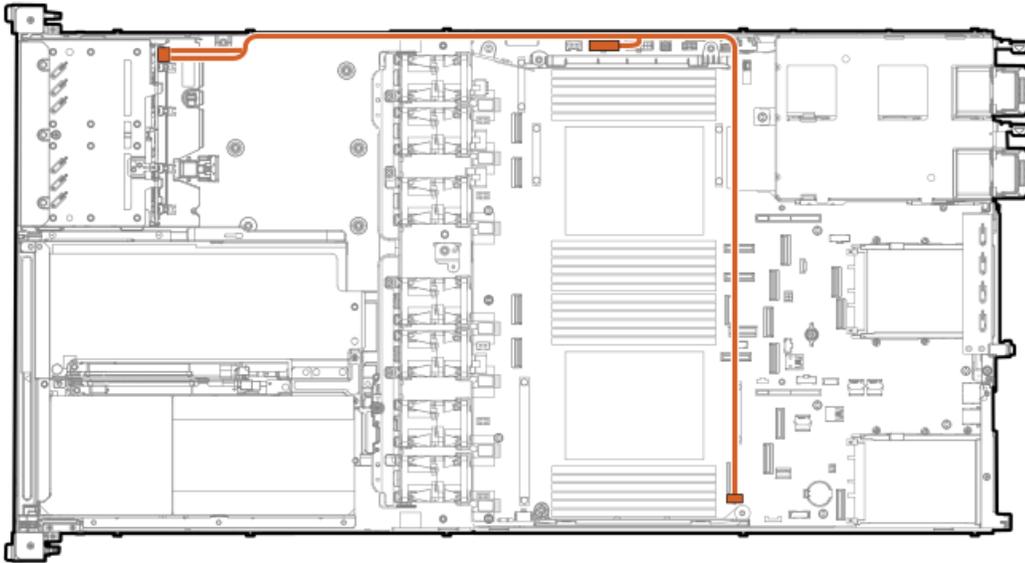
Cable part number	Cable color	From	To
P62878-001	Orange	Box 1 & Box 2	Backplane power connector
			SFF power connector

8 SFF drive power cable
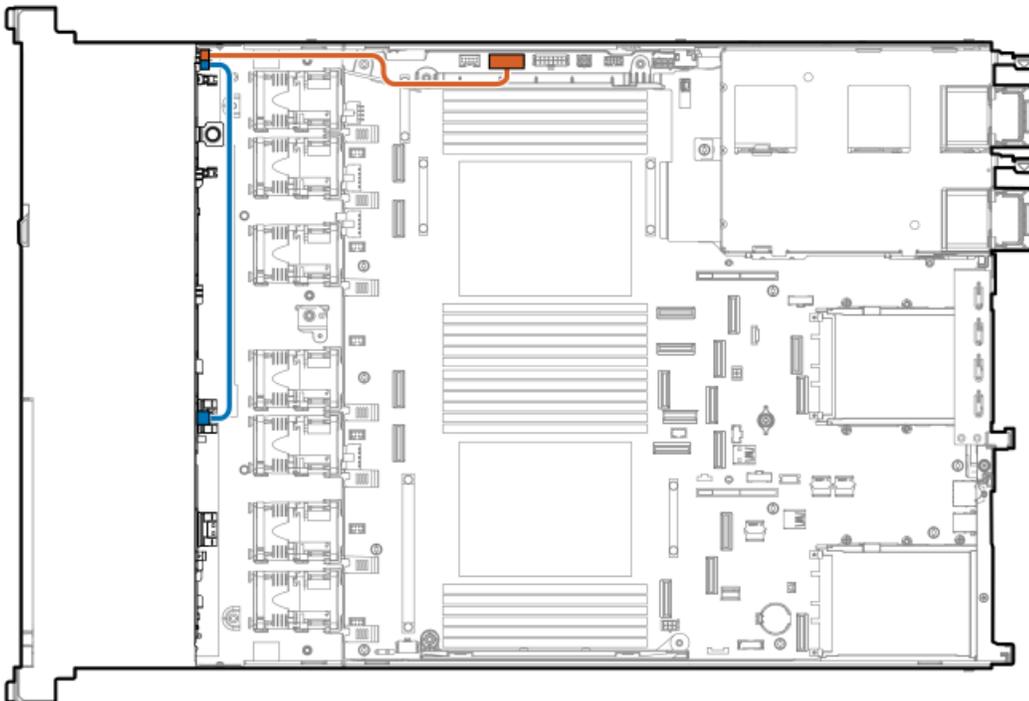
Cable part number	Cable color	From	To
P57306-001 [1]	Orange	Box 1 backplane	Drive backplane / Graphics card power connector A (J5007)

[1]   Option kits: P55020-B21, P55021-B21, P55022-B21

20 EDSFF drive power cable
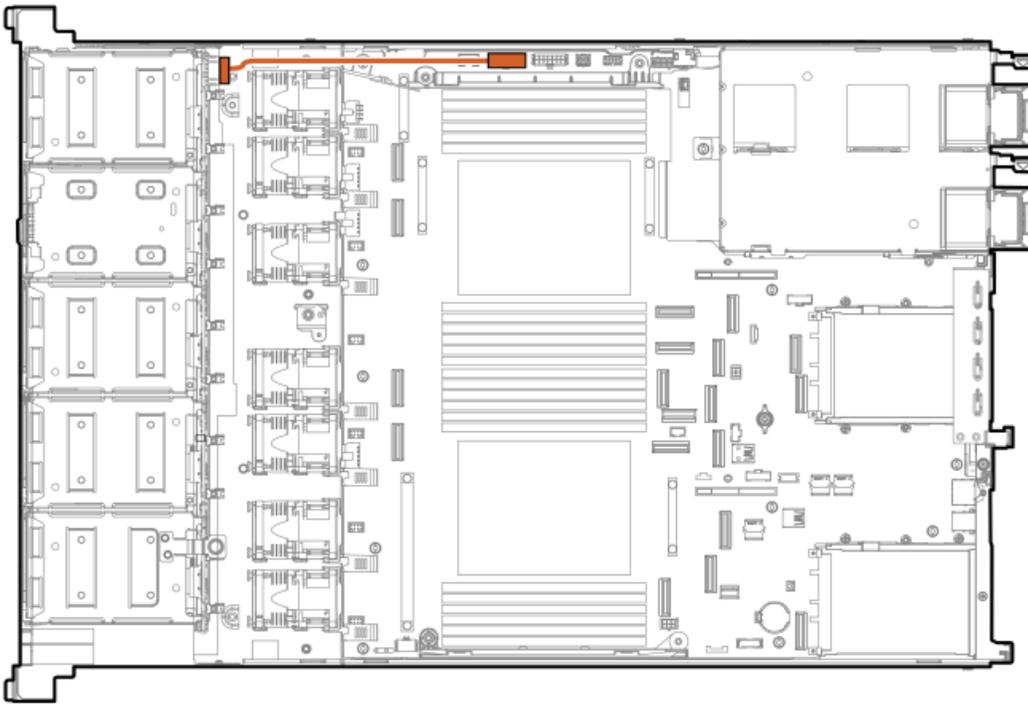
Cable part number	Cable color	From	To
P57315-001 [1]	Orange	Box 1 backplane	Drive backplane / Graphics card power connector A (J5007)

[1]

2 SFF Drive controller cabling
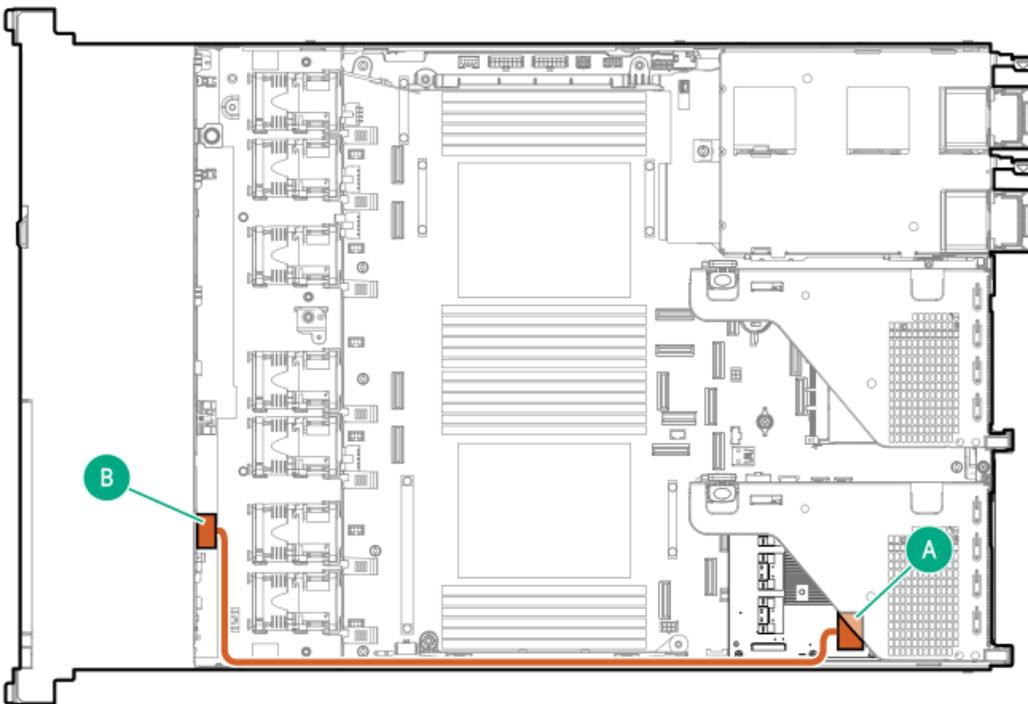
Cable part number	Color	From	To
P57041-001 [1]	Orange	Port 4	Port 1

