Hewlett Packard
Enterprise

HPE ProLiant DL380a Gen11 Server User Guide

Part Number: 30-CB668334-005
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Edition: 5

HPE ProLiant DL380a Gen11 Server User Guide

Abstract

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

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Notices

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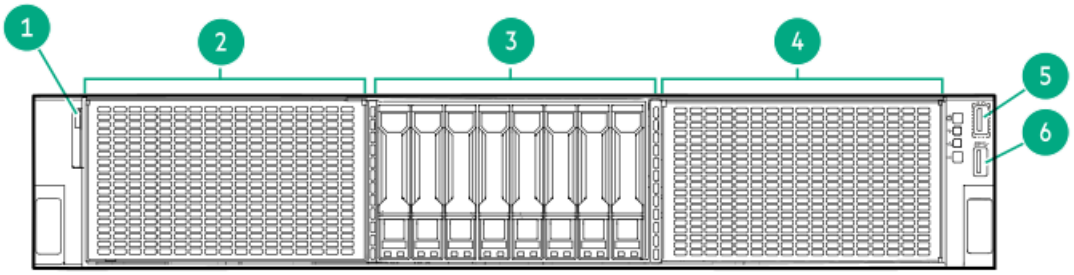
Component identification

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

Subtopics

Front panel components

8 SFF drive configuration

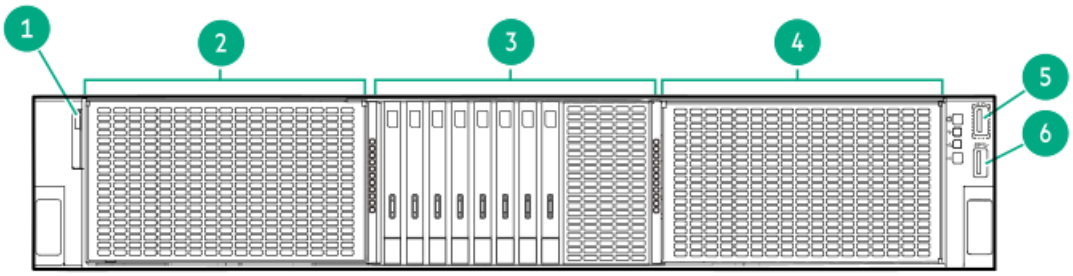


Item	Description
1	Serial number/iLO information pull tab [1]
2	GPU riser cage 1
3	SFF drives [2]
4	GPU riser cage 2
5	iLO service port
6	USB 3.2 Gen1 port

1 The serial number/iLO information pull tab is double-sided. One side shows the server serial number and the customer asset tag label. The other side shows the default iLO account information.

2 Depending on the type of drive backplane installed, the server supports SFF SAS, SATA, or U.3 NVMe drives .

8 E3.S drive configuration



Item	Description
1	Serial number/iLO information pull tab [1]
2	GPU riser cage 1
3	E3.S drives
4	GPU riser cage 2
5	iLO service port
6	USB 3.2 Gen1 port

[1] The serial number/iLO information pull tab is double-sided. One side shows the server serial number and the customer asset tag label. The other side shows the default iLO account information.

Subtopics

iLO Service Port

iLO Service Port

The Service Port is a USB port with the label **iLO** on supported servers and compute modules.

To find out if your server or compute module supports this feature, see the server specifications document at the following website: **https://www.hpe.com/info/quickspecs**.

The Service Port is a USB port with the label **iLO** on the front of the server.

To find out if your server supports this feature, see the server specifications document at the following website: **https://www.hpe.com/info/quickspecs**.

When you have physical access to a server, you can use the Service Port to do the following:

- Download the Active Health System Log to a supported USB flash drive.

  When you use this feature, the connected USB flash drive is not accessible by the host operating system.

- Connect a client (such as a laptop) with a supported USB to Ethernet adapter to access the following:
  - iLO web interface
  - Remote console
  - iLO RESTful API
  - CLI

  Hewlett Packard Enterprise recommends the HPE USB to Ethernet Adapter (part number Q7Y55A).

When you use the iLO Service Port:

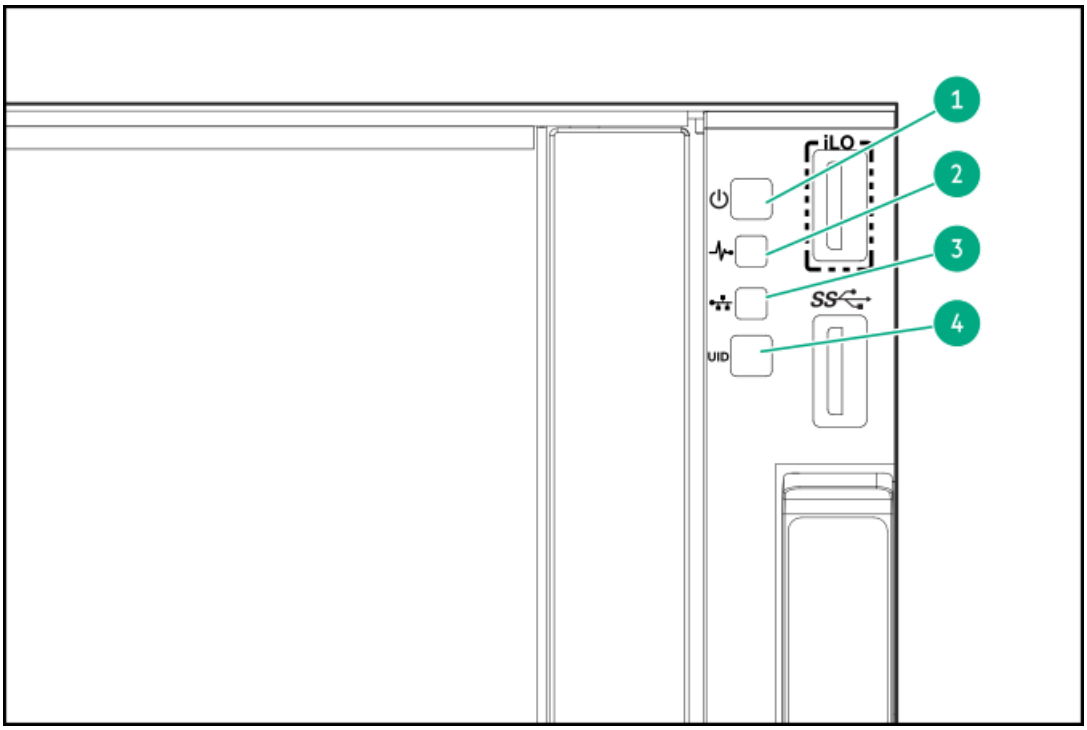
- Actions are logged in the iLO event log.

- The server UID flashes to indicate the Service Port status.

  You can also retrieve the Service Port status by using a REST client and the iLO RESTful API.
- You cannot use the Service Port to boot any device within the server, or the server itself.
- You cannot access the server by connecting to the Service Port.
- You cannot access the connected device from the server.

For more information about the iLO Service Port, see the iLO user guide at the following website: **https://www.hpe.com/support/ilo6**.

Front panel LEDs and buttons



Item	Description	Status	Definition
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 [2]
2	Health LED [1]	Solid green	Normal
		Flashing green	iLO is rebooting
		Flashing amber	System degraded [3]
		Flashing red	System critical [3]
3	NIC status LED [1]	Solid green	Linked to network
		Flashing green	Network active
		Off	No network activity
4	UID button/LED [1]	Solid blue	Activated
		Flashing blue	• 1 flash per second—Remote management or firmware upgrade in progress • 4 flashes per second—iLO manual reboot sequence initiated • 8 flashes per second—iLO manual reboot sequence in progress
		Off	Deactivated

1 When all LEDs flash simultaneously, a power fault has occurred. For more information, see Front panel LED power fault codes.
2 Facility power is not present, power cord is not attached, no power supplies are installed, power supply failure has occurred, or the front I/O cable is disconnected.
3 If the health LED indicates a degraded or critical state, review the system Integrated Management Log (IML) or use HPE iLO to review the system health status.

Subtopics

Server UID LED

The UID LED can be used to help an on-site technician quickly identify or locate a particular server when it is deployed in a dense rack with other equipment. It can also be used to identify if a remote management, firmware upgrade, or reboot sequence is in progress.

Using the UID button to view the Server Health Summary

Prerequisites

- An external monitor is connected.
- In the iLO web interface, the Show Server Health on External Monitor feature is enabled on the Access Settings page.

About this task

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

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

Procedure

1. Press and release the UID button.

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

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

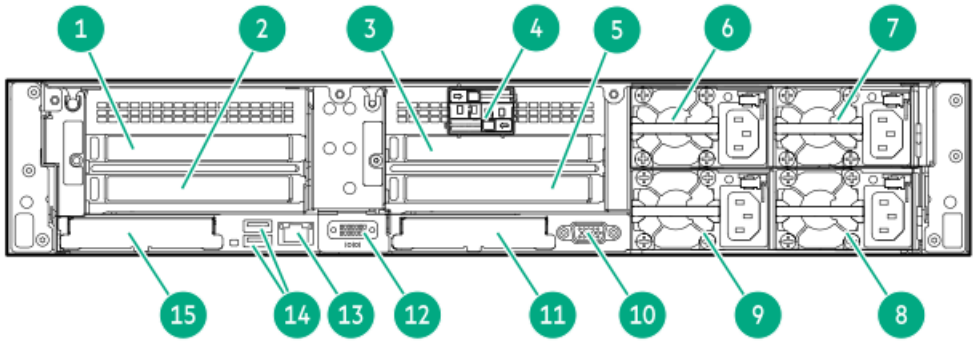
2. Press the UID button again to close the Server Health Summary screen.

Front panel LED power fault codes

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

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

Rear panel components



Item	Description
1	Slot 2 PCIe5 x16 stacking riser (optional) [1]
2	Slot 3 PCIe5 x16 base riser [1]
3	Slot 5 PCIe5 x16 stacking riser (optional) [2]
4	HPE NS204i-u Boot Device (optional)
5	Slot 6 PCIe5 x16 base riser [2]
6	Flexible Slot power supply 4 (optional)
7	Flexible Slot power supply 3 (optional)
8	Flexible Slot power supply 1
9	Flexible Slot power supply 2
10	VGA port
11	Slot 18 OCP PCIe5 x8
12	Serial port (optional)
13	iLO dedicated network port
14	USB 3.2 Gen1 ports
15	Slot 17 OCP PCIe5 x8

[1] This slot is in the primary riser cage.
[2] This slot is in the secondary riser cage.

Subtopics

Display device setup

Display device setup

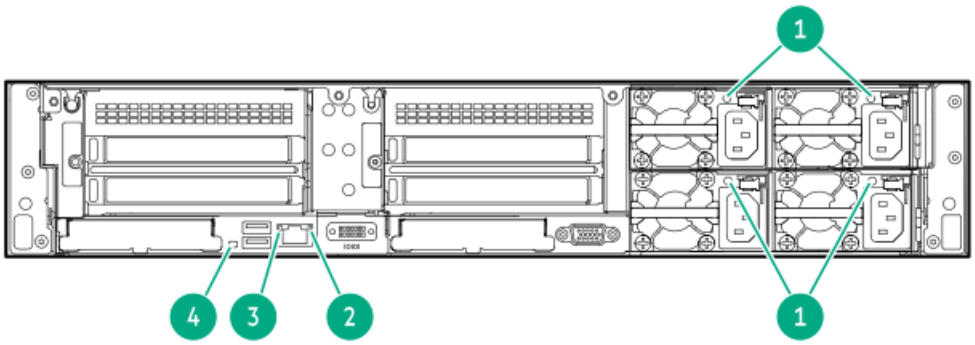
The server supports both VGA port and DisplayPort 1.1a. Before connecting a display device, observe following:

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

  Whenever possible, use the same display connection type. For example, if your monitor only has a VGA port, use the VGA port on the

server. Using other adapters or converter cables or dongles might lead to decreased display quality or a lag over the connection.

Rear panel LEDs



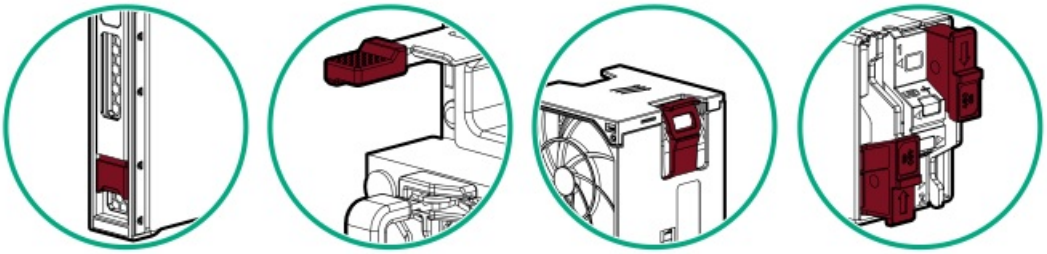
Item	LED	Status	Definition
1	Power supply	Solid green	The power supply is operating normally.
		Off	One or more of the following conditions exists: • Power is unavailable • Power supply failure • Power supply is in standby mode • Power supply error • The front I/O cable is disconnected.
2	iLO status	Solid green	Lined to network
		Flashing green	Network active
		Off	No network activity
3	iLO link	Solid green	Network link
		Off	No network link
4	UID	Solid blue	Activated
		Flashing blue	• 1 flash per sec—Remote management or firmware upgrade in progress • 4 flashes per sec—iLO manual reboot sequence • 8 flashes per sec—iLO manual reboot sequence in progress
		Off	Deactivated

Component touchpoints

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

The following diagrams are examples only.

HPE hot-plug red

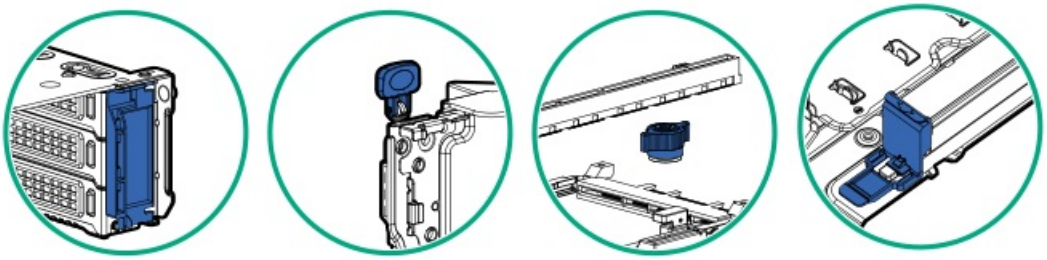


Hot-plug red indicates hot-pluggable components. These components can be removed and installed while the system is running, and doing so will not result in a system shutdown.

Component examples:

- Power supplies in a redundant power configuration
- Hot-plug fans
- Hot-plug drives
- M.2 SSDs in a hot-plug boot device

HPE touchpoint blue

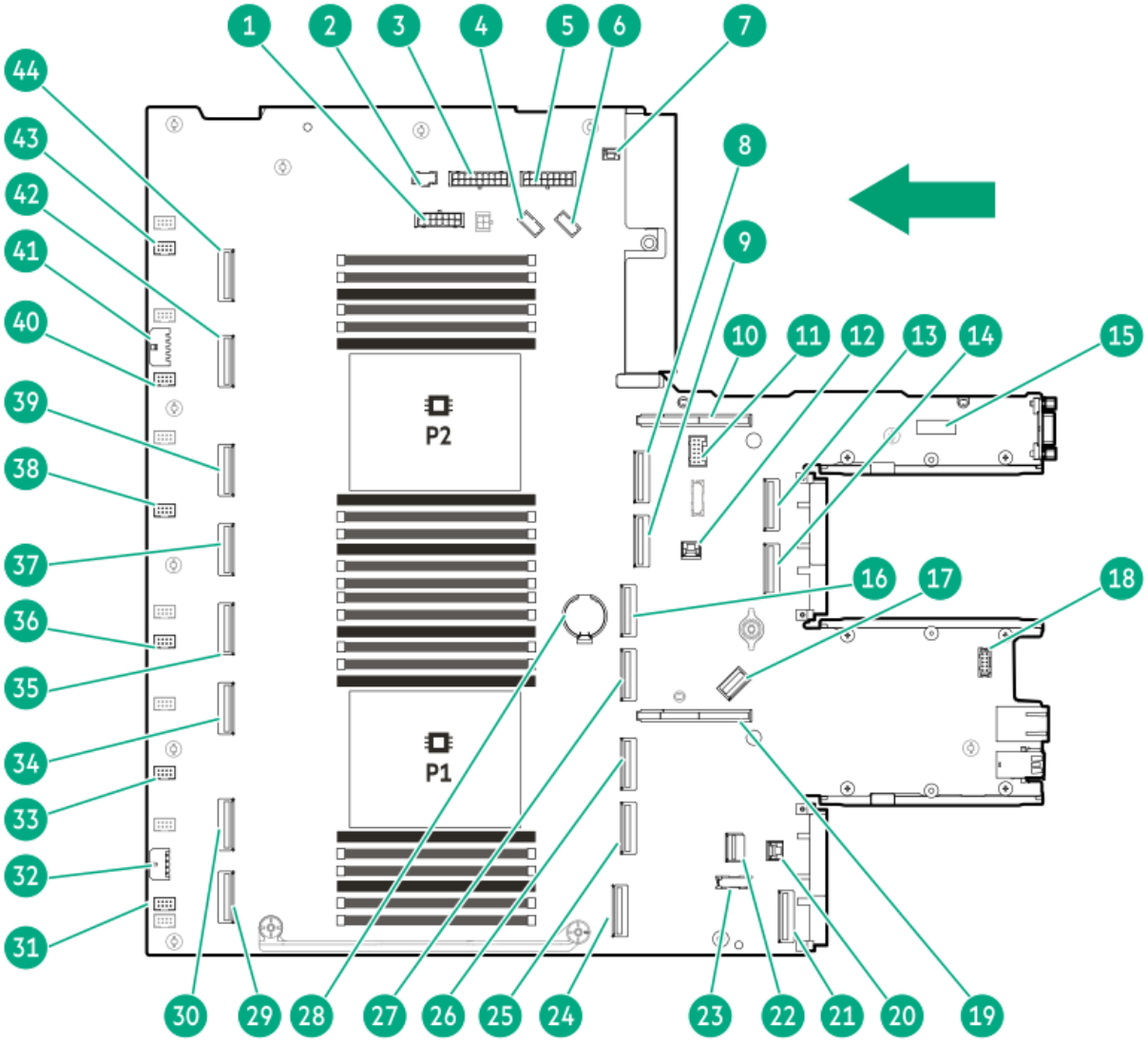


Touchpoint blue indicates cold-pluggable components. These components require a system shutdown. Failure to do so might result in system failure or data loss. Cold-pluggable components might also indicate touchpoints on non-electrical components.

Component examples:

- Storage devices
- Fan cages
- System boards
- Energy packs

System board components



Item	Description
1	Drive backplane power connector
2	Power supply signal option connector
3	Upper PCIe switch board power connector
4	PCIe switch board signal connector
5	Lower PCIe switch board power connector
6	NS204i-u signal connector
7	Chassis intrusion detection switch connector
8	Socket 2 MCIO connector 5B
9	Socket 2 MCIO connector 6B
10	Secondary riser connector
11	Energy pack connector
12	Slot 18 OROC storage backup power connector
13	Slot 18 OCP x16 upgrade connector A
14	Slot 18 OCP x16 upgrade connector B
15	System maintenance switch
16	Socket 2 MCIO connector 9B

Item	Description
17	USB 3.2 Gen1 port
18	Serial port connector
19	Primary riser connector
20	Slot 17 OROC storage backup power connector
21	Slot 17 OCP x16 upgrade connector
22	Front I/O connector
23	SlimSAS x8 connector
24	Socket 1 MCIO connector 9A
25	Socket 1 MCIO connector 5A
26	Socket 1 MCIO connector 6A
27	Socket 2 MCIO connector 8B
28	System battery
29	Socket 1 MCIO connector 1A
30	Socket 1 MCIO connector 2A
31	Fan connector 6
32	GPU riser/PCIe switch board power connector
33	Fan connector 5
34	Socket 1 MCIO connector 3A
35	Socket 1 MCIO connector 4A
36	Fan connector 4
37	Socket 2 MCIO connector 1B
38	Fan connector 3
39	Socket 2 MCIO connector 2B
40	Fan connector 2
41	GPU riser/PCIe switch board power connector
42	Socket 2 MCIO connector 3B
43	Fan connector 1
44	Socket 2 MCIO connector 4B

Subtopics

System maintenance switch descriptions

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

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

DIMM label identification

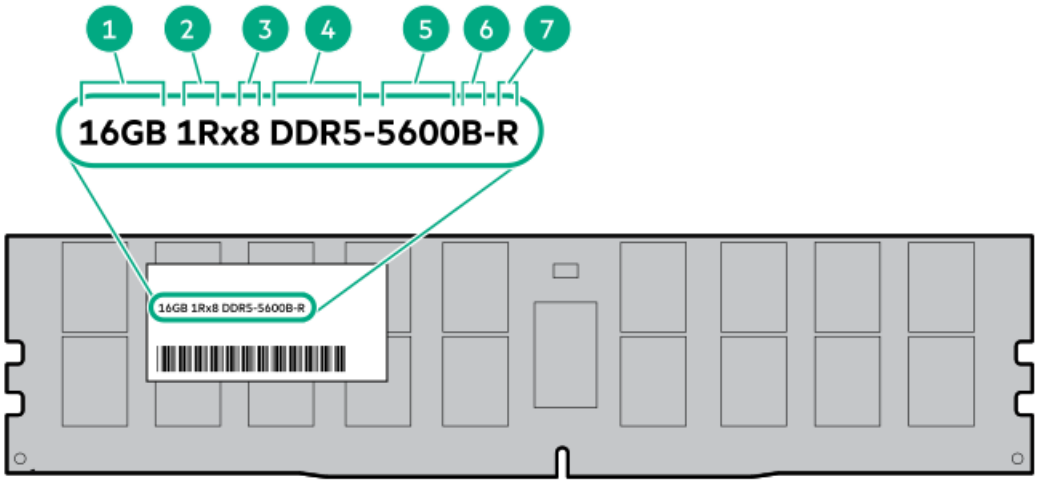
To determine DIMM characteristics, see the label attached to the DIMM. The information in this section helps you to use the label to locate specific information about the DIMM.

For more information about:

- Product features, specifications, options, configurations, and compatibility, see the HPE DDR5 SmartMemory QuickSpecs.
- Memory speed and server-specific DIMM population rules for HPE servers using 4th and 5th Gen Intel Xeon Scalable Processors, see the relevant memory technical paper.

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

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

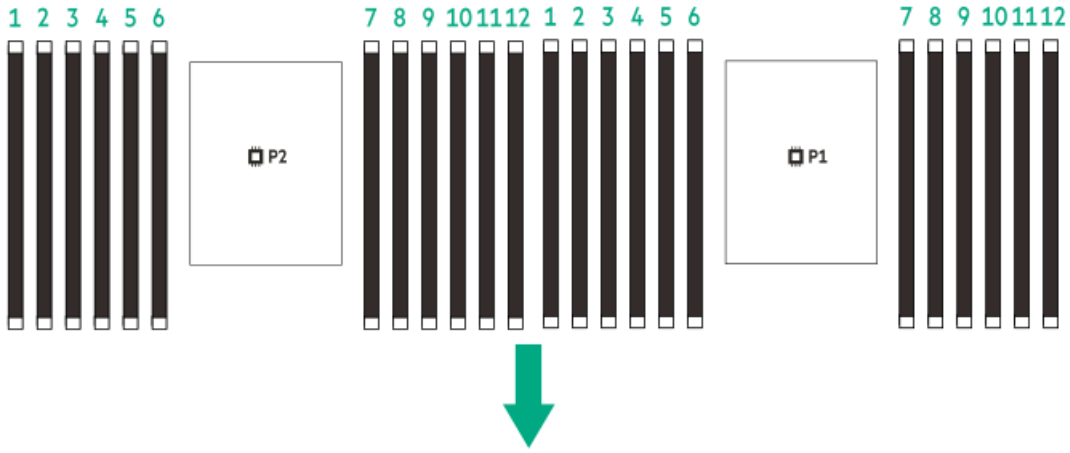


Item	Description	Example
1	Capacity [1]	16 GB 32 GB 64 GB 96 GB 128 GB 256 GB
2	Rank	1R—Single rank 2R—Dual rank 4R—Quad rank 8R—Octal rank
3	Data width on DRAM	x4—4-bit x8—8-bit
4	Memory generation	PC5—DDR5
5	Maximum memory speed [1]	4800 MT/s 5600 MT/s 6400 MT/s
6	CAS latency	B—42-42-42 B—50-42-42 (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.

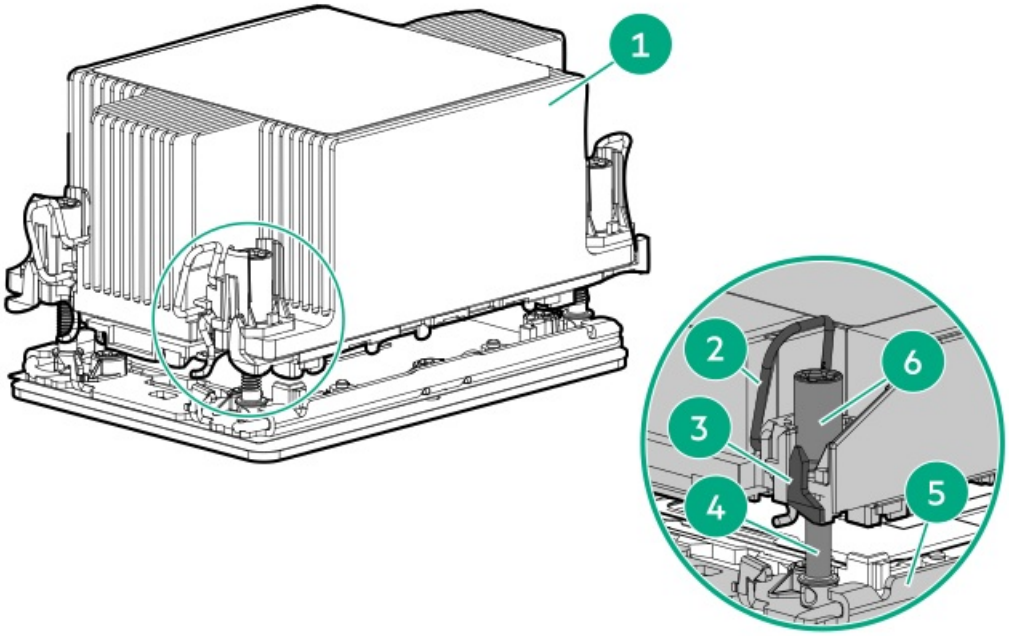
DIMM slot numbering

The arrow points to the front of the server.

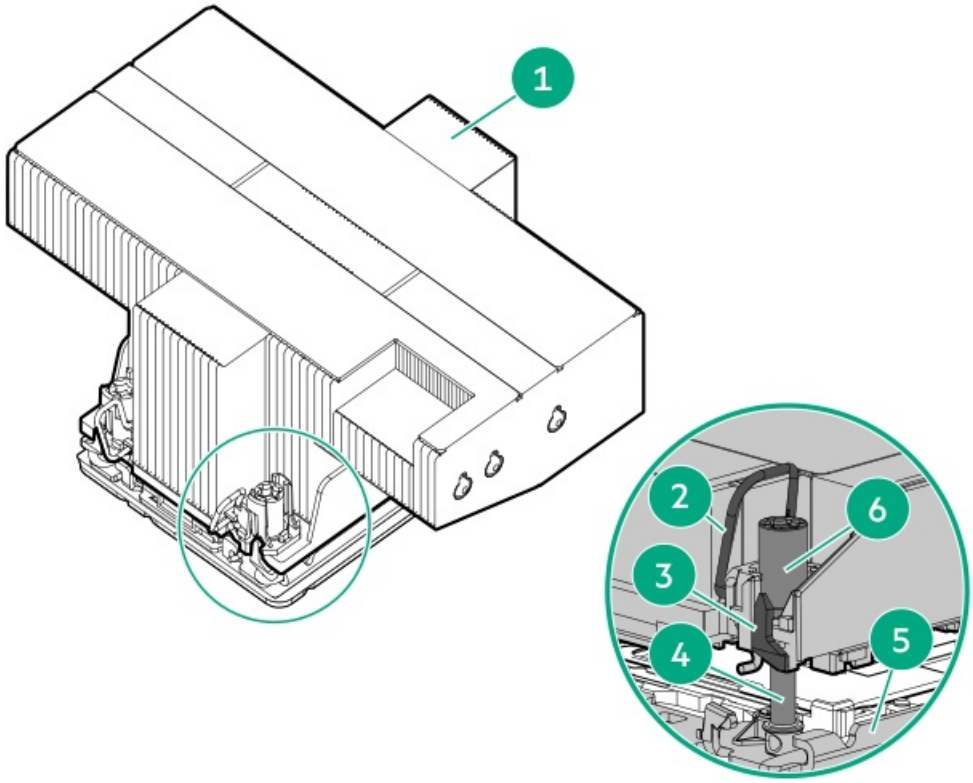


Heatsink and processor socket components

Standard heatsink



High performance heatsink



Item	Description
1	Processor-heatsink module*
2	Anti-tilt wires
3	Processor carrier release tabs
4	Bolster plate guide posts
5	Bolster plate
6	Heatsink screws

* This module consists of the heatsink attached to the processor that is already secured in its carrier.

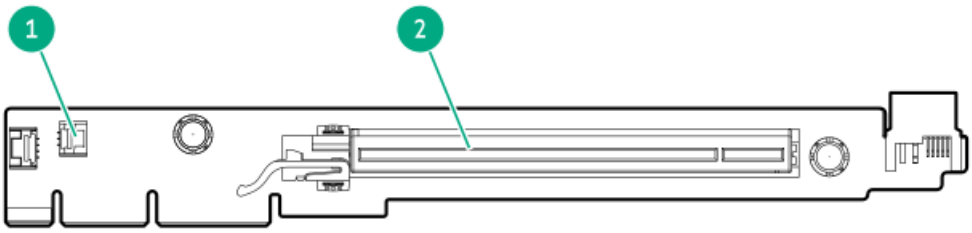
Riser board components

This server supports three types of PCIe risers:

- Standard riser—This riser is a board-only riser that is directly installed on the riser connector on the system board. This riser type is used as the base riser in the primary/secondary riser cage.
- Cabled riser—This riser type has its signal cable soldered on the board itself. This riser type is combined with a standard, base riser and another cabled riser in a three-slot riser cage.
- GPU riser—This riser type has its signal cable soldered on the board itself. This riser type is combined with another GPU riser in the GPU riser cage.

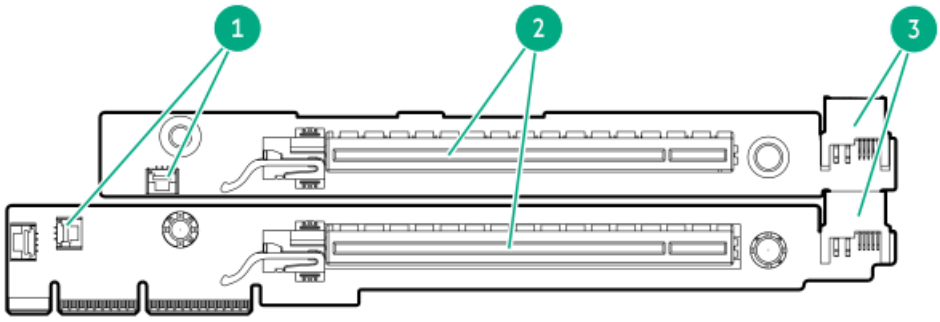
For clarity, the riser cage and the cables of the cabled risers are not shown in the following images.

Standard riser components



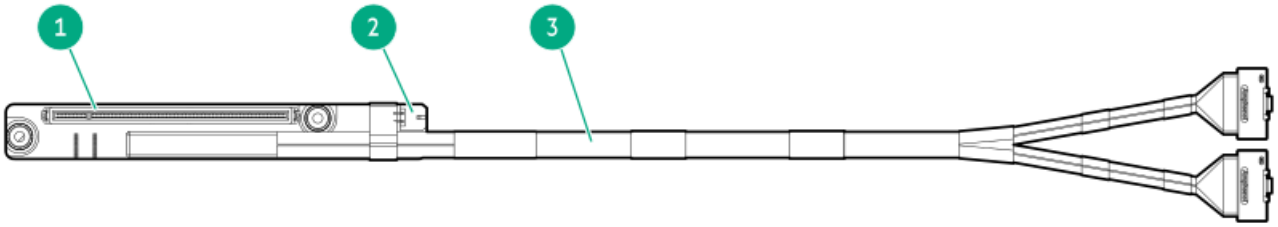
Item	Description
1	Storage controller backup power connector
2	PCIe5 x16 (16, 8, 4, 1) slot

Cabled riser components



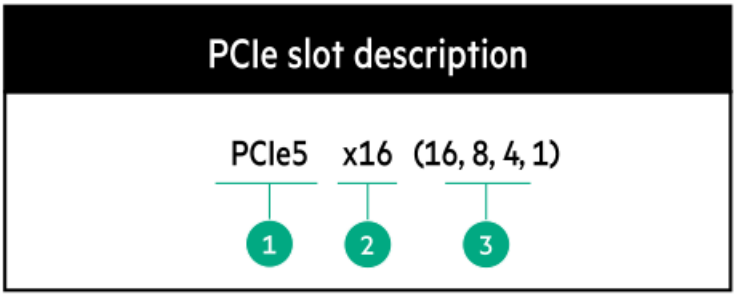
Item	Description
1	Storage controller backup power connectors
2	PCIe5 x16 (16, 8, 4, 1) slots
3	Riser power connectors

GPU riser components



Item	Description
1	PCIe5 x16 (16, 8, 4, 1) slot
2	GPU riser power connector
3	GPU riser signal cable

PCIe5 slot description



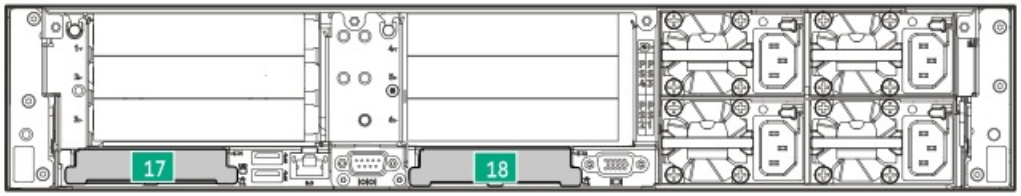
Item	Description	Definition
1	PCI Express version	Each PCIe version corresponds to a specific data transfer rate between the processor and peripheral devices. Generally, a version update corresponds to an increase in transfer rate. • PCIe 1.x • PCIe 2.x • PCIe 3.x • PCIe 4.x • PCIe 5.x The PCIe technology is under constant development. For the latest information, see the **PCI-SIG website**.
2	Physical connector link width	PCIe devices communicate through a logical connection called an interconnect or link. At the physical level, a link is composed of one or more lanes. The number of lanes is written with an x prefix with x16 being the largest size in common use. • x1 • x2 • x4 • x8 • x16
3	Negotiable link width	These numbers correspond to the maximum link bandwidth supported by the slot.

OCP slot population rules

- OCP Slots 17 and 18 support type-o storage controllers and OCP NIC adapters.
- If installing the OCP NIC x16 adapter in the Slot 17, the bandwidth upgrade cable (P51942-B21) is required.
- Two bandwidth upgrade cables (P51943-B21) are required when an OCP NIC adapter is installed in the Slot 18.

For some specific InfiniBand adapters that require to be installed in OCP slots 17 and 18, see the product QuickSpecs on the HPE ProLiant DL380a Gen11 Server website:

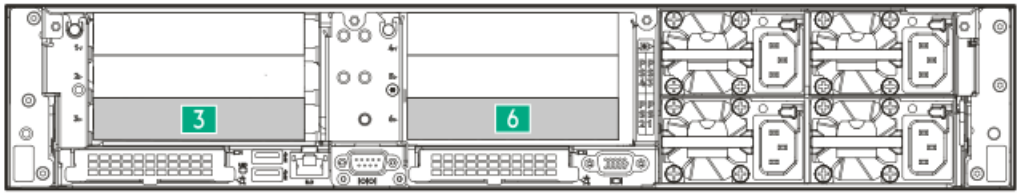
https://buy.hpe.com/us/en/p/1014696168



Riser slot numbering

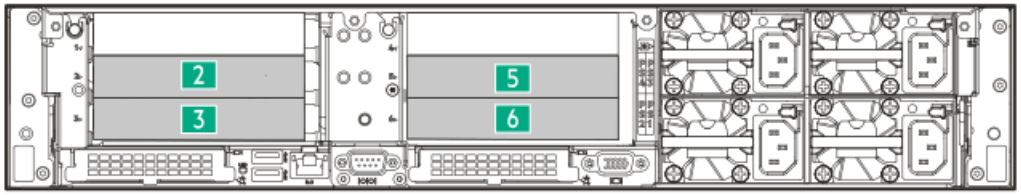
All riser slots are PCIe5 x16 (16, 8, 4, 1) and are rated for a maximum power draw of 75 W each.