[1]   Option kit: P56907-B21

2 SFF: NVMe drive direct attach cabling

NVMe drive direct attach (1 processor)

Cable part number	Cable color	From	To
P57311-001 [1]	Orange	Box 2	Port 1A

[1] Option kits: P55023-B21, P55025-B21

4 SFF: NVMe drive direct attach cabling

NVMe drive direct attach
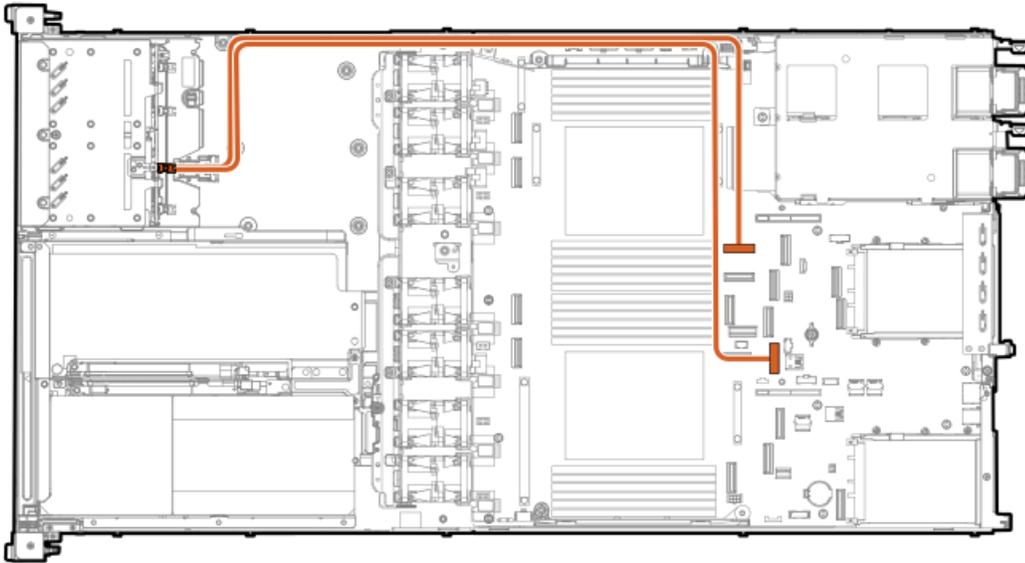
Cable part number	Cable color	From	To
P62877-001	Orange	Box 1	Port 1A
		Box 2	Port 7B

8 SFF: NVMe drive direct attach cabling

8 SFF NVMe drive direct attach (1 processor)
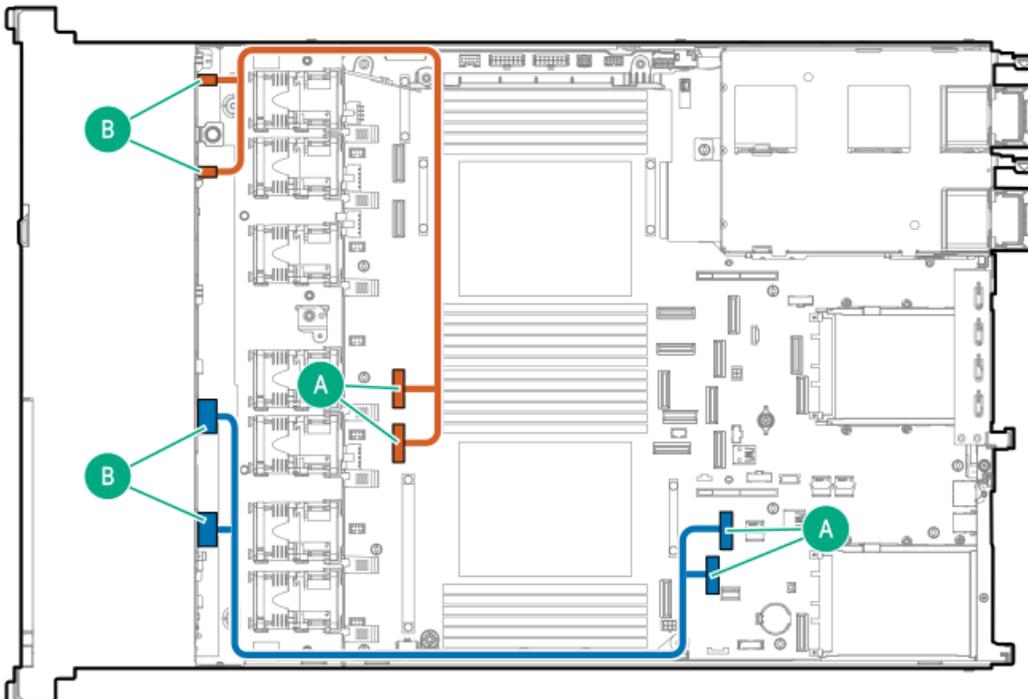
Cable part number	Cable color	From	To
P57308-001 [1]	Orange	Port 1	Port 2A
		Port 2	Port 3A
P57309-001 [1]	Blue	Port 3	Port 6A
		Port 4	Port 7A

[1]   Option kits: P55021-B21, P55022-B21

8 SFF: NVMe drive direct attach cable (2 processors)
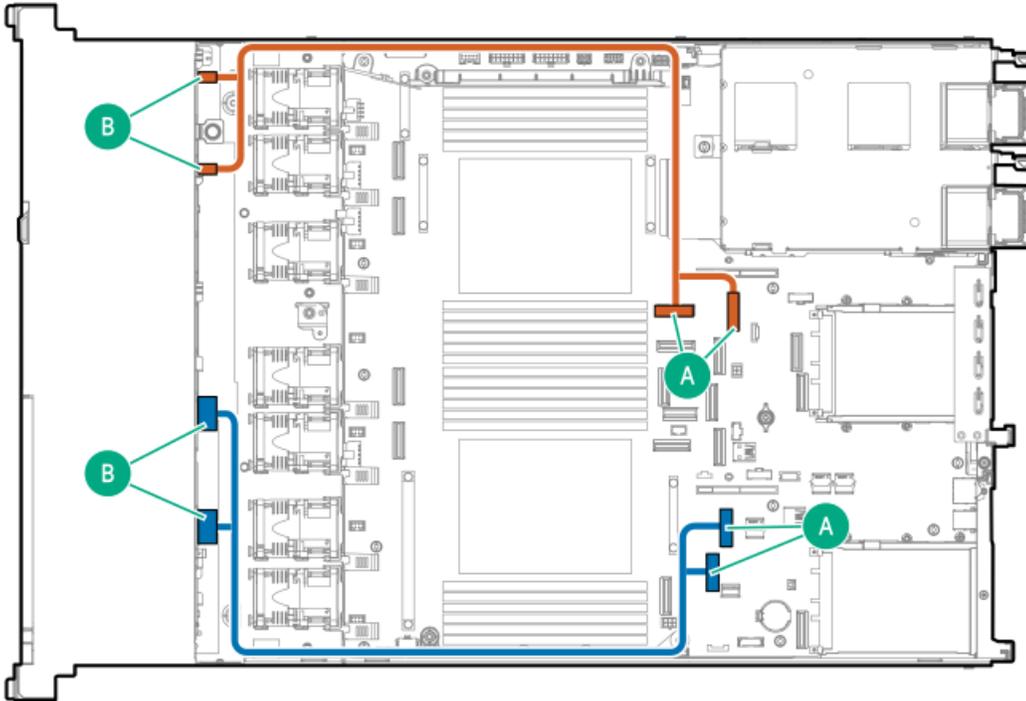
Cable part number	Cable color	From	To
P57310-001 [1]	Orange	Port 1	Port 9B
		Port 2	Port 7B
P57309-001 [1]	Blue	Port 3	Port 6A
		Port 4	Port 7A

[1]   Option kits: P55021-B21, P55022-B21

EDSFF drive direct attach cabling

EDSFF drive direct attach
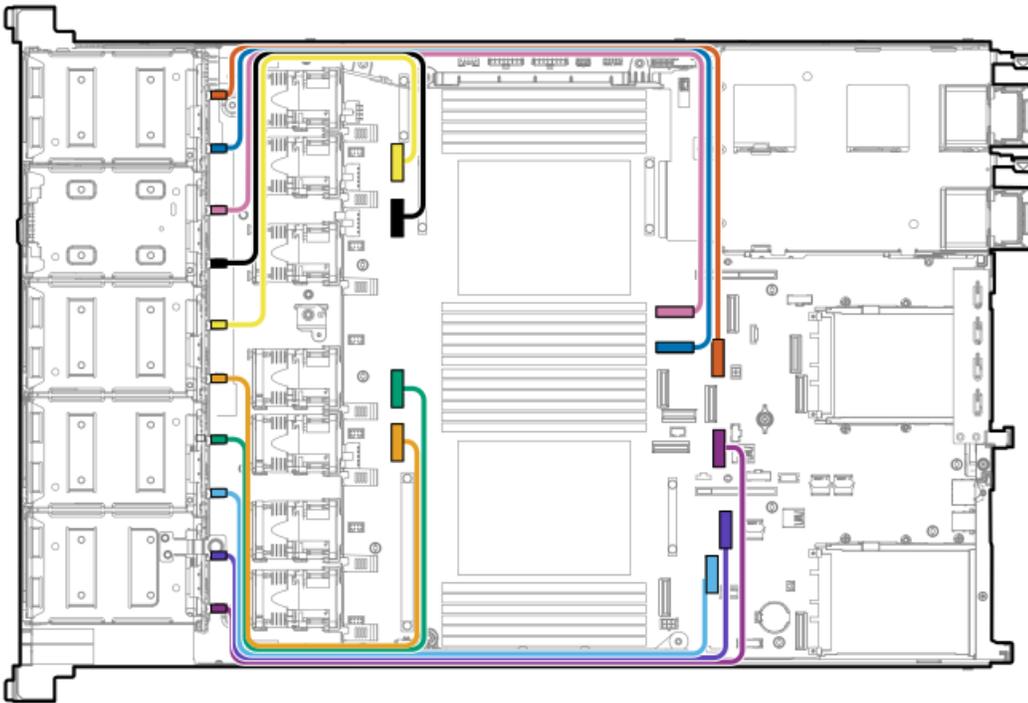
Cable part number	Cable color	From	To
P57313-001	Red	Backplane port 1	Port 8B
	Blue	Backplane port 2	Port 6B
	Pink	Backplane port 3	Port 7B
	Black	Backplane port 4	Port 2B
	Yellow	Backplane port 5	Port 3B
P57314-001	Orange	Backplane port 6	Port 2A
	Green	Backplane port 7	Port 3A
	Light blue	Backplane port 8	Port 6A
	Violet	Backplane port 9	Port 7A
	Purple	Backplane port 10	Port 1A

8 SFF: SAS/SATA/NVMe cabling
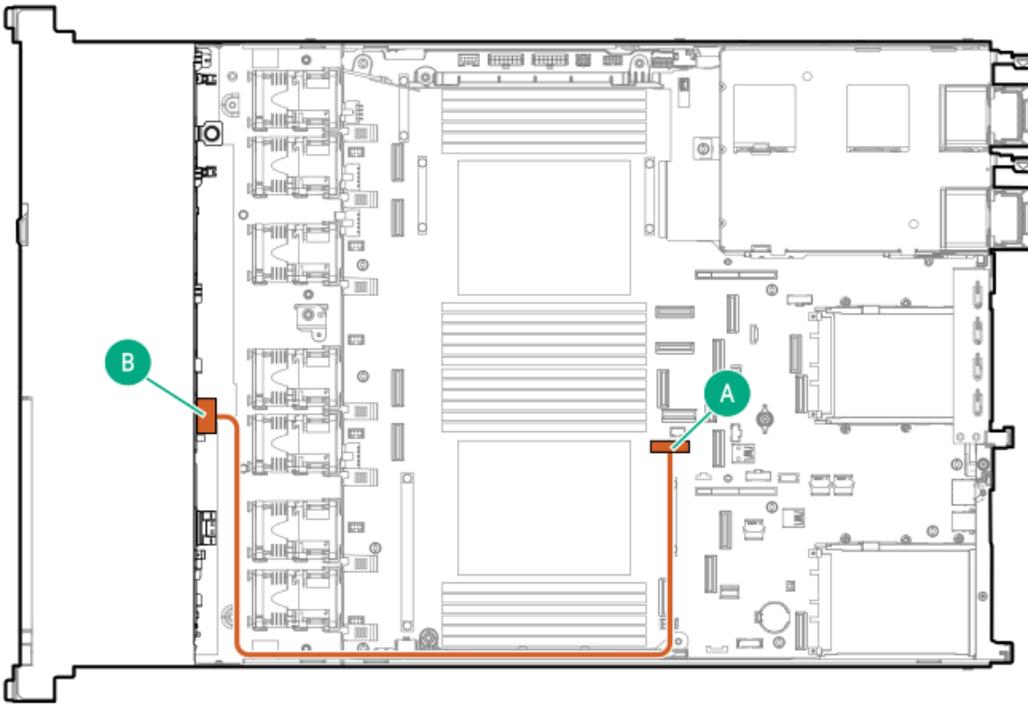
Cable part number	Color	From	To
P57307-001 [1]	Orange	Port 1	Port 9A

[1]   Option kit: P55020-B21
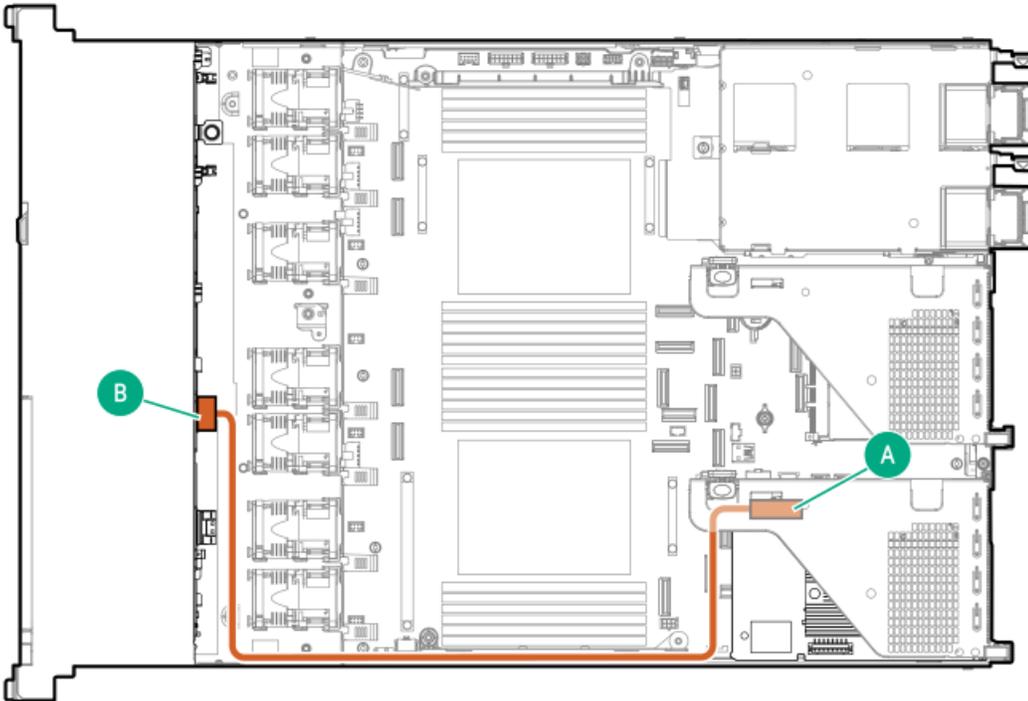
Cable part number	Color	From	To
P57079-001 [1]	Orange	Port 3	OCP

[1]   Option kit: P56901-B21

GPU power cabling
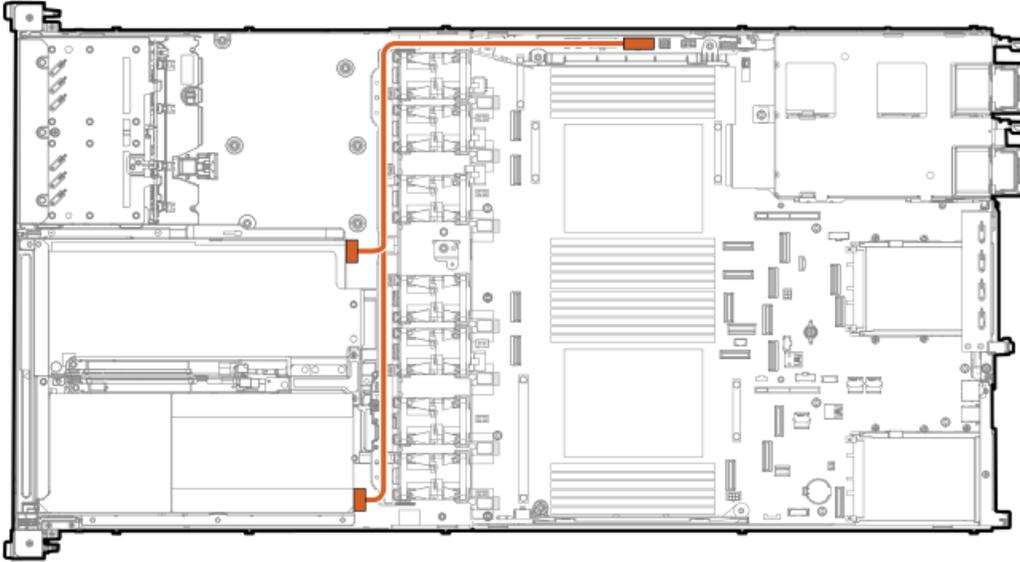
Cable part number	Color	From	To
P57338-001	Orange	GPU	GPU power connector

GPU for Smart Array cabling

GPU+8EDSFF (x4)
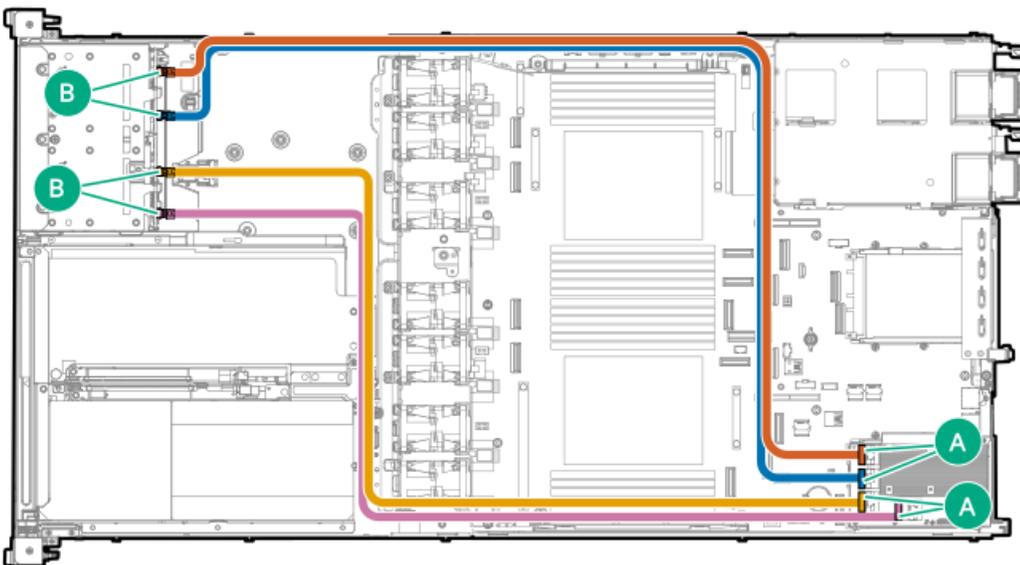
Cable part number	Color	From	To
P69542-001	Red	Box 1, port 1	Port 4
	Blue	Box 1, port 2	Port 3
	Orange	Box 1, port 1	Port 2
	Pink	Box 1, port 2	Port 1