Two-slot riser configuration



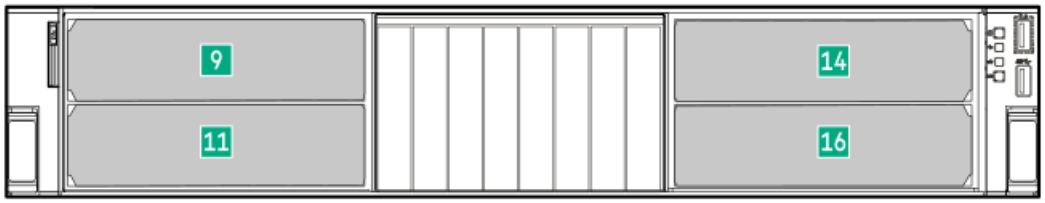
Slot number	Location	Riser type	Supported form factors
3	Primary riser cage	Standard/base riser	Full-height, half-length
6	Secondary riser cage		Half-height, half-length (low-profile)

Four-slot riser configuration



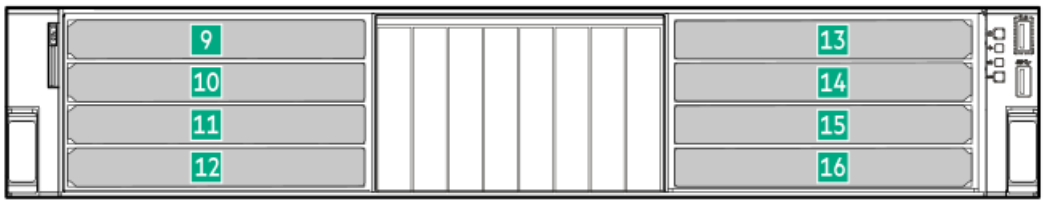
Slot number	Location	Riser type	Supported form factors
2	Primary riser cage	Stacking riser	Full-height, half-length
3		Standard/base riser	Half-height, half-length (low-profile)
5	Secondary riser cage	Stacking riser	
6		Standard/base riser	

4 double-width GPU configuration



Slot number	Location	Riser type	Supported form factor
9	GPU riser cage 1	GPU cabled riser	Double-width, full-height, half-length
11			
14	GPU riser cage 2		
16			

8 single-width GPU configuration



Slot number	Location	Riser type	Supported form factor
9	GPU riser cage 1	GPU cabled riser	Single-width, full-height, full-length
10			Single-width, half-height, half-length (low-profile)
11			
12			
13	GPU riser cage 2		
14			
15			
16			

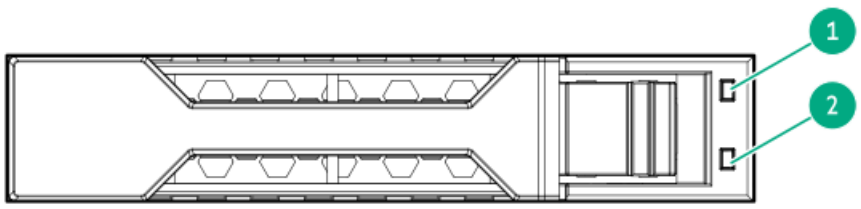
HPE Basic Drive LED definitions

The HPE Basic drive carrier has the following 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.

SFF basic drive carrier

The SFF basic drive carrier supports hot-plug SAS, SATA, or U.3 NVMe drives .

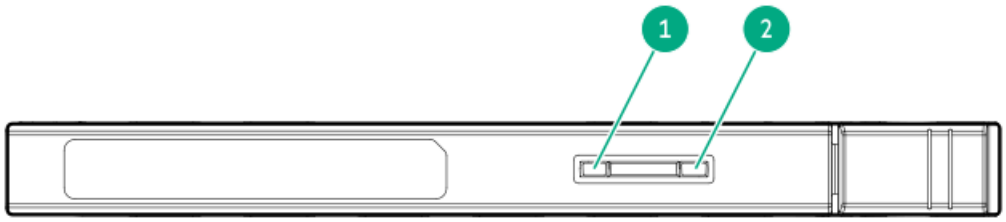


Item	LED	State	Definition
1	Fault/Locate	Solid amber	This drive has failed, is unsupported, or is invalid.
		Solid blue	The drive is operating normally and being identified by a management application.
		Flashing amber/blue (1 flash per second)	The drive has failed, or a predictive failure alert has 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 (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 • Spare part activation
		Flashing green (4 flashes per second)	The drive is operating normally and has activity.
		Off	The drive is not configured by a RAID controller 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 form factor E3.S 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.

Drive bay numbering

CAUTION

When a server is purchased without any drive installed, some drive bays might be empty while other drive bays might be populated with drive blanks. To maintain proper system cooling, do not operate the server without a drive or a drive blank installed.

Subtopics

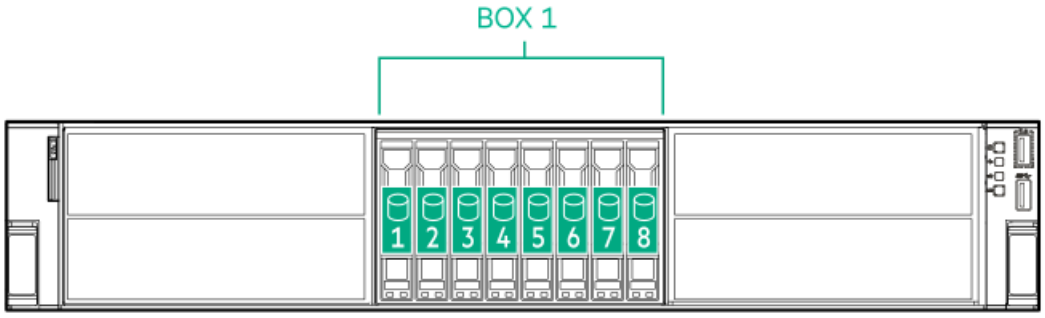
SFF drive bay numbering

The following drive backplane options are supported in 8 SFF drive configurations:

- 8 SFF 16G x4 U.2 NVMe / SAS UBM4 BC
- 8 SFF 16G x4 U.2 NVMe / SAS UBM6 BC
- 8 SFF 24G x4 U.3 NVMe / SAS UBM3 BC
- 8 SFF 24G x4 U.3 NVMe / SAS UBM6 BC

In the 8 SFF drive configuration, all drives belong to the same box 1.

For more information on the drive backplane description, see Drive backplane naming.



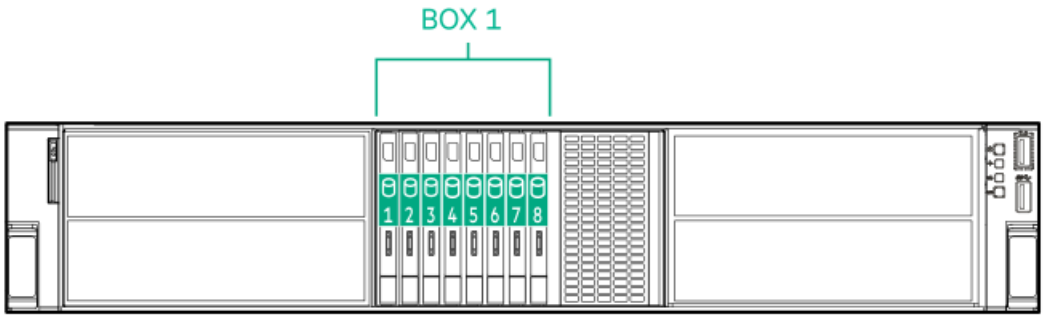
E3.S drive bay numbering

The following drive backplane options are supported in 8 E3.S drive configurations:

- 8 E3.S 32G x4 NVMe UBM5 EC1
- 8 E3.S 32G x4 NVMe UBM7 EC1

In the 8 E3.S drive configuration, all drives belong to the same box 1.

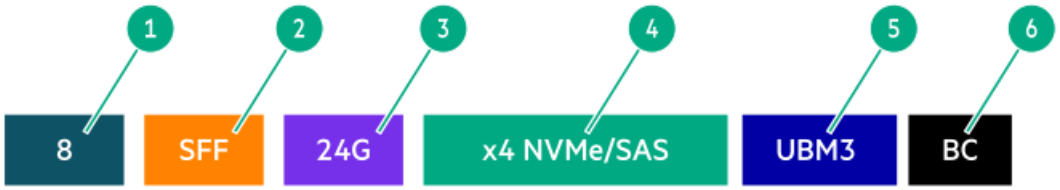
For more information on the drive backplane description, see Drive backplane naming.



Drive backplane naming

This topic explains the features represented in the drive backplane naming. This naming convention was adopted starting in the HPE Gen11 server release. Your server might not support all the features listed in this topic. For server-specific support information, see the server guides:

- Drive backplane support, see Drive bay numbering.
- Drive backplane cabling, see Storage cabling.

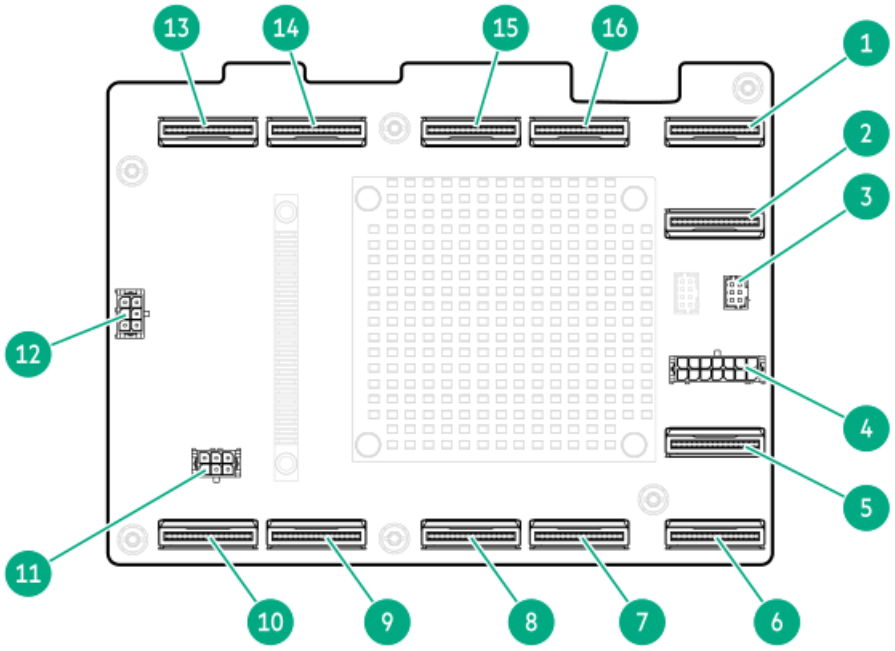


Item	Description	Values
1	Drive bay count	Number of drive bays supported by the backplane.
2	Drive form factor	LFF—Large Form Factor
		SFF—Small Form Factor
		E3S—Enterprise and Datacenter Standard Form Factor (EDSFF E3.S)
3	Maximum link rate per lane (GT/s)	12G
		16G
		24G
		32G
4	Port link width and interface	x1 NVMe/SAS—U.3 NVMe, SAS, or SATA [1]
		x4 NVMe/SAS—U.3 NVMe, SAS, or SATA [2]
		x4 NVMe—U.2 NVMe [3]
		x4 NVMe—E3.S
5	Universal backplane manager (UBM) model	The UBM model defines the UBM firmware used by the backplane. Examples of UBM models: UBM2, UBM3, etc.
6	Drive carrier type	BC—Basic carrier (SFF)
		LP—Low-profile carrier (LFF)
		EC—E3.S carrier

1 Tri-mode controller support for x1 U.3 NVMe, SAS, and SATA drives. System board connection supports SATA drives only (not available on Gen12).
2 CPU direct attach or tri-mode controller support for x4 U.3 NVMe, x2 (via a splitter cable) U.3 NVMe, or x1 SAS and SATA drives.
3 CPU direct attach or tri-mode controller support for x4 U.2 NVMe drives.

PCIe switch board components

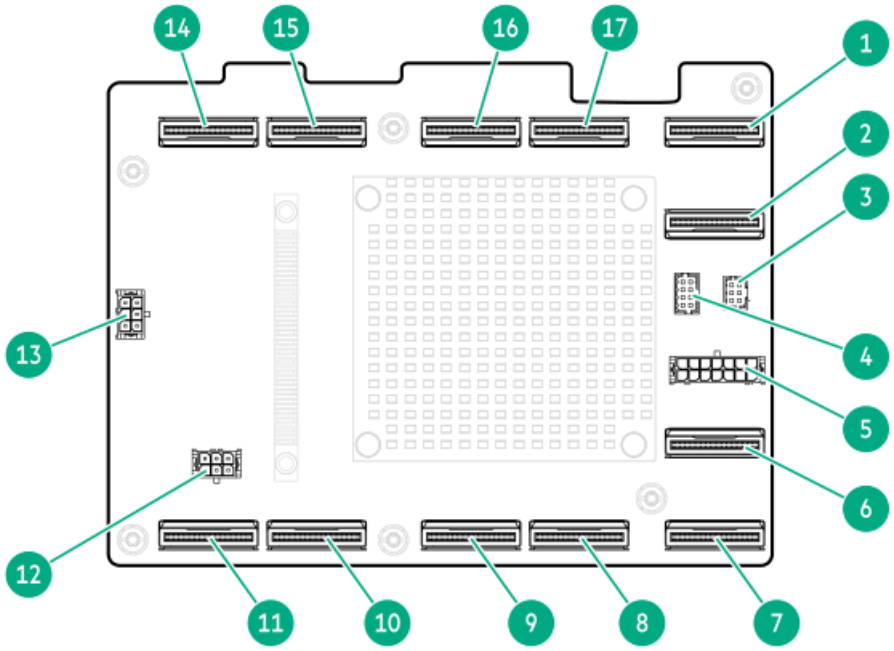
Upper PCIe switch board



Item	Description	Connect to
1	Upper PCIe switch board upstream port 1	Secondary processor MCIO connectors on system board
2	Upper PCIe switch board upstream port 2	
3	Upper PCIe switch board signal extension connector	Lower PCIe switch board signal extension connector
4	Upper PCIe switch board power connector	Upper PCIe switch board power connector (P2) [1] GPU auxiliary power connector (P3) [1], [2]
5	Upper PCIe switch board upstream port 3	Primary processor MCIO connectors on system board
6	Upper PCIe switch board upstream port 4	
7	GPU riser slot 14 MCIO connector (SEC) [3]	GPU riser slot 14
8	GPU riser slot 14 MCIO connector (PRIM) [3]	
9	GPU riser slot 13 MCIO connector (SEC) [3]	GPU riser slot 13
10	GPU riser slot 13 MCIO connector (PRIM) [3]	
11	GPU riser slot 13 and 14 power connector	GPU riser slot 13 (P2) [1] GPU riser slot 14 (P3) [1]
12	GPU riser slot 9 and 10 power connector	GPU riser slot 9 (P3) [1] GPU riser slot 10 (P2) [1]
13	GPU riser slot 9 MCIO connector (SEC) [3]	GPU riser slot 9
14	GPU riser slot 9 MCIO connector (PRIM) [3]	
15	GPU riser slot 10 MCIO connector (SEC) [3]	GPU riser slot 10
16	GPU riser slot 10 MCIO connector (PRIM) [3]	

[1] This enclosed text (P2/P3) refers to the marker on the power cable connector.
[2] This power connector is for the GPU in the cage 1.
[3] This enclosed text (PRIM/SEC) refers to the marker on the riser signal cable connector.

Lower PCIe switch board



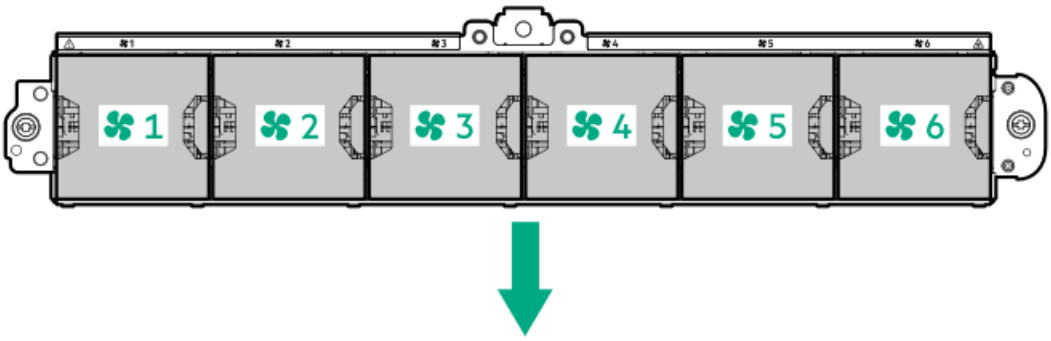
Item	Description	Connect to
1	Lower PCIe switch board upstream port 1	Secondary processor MCIO connectors on system board
2	Lower PCIe switch board upstream port 2	
3	Lower PCIe switch board signal connector	PCIe switch board signal connector on system board
4	Lower PCIe switch board signal extension connector	Upper PCIe switch board signal extension connector
5	Lower PCIe switch board power connector	Lower PCIe switch board power connector (P2) [1] GPU auxiliary power connector (P3) [1], [2]
6	Lower PCIe switch board upstream port 3	Primary processor MCIO connectors on system board
7	Lower PCIe switch board upstream port 4	
8	GPU riser slot 16 MCIO connector (SEC) [3]	GPU riser slot 16
9	GPU riser slot 16 MCIO connector (PRIM) [3]	
10	GPU riser slot 15 MCIO connector (SEC) [3]	GPU riser slot 15
11	GPU riser slot 15 MCIO connector (PRIM) [3]	
12	GPU riser slot 15 and 16 power connector	GPU riser slot 15 (P2) [1] GPU riser slot 16 (P3) [1]
13	GPU riser slot 11 and 12 power connector	GPU riser slot 11 (P3) [1] GPU riser slot 12 (P2) [1]
14	GPU riser slot 11 MCIO connector (SEC) [3]	GPU riser slot 11
15	GPU riser slot 11 MCIO connector (PRIM) [3]	
16	GPU riser slot 12 MCIO connector (SEC) [3]	GPU riser slot 12
17	GPU riser slot 12 MCIO connector (PRIM) [3]	

[1] This enclosed text (P2/P3) refers to the marker on the power cable connector.
[2] This power connector is for the GPU in the cage 2.
[3] This enclosed text (PRIM/SEC) refers to the marker on the riser signal cable connector.

Fan numbering

To provide sufficient airflow to the system, the server is by default populated by 6 high performance, dual-rotor fans.

The arrow points to the front of the server.



Subtopics

Fan mode behavior

Fan mode behavior

The default 6 fan configuration provides redundant fan support. In redundant fan mode, if a fan rotor fails or is missing:

- The system switches to nonredundant fan mode. The system continues to operate in this mode.
- The system health LED flashes amber.

If a second fan rotor failure or a missing fan occurs, the operating system gracefully shuts down.

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
BitLocker recovery key/password retention 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.

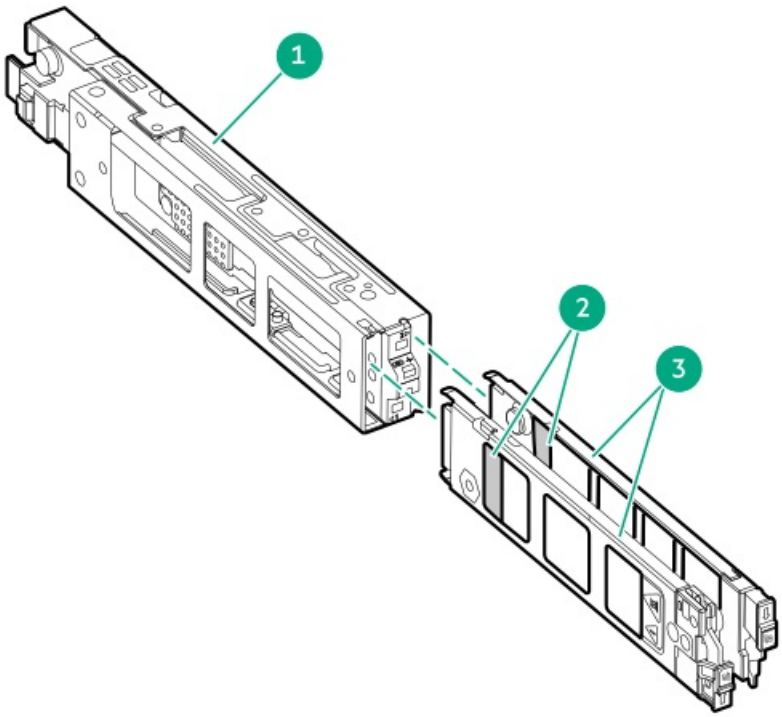
BitLocker recovery key/password retention guidelines

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:

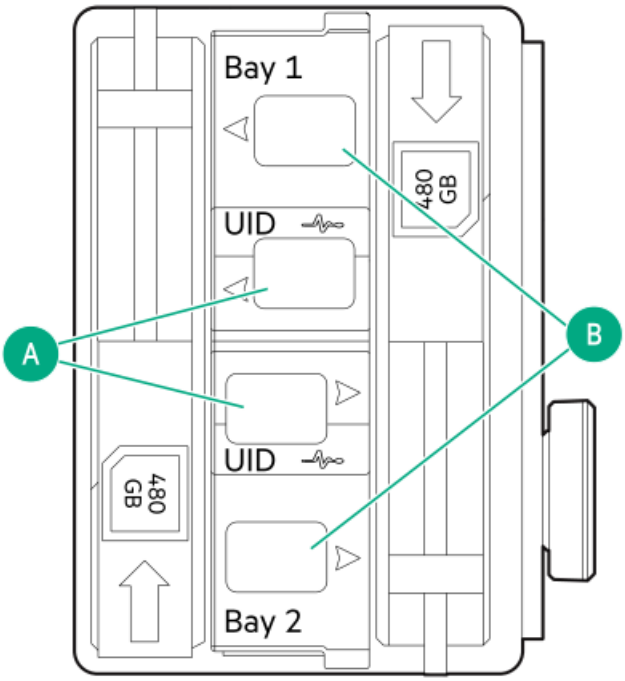
- Always store the recovery key/password in multiple locations.
- Always store copies of the recovery key/password away from the server.
- Do not save the recovery key/password on an encrypted drive.

HPE NS204i-u Boot Device components



Item	Description
1	Boot device cage
2	M.2 slots
3	Boot device carriers

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

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

Subtopics

Initial system installation

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

- Ordering the HPE Installation Service
- Setting up the server

Subtopics

HPE Installation Service

HPE Installation Service

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

The HPE Installation Service provides the following benefits:

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

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

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

Intel VROC support

provides enterprise-level hybrid RAID support. Note the following information:

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

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

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

Setting up the server

Prerequisites

- As a best practice, Hewlett Packard Enterprise recommends installing the latest firmware, drivers, and system software before using the server for the first time. You have these options:
  - HPE Compute Ops Management is an advanced software-as-a-service platform that securely streamlines operations from edge-to-cloud and automates key life cycle tasks through a unified single browser-based interface. For more information on using HPE

Compute Ops Management, see **https://www.hpe.com/info/com-docs**.

- Use the Firmware Update option in Intelligent Provisioning—Intelligent Provisioning is a server deployment tool embedded in HPE ProLiant servers. To access Intelligent Provisioning, during the server boot process, press **F10**. For more information, see the Intelligent Provisioning user guide at **https://www.hpe.com/info/intelligentprovisioning/docs**.
- Download the Service Pack for ProLiant (SPP)—SPP is a comprehensive system software and firmware update solution that is delivered as a single ISO image. This solution uses Smart Update Manager (SUM) as the deployment tool.
  - The preferred method for downloading an SPP is by creating an SPP custom download at **https://www.hpe.com/servers/spp/custom**.

    This option reduces the size of the SPP by excluding firmware and drivers for OS and server models that are not needed.
  - The SPP is also available for download from the SPP download page at **https://www.hpe.com/servers/spp/download**.

- Verify that your OS or virtualization software is supported:
  https://www.hpe.com/support/Servers-Certification-Matrices
- This server supports type-p and type-o (OROC) storage controller options. For onboard storage configuration, use either SATA AHCI (default) or . If you plan to use Intel VROC, review these important information before setting up the server .
- Read the Operational requirements for the server.
- Read the safety and compliance information:
  https://www.hpe.com/support/safety-compliance-enterpriseproducts
- Take note of the iLO hostname and default login credentials on the serial number/iLO information pull tab.

Procedure

1. Unbox the server and verify the contents:
   - Server
   - Power cord
   - 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. 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:
        - If a DHCP server assigns the IP address, the IP address appears on the boot screen.

- If a static IP address is assigned, use that IP address.

c. Enter the iLO login name and password, and then click Log In.

d. In the navigation tree, click the Remote Console & Media link, and then launch a remote console.

5. Press the Power On/Standby button.

   For remote management, use the iLO virtual power button.

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.
10. Register the server.

Operational requirements

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

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

For environmental requirements, see Environmental specifications.

Subtopics

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.

Rack warnings and cautions

WARNING

When all components are removed, the server weighs 11.00kg (24.25lbs). When all components are installed, the server can weigh up to 35.95.kg (79.25lbs).

Before configuring your rack solution, be sure to check the rack manufacturer weight limits and specifications. Failure to do so can result in physical injury or damage to the equipment and the facility.

WARNING

The server is heavy. To reduce the risk of personal injury or damage to the equipment, do the following:

- 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. The server weighs more than 11.00kg (24.25lbs), so at least two people must lift the server into the rack together. An additional 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.
- Adequately stabilized 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.
- Do not stack anything on top of rail-mounted component or use it as a work surface when extended from the rack.

WARNING

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

- The rack has anti-tip measures in place. Such measures include floor-bolting, anti-tip feet, ballast, or a combination as specified by the rack manufacturer and applicable codes.
- The leveling jacks (feet) are extended to the floor.
- The full weight of the rack rests on the leveling jacks (feet).
- The stabilizing feet are attached to the rack if it is a single-rack installation.
- The racks are coupled together in multiple rack installations.

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.

CAUTION

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

CAUTION

Before installing the server in a rack, be sure to properly scope the limitations of the rack. Before proceeding with the installation, consider the following:

- You must fully understand the static and dynamic load carrying capacity of the rack and be sure that it can accommodate the weight of the server .
- Be sure sufficient clearance exists for cabling, installation and removal of the server , and movement of the rack doors.

Server warnings and cautions

WARNING

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

WARNING

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

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

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

CAUTION

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

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.

Electrostatic discharge

Be aware of the precautions you must follow when setting up the system or handling components. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the system or component.

To prevent electrostatic damage:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:
  - Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm ±10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
  - Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
  - Use conductive field service tools.
  - Use a portable field service kit with a folding static-dissipating work mat.

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

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

Operations

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

- Rack warnings and cautions
- Server warnings and cautions

Subtopics

Remove the front bezel

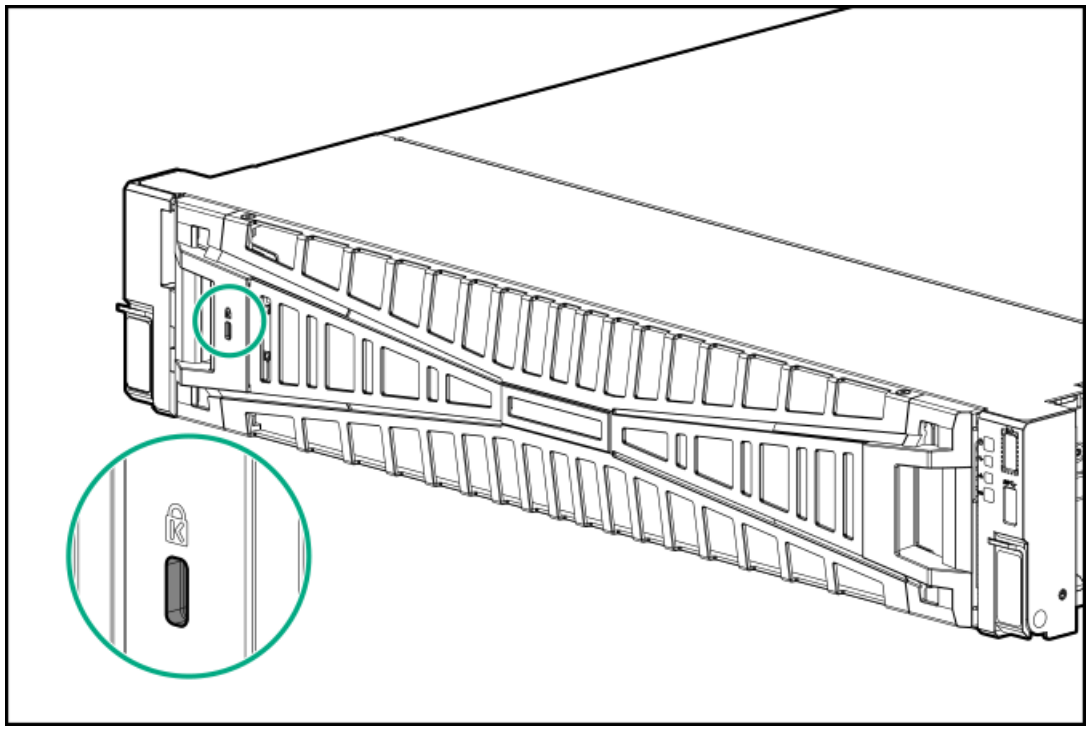
About this task

If you are using the iLO virtual power button to power the server on/off, you do not need to remove the front bezel. Remove the front bezel only if you need to access the front panel components.

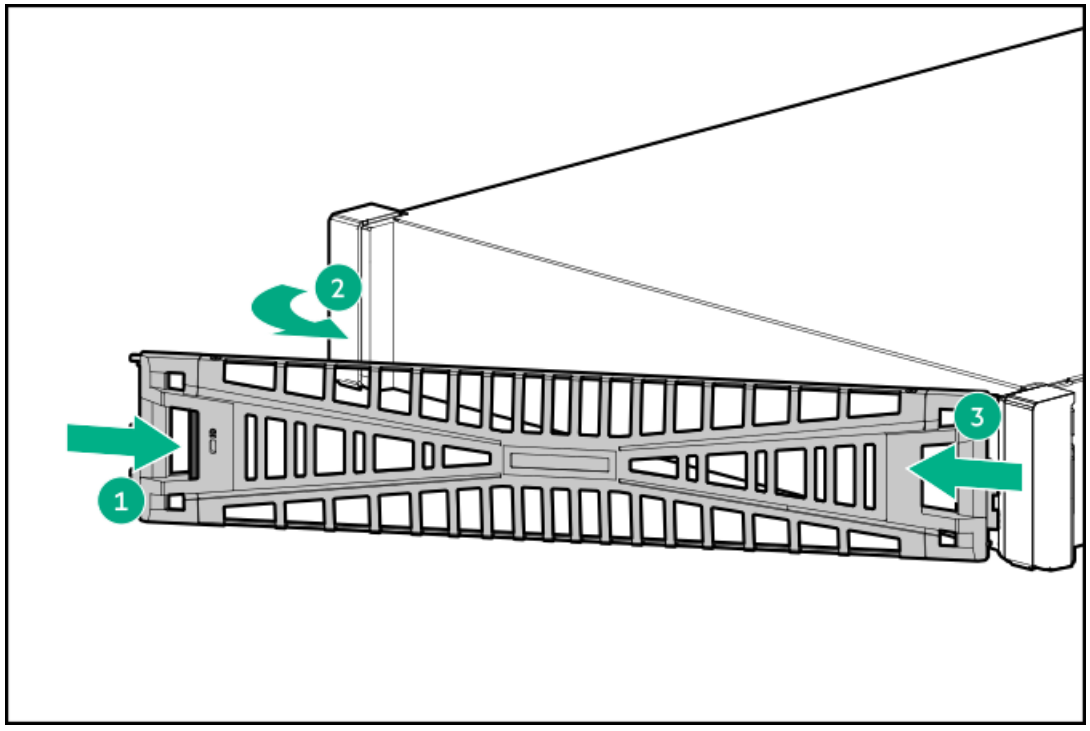
Procedure

1. If installed, remove the Kensington security lock.

   For more information, see the lock documentation.



2. Press the bezel release latch, and then pivot the bezel open.
3. Release the right side of the bezel from the front panel.



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:

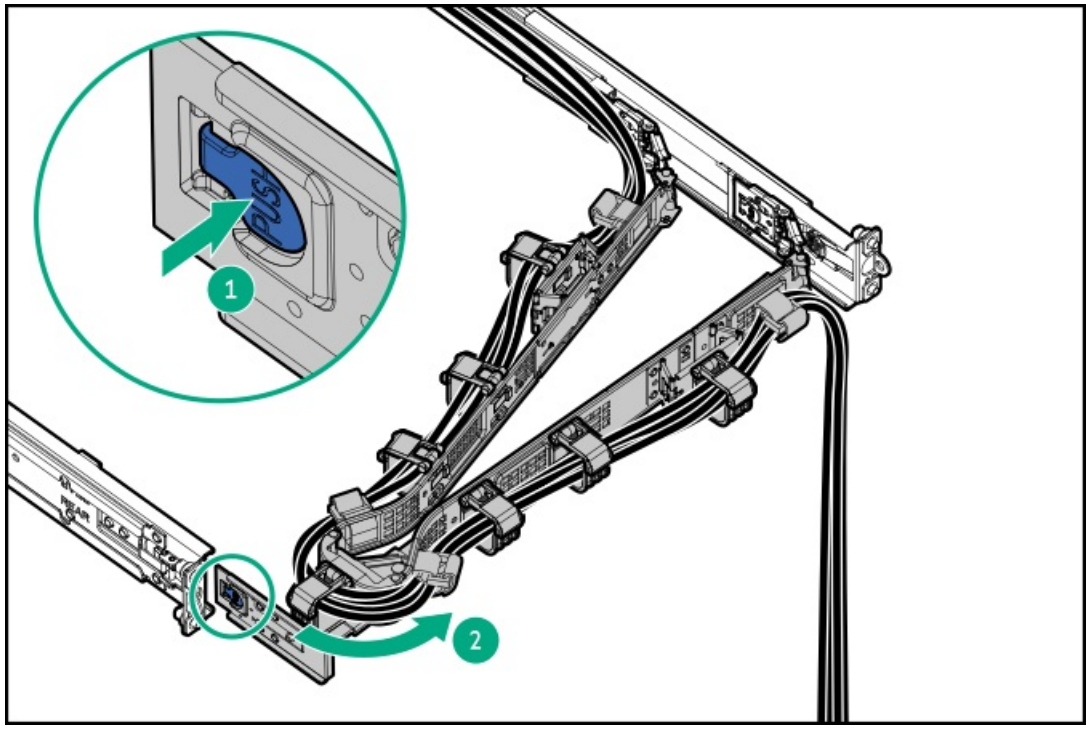
- Press and release the Power On/Standby button.
  This method activates a controlled shutdown of applications and the OS before the server enters standby mode. It can also activate a shutdown behavior governed by an OS configuration or policy.
- Press and hold the Power On/Standby button for more than 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.
  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 out of the rack

Prerequisites

- Before you perform this procedure, review the Rack warnings and cautions.
- T-25 Torx screwdriver—This tool is required if the shipping screws located inside the chassis ears are secured.