GPU+4NVMe (x4)

Cable part number	Color	From	To
P57057-001	Red	8SFF BP, port 2	Riser, port 3
	Blue	8SFF BP, port 2	Riser, port 3

GPU +4NVme (x4) - OCP
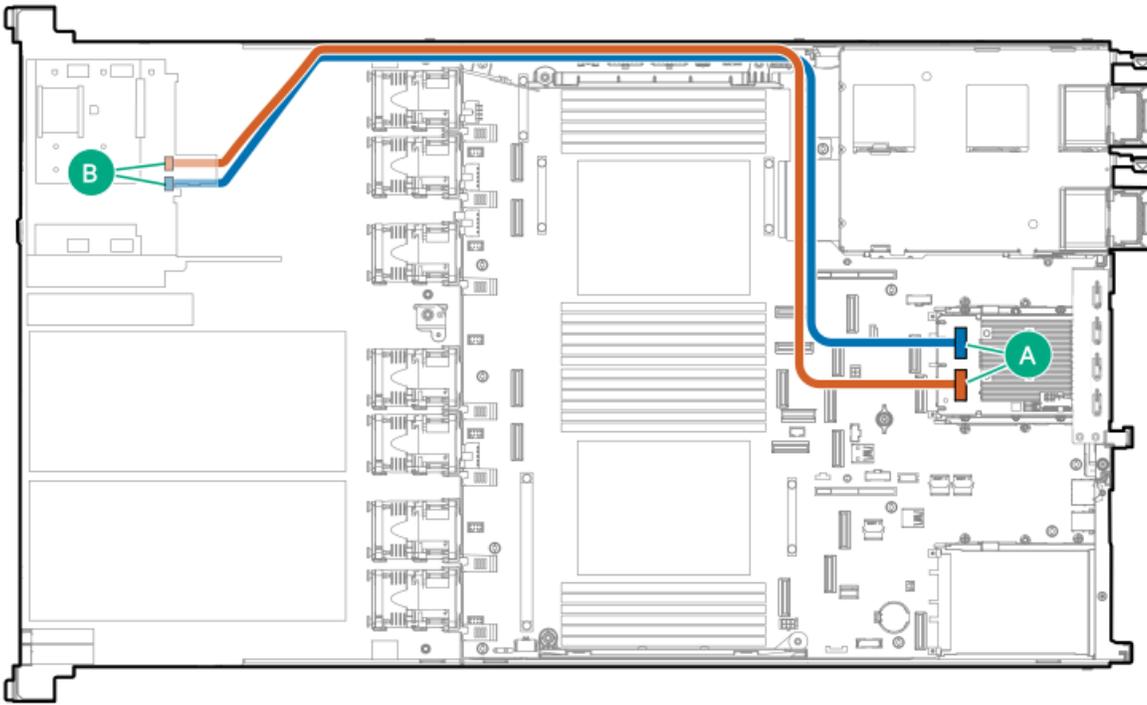
Cable part number	Color	From	To
P58145-002	Red	2SFF Box 1	OCP 2
	Blue	2SFF Box 1	OCP 2

GPU+4NVMe (x2) - OCP
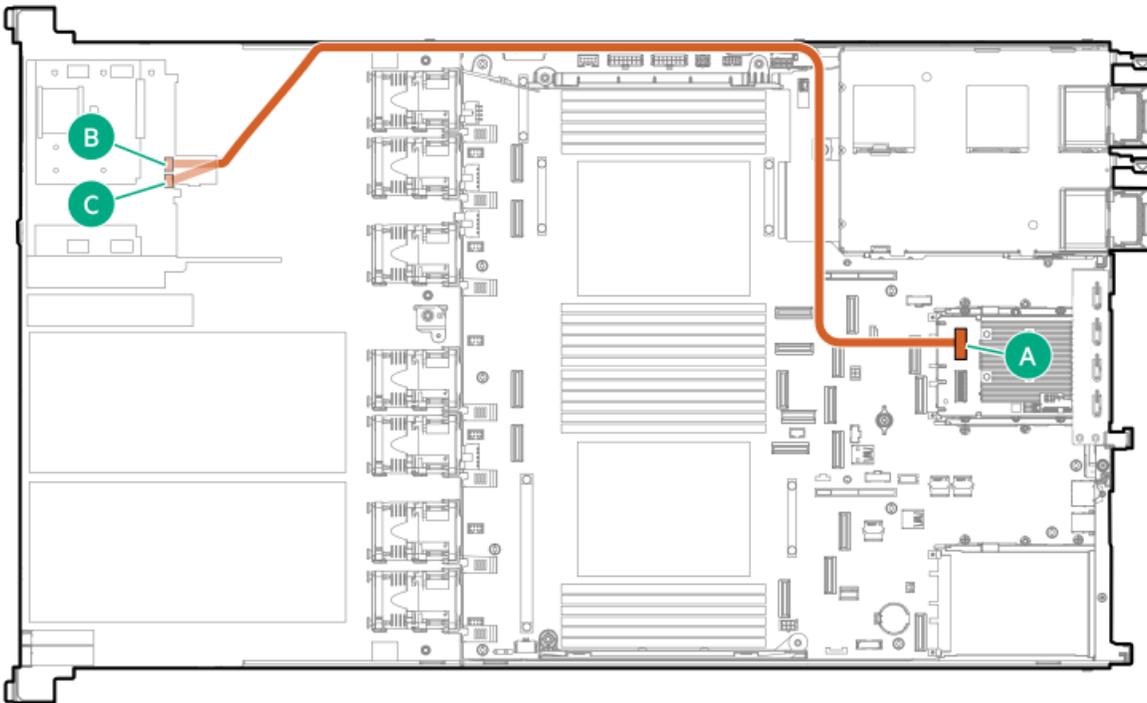
Cable part number	Color	From	To
P57334-002	Red	8SFF U.3	OCP 1, port 2

Ear switch board cabling

Ear switch board
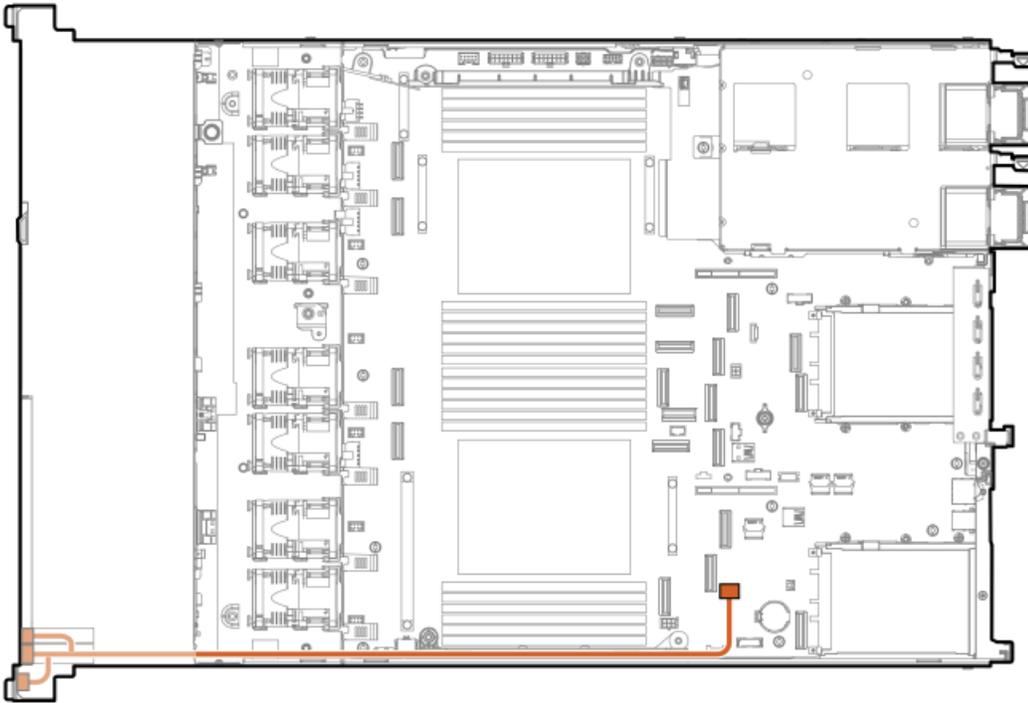
Cable part number	Cable color	From	To
P43727-001	Orange	Ear switch	Front USB

Type-p storage controller cabling
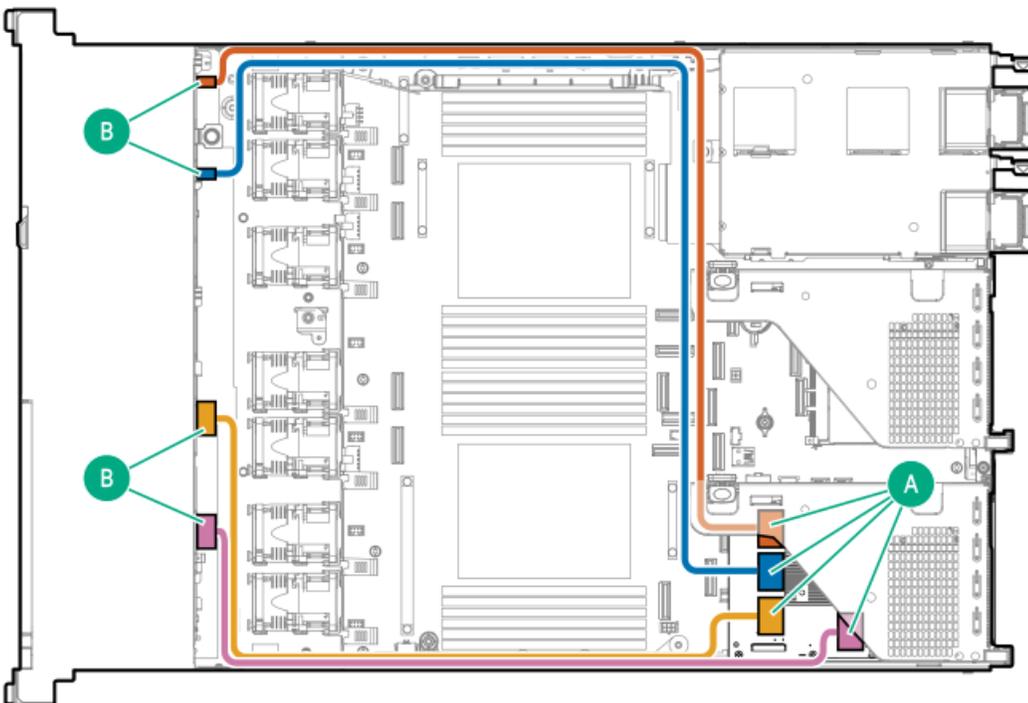
Cable part number	Color	From	To
P57070-001 [1]	Orange	Port 1	Port 4
P57057-001 [1]	Blue	Port 2	Port 3
P57076-001 [1]	Yellow	Port 3	Port 2
P57041-001 [1]	Pink	Port 4	Port 1

[1]   Option kit: P56911-B21

Type-o storage controller cabling
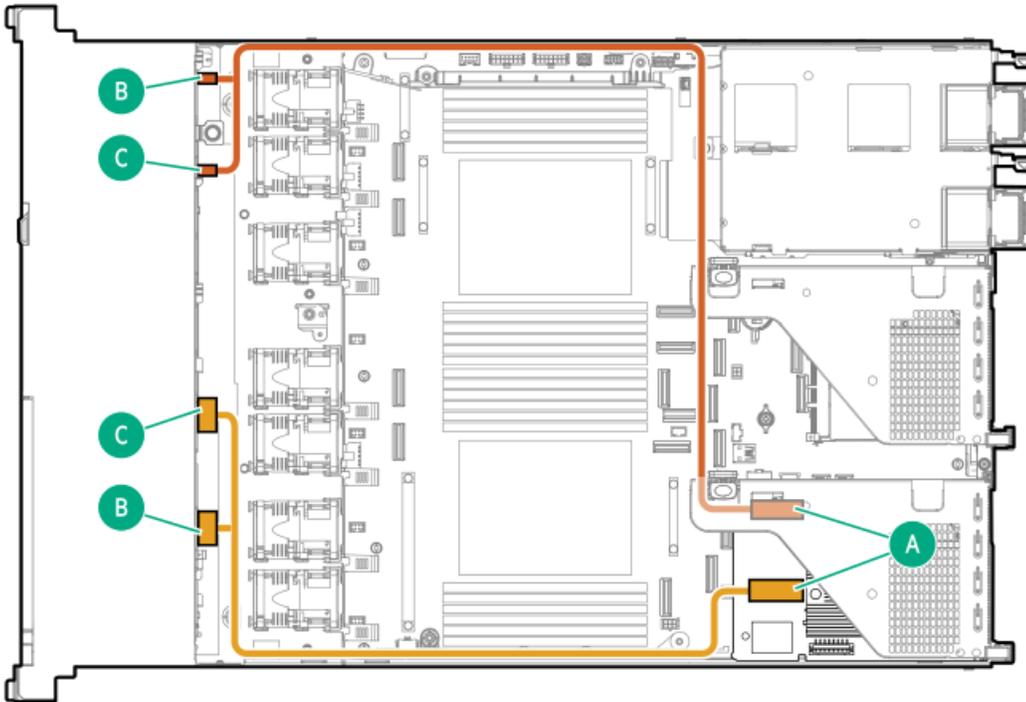
Table 1.

Cable part number	Color	From	To
P57334-001 [1]	Orange	Port 1	Port 2
		Port 2	
P57335-001 [1]	Yellow	Port 3	Port 1
		Port 4	

[1]   Option kit: P56913-B21

Energy pack cabling
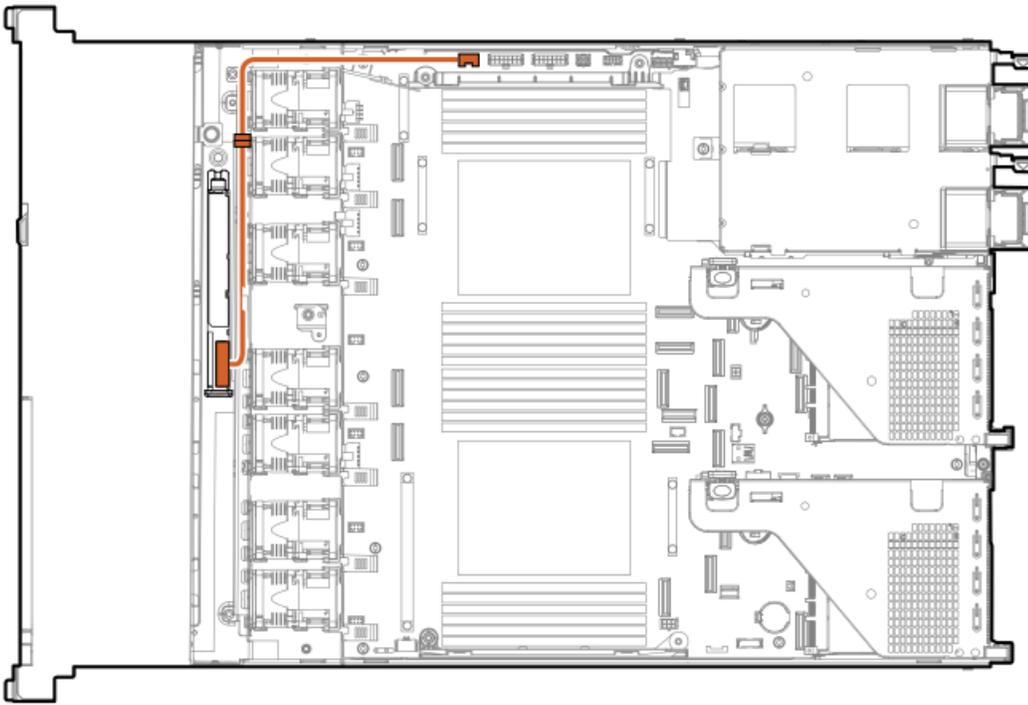
Cable part number	Color	From	To
P58176-001 [1]	Orange	Energy pack extension cable	Energy pack connector
P01366-B21 [1]	Orange	Energy pack	Energy pack extension cable

[1] P57884-B21

HPE NS204i Boot Device cabling

HPE NS204i Boot Device cabling on the secondary riser cage
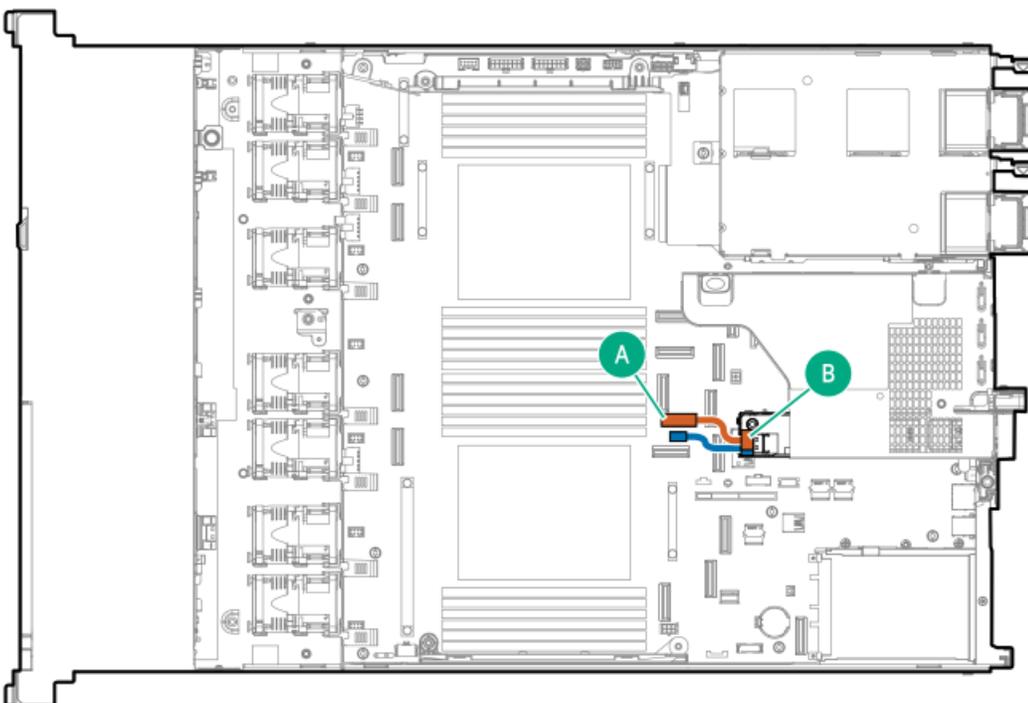
Cable part number	Color	From	To
P54087-001 [1]	Orange	NS204i-u signal connector	HPE NS204i Boot Device
P54088-001 [1]	Blue	NS204i-u power connector	HPE NS204i Boot Device