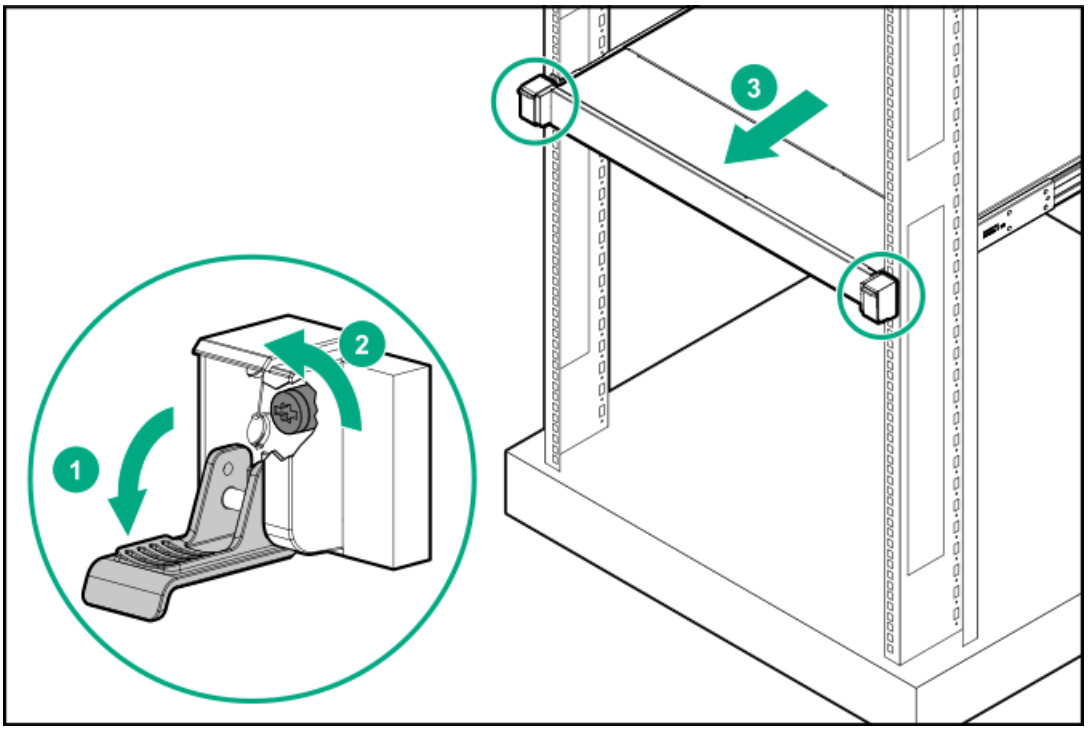
About this task

WARNING

To reduce the risk of personal injury, be careful when pressing the server rail-release latches. The inner rails could pinch your fingers.

Procedure

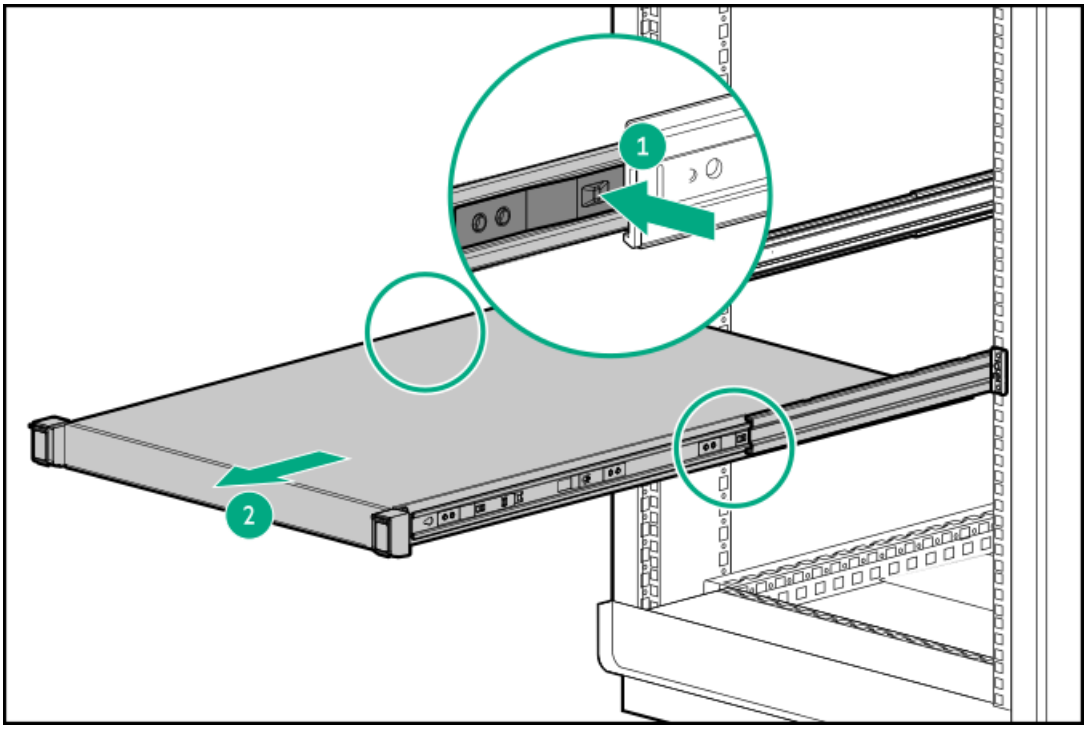
1. If needed, loosen the shipping screws, and then use the chassis ear latches to slide the server out of the rack until the rail-release latches are engaged.



2. Press and hold the rear-end rail-release latches, and then slide the server out of the rack until it is fully extended.

WARNING

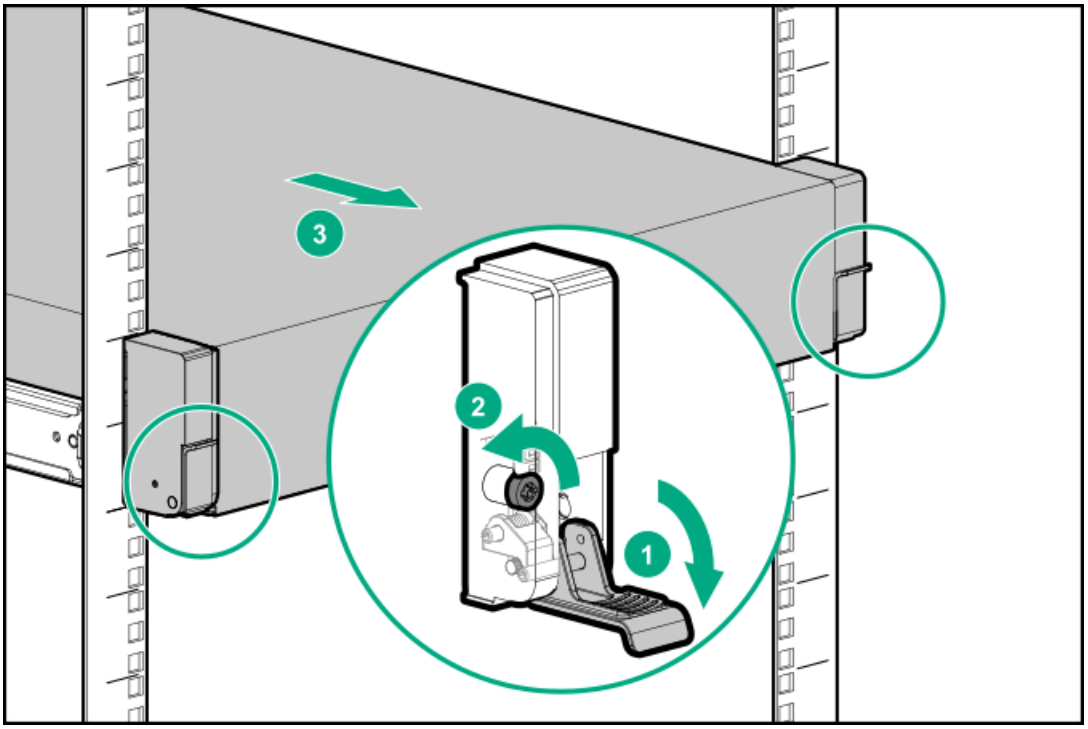
To reduce the risk of personal injury, be careful when pressing the server rail-release latches. The inner rails could pinch your fingers.

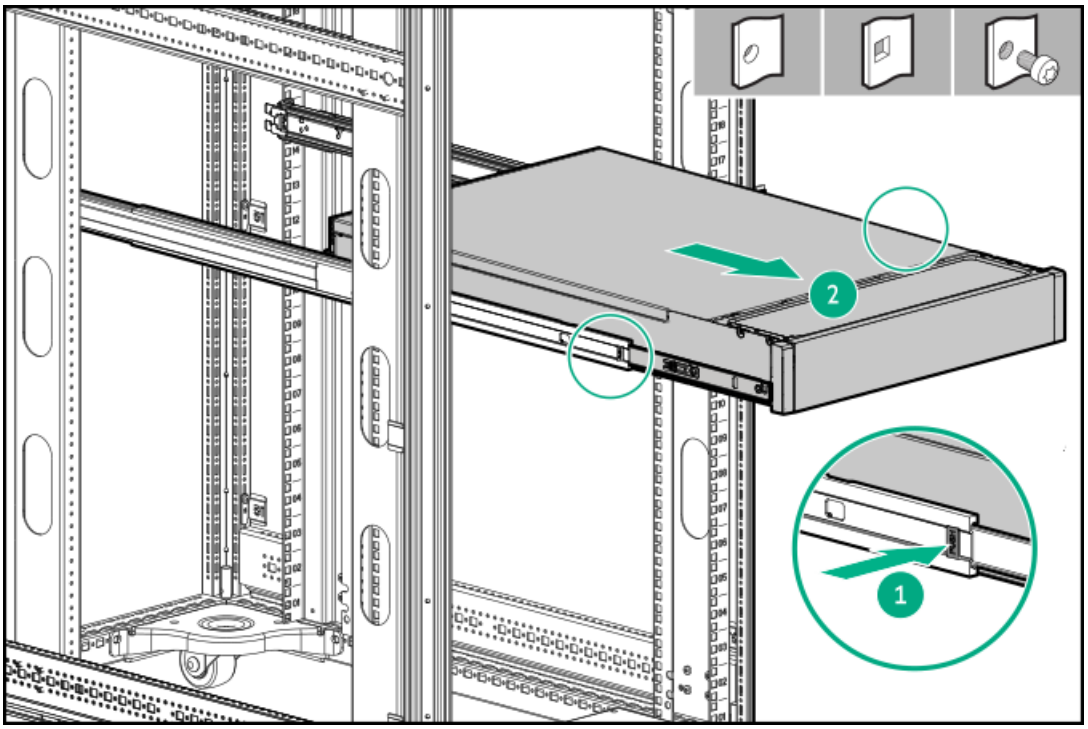


Remove the server from the rack

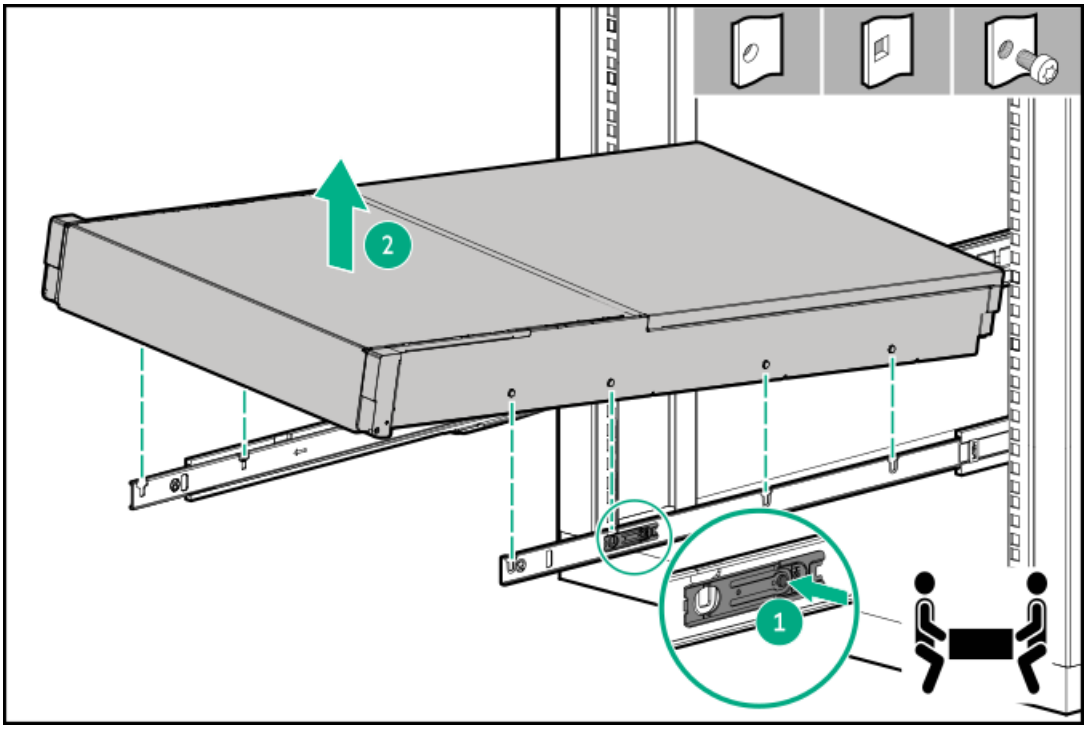
Procedure

1. Fully extend the server from the rack.





2. Unlock the spools from the locking tab and then remove the server.



Remove the access panel

Prerequisites

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

About this task

WARNING

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

CAUTION

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

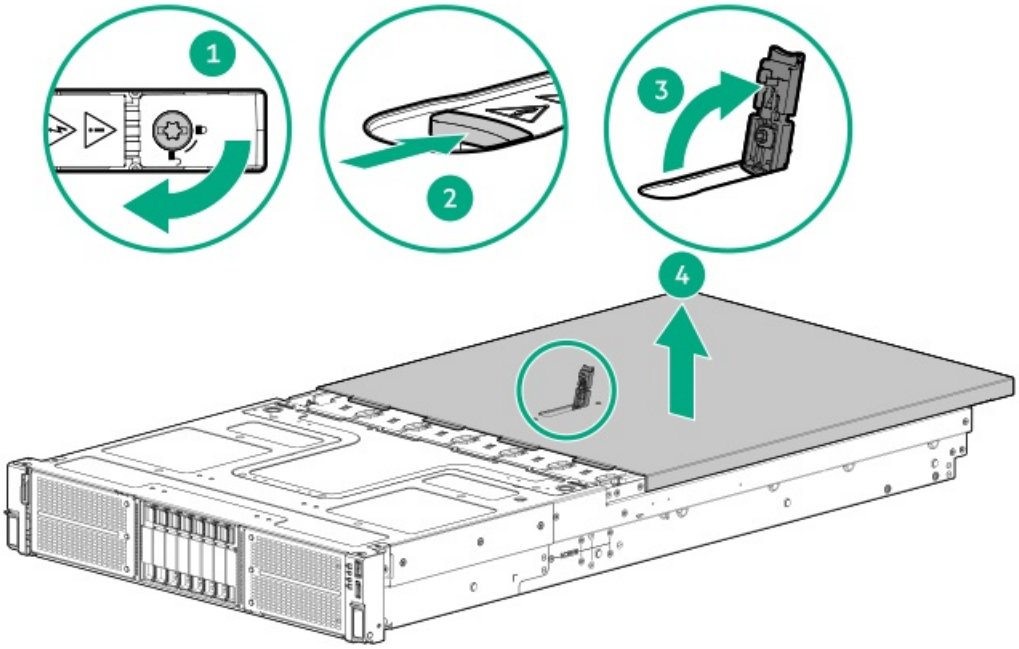
CAUTION

To maintain proper system cooling, do not operate the server for long period with the access panel open or removed. Operating the server in this manner results in an improper system airflow. For internal hot-plug component procedures, complete the procedure within 60 seconds. Failure to do so can cause the system temperature to increase and trip the safety threshold. When this happens:

- The health LED flashes amber.
- The operating system gracefully shuts down.

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. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
5. Place the server on a flat, level work surface.
6. Remove the access panel:
   a. If necessary, unlock the access panel latch.
   b. To disengage the access panel from the chassis, press the release button and pull up the latch.
   c. Lift the access panel.



Remove an air baffle

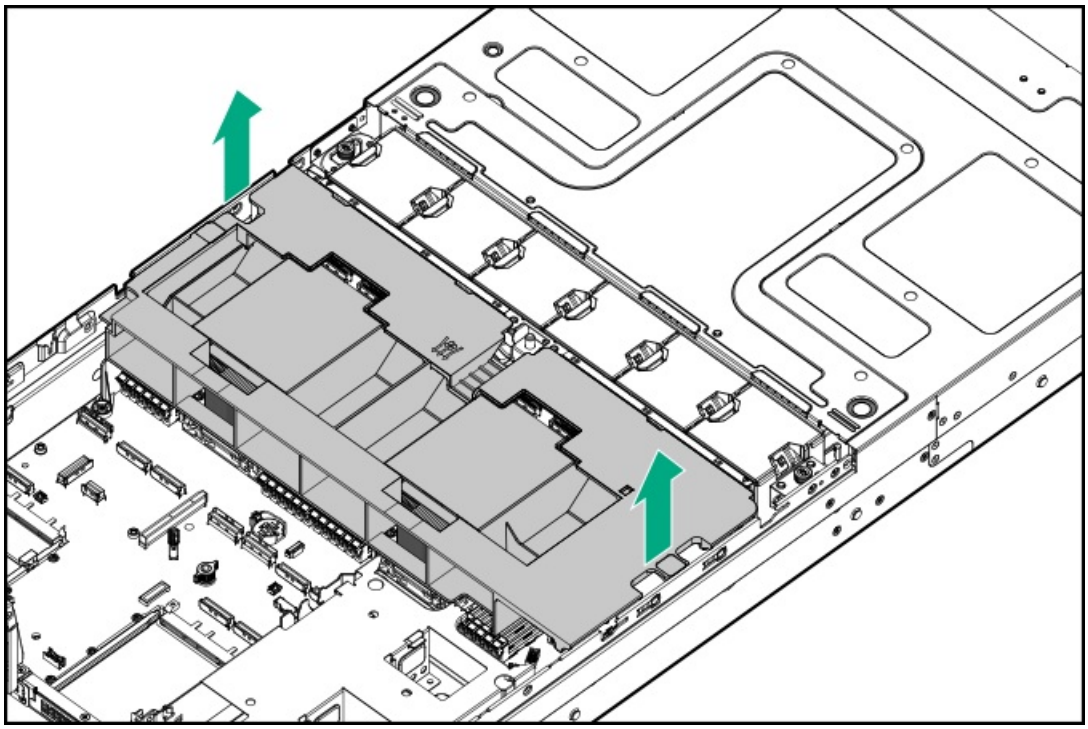
About this task

CAUTION

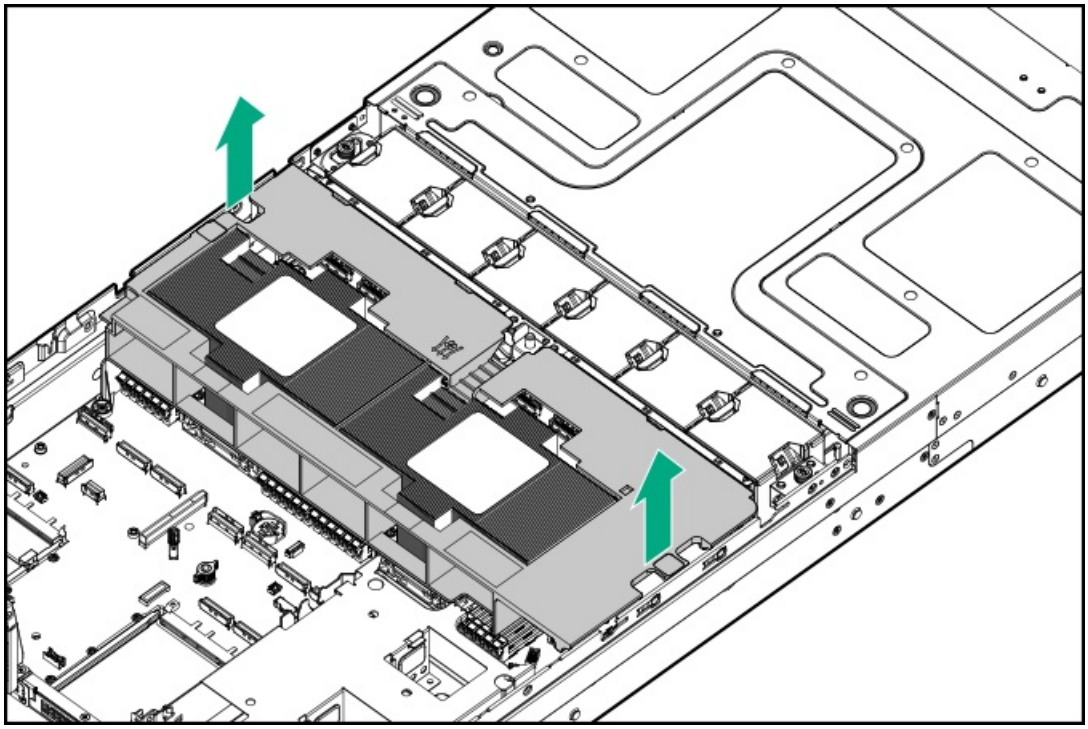
For proper cooling, do not operate the server without the access panel, baffles, expansion slot covers, or blanks installed. If the server supports hot-plug components, minimize the amount of time the access panel is open.

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. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
5. Place the server on a flat, level work surface.
6. Remove the access panel.
7. Remove the air baffle.
   - Standard air baffle



- High performance air baffle



Remove the fan cage

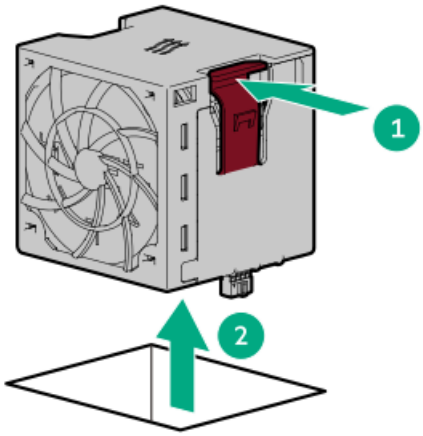
Prerequisites

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

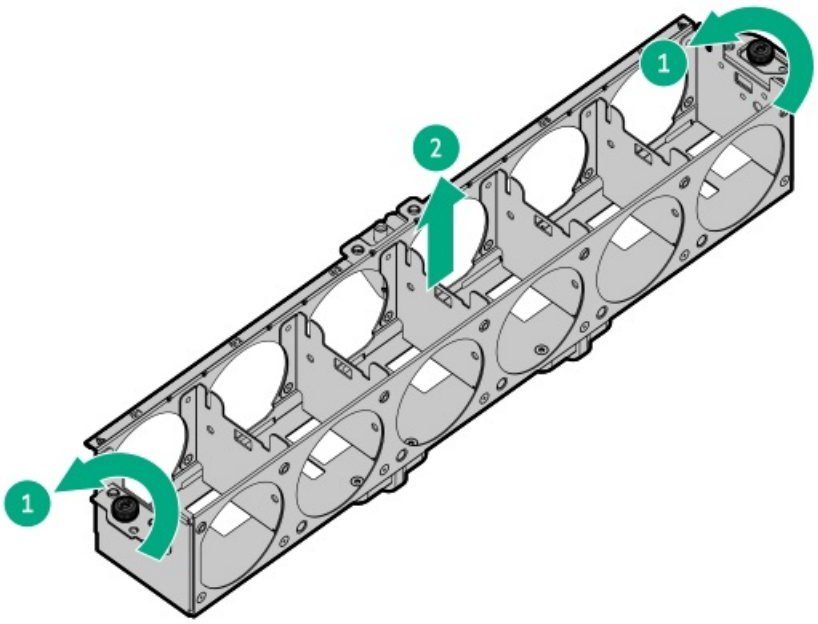
Procedure

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. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
5. Place the server on a flat, level work surface.
6. Remove the access panel.
7. Remove an air baffle.
8. Remove the existing fans:
   a. Press and hold the latch.
   b. Lift the fan from the fan cage.



9. Remove the fan cage:
   a. Loosen the captive screws.
   b. Lift the fan cage away from the chassis.



Remove the middle cover

About this task

CAUTION

For proper cooling, do not operate the server without the access panel, baffles, expansion slot covers, or blanks installed.

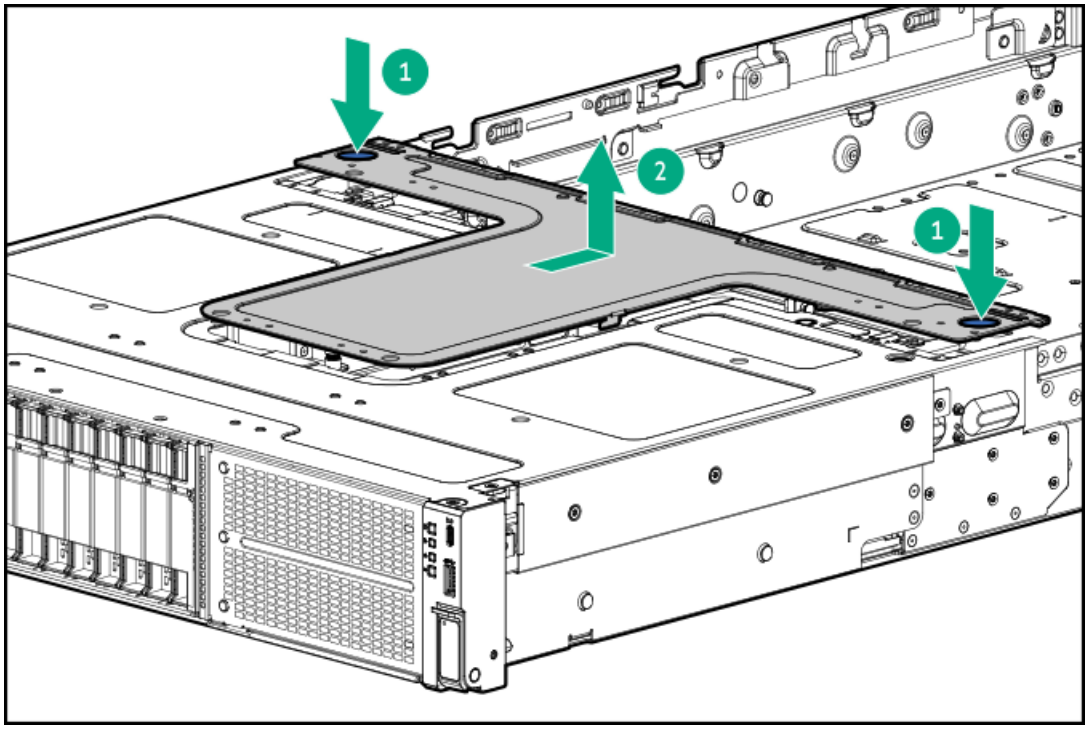
CAUTION

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

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. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
5. Place the server on a flat, level work surface.
6. Remove the access panel.
7. Remove the middle cover:
   a. Press and hold the release buttons.

b. Disengage the cover from the front cage.



Remove the GPU riser cage

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

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

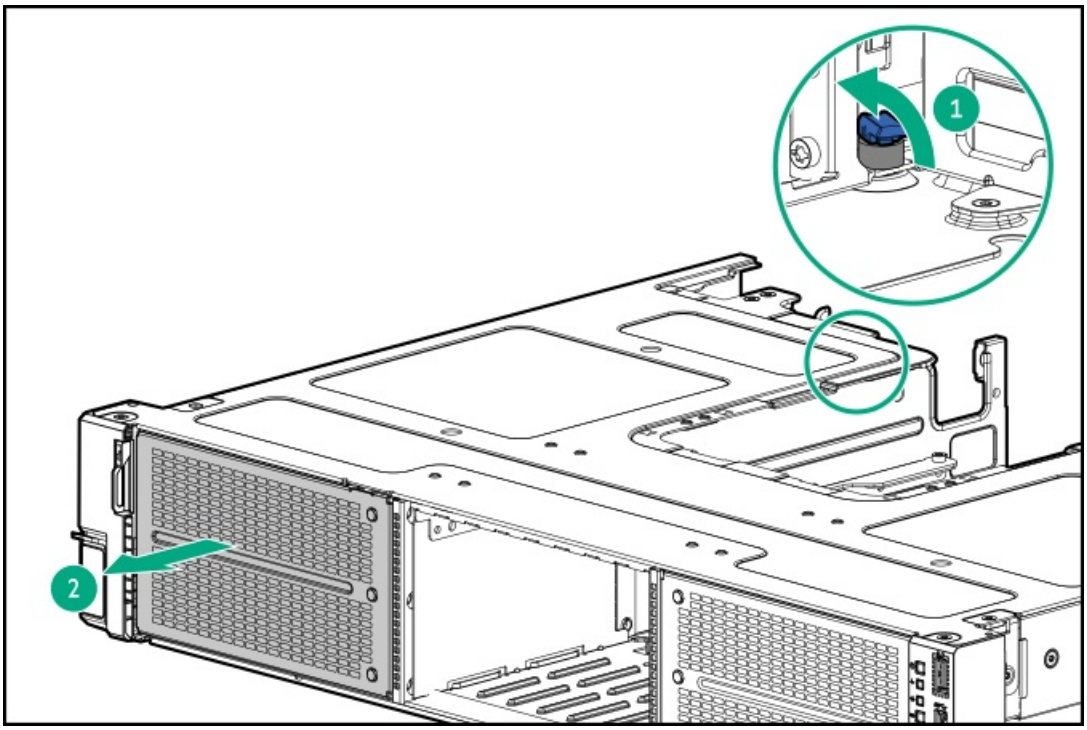
Procedure

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. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
5. Place the server on a flat, level work surface.
6. Remove the access panel.

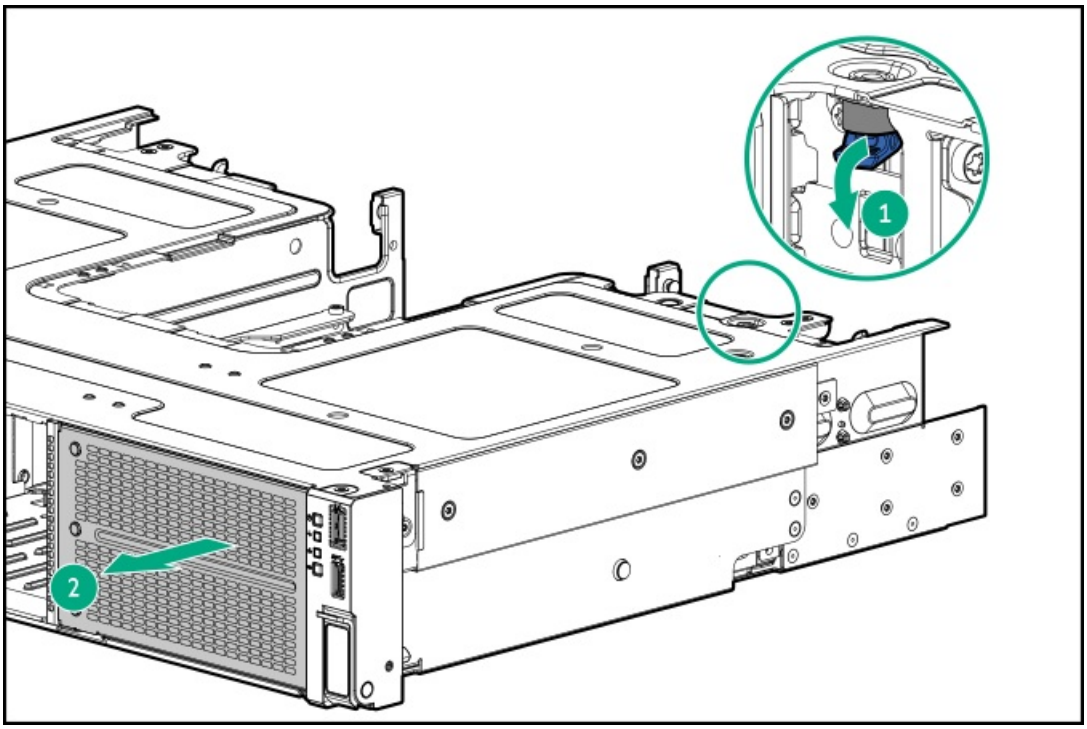
7. Remove the middle cover.
8. Remove an air baffle.
9. Remove the fan cage.
10. Disconnect all following cables from the system board:
    - GPU riser cables
    - GPU auxiliary power cables
11. Release all GPU riser cables and auxiliary power cables from the cable guard and chassis wall.
12. Remove a GPU riser cage:
    a. Rotate the locking pin to the open (vertical) position.
    b. Remove the GPU riser cage from the server.

    Carefully feed the riser cables through the cable channel.

    - GPU riser cage 1



    - GPU riser cage 2



Remove a riser cage

Prerequisites

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

About this task

WARNING

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

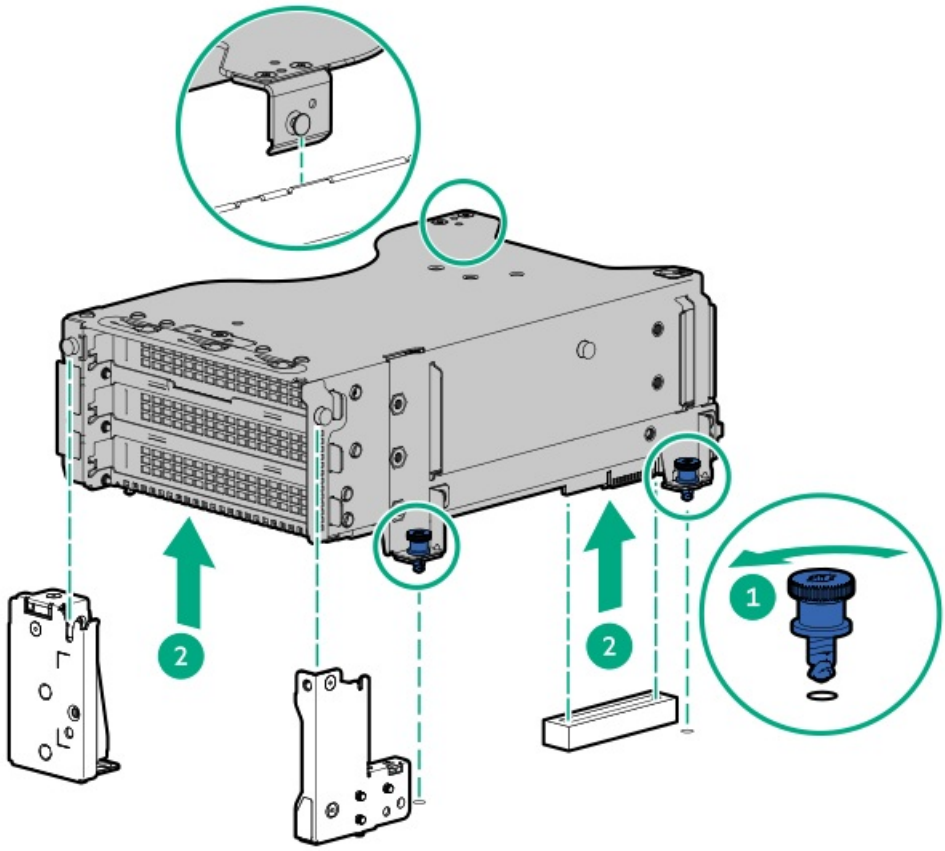
CAUTION

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

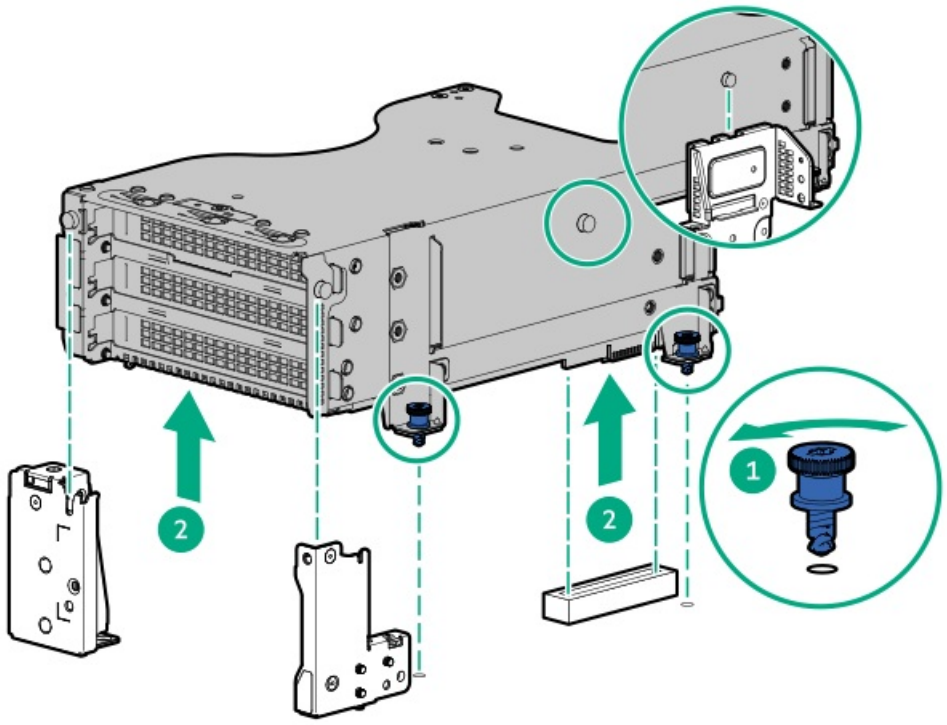
Procedure

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. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
5. Place the server on a flat, level work surface.