[1] Option kit: P57013-B21

System Insight Display cabling
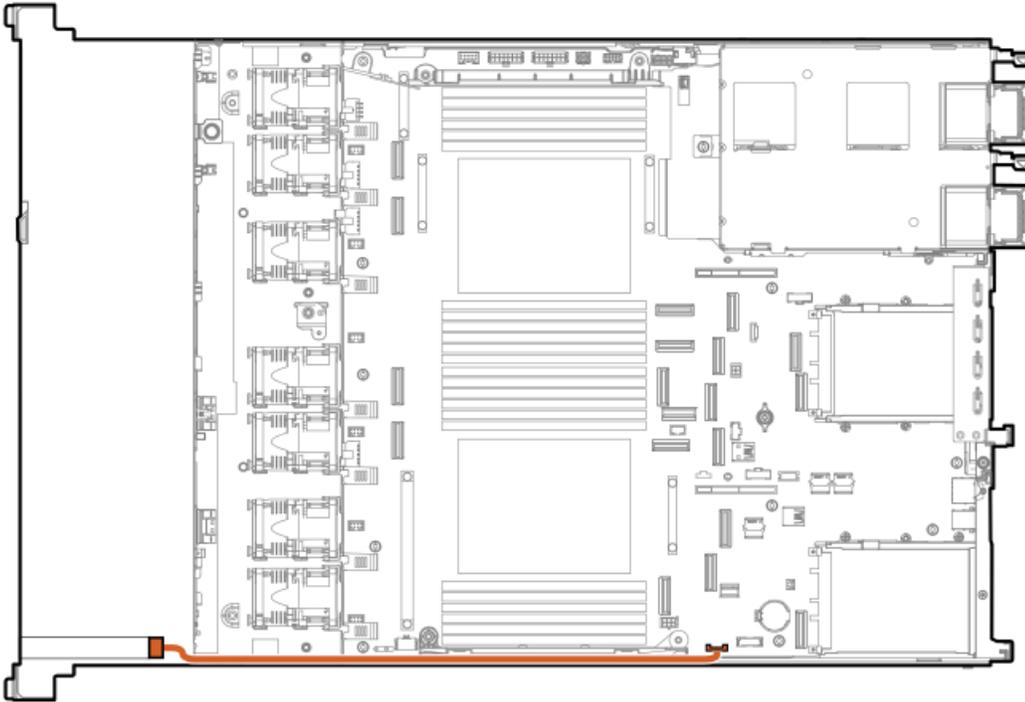
Cable part number	From	To
P48971-001 [1]	SID connector	System Insight Display

[1] Option kit: P56924-B21

Chassis intrusion switch cabling
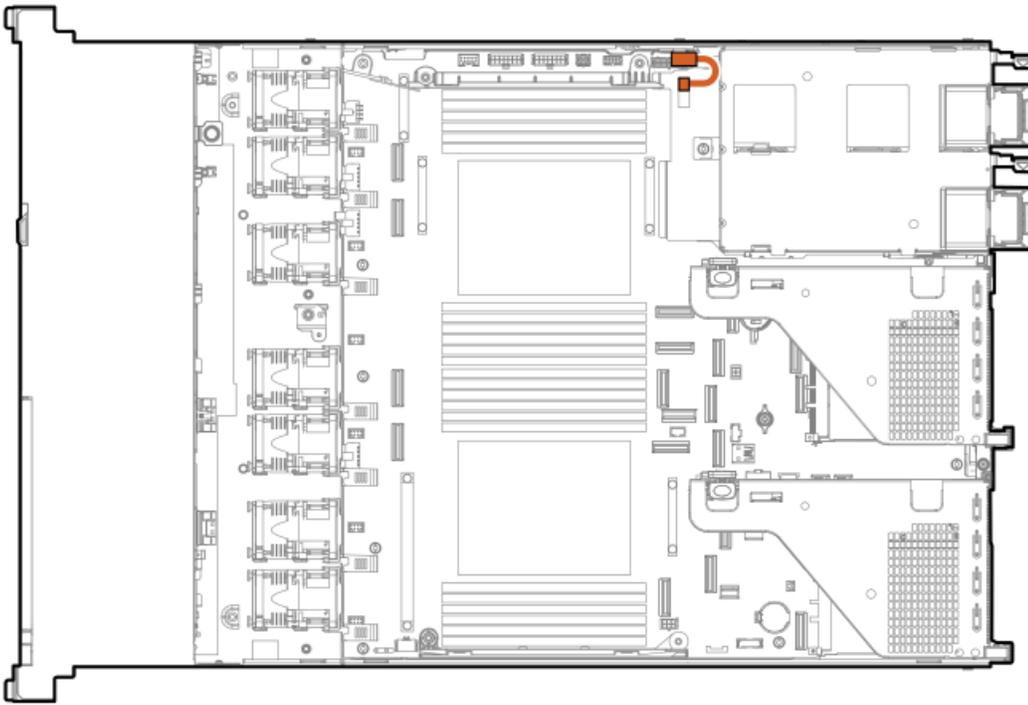
Cable part number	From	To
P47751-001 [1]	Chassis intrusion detection switch	Chassis intrusion detection switch connector

[1]   Option kit: P48922-B21

Serial port cabling
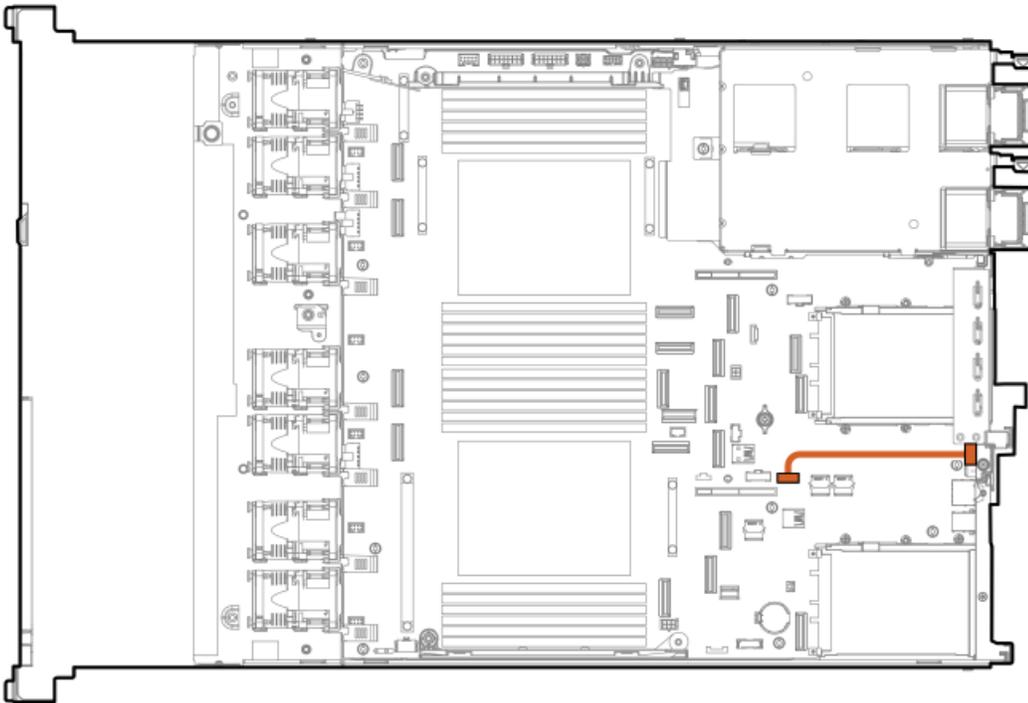
Cable part number	From	To
873747-001 [1]	Serial port	Serial port connector

Optical drive cabling
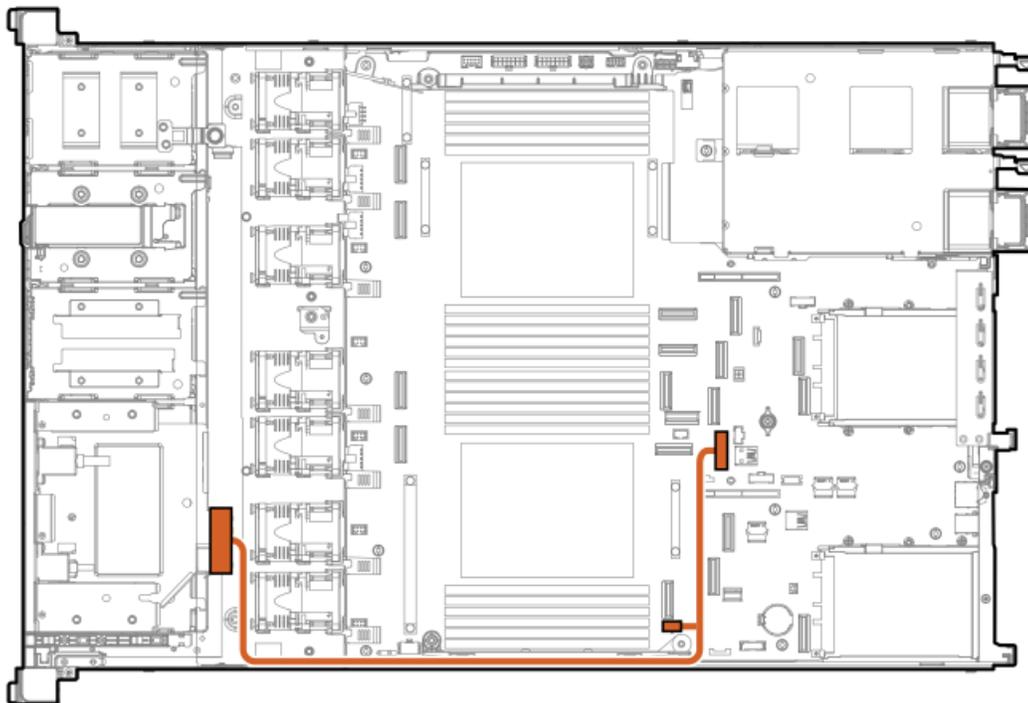
Cable part number	Color	From	To
P57326-001 [1]	Orange	Port 1A	Optical drive