6. Remove the access panel.
7. Remove an air baffle.
8. If an expansion card with internal cables is installed on the riser, disconnect the cables from the card.
9. To remove the primary riser cage:
   a. Loosen the captive screws.
   b. Lift the riser cage off the system board.



10. To remove the secondary riser cage:
    a. Loosen the captive screws.
    b. Lift the riser cage off the system board.

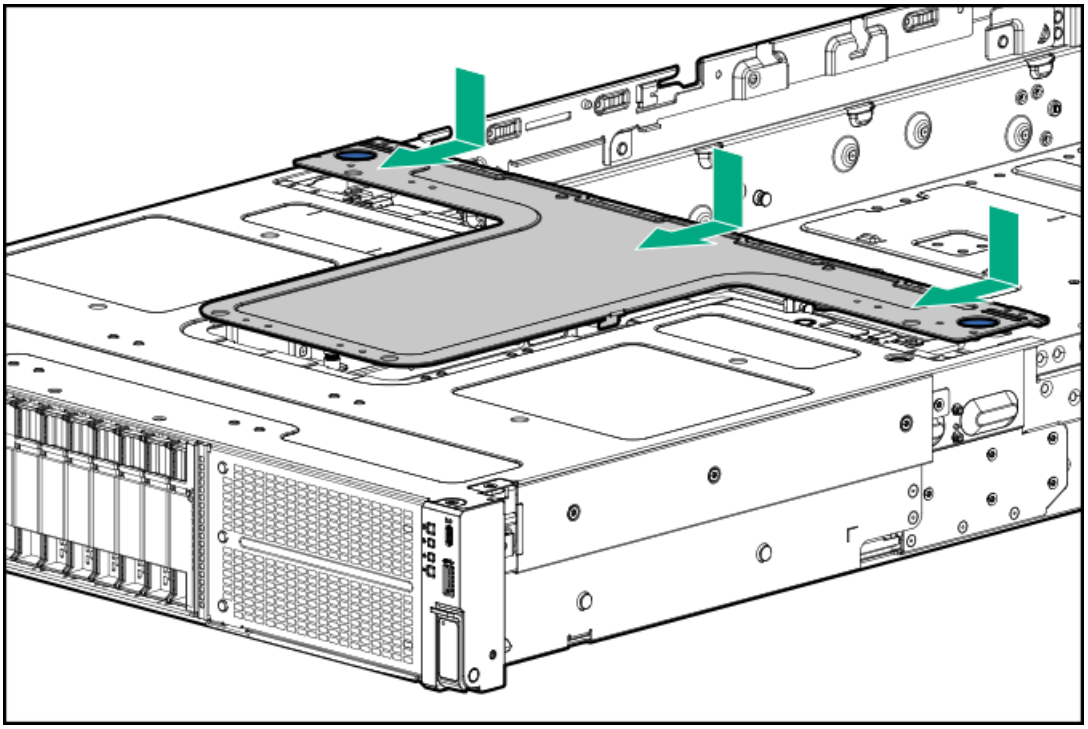


Install the middle cover

Procedure

1. Install the middle cover.

   A click sound indicates that the cover is properly engaged with the front cage.



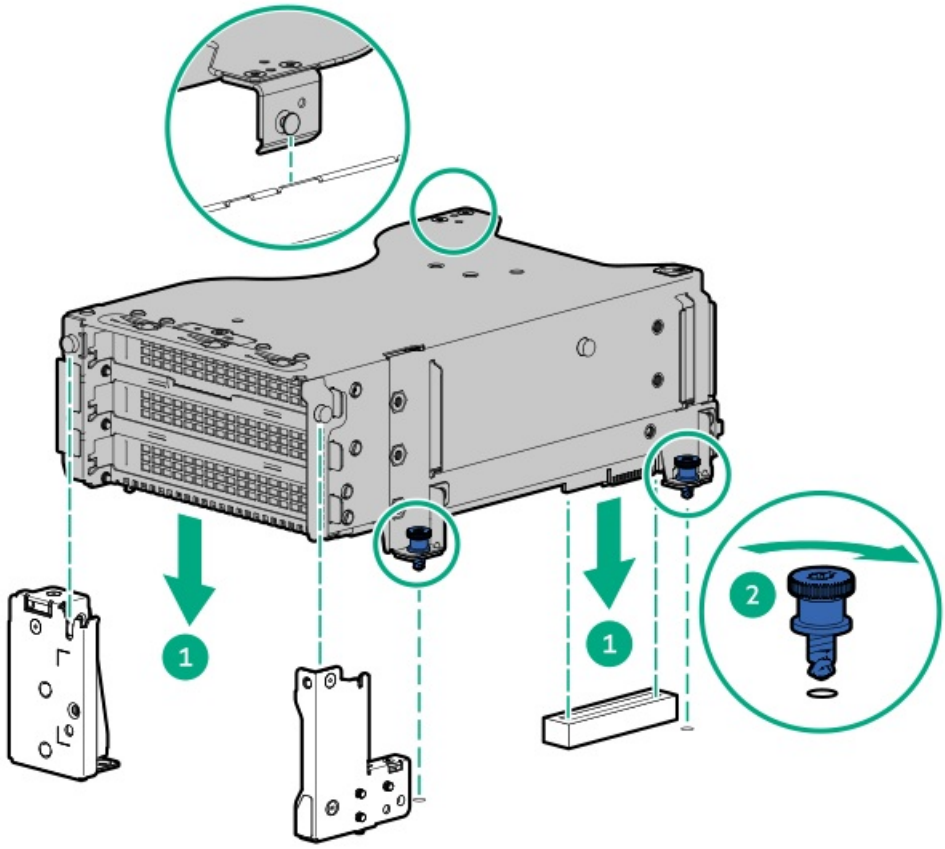
2. Install the access panel.
3. Perform the post-installation or maintenance steps required by the procedure that necessitates the removal of the middle cover.

Install a riser cage

Procedure

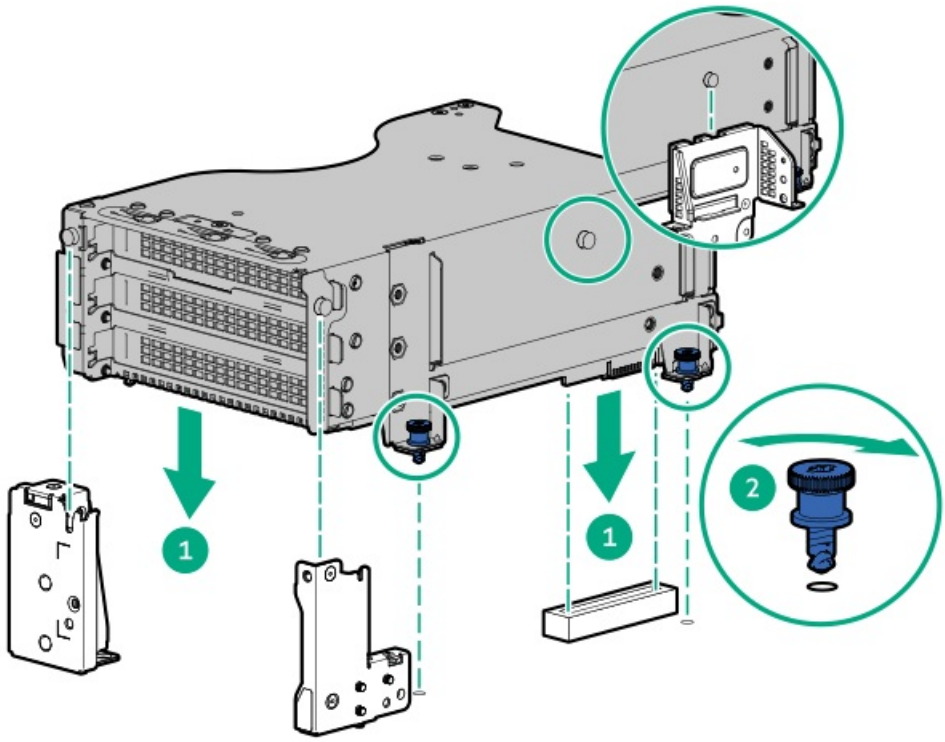
1. If an expansion card or its internal cabling was removed, reinstall these components.
2. To install the primary riser cage:
   a. Align the pins on the riser cage with the notches on the rear side of the server, and the notches on the riser cage bracket.
   b. Carefully press the riser down on its system board connector.

      Make sure that the riser board is firmly seated.
   c. Tighten the captive screws.



3. To install the secondary riser cage:
   a. Align the pins on the riser cage with the notches on the rear side of the server, and the notches on the riser cage bracket.
   b. Carefully press the riser down on its system board connector.

      Make sure that the riser board is firmly seated.
   c. Tighten the captive screws.



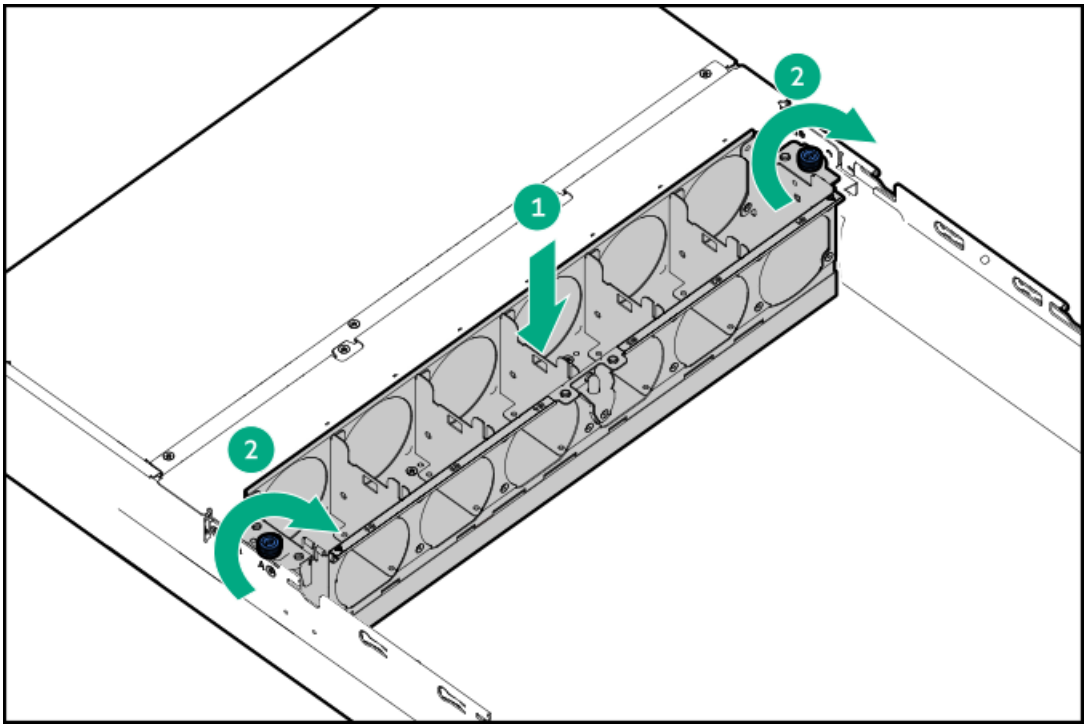
Install the fan cage

Prerequisites

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

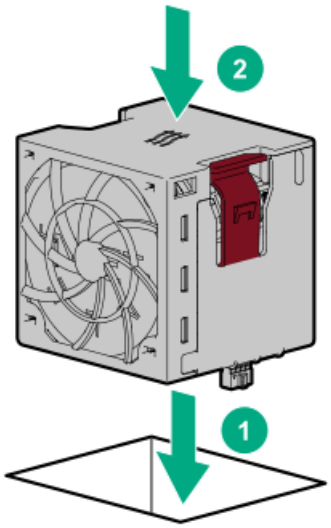
Procedure

1. Install the fan cage:
   a. Lower the fan cage into the chassis.
   b. Tighten the captive screws.



2. Install all fans:
   a. Lower the fan into the fan bay.
   b. Press down on the fan to make sure that it is seated firmly in the bay.

      A click sound indicates that the fan is properly engaged.



3. Perform the post-installation or maintenance steps required by the procedure that necessitates the removal of the fan cage.

Install the air baffle

About this task

CAUTION

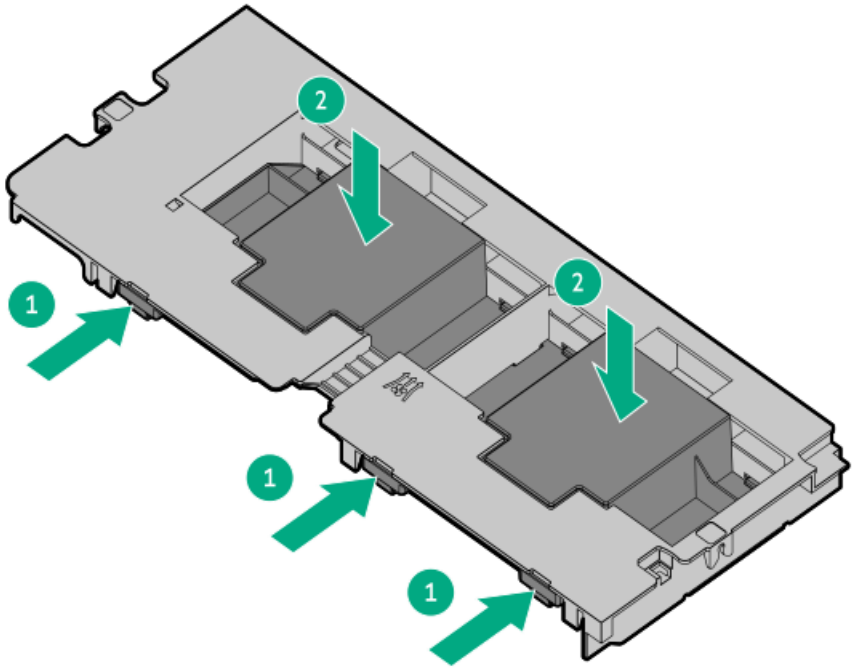
For proper cooling, do not operate the server without the access panel, baffles, expansion slot covers, or blanks installed. If the server supports hot-plug components, minimize the amount of time the access panel is open.

CAUTION

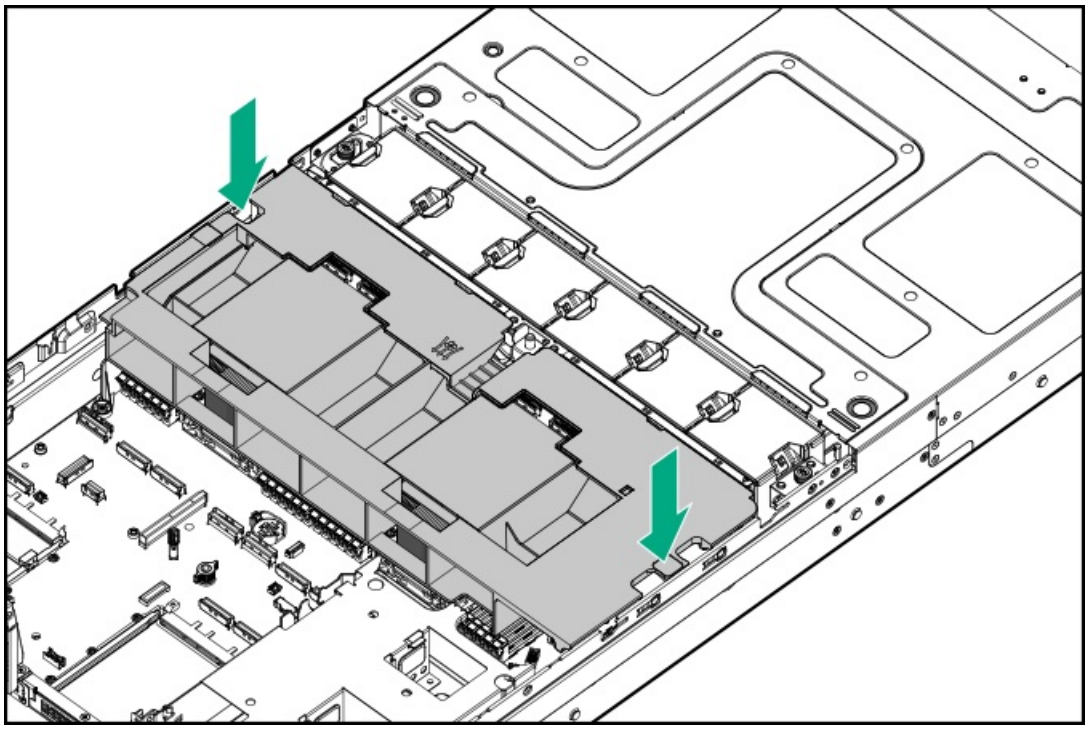
Do not detach the cable that connects the battery pack to the cache module. Detaching the cable causes any unsaved data in the cache module to be lost.

Procedure

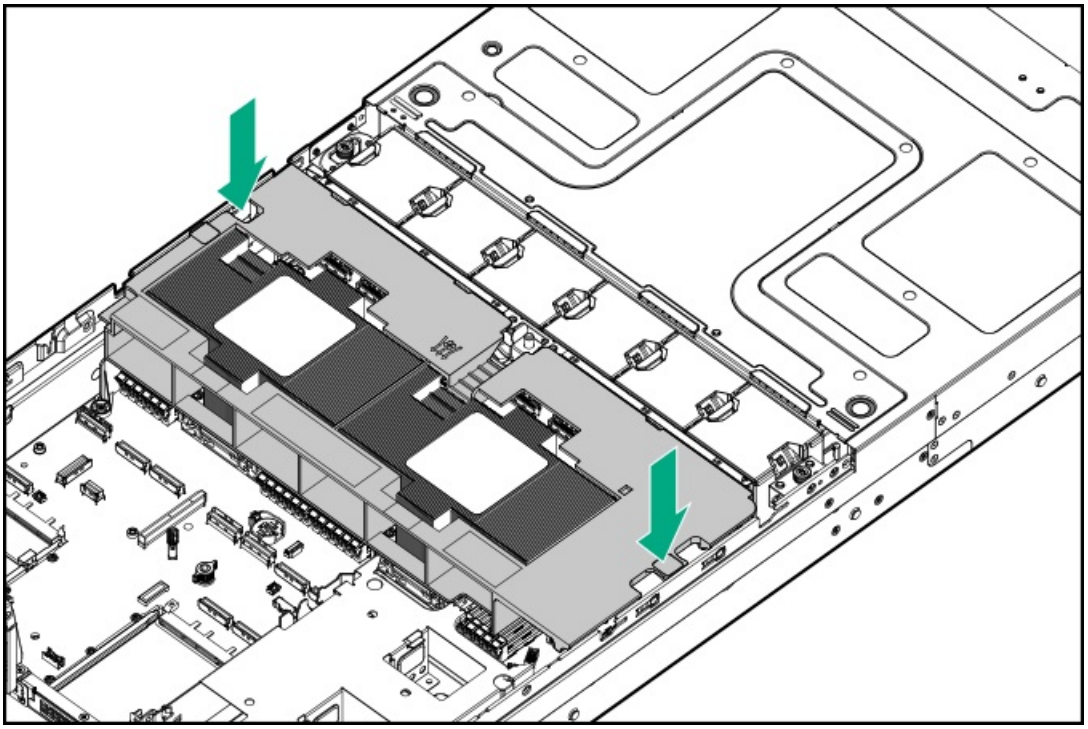
1. If the high performance heatsinks are installed, remove the standard heatsink cover from the standard air baffle:
   a. Press the latches on the standard heatsink cover.
   b. Detach the standard heatsink cover from the standard air baffle.



2. Install the air baffle.
   - Standard air baffle



- High performance air baffle



Install the access panel

Prerequisites

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

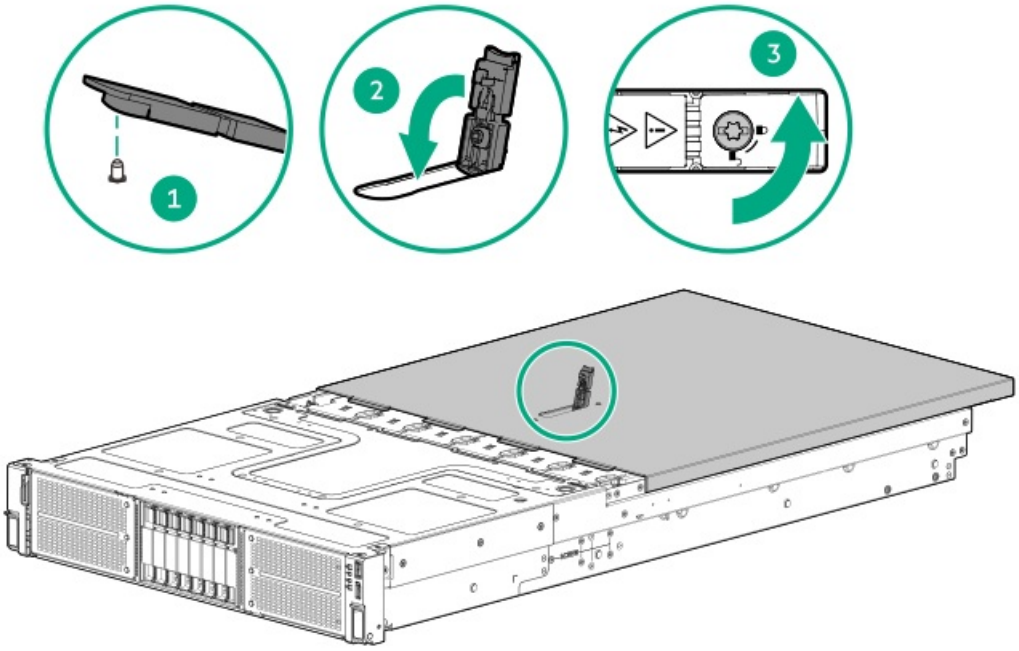
Procedure

1. With the access panel latch open, insert the guide pin on the chassis through the hole on the bottom side of the latch.

2. Close the access panel latch.

   The access panel slides to the closed position.

3. Lock the access panel latch.



4. Perform the post-installation or maintenance steps required by the procedure that necessitates the removal of the access panel.

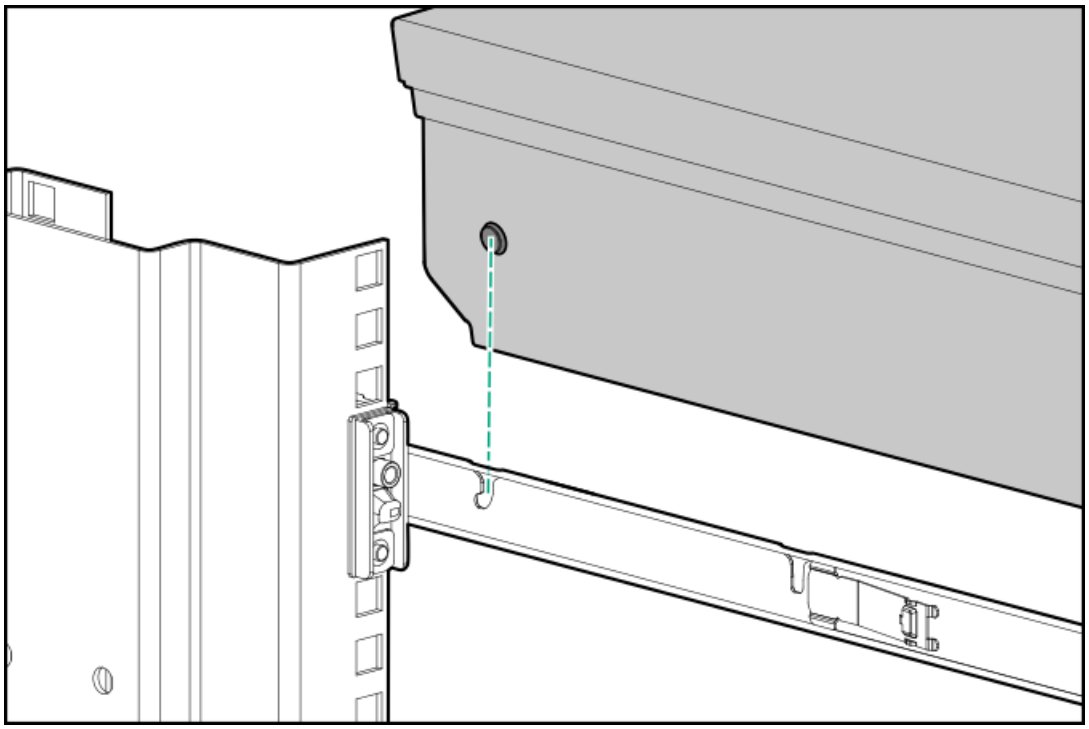
Install the server into the rack

Prerequisites

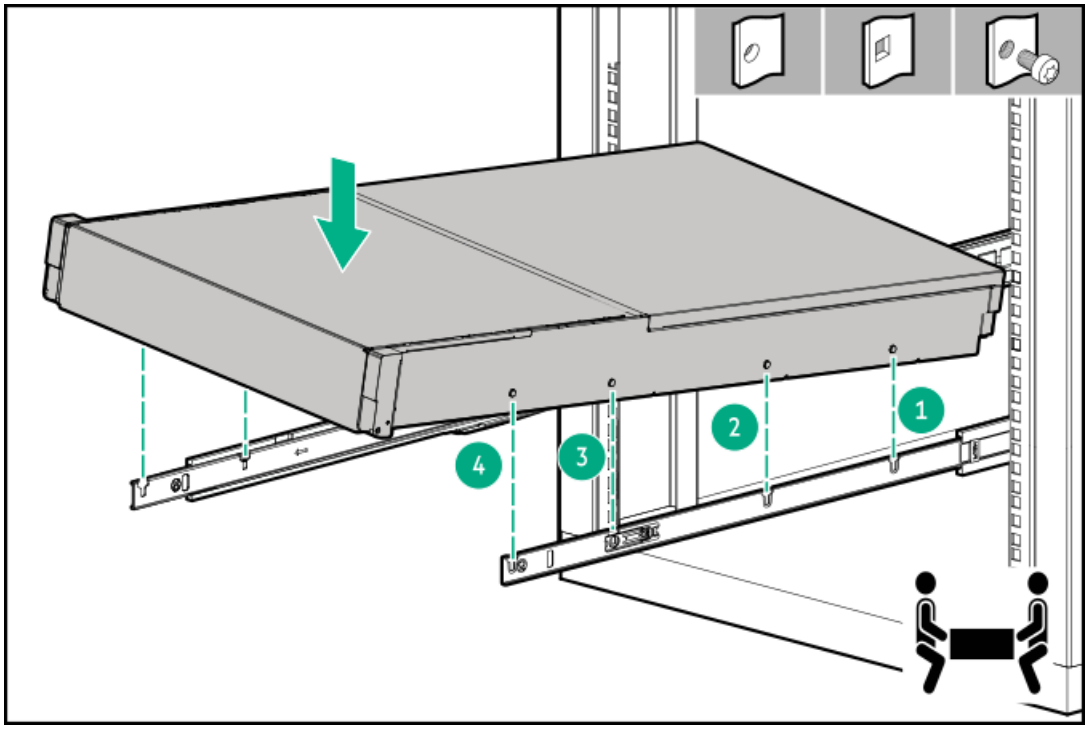
- Get help to lift and stabilize the server during rack installation. **If the server is installed higher than chest level, additional two people might be required to help install the server:** One person to support the server weight, and the other two to slide the server into the rack.
- Before you perform this procedure, review the:
  - Space and airflow requirements
  - Rack warnings and cautions
  - Server warnings and cautions
- A fully populated server is heavy. Hewlett Packard Enterprise recommends removing the external chassis components before installing the server into a rack.
- Before you perform this procedure, make sure that you have a T-25 Torx screwdriver available.

Procedure

1. Install the server into the rails.
   a. Install the rear of the server into the J-slots.

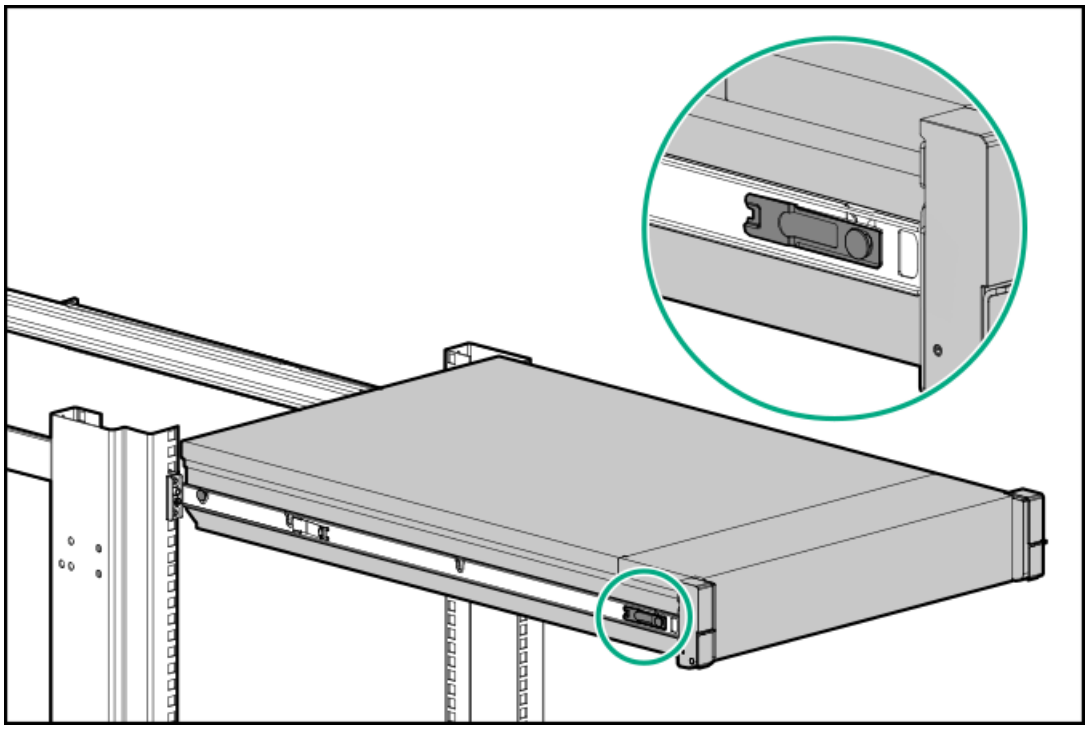


b. Install each spool to the rail.



c. Install the front of the server.

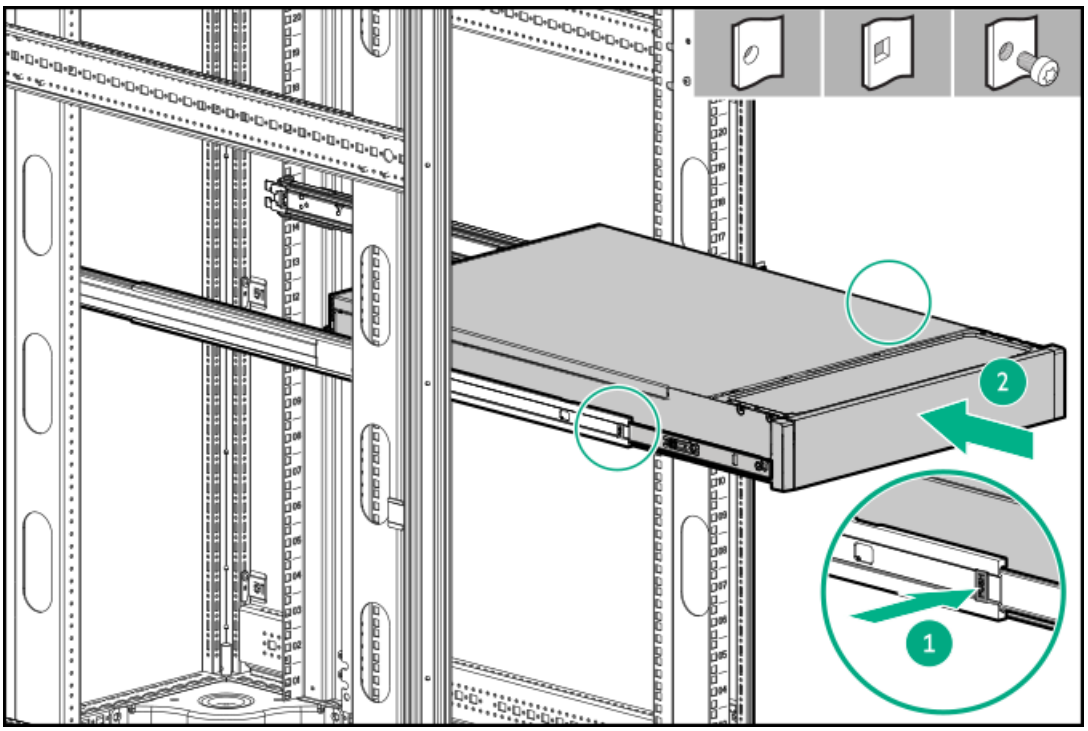
   Be sure the front spool engages the locking tab.



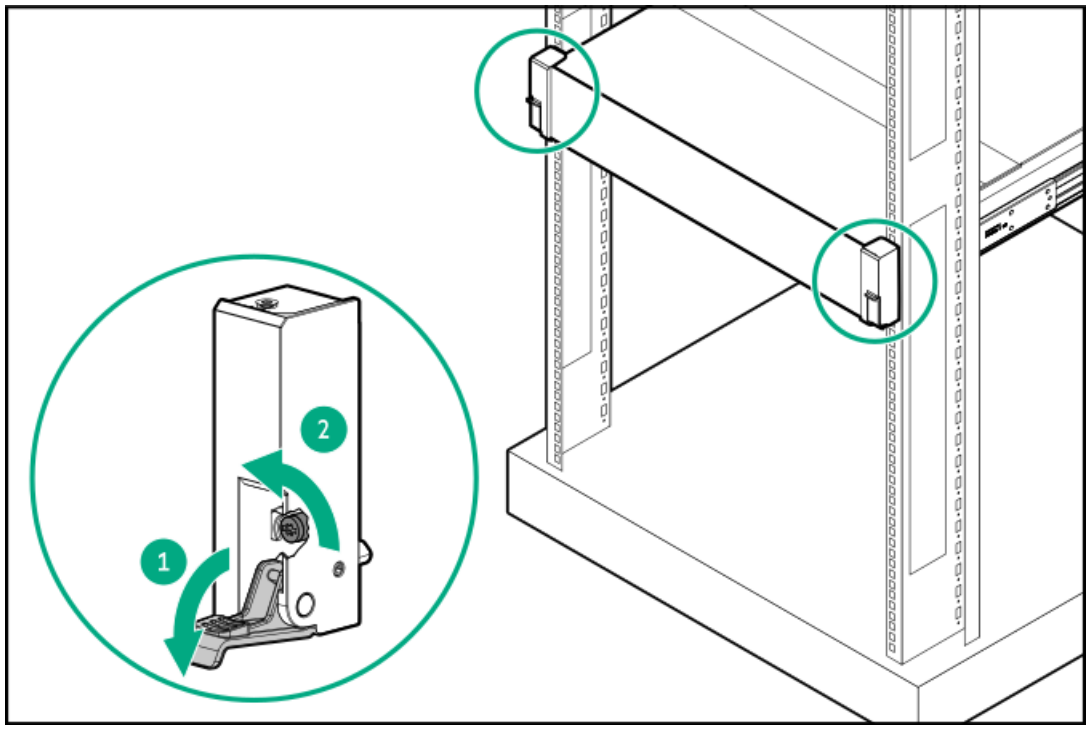
CAUTION

To prevent damage to the rack rails when installing the server into the rack, make sure that all spools on the server are firmly seated on the notches on the rails.

2. Install the server into the rack.



3. Open the chassis ears, and then tighten the shipping screws.



4. Connect all peripheral cables to the server.
5. Connect the power cords:
   a. Connect each power cord to the server.
   b. Connect each power cord to the power source.

Power up the server

Procedure

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

Hardware options installation

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

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

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

Subtopics

Server data backup

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

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

- User data files
- User account names and passwords
- Application settings and passwords
- Component drivers and firmware
- TPM recovery key/password
- BIOS configuration settings—Use the backup and restore function in UEFI System Utilities. For more information, see the UEFI user guide (**https://www.hpe.com/info/UEFI-manuals**).
  - Custom default system settings
  - Security passwords including those required for power-on and BIOS admin access, persistent memory, and Server Configuration Lock (for HPE Trusted Supply Chain servers)
  - Server serial number and the product ID
- iLO-related data—Use the iLO backup and restore function. For more information, see the iLO user guide (**https://www.hpe.com/support/ilo6**).
  - iLO license
  - Customer iLO user name, password, and DNS name
  - iLO configuration settings
- For servers managed by HPE Compute Ops Management, make sure that you have your HPE GreenLake account ID. For more information, see the HPE Compute Ops Management Getting Started Guide:

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

Hardware option installation guidelines

WARNING

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

CAUTION

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

CAUTION

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

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

Hewlett Packard Enterprise product QuickSpecs

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

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

Rack mounting options

Use the quick-deploy, toolless HPE rack rail option to install the server in a standard four-post rack. The rail design supports installation on rack of different mounting interfaces.

For cable management, the rack rail kit might include one or both of the following options:

- Rack rail hoop-and-loop strap
- Cable management arm

Subtopics

Rail identification markers

Rack mounting interfaces
Rack rail options
Installing the server in a rack
Installing the rack rail hook-and-loop strap
Installing the cable management arm

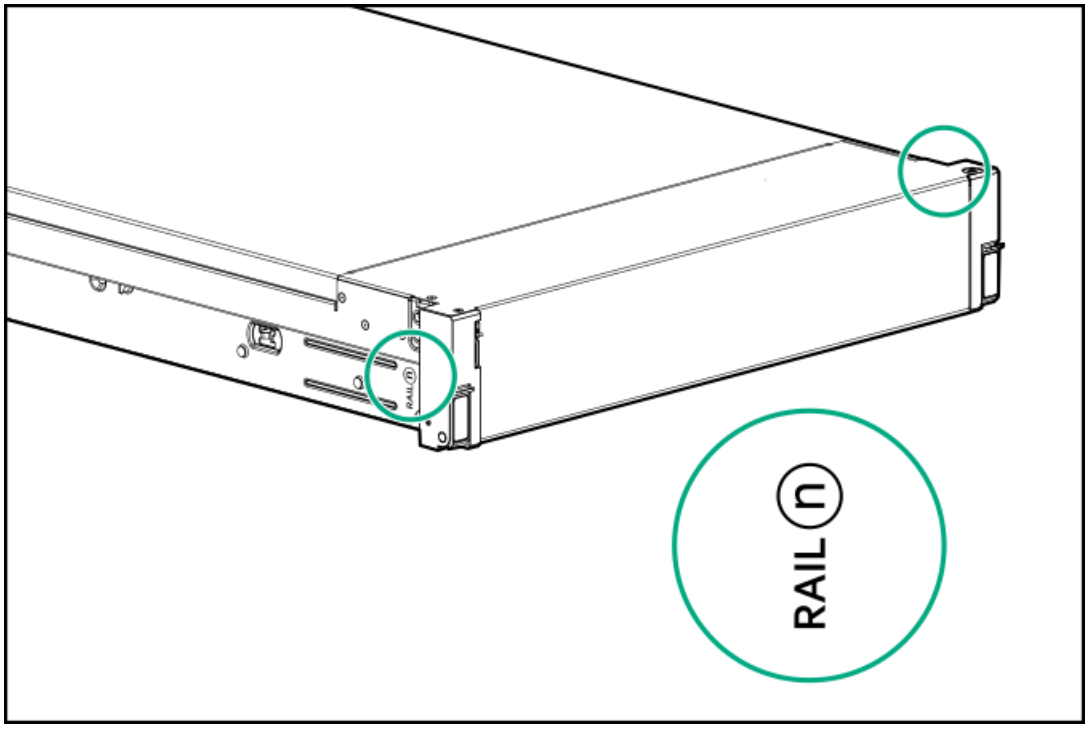
Rail identification markers

The rack rail option support is dependent on these two factors:

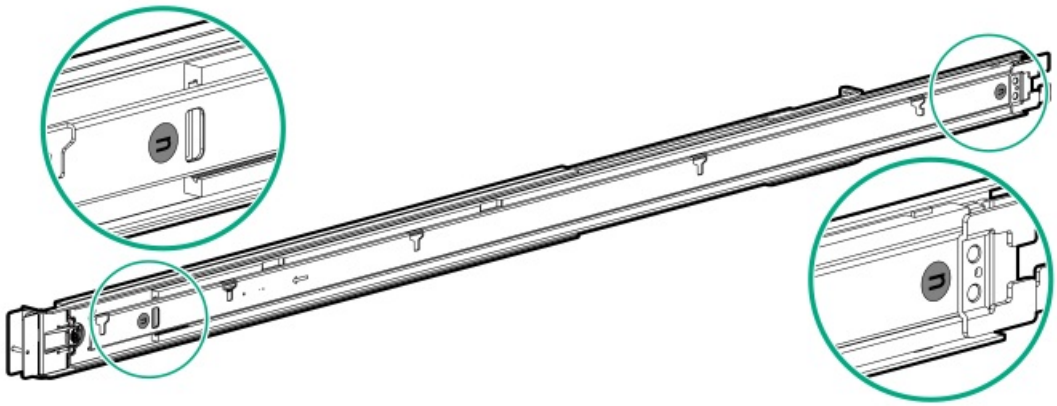
- The height and weight of the chassis as determined by the front- and rear-end server configurations.
- The depth of the chassis as measured from the edge of the front panel (without the front bezel) to the edge of the rear panel.

To ensure compatibility between the rack rails and the server, verify that the rail number labels on the chassis match the ones stamped on the rails.

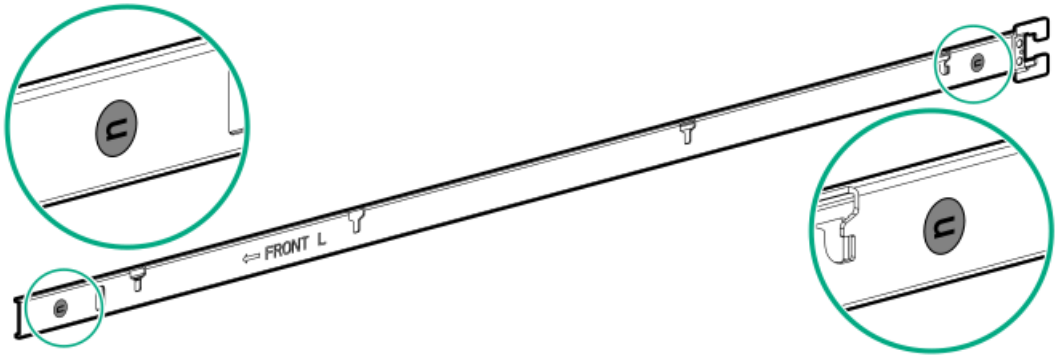
- Rail number labels on the chassis



- Rail identifier stamps on the short ball-bearing rail

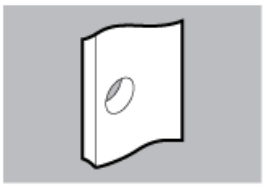


- Rail identifier stamps on the long ball-bearing rail

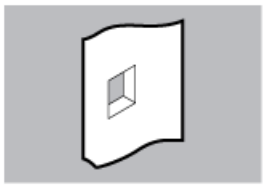


Rack mounting interfaces

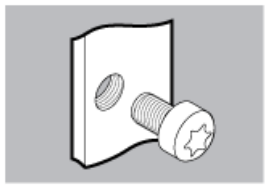
The rack rails can be installed in a rack that has the following mounting interfaces:



Round-hole



Square-hole



Threaded round-hole

The illustrations used in this procedure show an icon on the upper right corner of the image. This icon indicates the type of mounting interface for which the action illustrated in the image is valid.

Rack rail options

This server supports the following rack rail option:

Configuration	Rack rail option	Type	Minimum rail length	Adjustable rail range
SFF/E3.S drive GPU-optimized	Rail option #8 (P52345-B21)	Ball-bearing rack rail (drop-in)	852.91 mm (33.58 in)	609.60 mm to 918.10 mm (24.00 in to 36.15 in)

Installing the server in a rack

Prerequisites

WARNING

To reduce the risk of personal injury or equipment damage, do one of the following:

- Use two or more people to lift and stabilize the product pieces during assembly.
- Use a lift that can handle the load of the product.

WARNING

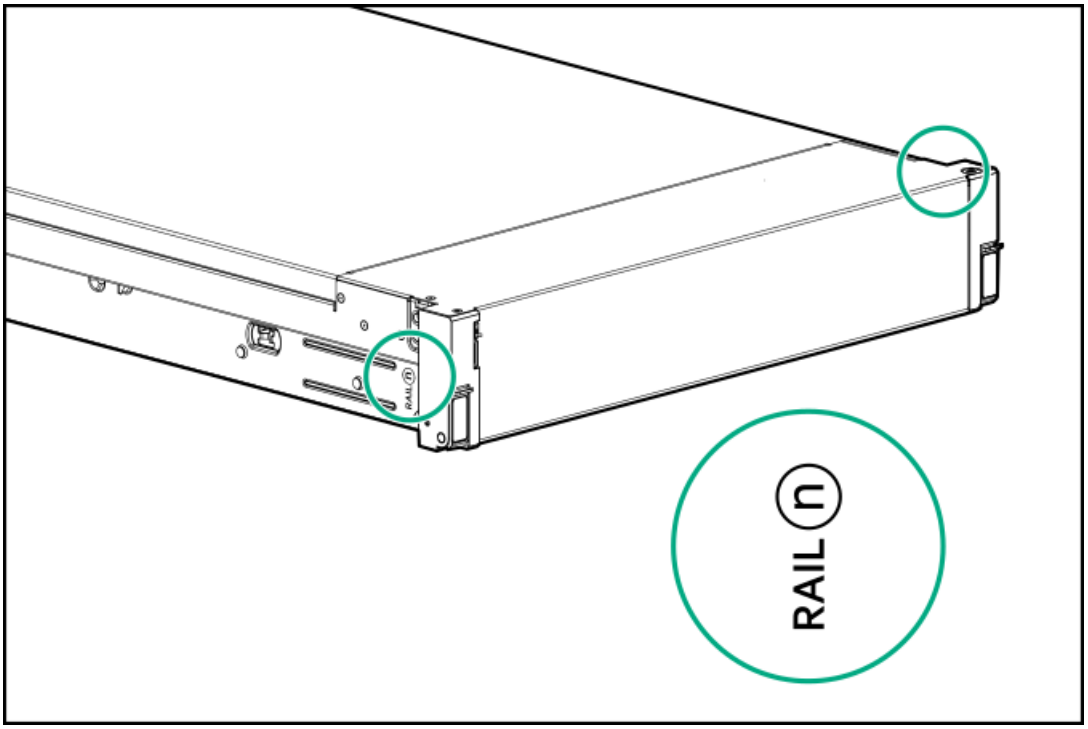
To reduce the risk of personal injury or equipment damage, be sure that the rack is adequately stabilized before installing the rack.

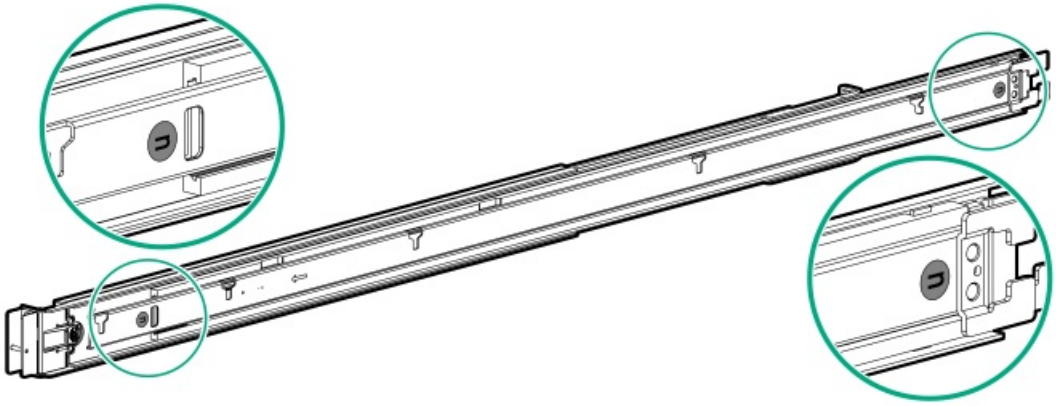
CAUTION

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

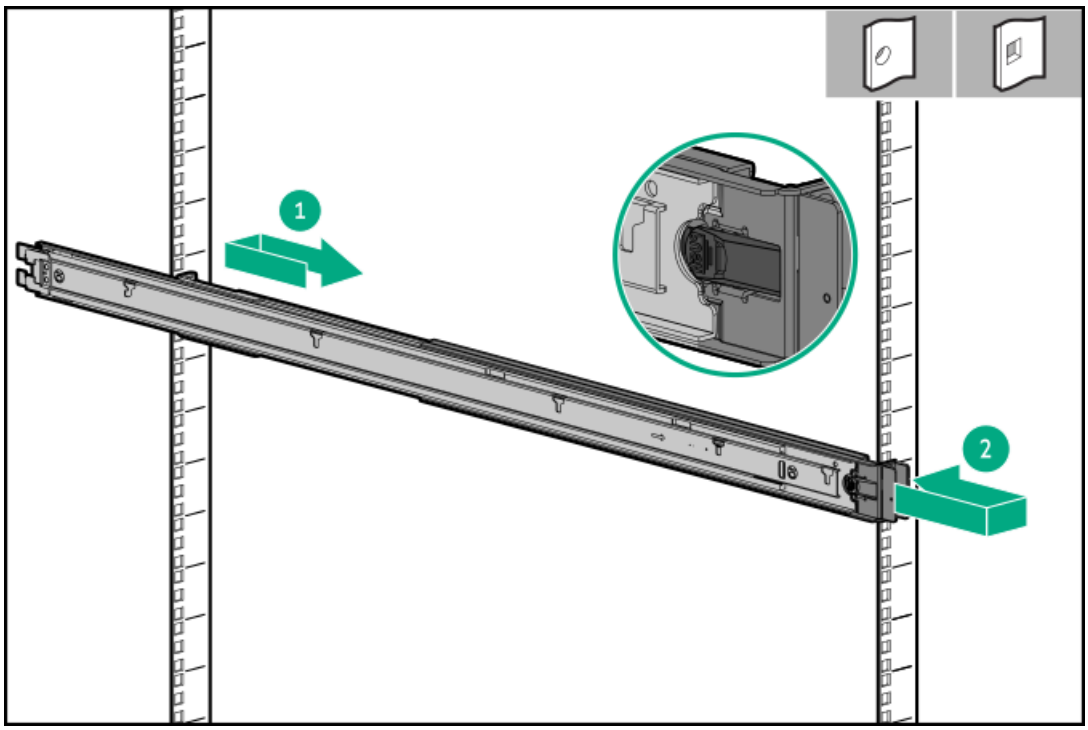
Procedure

1. Verify the rail identifiers match on the server and rails.

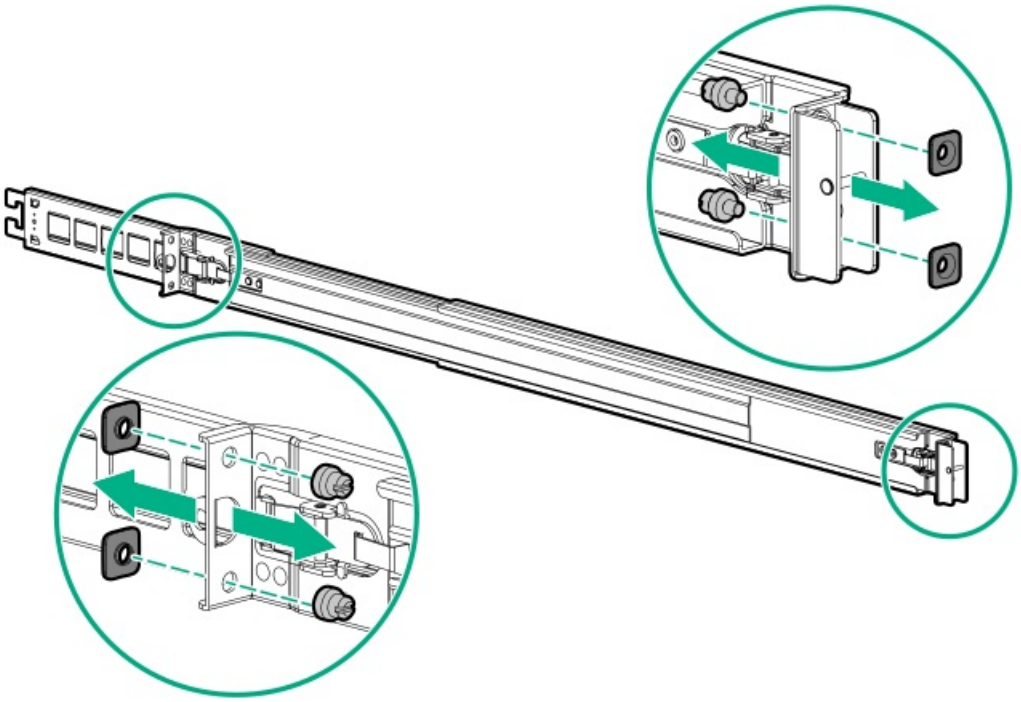


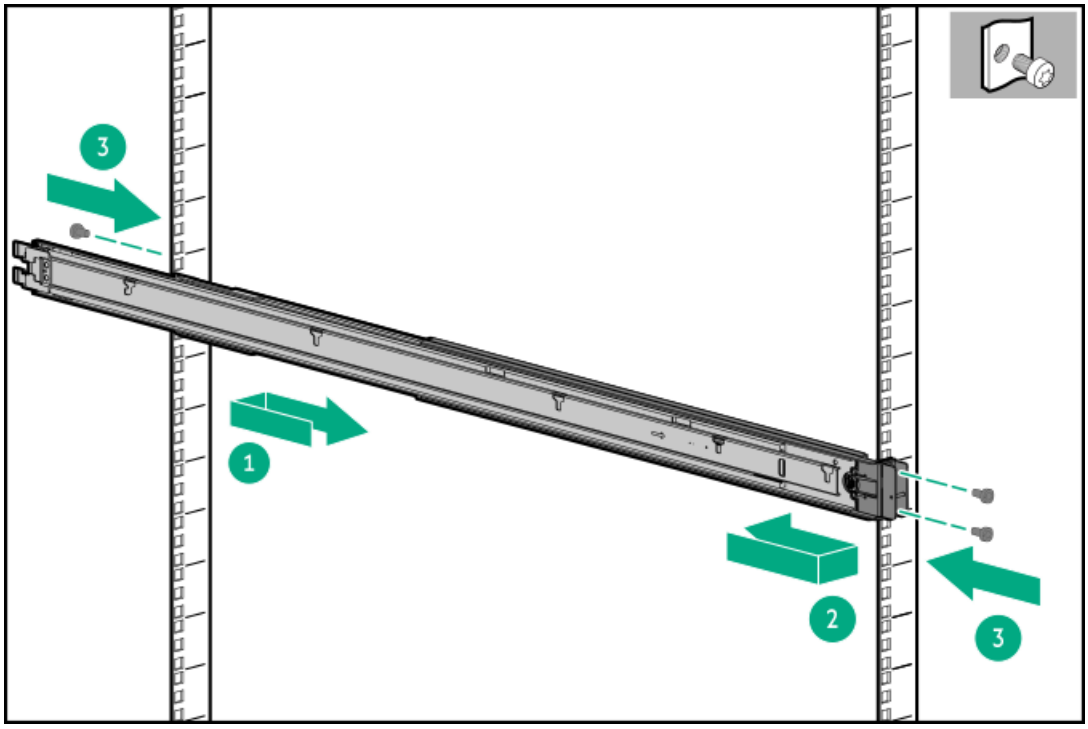


2. Install the rack rails.
   - For round and square-hole racks

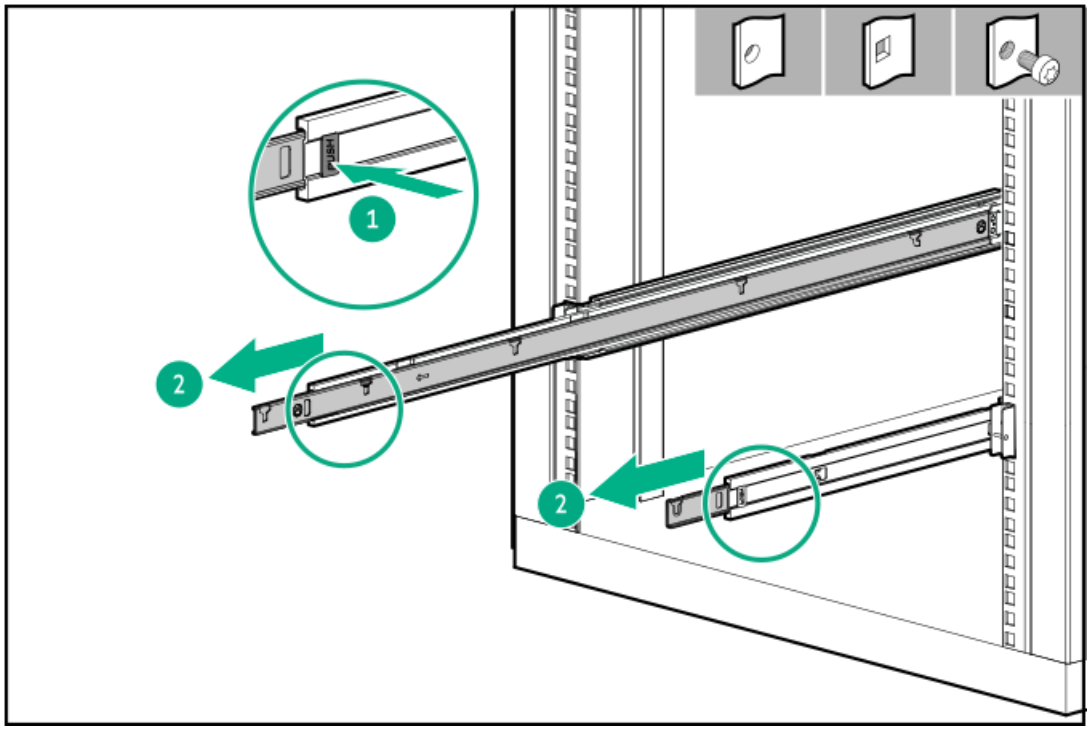


   - For threaded-hole racks

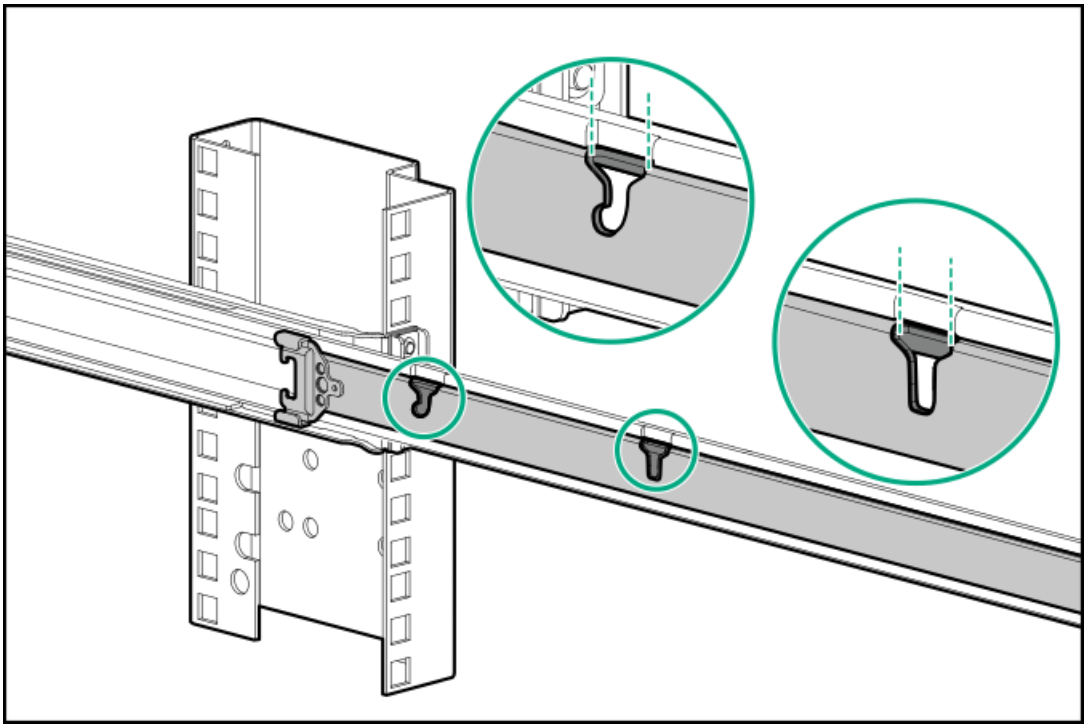




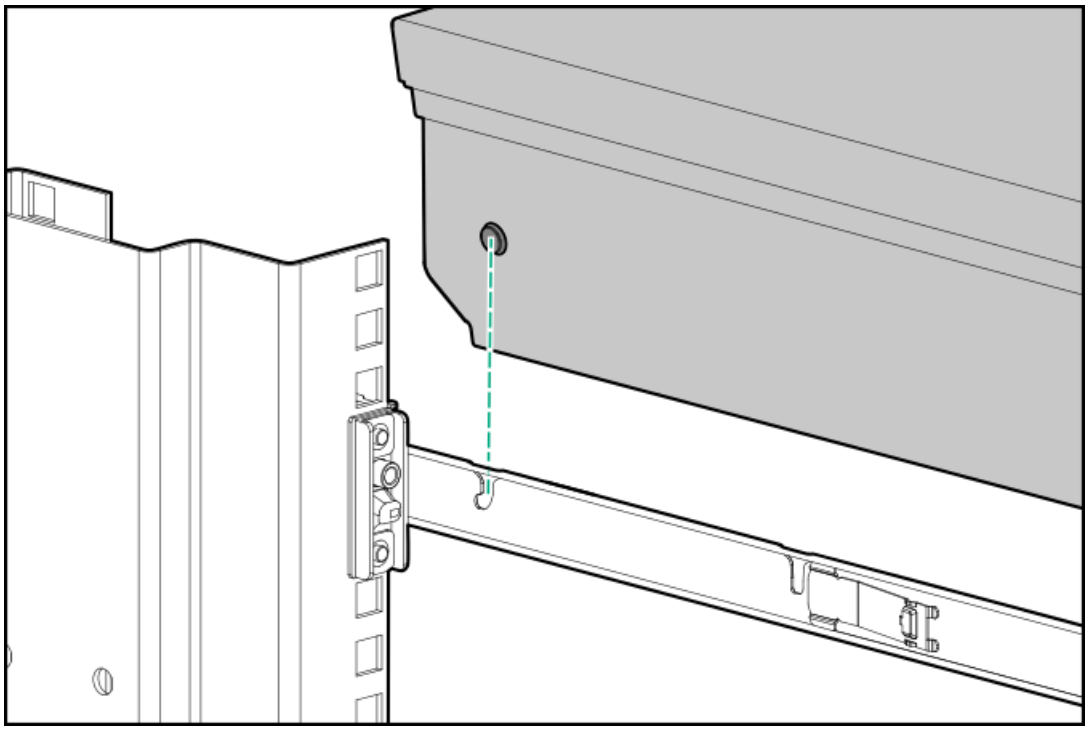
3. Fully extend the rails to the locked position.



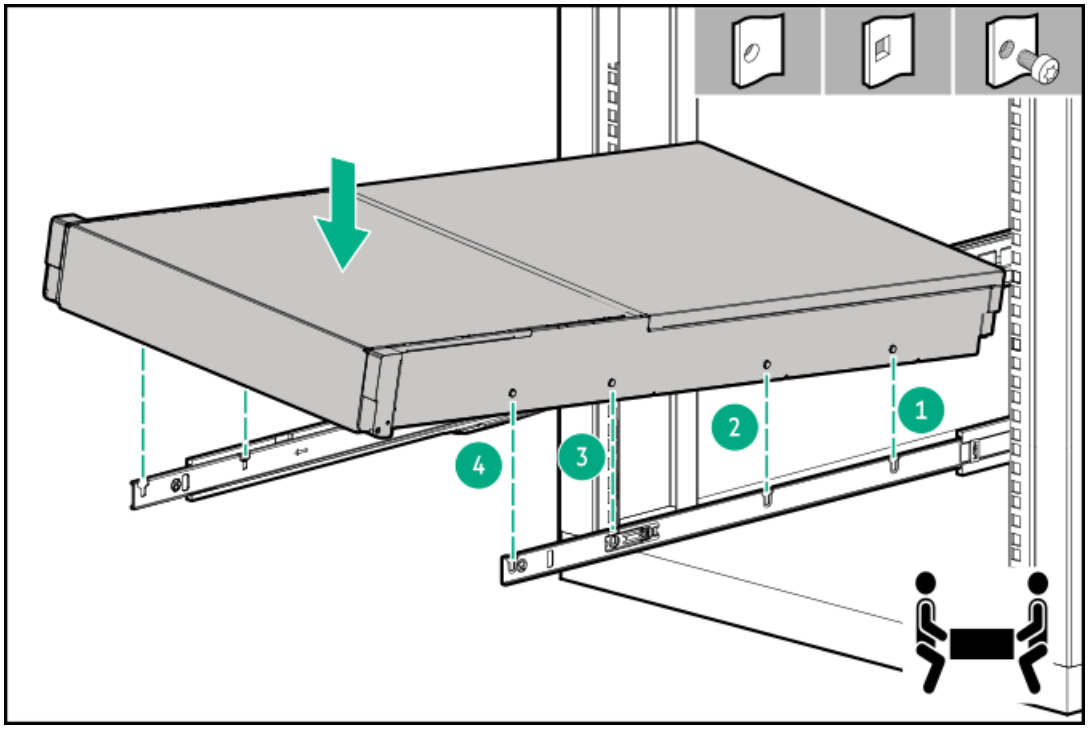
4. Verify that the rails are fully extended and the slots are aligned.



5. Install the server into the rails.
   a. Install the rear of the server into the J-slots.

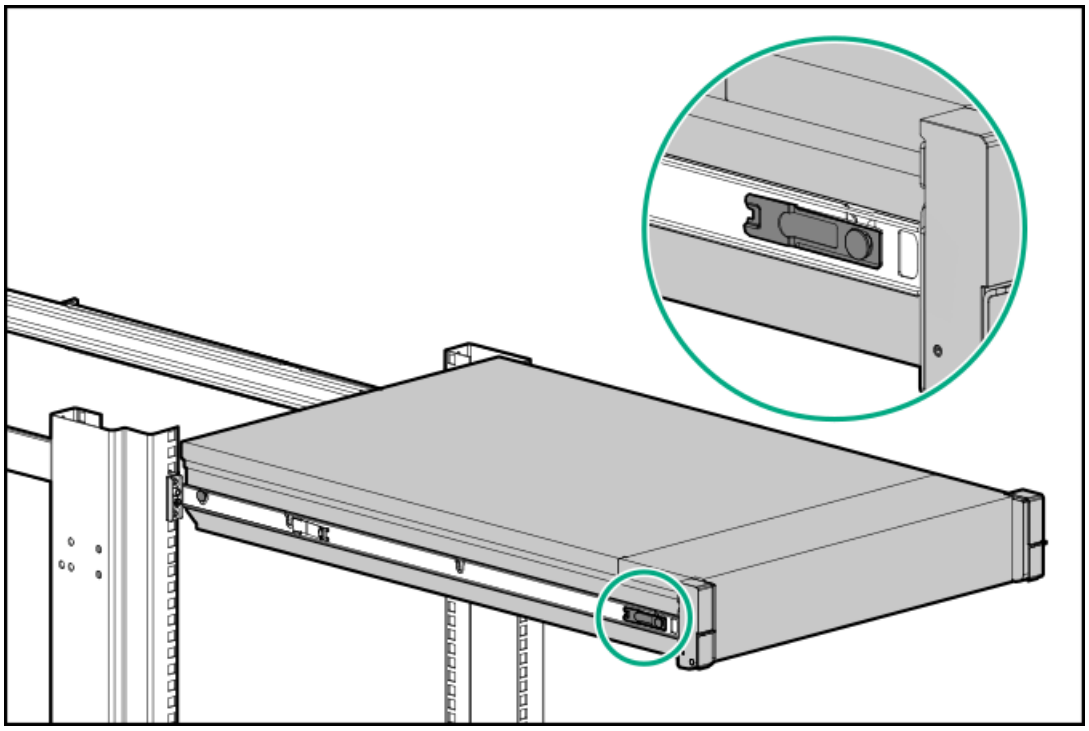


b. Install each spool to the rail.



c. Install the front of the server.

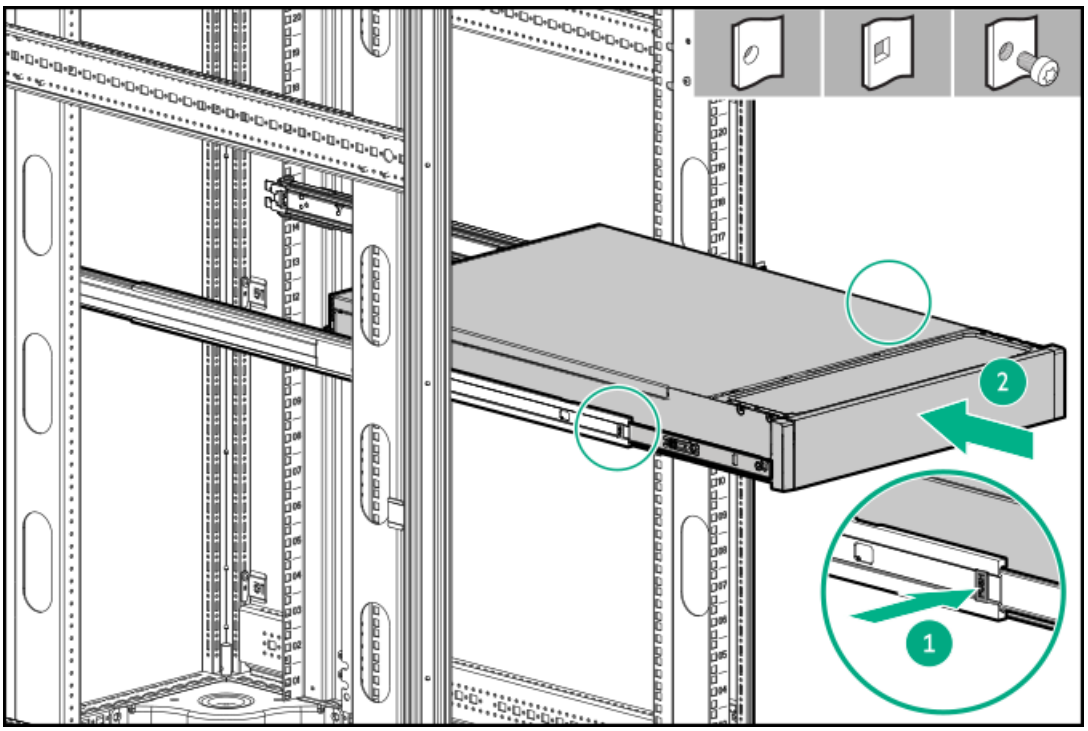
   Be sure the front spool engages the locking tab.



CAUTION

To prevent damage to the rack rails when installing the server into the rack, make sure that all spools on the server are firmly seated on the notches on the rails.

6. Install the server into the rack.



Results

The installation is complete.