OCP NIC 3.0 x16 upgrade cabling

OCP NIC 3.0 x16 upgrade cabling (1 processor)
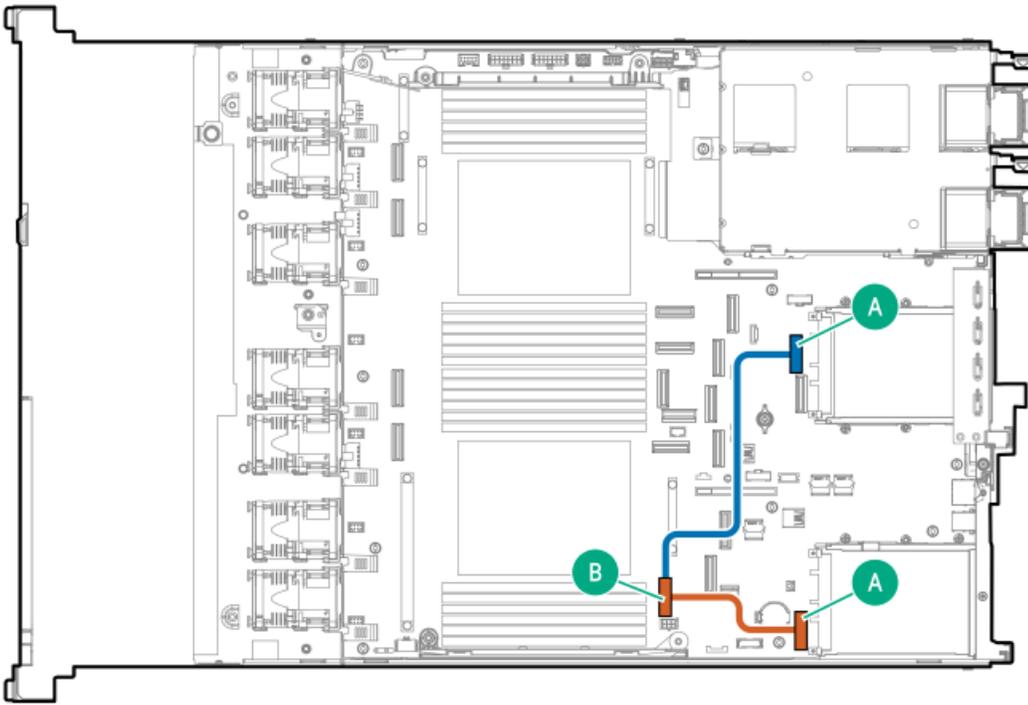
Table 1.

Cable part number	Color	From	To
P58173-001 [1]	Blue	NVMe port 4A	OCP Slot 22 port 1
P58174-001 [1]	Orange	NVME port 4A	OCP Slot 21 x16 upgrade connector

[1] Option kit: P57882-B21

OCP NIC 3.0 x16 upgrade cabling (2 processors)
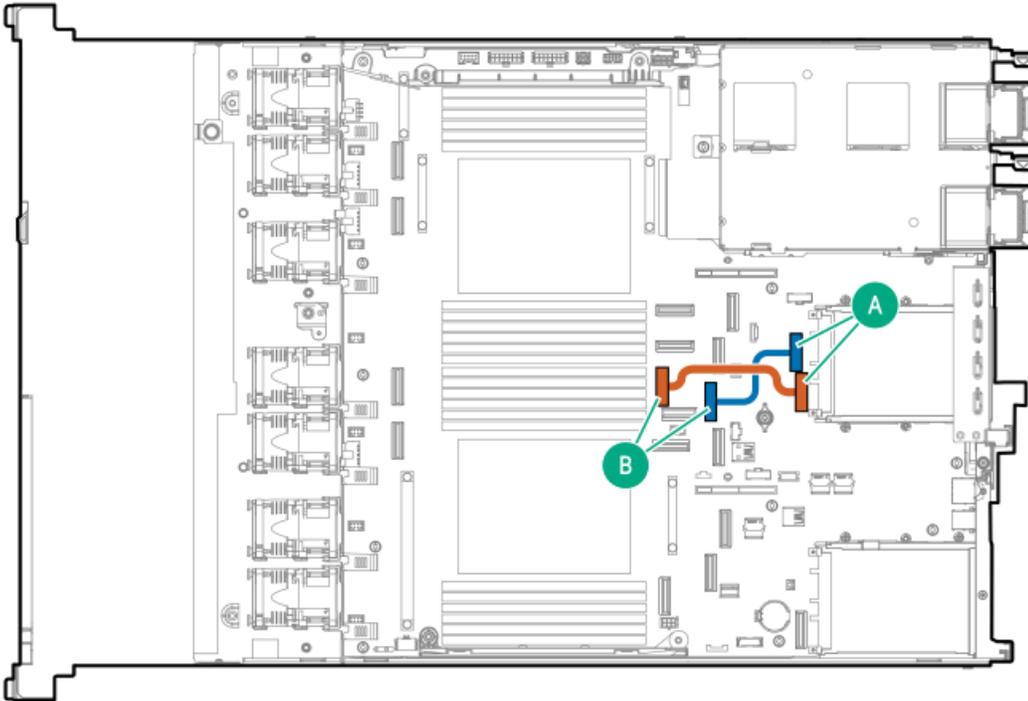
Cable part number	Color	From	To
P58174-001 [1][2]	Blue	NVMe port 5B	OCP Slot 22 port 1
P58174-001 [1]	Orange	NVME port 4B	OCP Slot 22 port 2

[1]   Option kit: P57882-B21

   ,

[2]   Option kit: P57849-B21

XGMI cabling
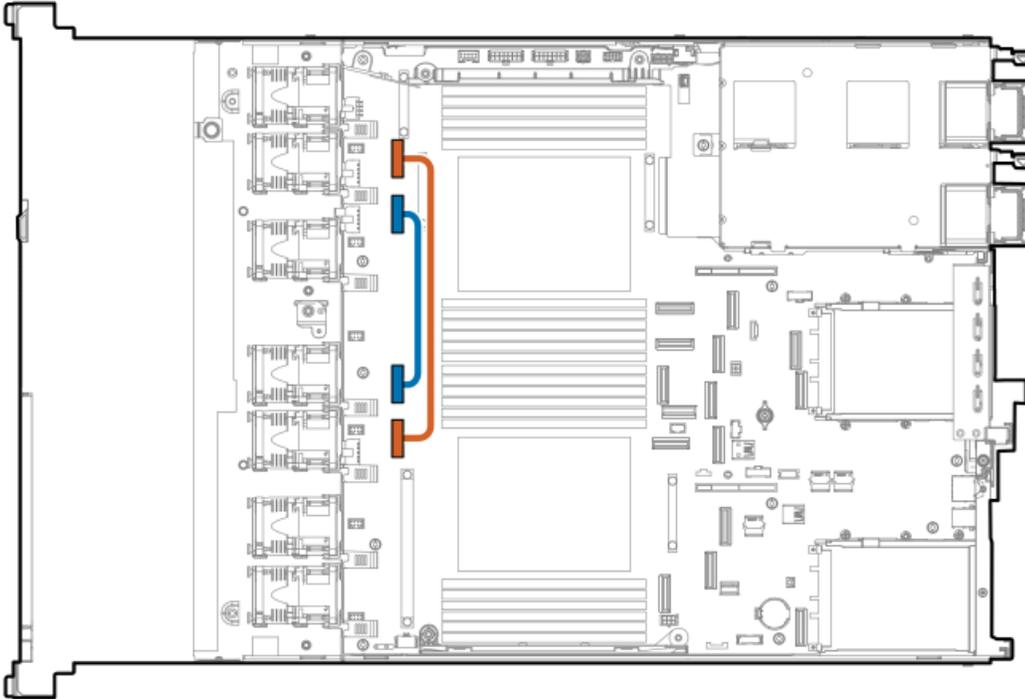
Cable part number	Color	From	To
P63462-001 [1]	Orange	NVMe port 3B	NVMe port 2A

[1]   Option kit: P63125-B21

Troubleshooting

Subtopics

> **Troubleshooting resources**

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.

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
Replace the system battery

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.

Replace the system battery

Prerequisites

Before you perform this procedure make sure you have a small flat-bladed, nonconductive tool available.

Procedure

1. Power down the server.

2. If installed, open the cable management arm.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Do one of the following:

   a. Extend the server from the rack.

b. Remove the server from the rack .

6. .