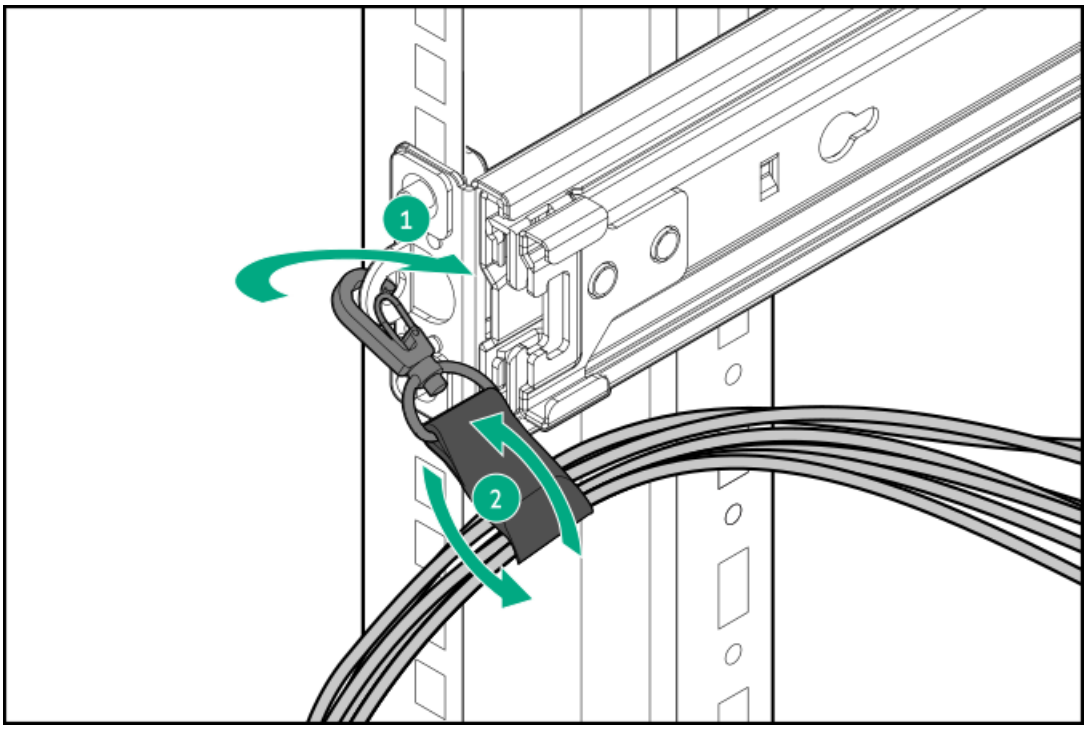
Installing the rack rail hook-and-loop strap

About this task

The hook-and-loop strap can be installed on either the left or right rail.

Procedure

1. Attach the strap carabiner to the rail.
2. Bundle the cords and cables, and then wrap the strap around the cables.



Results

The installation procedure is complete.

Installing the cable management arm

Prerequisites

- Before you perform this procedure, review the Rack warnings and cautions.
- T-25 Torx screwdriver—This tool is required if the shipping screws located inside the chassis ears need to be loosened or tightened.

About this task

The cable management arm (CMA) allows the server to be fully extended from the rack without the need to power off the system or disconnect any rear panel cables. This CMA is designed for ambidextrous implementation.

For the purpose of this procedure, left and right terminology is from the perspective of a user facing the front of the rack.

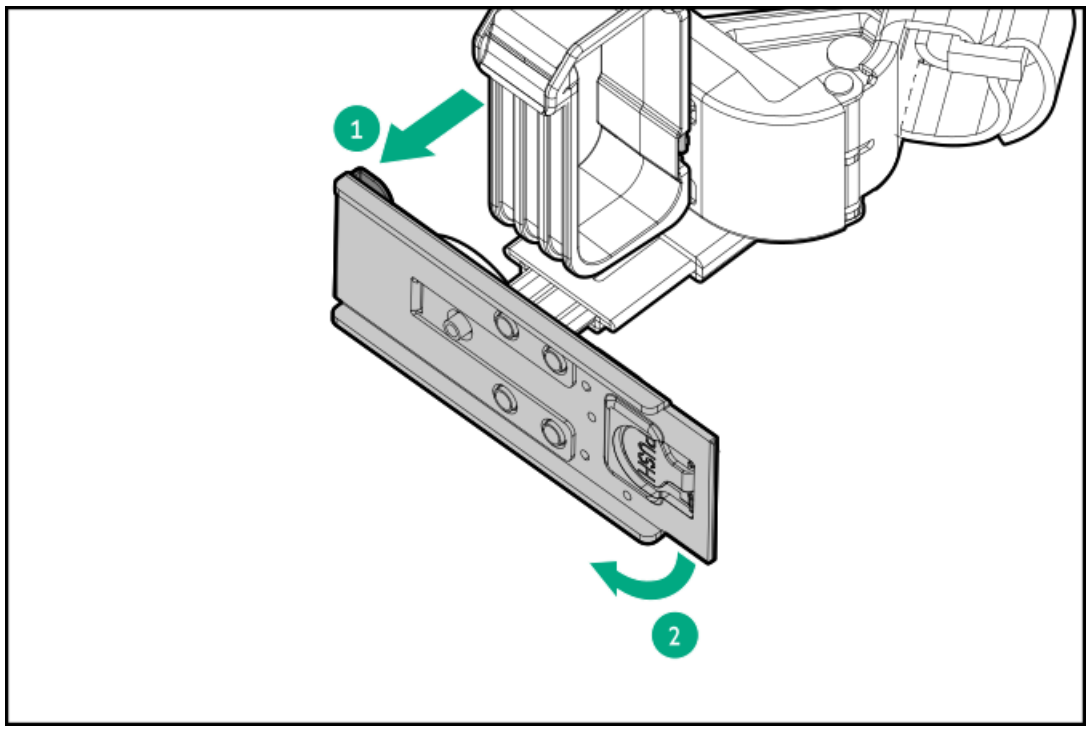
CAUTION

Support the CMA during the removal and replacement procedures. Do not allow the CMA to hang by its own weight during the procedure.

Procedure

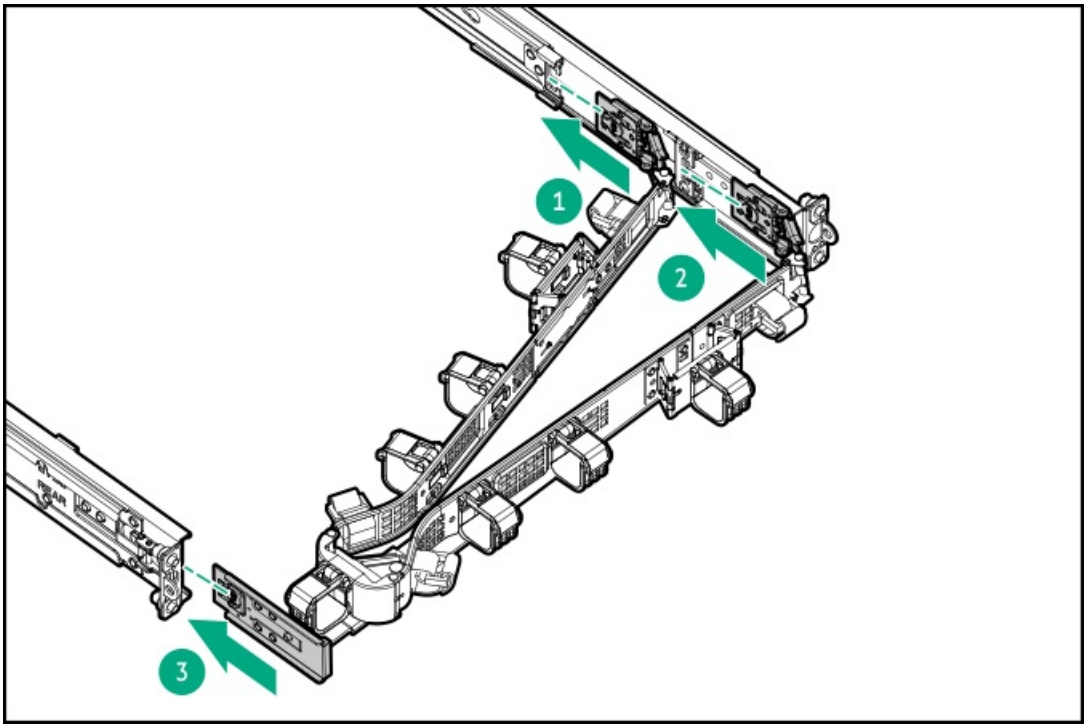
1. Connect and secure all peripheral cables and power cords to the rear panel.
2. (Optional) The CMA retention bracket can be rotated to fit a left- or right-hand CMA operation. Press and hold the rotate mechanism, and then rotate the bracket 180°.

   There will be an audible click to indicate that the bracket is locked in its adjusted position.

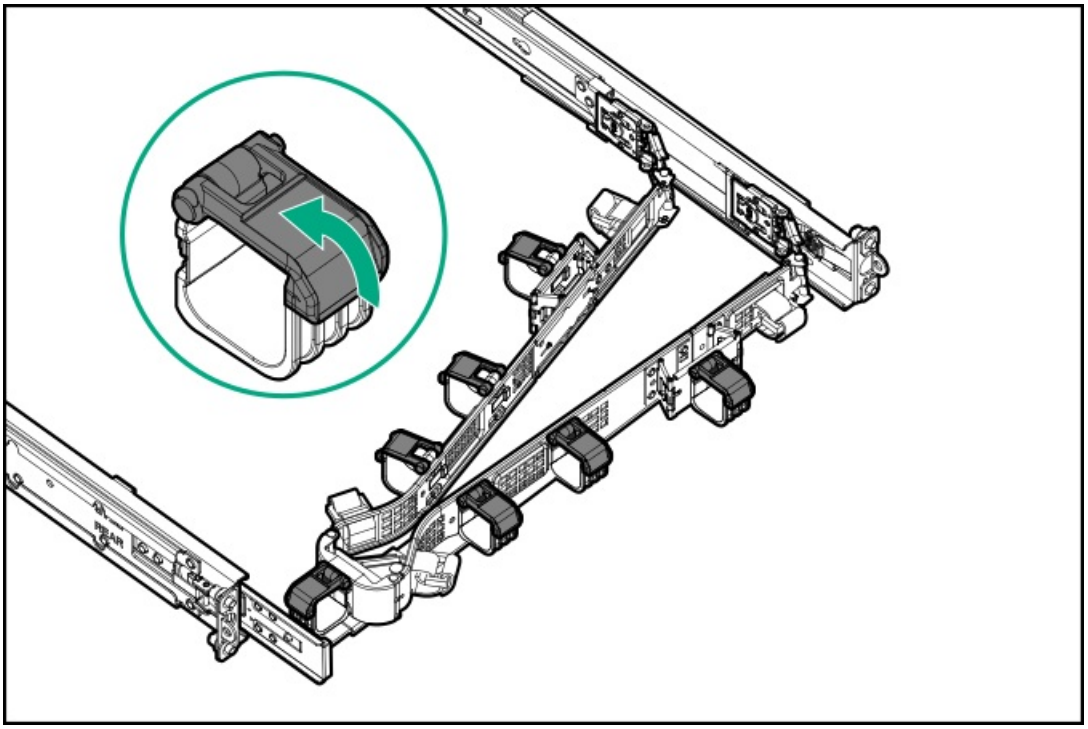


3. Connect the CMA hinged tabs and retention bracket to the rack rails:
   a. Insert the inner tab into the slide rail.
   b. Insert the outer tab into the mounting rail.
   c. Insert the retention bracket into the opposite mounting rail.

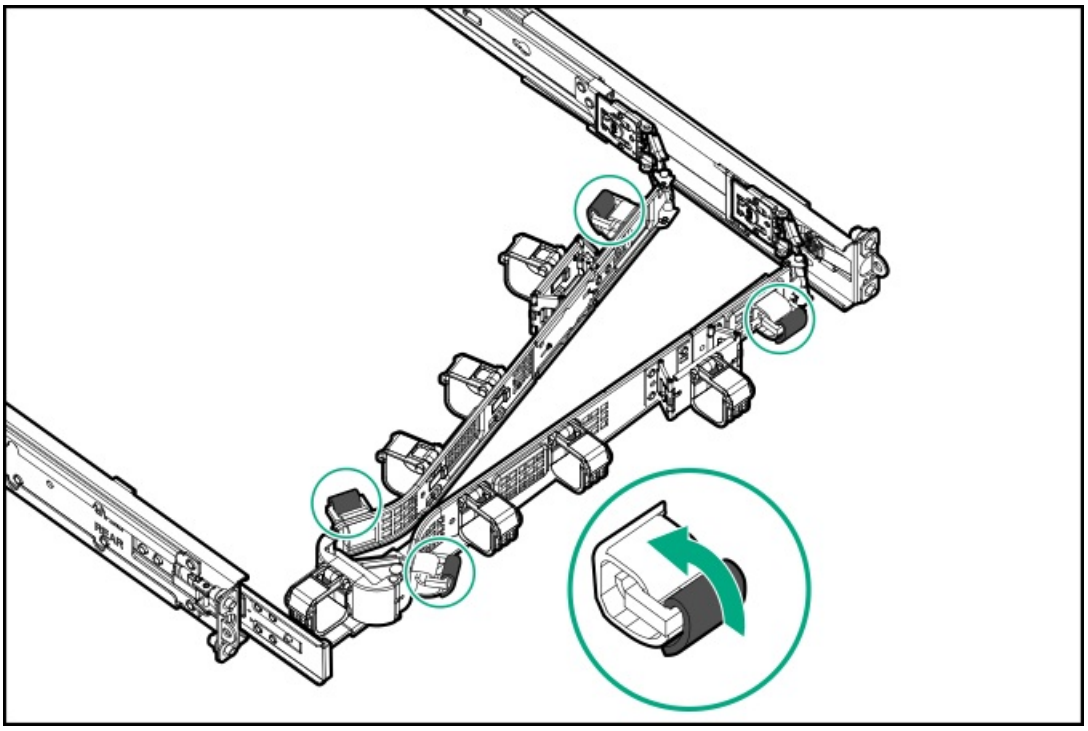
      There will be an audible click to indicate that the tabs and bracket are locked into place.



4. Open the cable clamps.



5. (Optional) If your CMA has cable straps for additional cable strain relief, unwrap the straps.

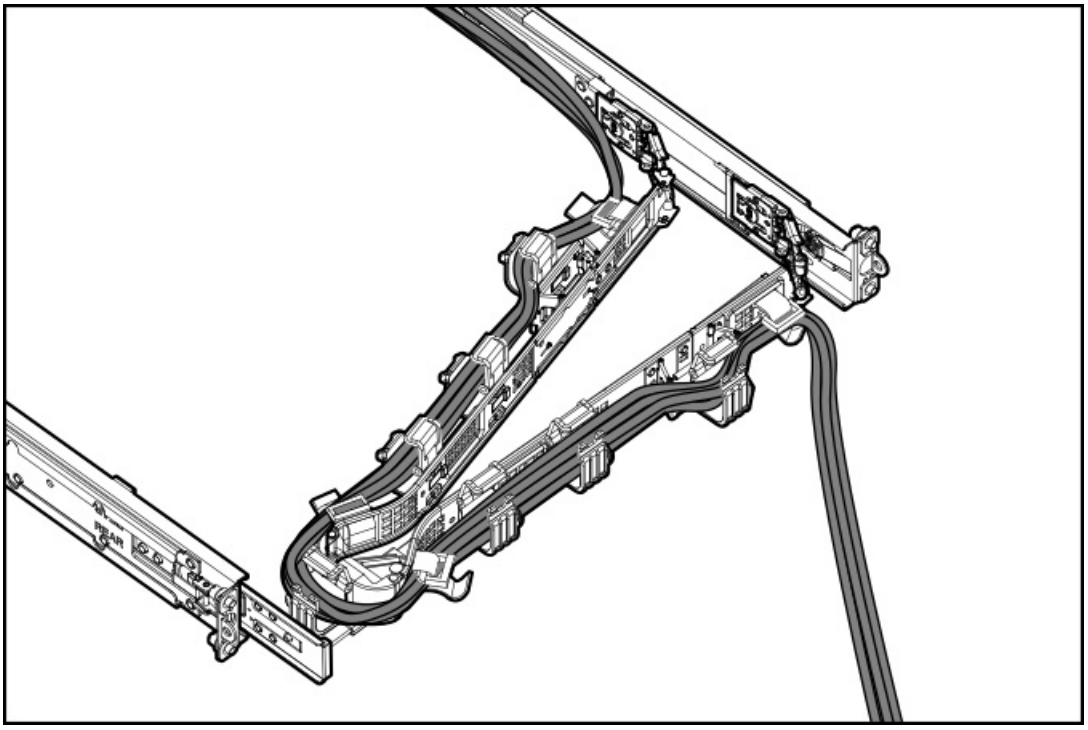


6. **CAUTION**

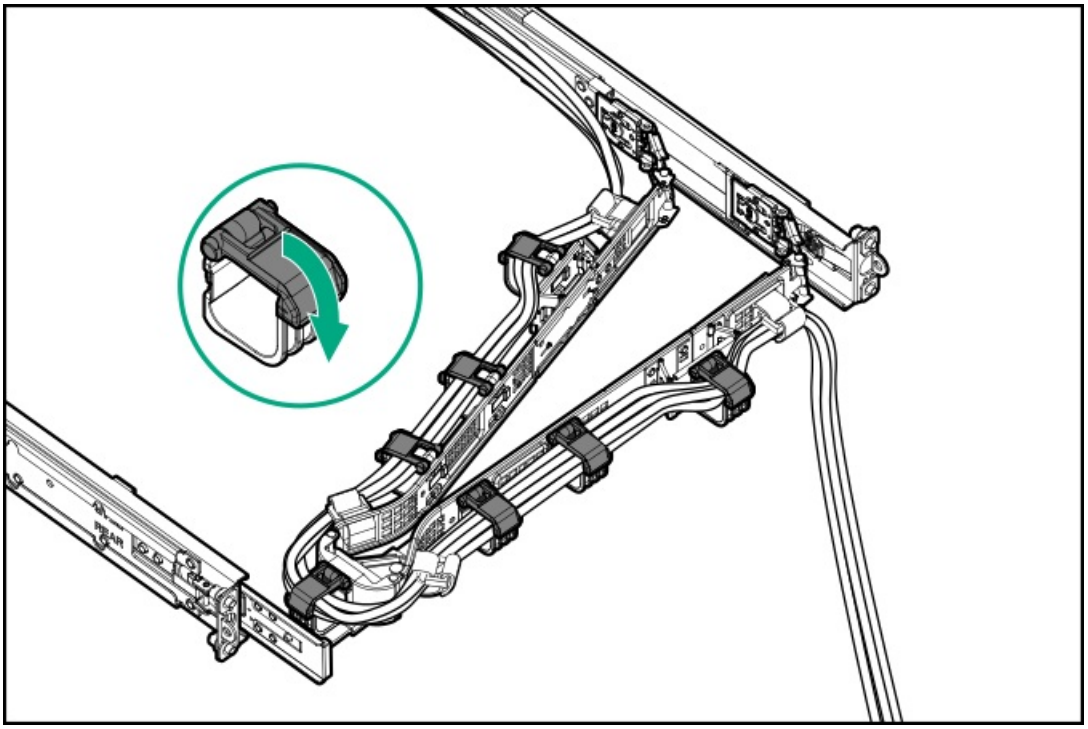
   Employ industry best practices in managing peripheral cables and power cords secured in the CMA. These are some of the more important points:

   - Leave enough cable slack between the rear panel and the CMA to allow the full extension of the CMA when the server is extended out of the rack.
   - However, there should be no excess cable slack inside the CMA; this might cause cable binding and could lead to cable damage.
   - Make sure that the cables and power cords do not extend above the top or below the bottom of the server to which they are attached. Otherwise, the cables might snag on other equipment installed in the rack when the server is extended from or returned to the rack.

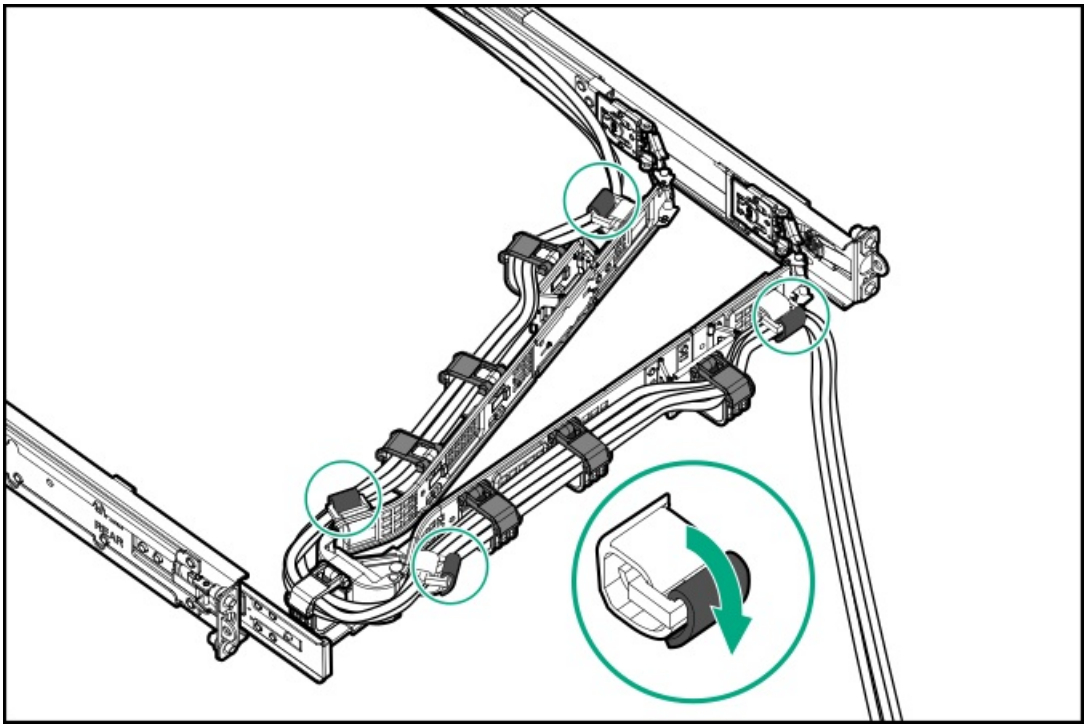
Route the peripheral cables and power cords through the cable clamps and/or straps.



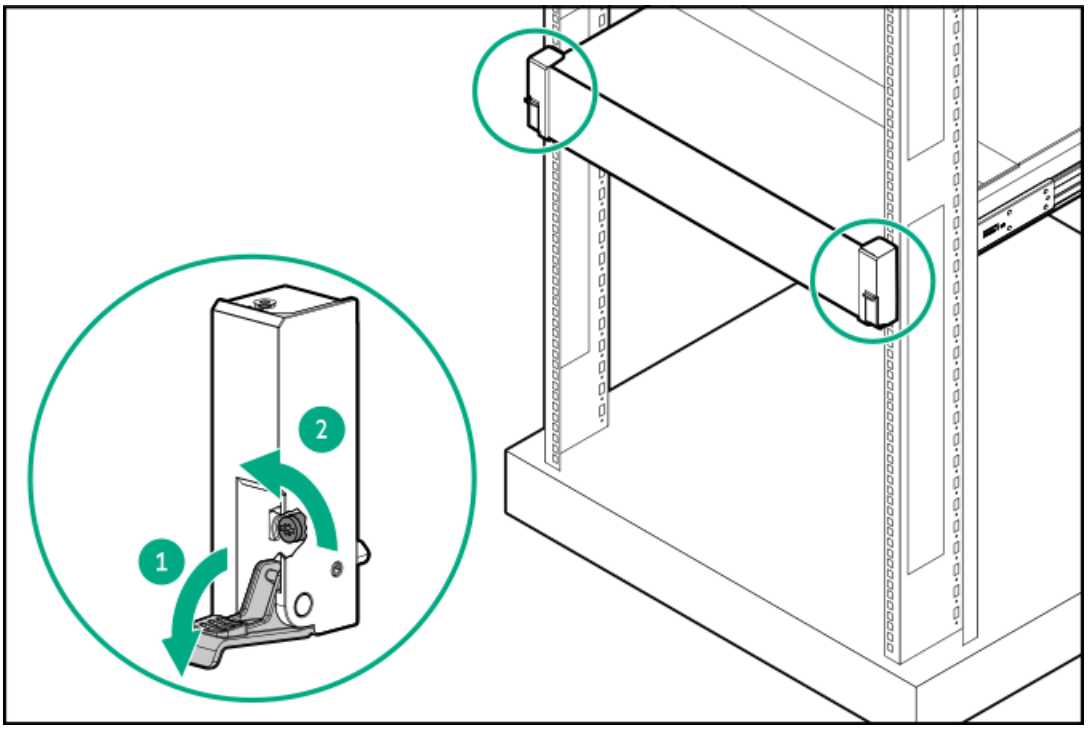
7. Close the cable clamps.



8. (Optional) If your CMA has cable straps, fasten the straps.



9. Verify the operation of the rack rails:
   a. Fully extend the chassis out of the rack.
   b. Check that there is enough slack in the cables and cords for full extension of the chassis. Make sure that there is no cable binding or crimping.
   c. To ensure that the cables and cords are secured properly, slide the chassis in and out of the rack. Make sure that there is no risk of accidental disconnection of the peripheral cables and power cords.
10. Slide the server into the rack until the chassis ears are flushed against the rack posts.
11. (Optional) Open the chassis ear latches, and then tighten the shipping screws.



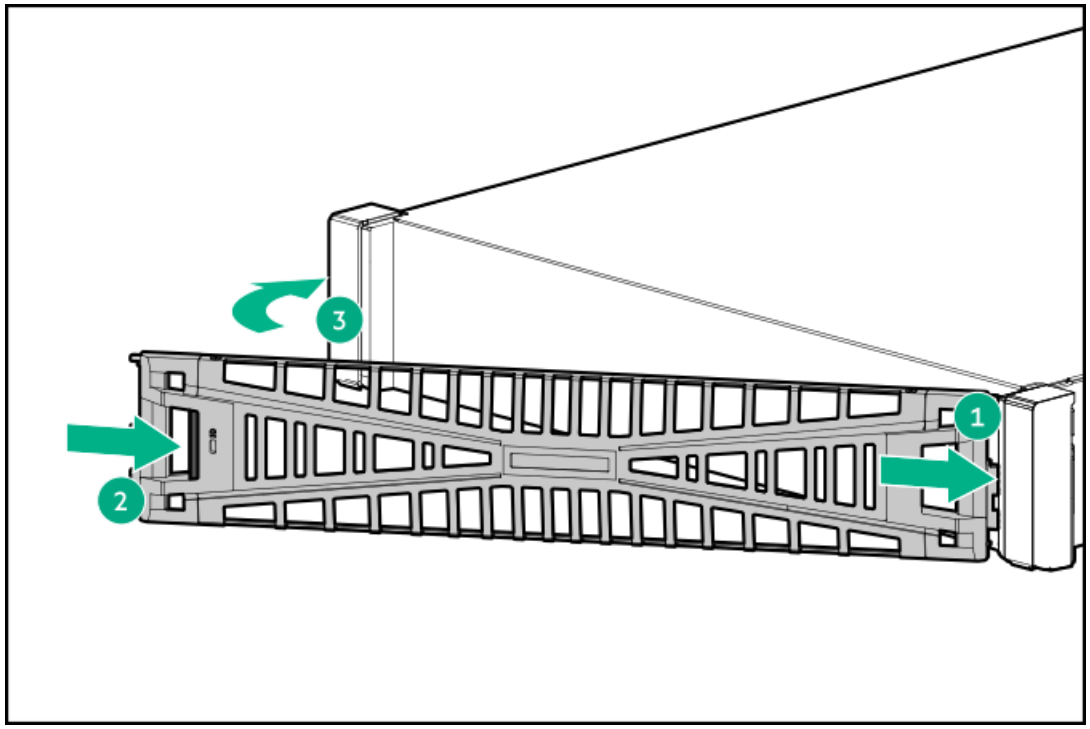
Results

The installation procedure is complete.

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.

Drive options

Depending on the drive backplane installed, the server supports the following drive types:

- Hot-plug SFF SAS, SATA, or U.3 NVMe drives
- Hot-plug E3.S E3.S NVMe SSDs

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

To support hardware RAID, install a storage controller option .

Subtopics

Drive installation guidelines

Observe the following general guidelines:

- The system automatically sets all drive numbers.

  CAUTION

  When a server is purchased without any drive installed, some drive bays might be empty while other drive bays might be populated with drive blanks. To maintain proper system cooling, do not operate the server without a drive or a drive blank installed.

- If only one drive is used, install it in the bay with the lowest drive number.
  For drive numbering, see Drive bay numbering.
- This server does not support mixed drive types.
- When installing NVMe drives, install the same drive type. Mixed NVMe drives are not supported.
- All drives grouped into the same drive array must meet the following criteria:
  - They must be either all hard drives or all solid-state drives.
  - Drives must be the same capacity to provide the greatest storage space efficiency.

Installing a SAS, SATA or NVMe 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.

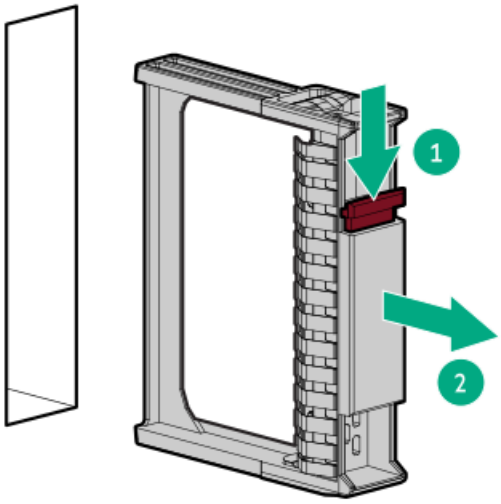
CAUTION

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

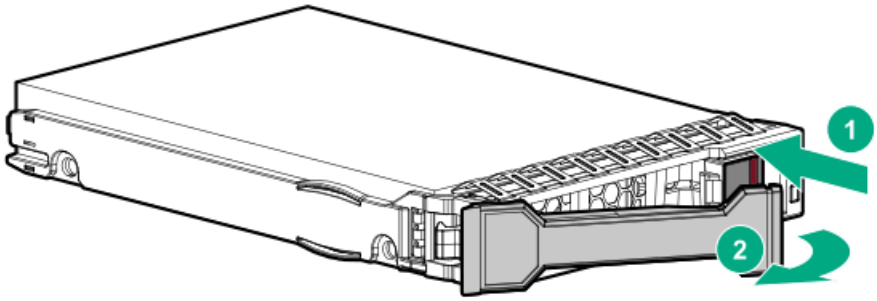
Procedure

1. If installed, remove the front bezel.
2. Remove the drive blank.

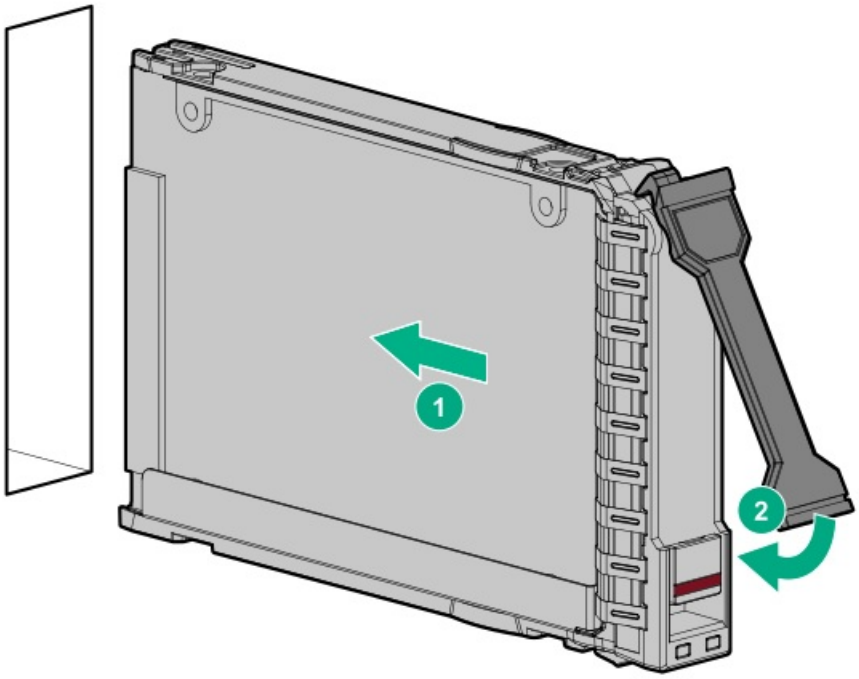
   Retain the blank for future use.



3. Prepare the drive.



4. Install the drive.



5. Determine the status of the drive from the drive LED definitions .
6. If removed, install the front bezel
7. To configure drive arrays, see the relevant storage controller guide.

Results

The installation procedure is complete.

Installing an E3.S 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.

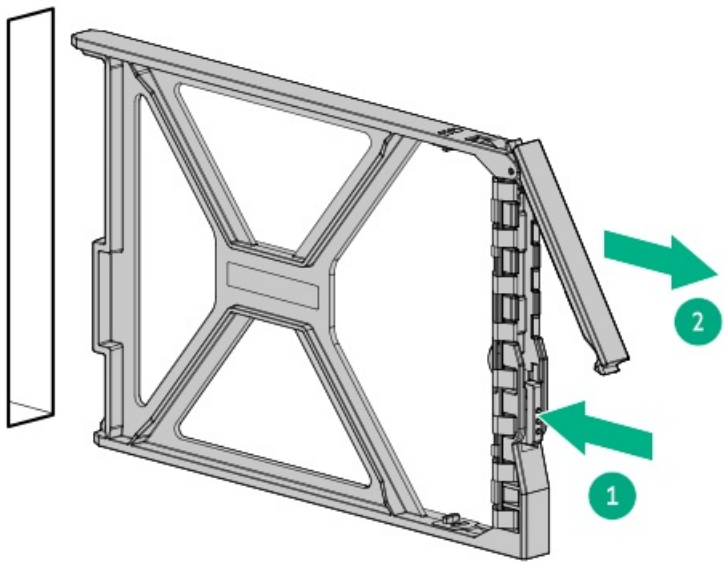
CAUTION

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

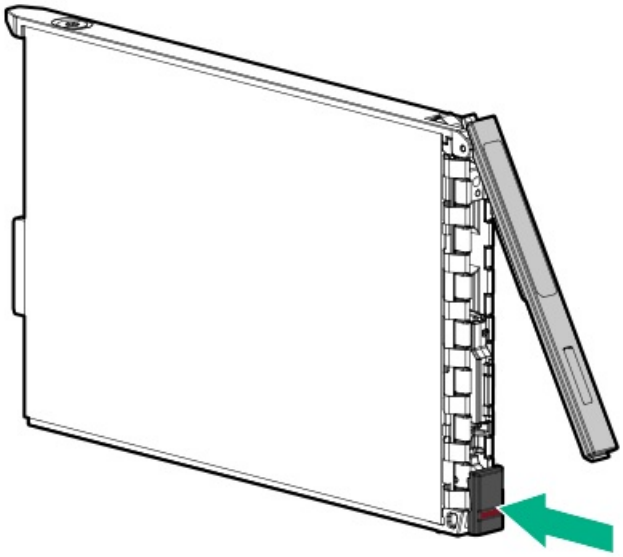
Procedure

1. If installed, remove the front bezel.
2. Observe the drive LED status and determine if the drive can be removed.
3. Remove the drive blank.

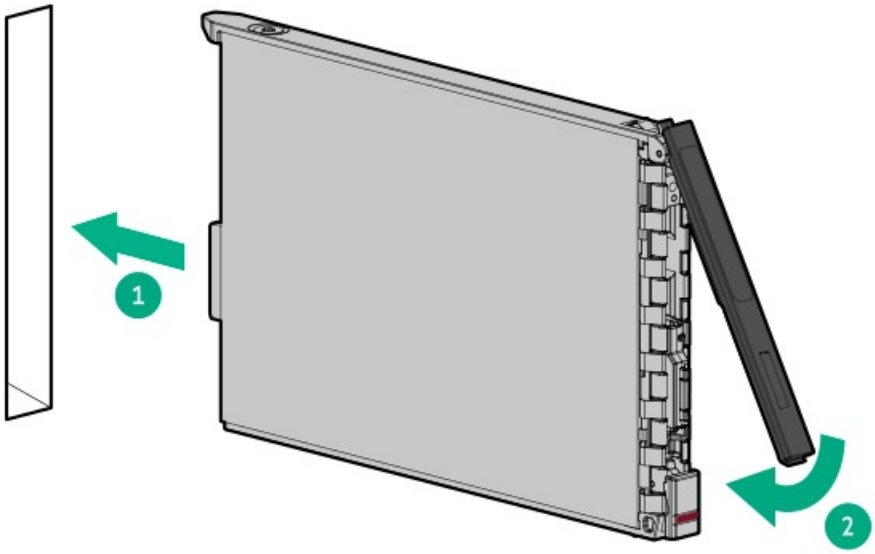
   Retain the blank for future use.



4. Prepare the drive.



5. Install the drive.



6. Determine the status of the drive from the drive LED definitions .
7. If removed, install the front bezel.
8. To configure drive arrays, see the relevant storage controller guide.

Results

The installation procedure is complete.

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

Hot-plug power supply calculations

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 (**https://www.hpe.com/info/poweradvisor/online**).

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

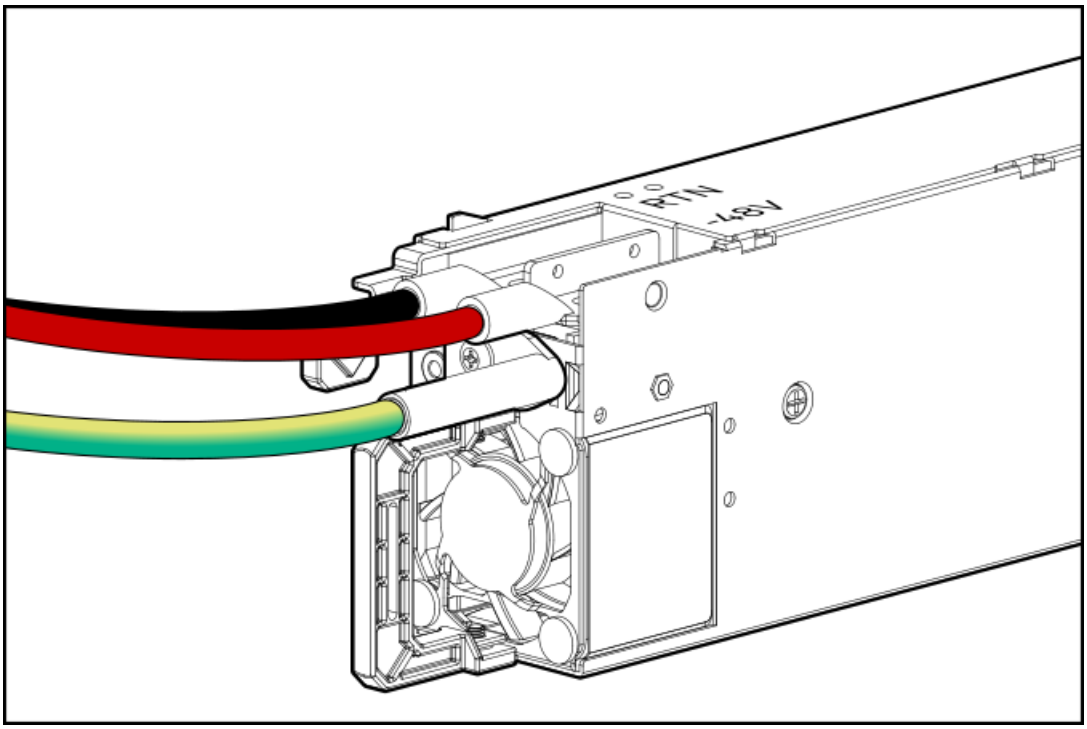
To reduce the risk of electric shock, be sure that the cable grounding kit is properly installed and connected to a suitable protective earth terminal before connecting the power source to the rack.

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.

DC power supply wire colors



Wire color	Description	Wire slot
Red	Line wire	-48V
Black	Return wire	Return
Green + Yellow	Ground wire	Safety ground

Installing an AC power supply

Prerequisites

Before installing a power supply option, review the Power supply warnings and cautions.

About this task

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.

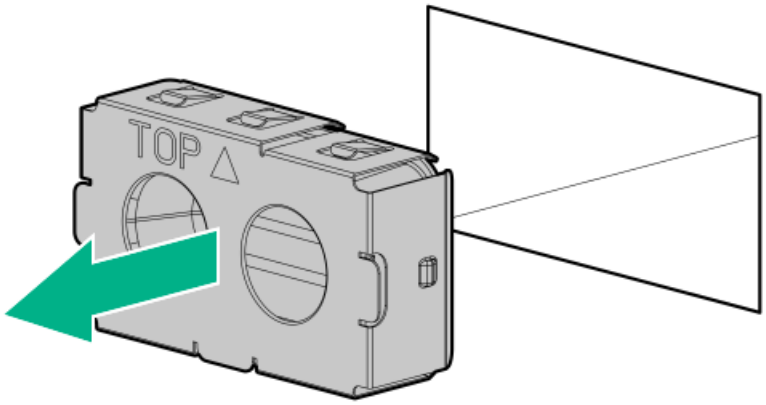
CAUTION

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

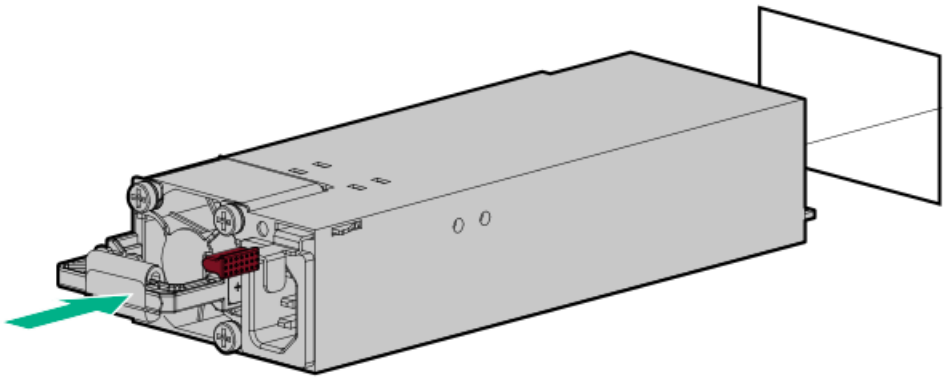
Procedure

1. Remove the power supply blank.

   Retain the blank for future use.



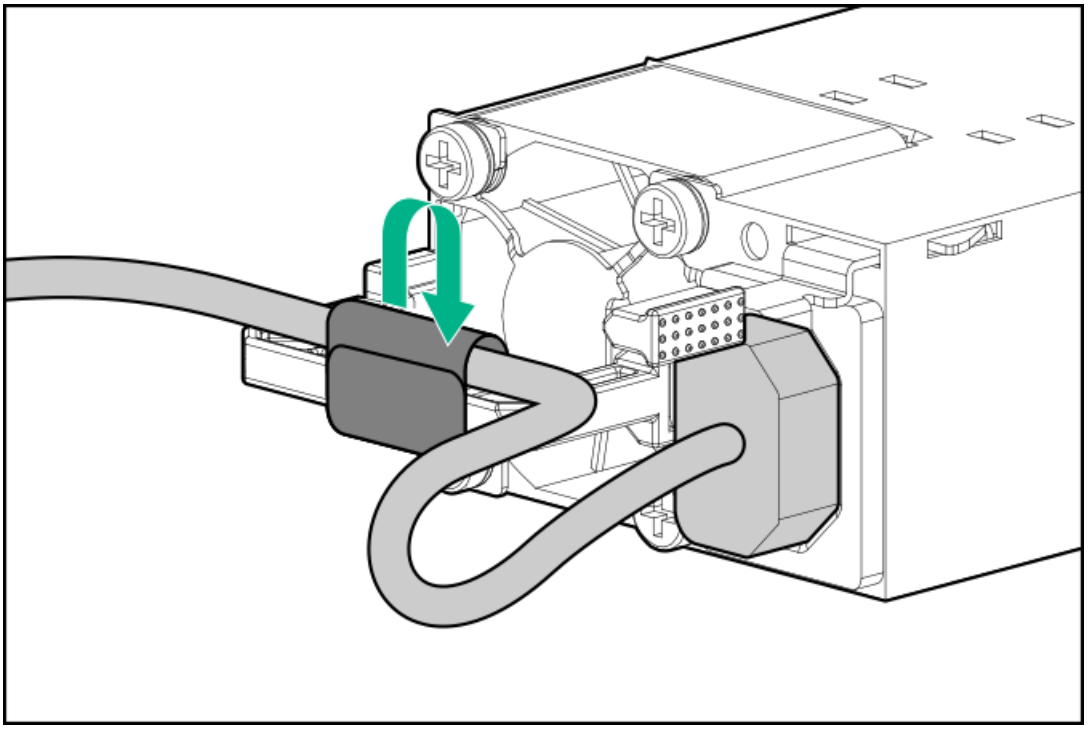
2. Install the power supply.



3. Connect the power cord to the power supply.
4. Secure the power cord.

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.



5. Connect the power cords:
   a. Connect each power cord to the server .
   b. Connect each power cord to the power source.
6. Make sure that the power supply LED is green.

Results

The installation procedure is complete.

Installing a DC power supply

Prerequisites

- Before installing a power supply, review the following:
  - Power supply warnings and cautions
  - DC power supply warnings and cautions
  - DC power supply wire colors
- Before you perform this procedure, make sure that you have a Phillips No. 2 screwdriver available.
- Before connecting the power cables, review the following:
  - The optional P36877-B21 HPE lug kit can be purchased from an authorized HPE reseller for use with customer-supplied power cables. (The power cable and lug kit listed below can only be used with the 1600 W -48 VDC power supply.)

- If you are using an input power cord option, the P22173-B21 HPE 1600 W DC PSU power cable kit can be purchased from an authorized HPE reseller.
- The DC power supply option kits do not ship with a Power Supply DC cable Kit and may not include a Power Supply Cable Lug kit. The optional DC Cable kit or the optional DC Cable Lug Kit may be purchased directly from Hewlett Packard Enterprise or an authorized HPE reseller. For additional information, see the power supply QuickSpecs at **https://www.hpe.com/info/fsps-qs**.

About this task

If you are not using an input power cord option, the power supply cabling must be made in consultation with a licensed electrician and be compliant with local code.

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

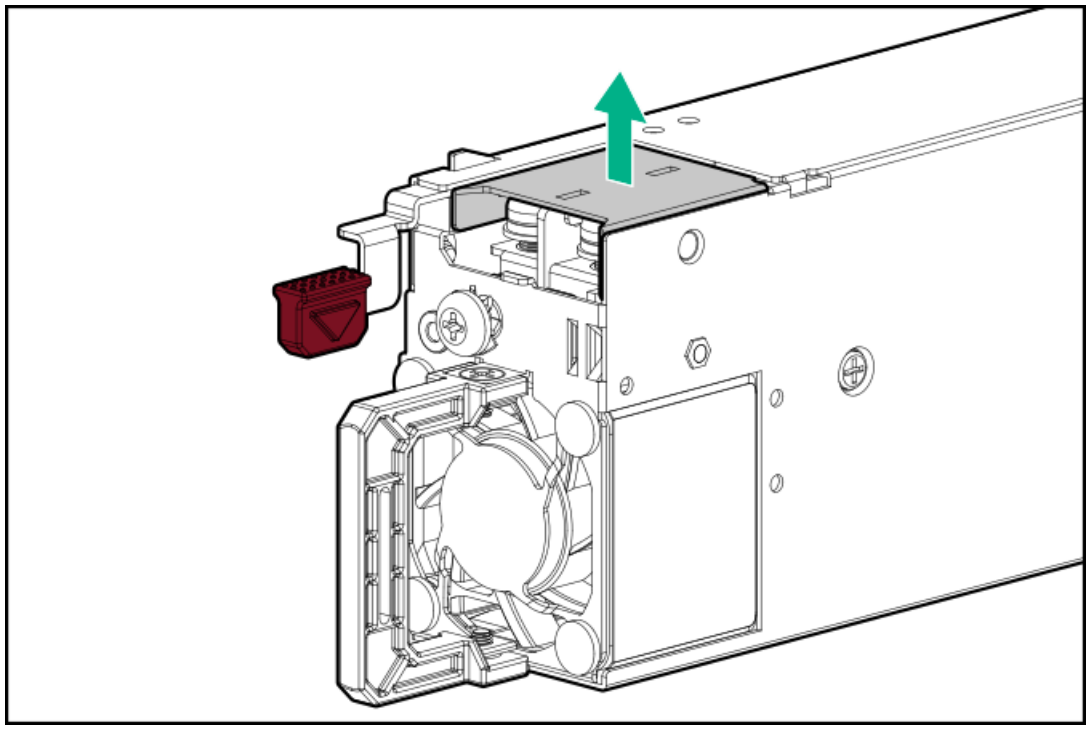
To reduce the risk of personal injury from hot surfaces, allow the power supply, power supply blank, or dual slot power supply adapter to cool before touching it.

CAUTION

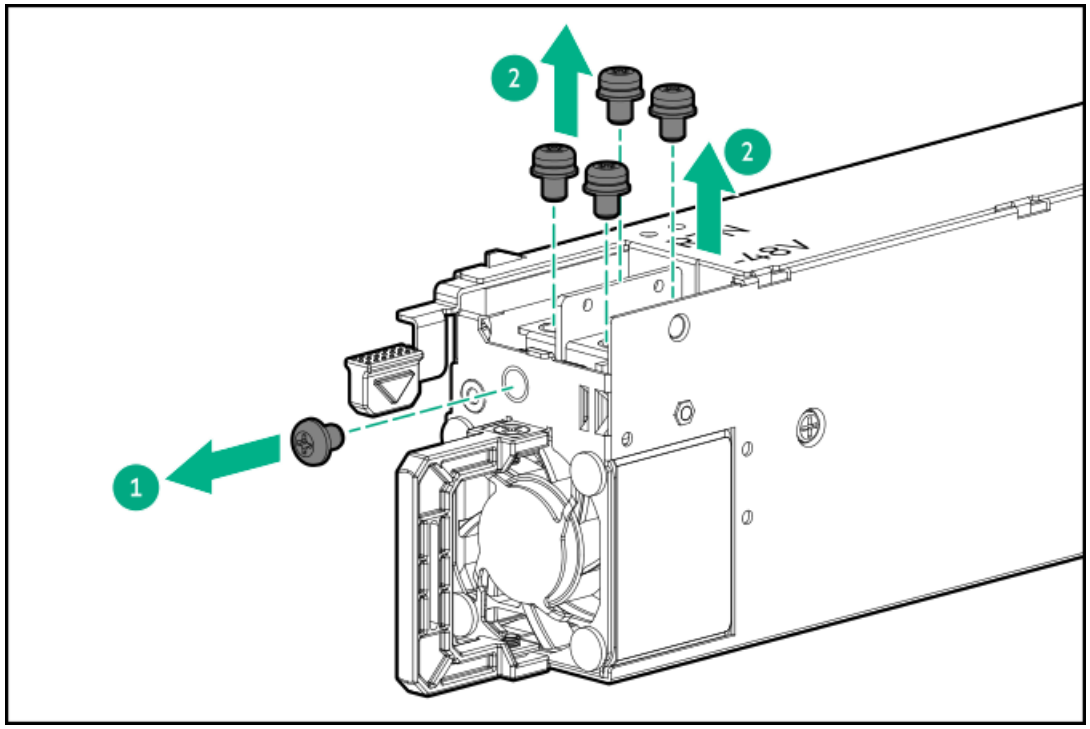
To prevent improper cooling and thermal damage, do not operate the server unless all bays are populated with either a component or a blank.

Procedure

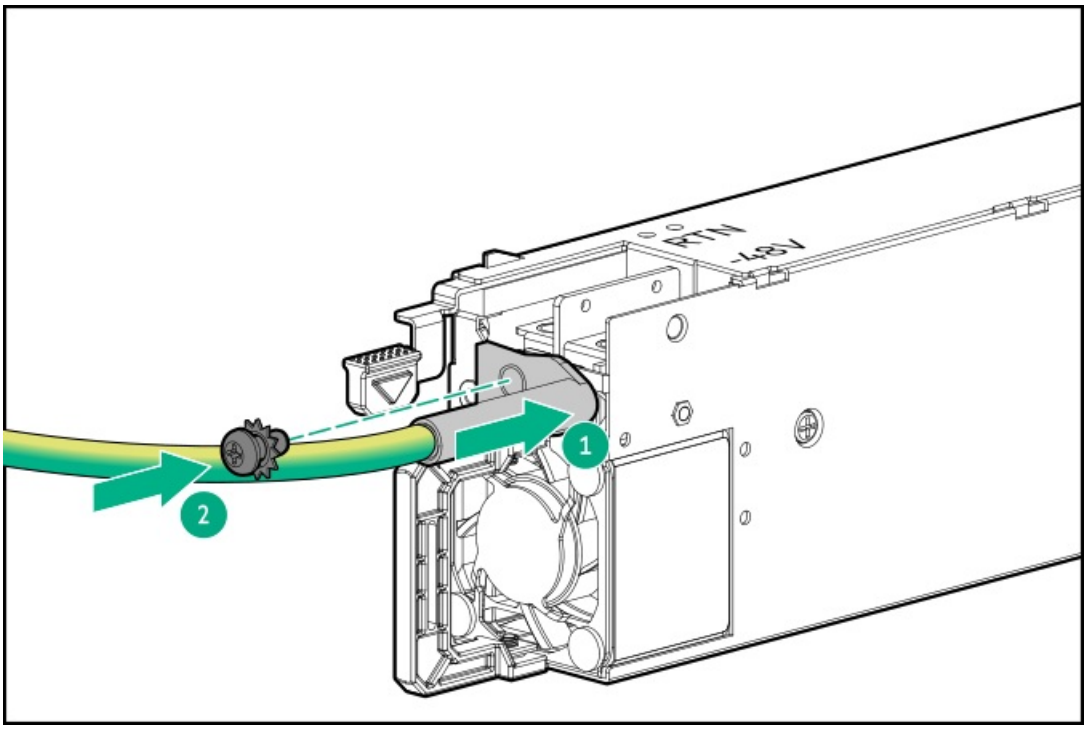
1. Remove the protective cover from the power supply.



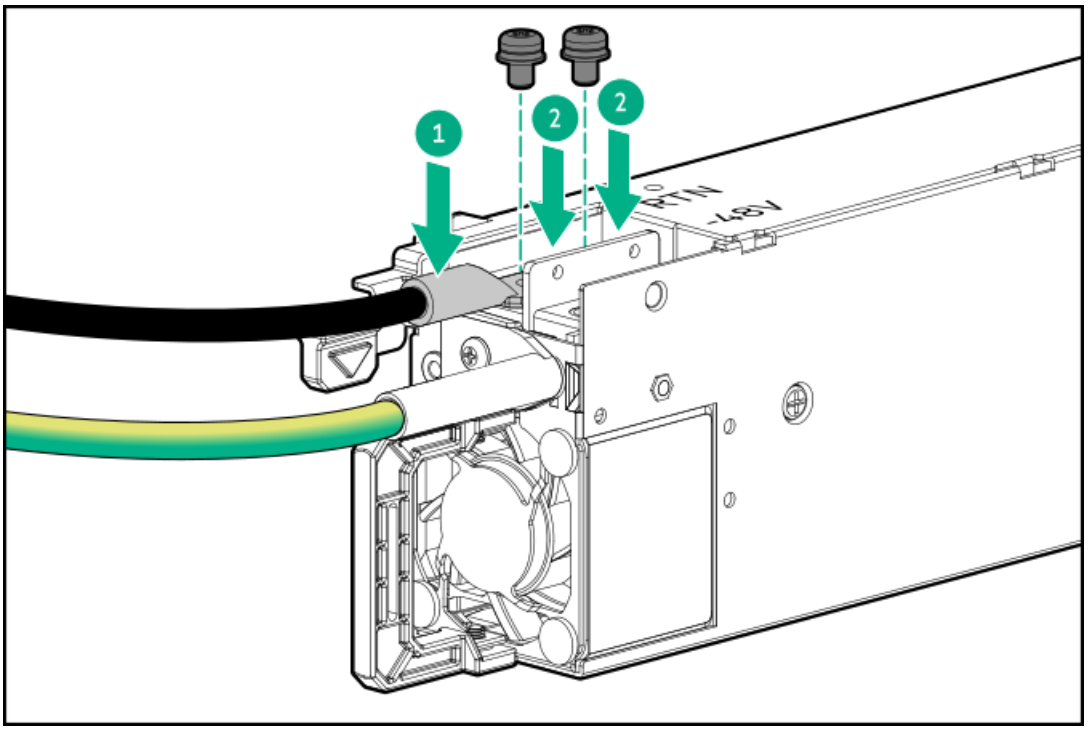
2. Remove the ground wire screw, and then remove the return wire and line wire screws.



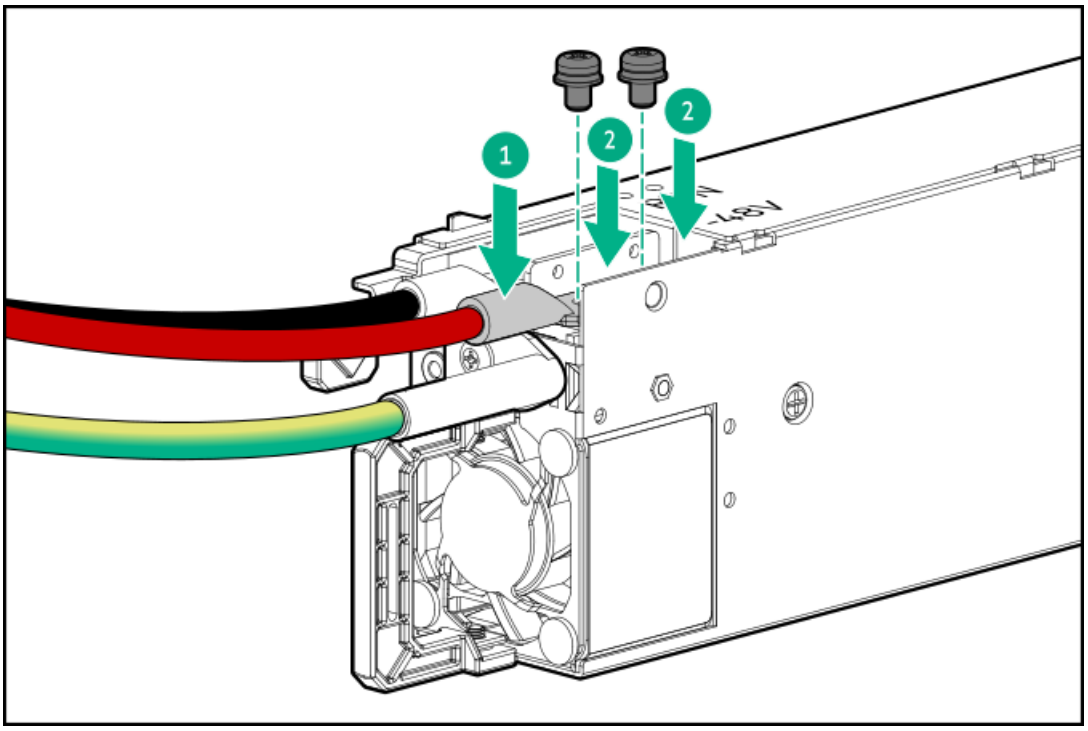
3. Attach the ground wire (green and yellow) to the DC power supply and tighten the screw and washer with 1.47 N-m (13 lbf-in) torque .



4. 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) torque.

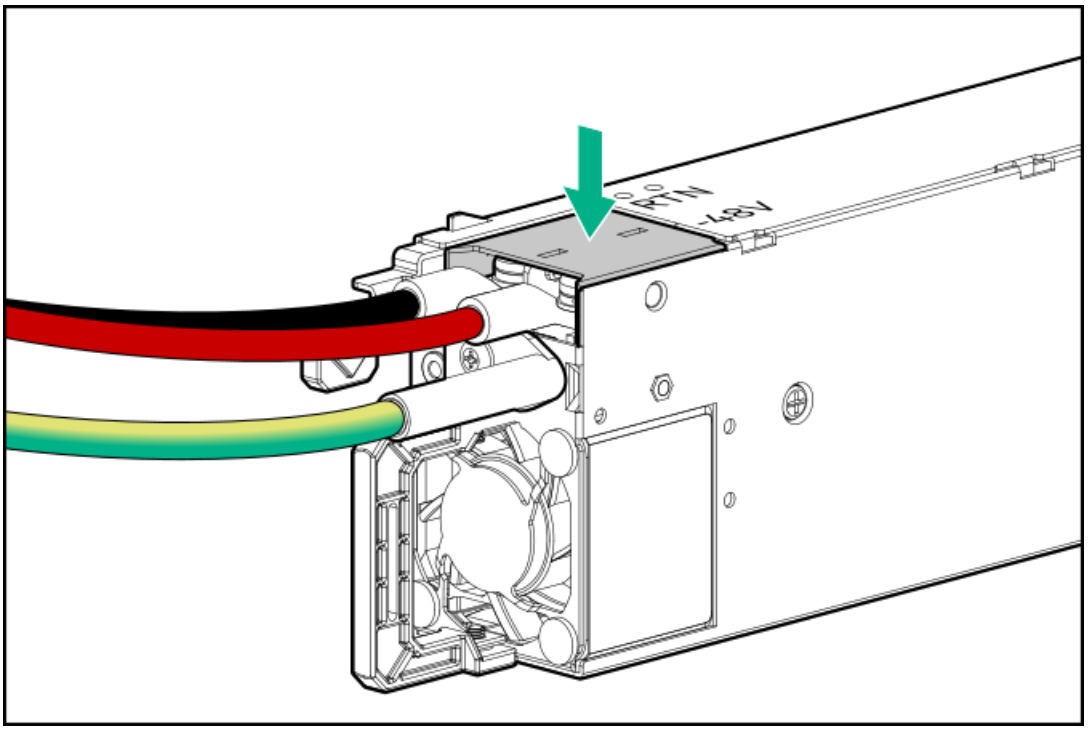


5. Install the line wire (red):
   a. Insert the line wire into the -48V slot on the DC power supply.
   b. Tighten the screw to 0.98 N-m (8.68 lbf-in) torque.



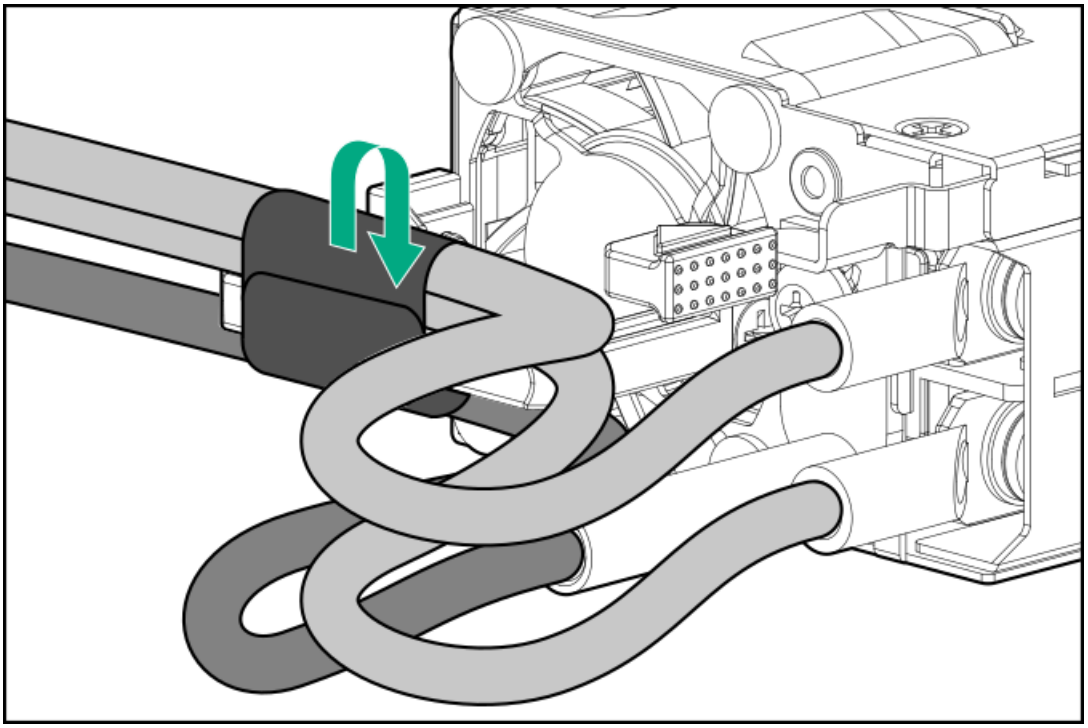
6. Install the protective cover on the DC power supply.

   Make sure that the protective cover is locked.



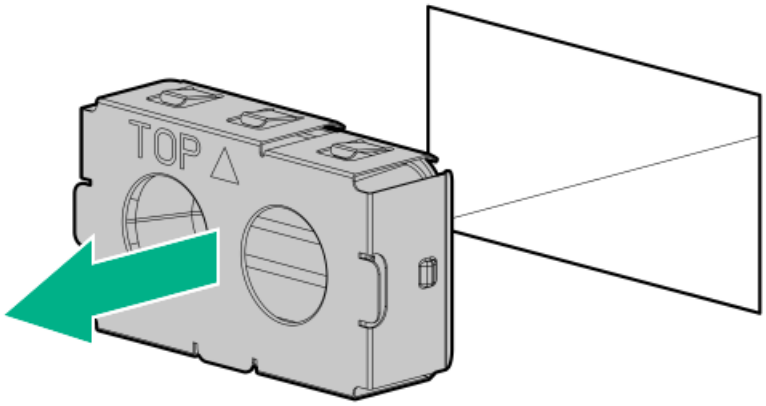
7. Secure the ground, positive return, and negative input wires in the strain relief strap.

> **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.

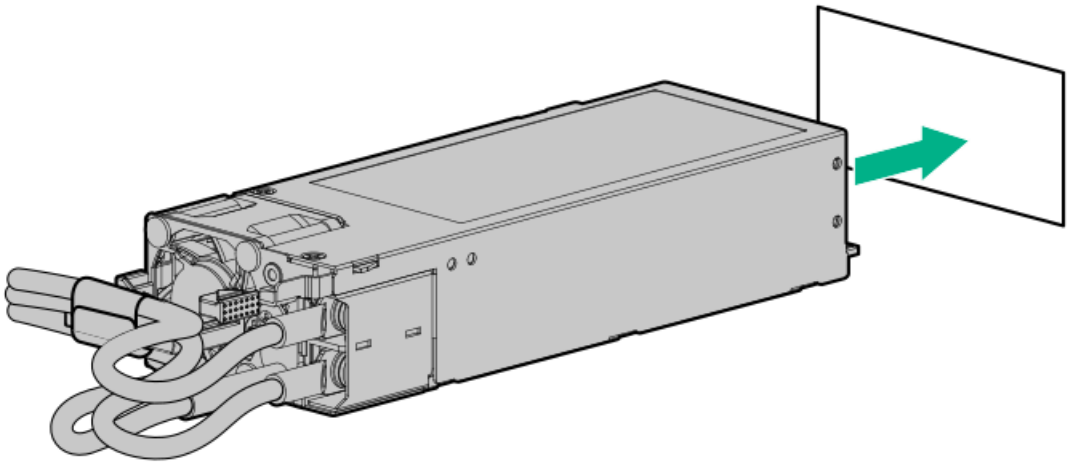


8. If you are installing a power supply in the power supply bay 2, remove the power supply blank.

   Retain the blank for future use.



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



10. 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.
11. Turn on the -48 V power source or switch the PDU breaker to the on position to supply -48 V to the power supply.
12. Connect a DC power cable to a DC power source .
13. Make sure that the power supply LED is green.

Results

The installation procedure is complete.

Connecting a DC power cable to a DC power source

Prerequisites

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

- Electrical wire cutter
- Hand crimp tool

About this task

WARNING

To reduce the risk of electric shock or energy hazards:

- This equipment must be installed by trained service personnel and in accordance with local and regional electric codes and regulations
- 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 150.00 cm (59.06 in).

   IMPORTANT

   The ring terminals must be UL approved and accommodate 6 AWG wires.

   IMPORTANT

   The minimum nominal thread diameter of a pillar or stud type terminal must be 3.50 mm (0.138 in). The diameter of a screw type terminal must be 5.00 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 and ground wire.
3. Stack each same-colored pair of wires and then attach them to the same power source.

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

Transceiver option

Transceivers serve as the connection between the adapter and the network cable for maintaining high-speed performance.

Subtopics

Transceiver warnings and cautions

WARNING

Fiber-optic transceivers and fiber-optic cables connected to transceivers emit laser light that can damage your eyes. To avoid eye injuries, avoid direct eye exposure to the beam from the fiber-optic transceiver or into the ends of fiber-optic cables when they are powered-up.

CAUTION

The presence of dust in transceiver ports can cause poor cable connectivity. To prevent dust from entering, install a dust plug in an unused transceiver port.

CAUTION

Supported transceivers can be hot-swapped—removed and installed while the server is powered-on. However, to prevent potential damage to the transceiver or the fiber-optic cable, disconnect the cable from the transceiver before hot-swapping it.

CAUTION

Do not remove and install transceivers more often than is necessary. Doing so can shorten the useful life of the transceiver.

IMPORTANT

When you replace a transceiver with another of a different type, the server might retain selected port-specific configuration settings that were configured for the replaced transceiver. Be sure to validate or reconfigure port settings as required.

Installing a transceiver

Prerequisites

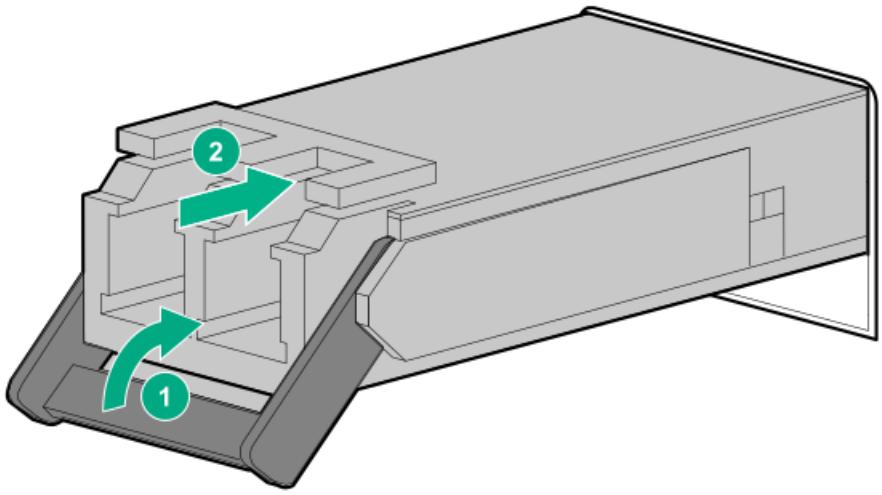
Before installing a transceiver option, review the following:

- Transceiver warnings and cautions
- Transceiver documentation for specific operational and cabling requirements

Procedure

1. Hold the transceiver by its sides and gently insert it into the network adapter port until it clicks into place.

   Transceivers are keyed so that they can only be inserted in the correct orientation. If the transceiver does not fit easily into the port, you might have positioned it incorrectly. Reverse the orientation of the transceiver and insert it again.



2. Remove the dust plug or protective cover from the transceiver.

3. Connect a compatible LAN segment cable to the transceiver.
4. Make sure that the NIC link LED on the port is solid green.

   For more information on the port LED behavior, see the documentation that ships with the transceiver.
5. If needed, see the transceiver documentation for the model-specific fastening mechanism applicable to the transceiver.

Results

The installation procedure is complete.

Drive cage options

Subtopics

Installing the 8 SFF drive cage

Prerequisites

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

- T-10 Torx screwdriver
- T-15 Torx screwdriver

About this task

This server supports several front 8 SFF drive cage options with different backplanes.

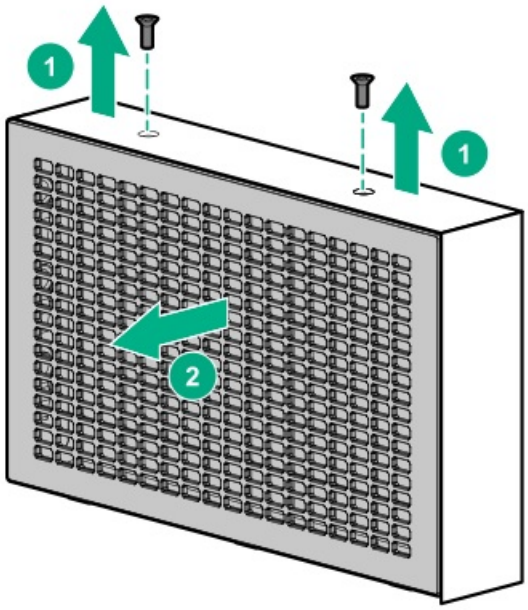
CAUTION
A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

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.