7. Locate the battery on the system board .

8. Use a small flat-bladed, nonconductive tool to carefully lift the front of the battery from the socket.

9. Remove the battery.
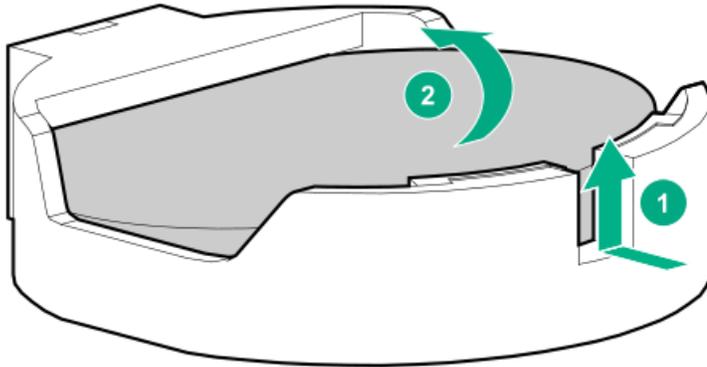
10. Install the system battery.
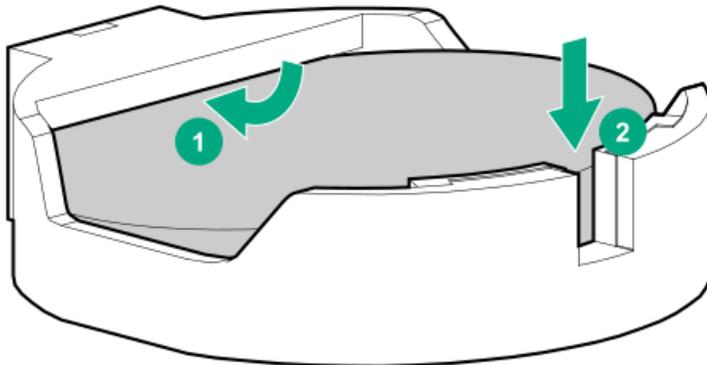
Results

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

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 Gen11 controllers	HPE SR Gen11 Controller User Guide
	
	https://hpe.com/support/SR-Gen11-UG
	
	Configuration guides:
	
	● HPE Smart Storage Administrator GUI User Guide
	
	   https://www.hpe.com/support/SSA-UG
	
	● HPE Smart Storage Administrator CLI User Guide
	
	   https://www.hpe.com/support/SSACLI-UG

HPE MR Gen11 controllers	HPE MR Gen11 Controller User Guide
	
	https://hpe.com/support/MR-Gen11-UG
	
	Configuration guides:
	
	● HPE MR Storage Administrator User Guide
	
	   https://www.hpe.com/support/MRSA
	
	● HPE StorCLI User Guide
	
	   https://www.hpe.com/support/StorCLI

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

Specifications

Subtopics

Environmental specifications
Server specifications

Environmental specifications

Specification	Value
Temperature range [1]	—
Operating	10°C to 35°C (50°F to 95°F)
Non-operating	-30°C to 60°C (-22°F to 140°F)
Relative humidity (non-condensing)	—
Operating	Minimum to be the higher (more moisture) of -12°C (10.4°F) dew point or 8% relative humidity
	Maximum to be 24°C (75.2°F) dew point or 90% relative humidity
Non-operating	5% to 95%
	38.7°C (101.7°F), maximum wet bulb temperature

[1] All temperature ratings shown are for sea level. An altitude derating of 1.0°C per 304.8 m (1.8°F per 1000 ft) to 3048 m (10,000 ft) is applicable. No direct sunlight allowed. Maximum rate of change is 20°C per hour (36°F per hour). The upper limit and rate of change might be limited by the type and number of options installed.

For certain approved hardware configurations, the supported system inlet temperature range is extended:

- 5°C to 10°C (41°F to 50°F) and 35°C to 40°C (95°F 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 (2953 ft) to a maximum of 3048 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 3048 m (10,000 ft).

The approved hardware configurations for this system are listed on the **Hewlett Packard Enterprise website**.

Server specifications

SFF

Specification	Value
Height	4.29 cm (1.69 in)
Depth	64.9 cm (25.57 in)
Width	44.9 cm (17.67 in)
Weight, SFF minimum	12.7kg (27.94 lb)
Weight, SFF maximum	18.39 kg (40.46 lb)

EDSFF

Specification	Value
Height	4.29 cm (1.69 in)
Depth	70.9 cm (27.91 in)
Width	44.9 cm (17.67 in)
Weight, EDSFF minimum	13.1kg (28.88 lb)
Weight, EDSFF maximum	19 kg (41.87 lb)

GPU

Specification	Value
Height	4.29 cm (1.69 in)
Depth	81.8 cm (32.22 in)
Width	44.9 cm (17.67 in)
Weight, GPU minimum	16.9 kg (37.26 lb)
Weight, GPU maximum	22.9 kg (50.48 lb)

Power supply specifications

Depending on the installed options and the regional location where the server was purchased, the server can be configured with one of the following power supplies:

- HPE 800 W Flex Slot Platinum Hot-plug Low Halogen Power Supply

- HPE 1000 W Flex Slot Titanium Hot-plug Power Supply

- HPE 1600 W Flex Slot -48 VDC Hot-plug Power Supply

- HPE 1600 W Flex Slot Platinum Hot-Plug Low Halogen Power Supply

- HPE 1800 - 2200 W Flex Slot Titanium Hot-plug Power Supply

For detailed power supply specifications, see the QuickSpecs on the **Hewlett Packard Enterprise website**. For hot-plug power supply specifications and calculators to determine electrical and heat loading for the server, see the **Hewlett Packard Enterprise Power Advisor website**.

> ⚠️ **CAUTION**
>
> Mixing different types of power supplies in the same server might:
>
> - Limit or disable some power supply features including support for power redundancy.
>
> - Cause the system to become unstable and might shut down.
>
> To ensure access to all available features, all power supplies in the same server should have the same output and efficiency ratings. Verify that all power supplies have the same part number and label color.

Subtopics

HPE 800W Flex Slot Platinum Hot-plug Low Halogen Power Supply
HPE 1000 W Flex Slot Titanium Hot-plug Power Supply
HPE 1600 W Flex Slot Platinum Hot-plug Low Halogen Power Supply
HPE 1600 W Flex Slot -48 VDC Hot-plug Power Supply
HPE 1800-2200 W Flex Slot Titanium Power Supply

HPE 800W Flex Slot Platinum Hot-plug Low Halogen Power Supply

Specification	Value
Input requirements	—
Rated input voltage	100 VAC to 240 VAC
	240 VDC for China only
Rated input frequency	50 Hz to 60 Hz
Rated input current	9.4 A at 100 VAC
	4.5 A at 200 VAC
Maximum rated input power	899 W at 100 VAC
	867 W at 200 VAC
BTUs per hour	3067 at 100 VAC
	2958 at 200 VAC
Power supply output	—
Rated steady-state power	800 W at 200 VAC to 240 VAC input
	800 W at 240 VDC input
Maximum peak power	800 W at 100 VAC to 240 VAC input

For detailed power supply specifications, see the QuickSpecs on the **Hewlett Packard Enterprise website** .

HPE 1000 W Flex Slot Titanium Hot-plug Power Supply

Specification	Value
Input requirements	—
Rated input voltage	100 VAC to 127 VAC
	200 VAC to 240 VAC
	240 VDC for China
Rated input frequency	50 Hz to 60 Hz
Rated input current	11.3 A at 100 VAC
	6.1 A at 200 VAC
Maximum rated input power	1130 W at 100 VAC
	1090 W at 200 VAC
BTUs per hour	3764 at 100 VAC
	3629 at 200 VAC
Power supply output	—
Rated steady-state power	1000 W at 100 VAC to 127 VAC
	1000 W at 200 VAC to 240 VAC input
Maximum peak power	1000 W at 100 VAC to 127 VAC
	1000 W at 200 VAC to 240 VAC

HPE 1600 W Flex Slot Platinum Hot-plug Low Halogen Power Supply

Specification	Value
Input requirements	—
Rated input voltage	200 VAC to 240 VAC
	240 VDC for China only
Rated input frequency	50 Hz to 60 Hz
Rated input current	8.7 A at 200 VAC
	7.2 A at 240 VAC
Maximum rated input power	1734 W at 200 VAC
	1725 W at 240 VAC
BTUs per hour	5918 at 200 VAC
	5884 at 240 VAC
Power supply output	—
Rated steady-state power	1600 W at 200 VAC to 240 VAC input
	1600 W at 240 VDC input
Maximum peak power	1600 W for 1 ms (turbo mode) at 200 VAC to 240 VAC input

HPE 1600 W Flex Slot -48 VDC Hot-plug Power Supply

Specification	Value
Input requirements	—
Rated input voltage	-40 VDC to -72 VDC
Rated input frequency	DC
Nominal input current	45 A DC at -40 VDC input
	36.6 A DC at -48 VDC input
	24.4 A DC at -72 VDC input
Maximum Rated Input Wattage Rating	1798 W at -40 VDC input
	1758 W at -48 VDC input
	1755 W at -72 VDC input
BTUs per hour	6026 at -40 VDC input
	6000 at -48 VDC input
	5989 at -72 VDC input
Power supply output	—
Rated steady-state power	1600 W at -40 VDC to -72 VDC
Maximum peak power	1600 W at -40 VDC to -72 VDC

HPE 1800-2200 W Flex Slot Titanium Power Supply

Specification	Value
Input requirements	—
Rated input voltage	200 VAC to 240 VAC
	240 VDC for China only
Rated input frequency	50 Hz to 60 Hz
Rated input current	10 A at 200 VAC
	10 A at 240 VAC
	10 A at 240 VDC for China only
Maximum rated input power	1946 W at 200 VAC
	2375 W at 240 VAC
	2375 W at 240 VDC for China only
BTUs per hour	6497 at 200 VAC
	7962 at 240 VAC
Power supply output	—
Rated steady-state power	1800 W at 200 VAC
	2200 W at 240 VAC
Maximum peak power	2200 W for 1 ms (turbo mode) at 200 VAC to 240 VAC input

Safety, warranty, and regulatory information

Subtopics

> **Regulatory information**
> **Warranty information**

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

Notices for Eurasian Economic Union
Turkey RoHS material content declaration
Ukraine RoHS material content declaration

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.

CCSYWWZZZZ (product serial number format)

WW = Week of manufacture (calendar week)

Y = Year of manufacture (decade, year)
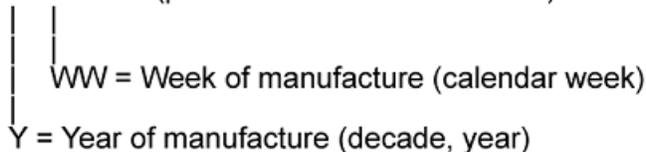
If you need help identifying the manufacturing date, contact tre@hpe.com.

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**.

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 DL365 Gen11 Server user documents

> **https://www.hpe.com/info/dl365gen11-docs**

Support and other resources

Subtopics

> **Accessing Hewlett Packard Enterprise Support**
> **HPE product registration**
> **Accessing updates**
> **Customer self repair**
> **Remote support**
> **Documentation feedback**

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.