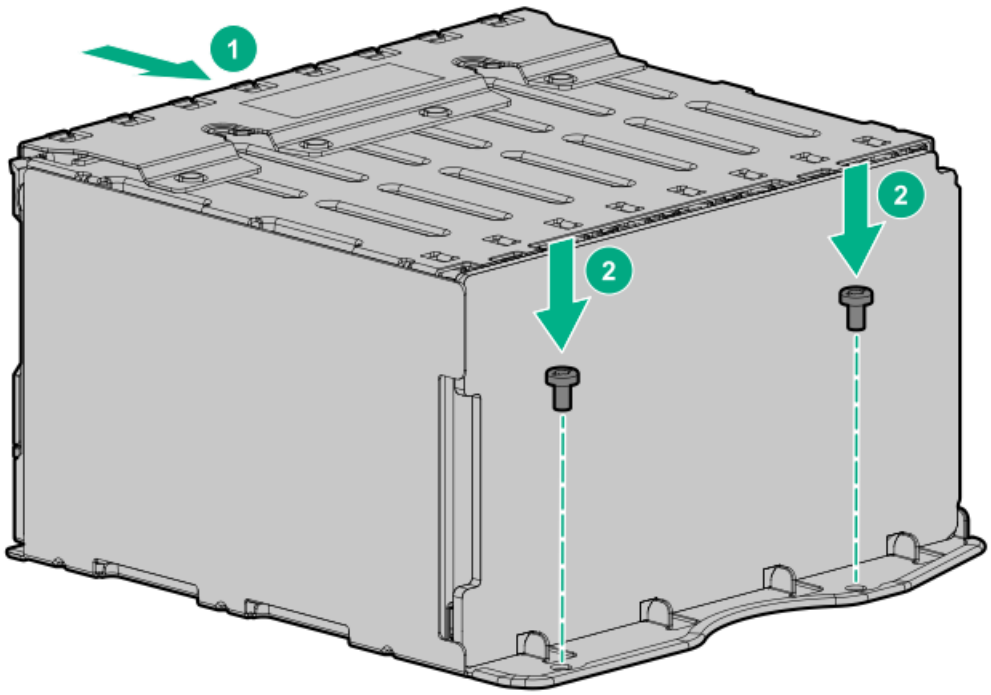
Procedure

1. Back up all server data.
2. If installed, remove the front bezel.
3. 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. Disconnect all peripheral cables from the server.

6. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
7. Place the server on a flat, level work surface.
8. Remove the access panel.
9. Remove an air baffle.
10. Remove the fan cage.
11. Remove the middle cover.
12. Remove the drive box blank:
    a. Remove the drive box blank screws.
    b. Remove the drive box blank.



13. Group and route all drive cables through the drive box bay.
14. Install the 8 SFF drive cage:
    a. Install the 8 SFF drive cage in the server.
    b. Install the drive cage screws.



15. If you are planning to manage the 8 SFF drives by the storage controller, install one of the following options:
    - Type-p storage controller
    - Type-o storage controller (OROC)
16. Connect the following cables to the 8 SFF drive backplane and the system board:
    - Storage controller cable
    - Drive power cable

    If the upper PCIe switch board is installed, make sure that the drive cables are routed against the GPU riser cages.
17. Install the middle cover Install the middle cover.
18. Install the fan cage.
19. Make sure that all the system cables that are secured in the cable guard and routed through the cable channel along the side of the chassis.
20. Install the air baffle.
21. Install the access panel.
22. Install the server into the rack.
23. Connect all peripheral cables to the server.
24. Connect the power cords:
    a. Connect each power cord to the server.
    b. Connect each power cord to the power source.
25. Power up the server.
26. Install the drive in the 8 SFF drive cage.

Results

The installation procedure is complete.

Installing the 8 E3.S drive cage

Prerequisites

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

- T-10 Torx screwdriver
- T-15 Torx screwdriver

About this task

This server supports several front 8 E3.S drive cage options with different backplanes.

CAUTION

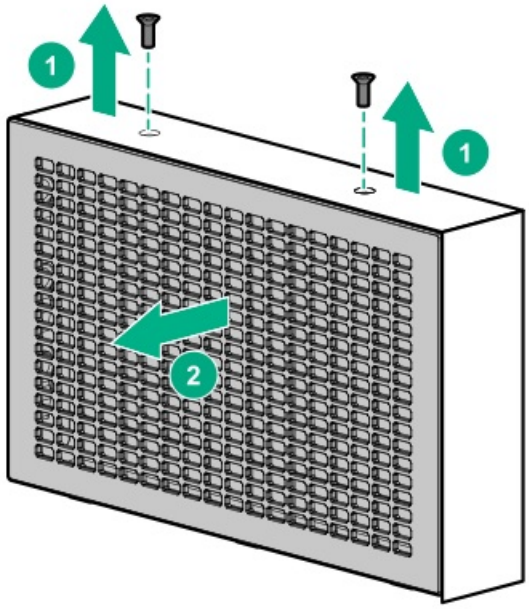
A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

CAUTION

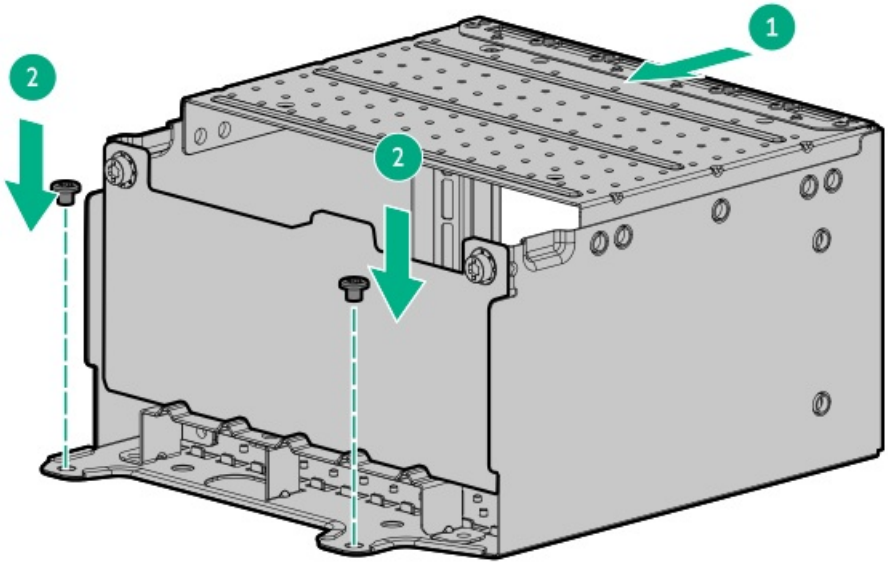
To prevent improper cooling and thermal damage, do not operate the server unless all bays are populated with either a component or a blank.

Procedure

1. Back up all server data.
2. If installed, remove the front bezel.
3. 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. Disconnect all peripheral cables from the server.
6. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
7. Place the server on a flat, level work surface.
8. Remove the access panel.
9. Remove an air baffle.
10. Remove the fan cage.
11. Remove the middle cover.
12. Remove the drive box blank:
    a. Remove the drive box blank screws.
    b. Remove the drive box blank.



13. Group and route all drive cables through the drive box bay.
14. Install the 8 E3.S drive cage:
    a. Install the 8 E3.S drive cage in the server.
    b. Install the drive cage screws.



15. Connect the following cables to the 8 E3.S drive backplane and the system board:
    - Storage controller cable
    - Drive power cable

    If the upper PCIe switch board is installed, make sure that the drive cables are routed against the GPU riser cages.
16. Install the middle cover Install the middle cover.
17. Install the fan cage.
18. Make sure that all the system cables that are secured in the cable guard and routed through the cable channel along the side of the

chassis.

19. Install the air baffle.
20. Install the access panel.
21. Install the server into the rack.
22. Connect all peripheral cables to the server.
23. Connect the power cords:
    a. Connect each power cord to the server.
    b. Connect each power cord to the power source.
24. Power up the server.
25. Installing an E3.S drive.
26. If removed, install the front bezel.

Results

The installation procedure is complete.

GPU options

This server supports various GPU options to meet your computational and graphics workload requirements. For a list of supported GPU models, see the server QuickSpecs on the Hewlett Packard Enterprise website (**https://www.hpe.com/info/quickspecs**).

- PCIe workload GPUs—These options are PCIe card–based, direct–attach solutions that use solid–state storage technology directly on the PCI bus to boost I/O performance and reduce latency to scale in line with your processing requirements.
- Computational and graphics GPUs—These options deliver accelerated compute performance for a range of deep learning, high–performance computing (HPC), and graphics–intensive applications.

Subtopics

GPU installation guidelines

- To support high-power GPUs (> TDP 75 W), the following GPU auxiliary power cables are required:
  - CPU 8-pin GPU auxiliary power cable kit (P59579-B21)
  - PCIe 16-pin GPU auxiliary power cable kit (P59578-B21)
  - PCIe 16-pin GPU auxiliary power cables (P68288-001 and P68289-001)
- This server does not support the installation of different GPU models in the same system.
- To maintain proper system cooling, all 6 high performance fans are required for GPU installation.
- The limited operating inlet ambient temperatures required for GPUs vary based on the model and the server drive configuration. For more information, see the server QuickSpecs on the Hewlett Packard Enterprise website (**https://www.hpe.com/info/quickspecs**).

IMPORTANT

Workloads for high performance GPUs with passive cooling can cause the fans to operate at high speeds to maintain optimum system cooling. Hewlett Packard Enterprise does not recommend installing GPUs with passive cooling in or near a site where there is a reasonable expectation for a quiet environment.

Installing a single-width GPU

Prerequisites

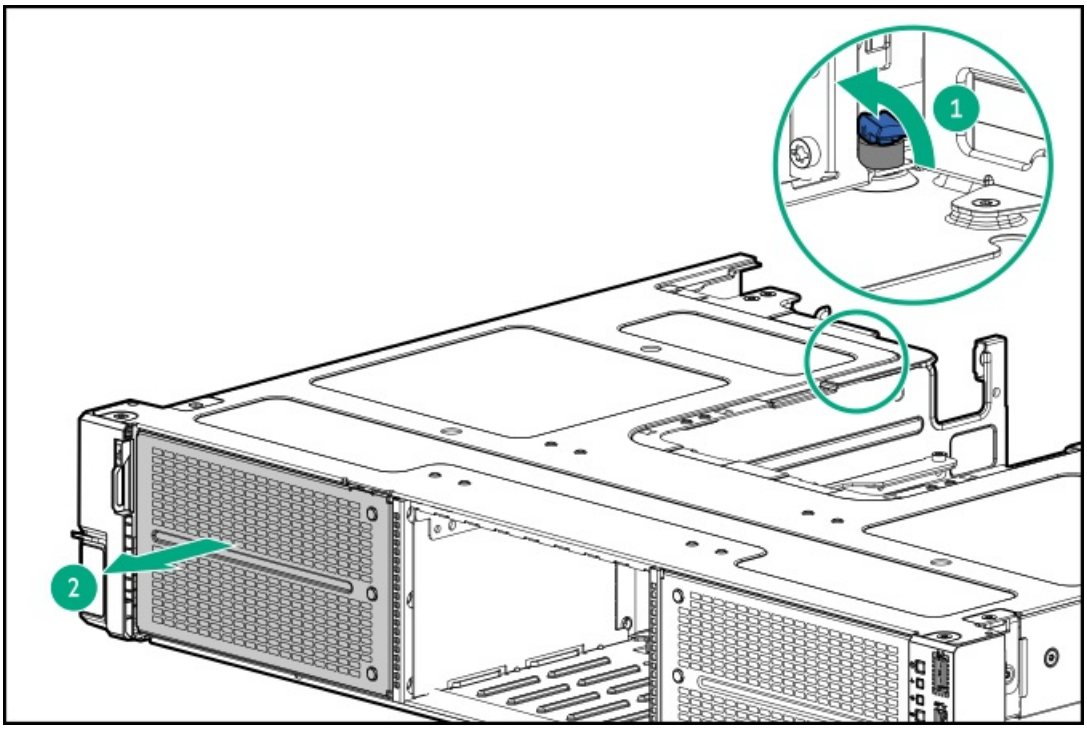
- Review the GPU installation guidelines .
- Before you perform this procedure, make sure that you have the following items available:
  - T-10 Torx screwdriver
  - T-15 Torx screwdriver

Procedure

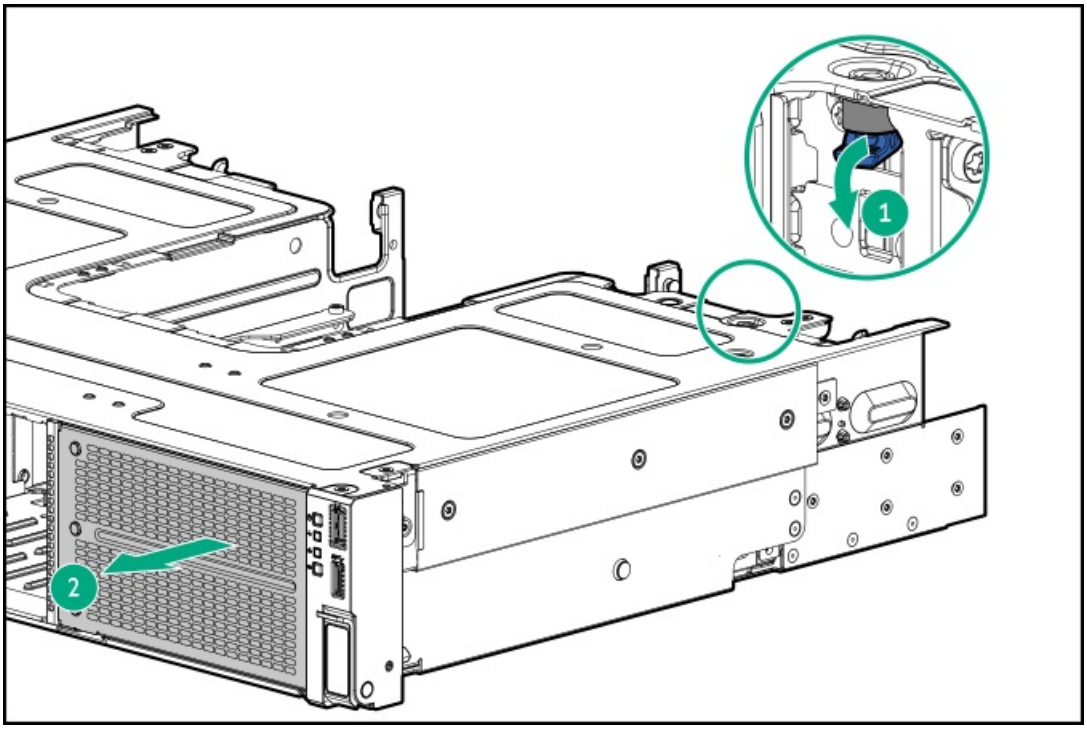
1. Back up all server data.
2. Power down the server .
3. If installed, Open the cable management arm .
4. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
5. Disconnect all peripheral cables from the server.
6. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
7. Place the server on a flat, level work surface.
8. Remove the access panel .
9. Remove an air baffle .
10. Remove the fan cage .
11. Remove the middle cover .
12. Disconnect all GPU riser cables from the system board .
13. Remove a GPU riser cage:
    a. Rotate the locking pin to the open (vertical) position.
    b. Remove the GPU riser cage from the server.

    Carefully feed the riser cables through the cable channel.

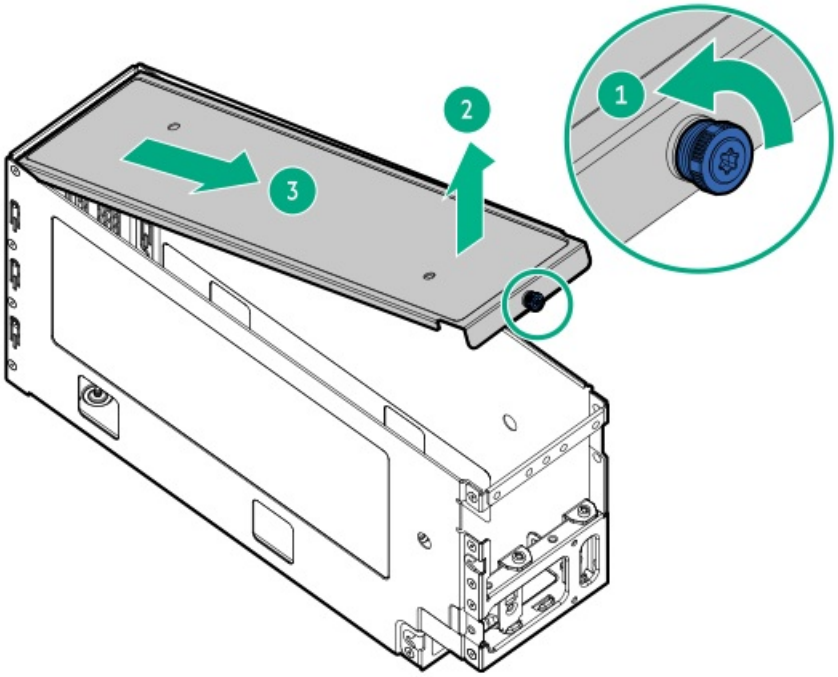
    - GPU riser cage 1



- GPU riser cage 2

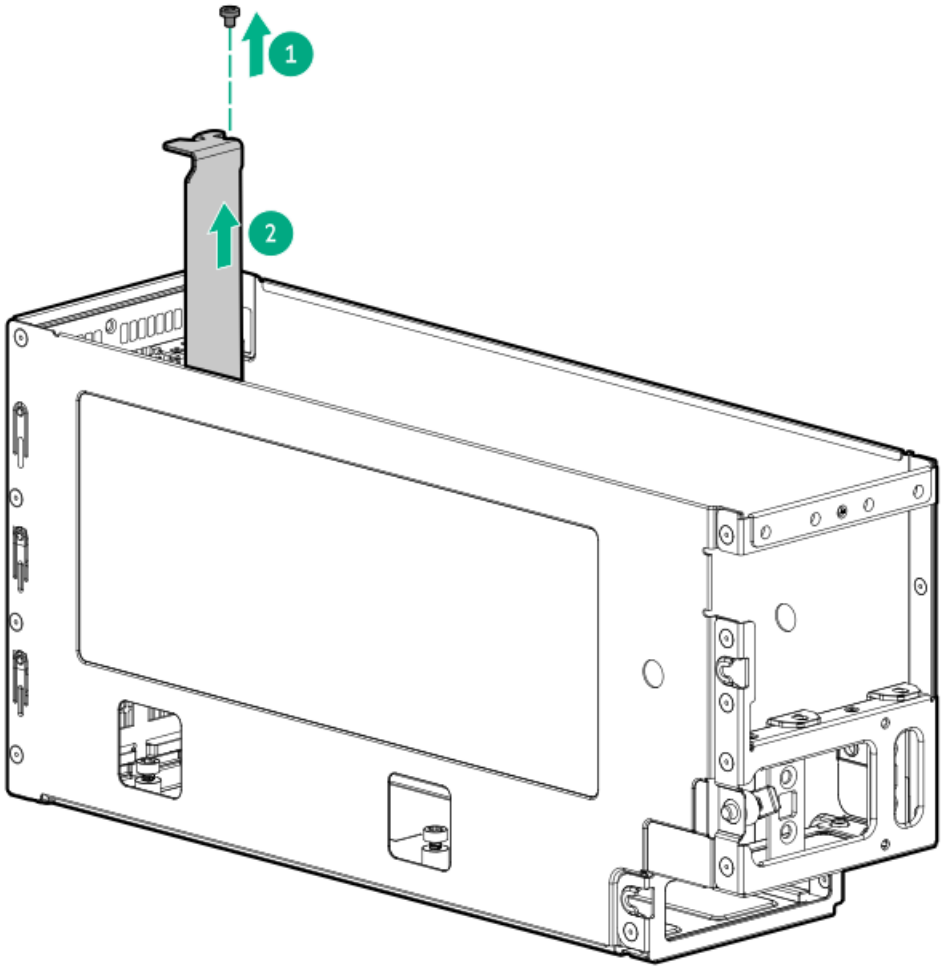


14. Remove the GPU riser cage cover.

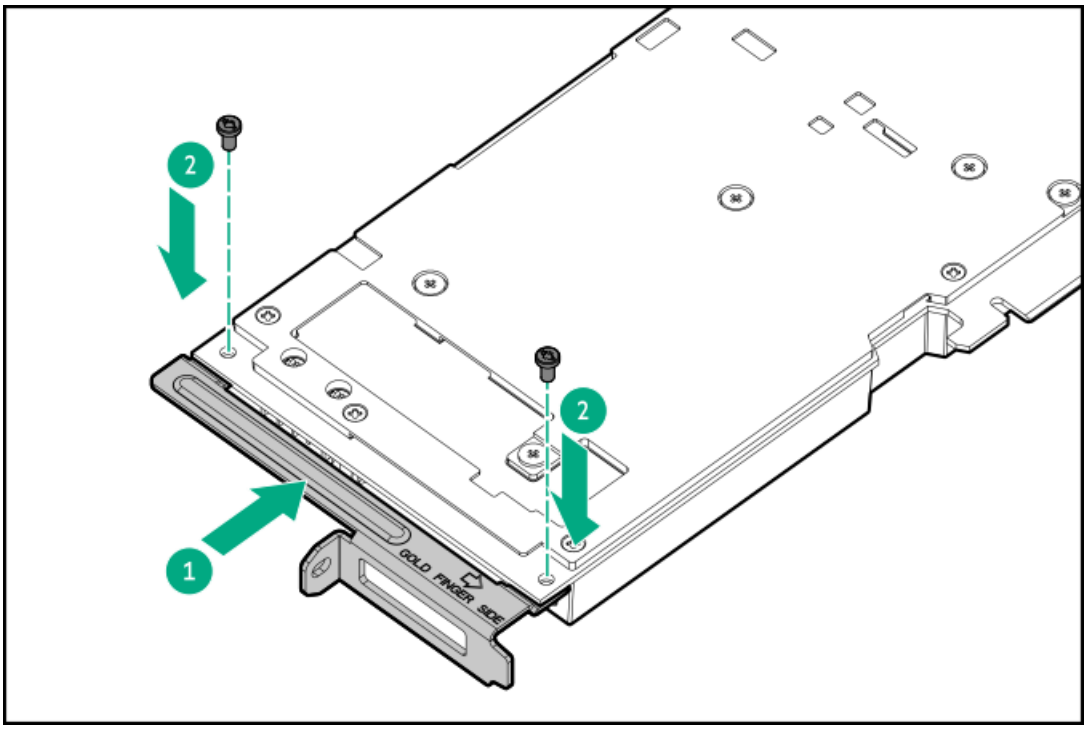


15. Remove the GPU riser slot brackets.

    Retain the screw. The screw will be used to install the GPU.



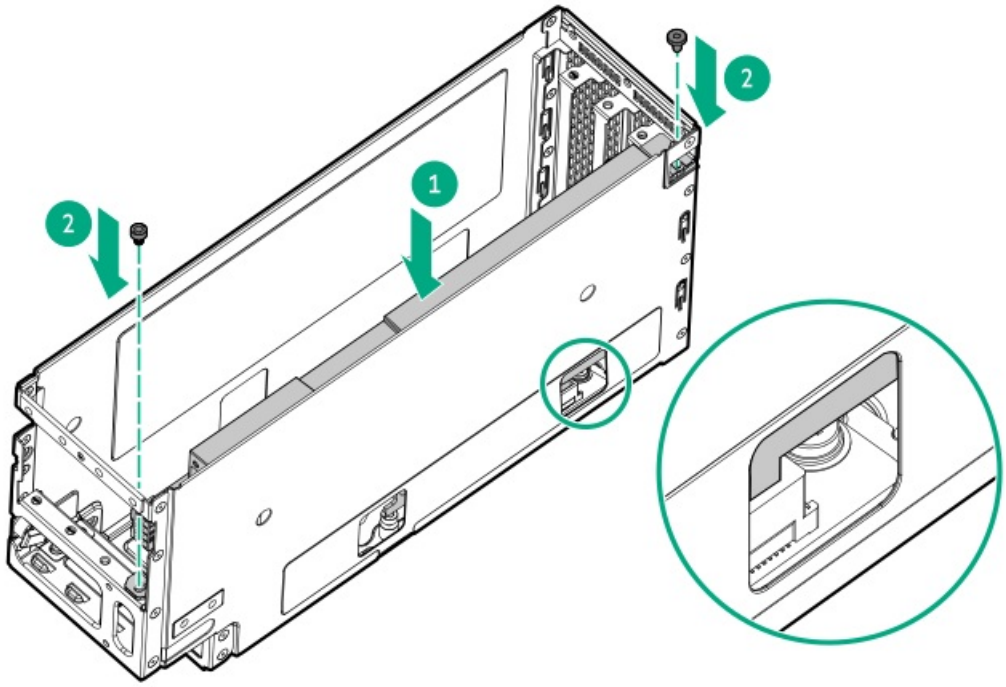
16. If you are installing the full-height, full-length single-width GPU, install the support bracket.



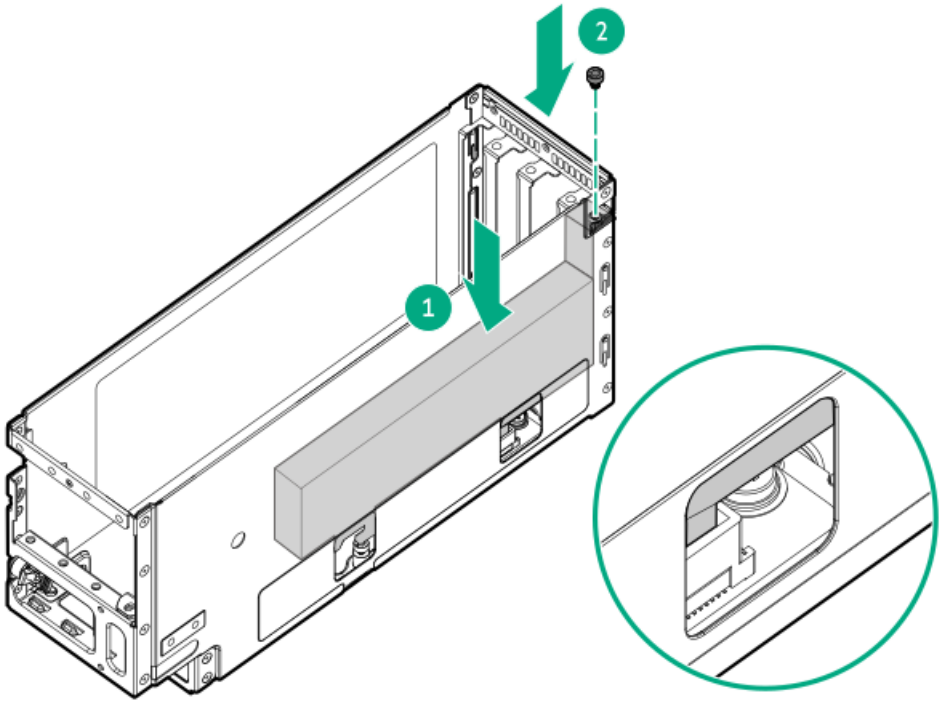
17. Install the single-width GPU in the riser, and then secure the screws.

    A click sound indicates that the GPU is properly engaged.

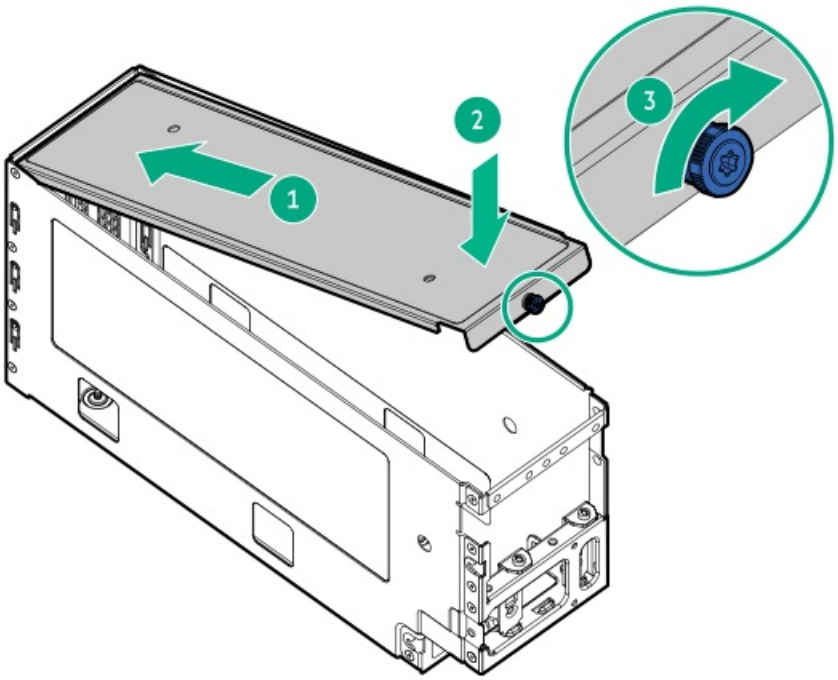
    - Full-height, full-length single-width GPU



    - Half-height, half-length single-width GPU



18. Install the GPU riser cage cover.



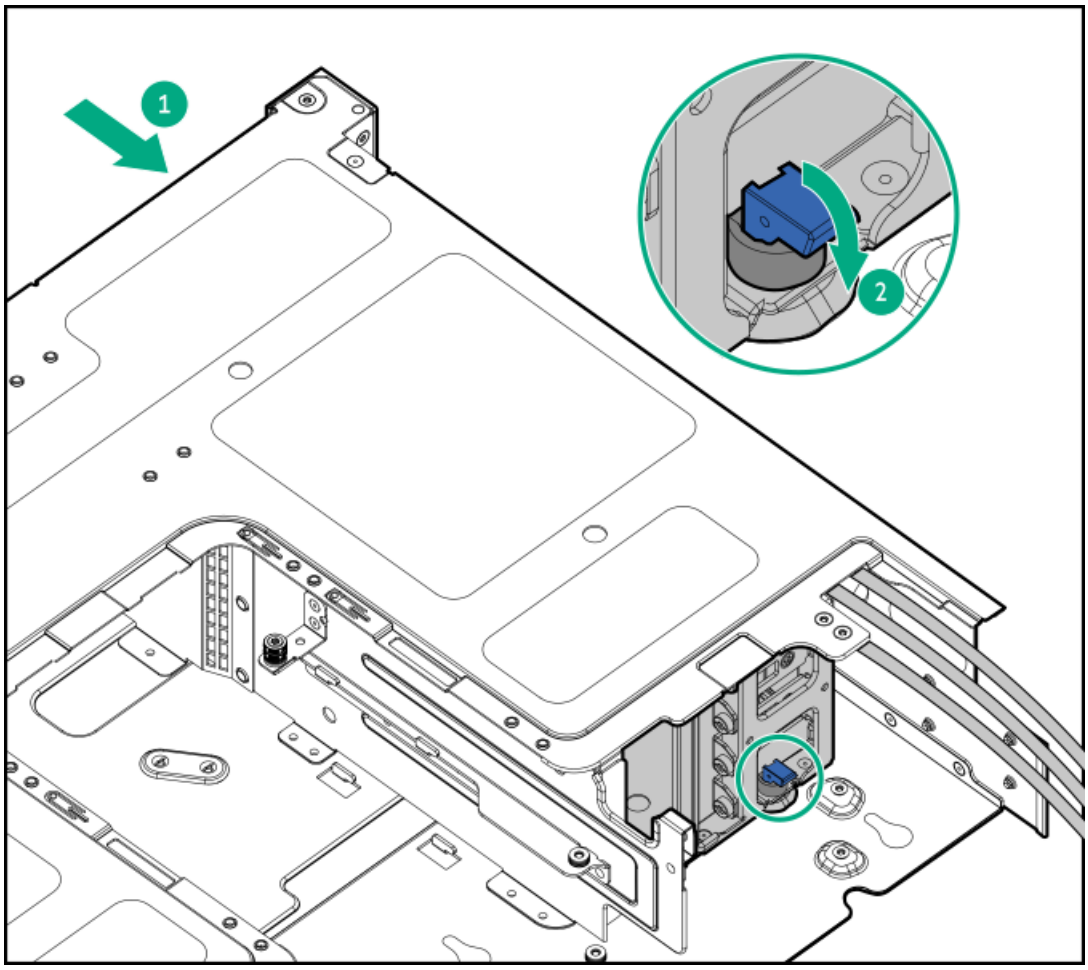
19. Install the GPU riser cage:
    a. Slide the GPU riser cage into the server.

       Feed the riser cables through the channel nearest to the chassis wall.

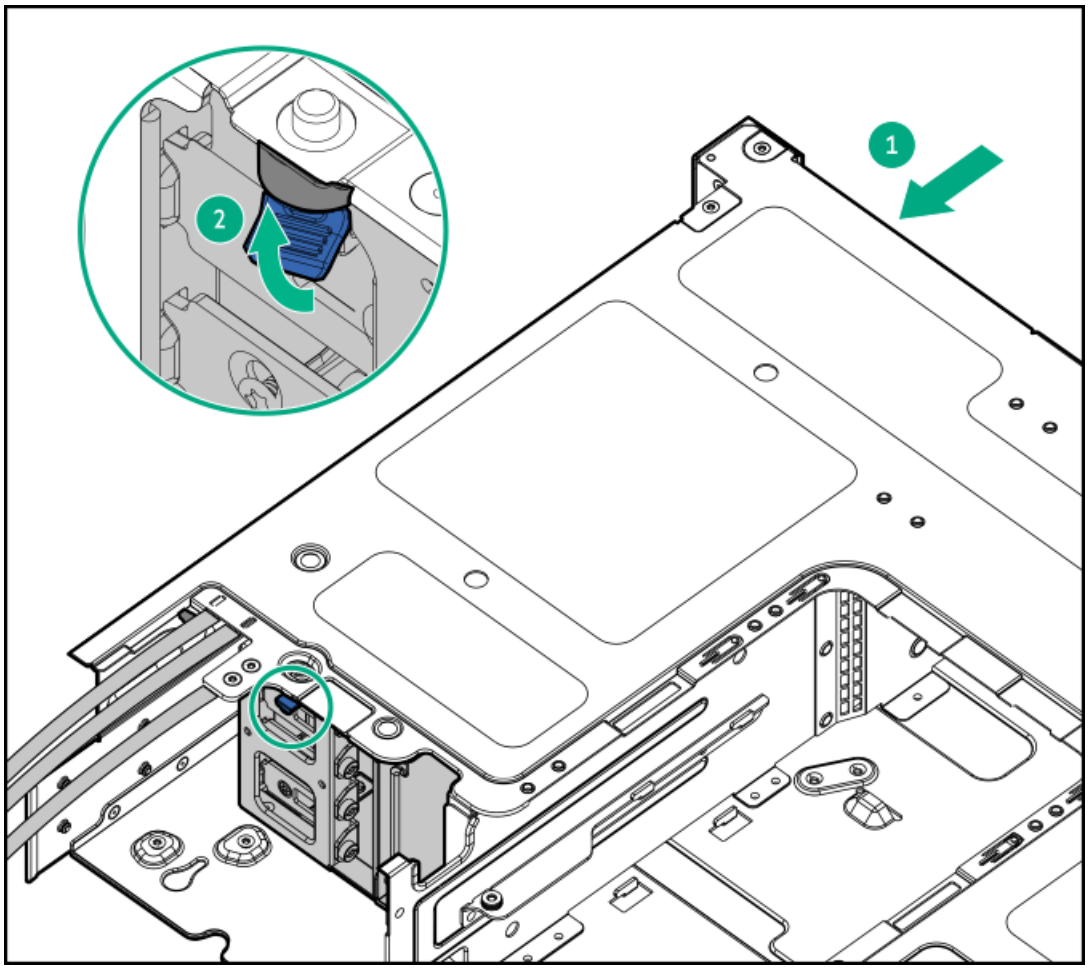
    b. Rotate the locking pin to the close (horizontal) position.

       Make sure that the locking pin is locked on the chassis.

- GPU riser cage 1



- GPU riser cage 2



20. Connect the GPU riser cables to the system board .

    If the GPU riser cables are not connected correctly, the system will not power on.

21. Install the middle cover Install the middle cover.
22. Install the fan cage.
23. Make sure that all the system cables that are secured in the cable guard and routed through the cable channel along the side of the chassis.
24. Install the air baffle.
25. Install the access panel.
26. Install the server into the rack .
27. Connect all peripheral cables to the server.
28. Connect the power cords:
    a. Connect each power cord to the server.
    b. Connect each power cord to the power source.
29. Power up the server.

Results

The installation procedure is complete.

Installing a double-width GPU

Prerequisites

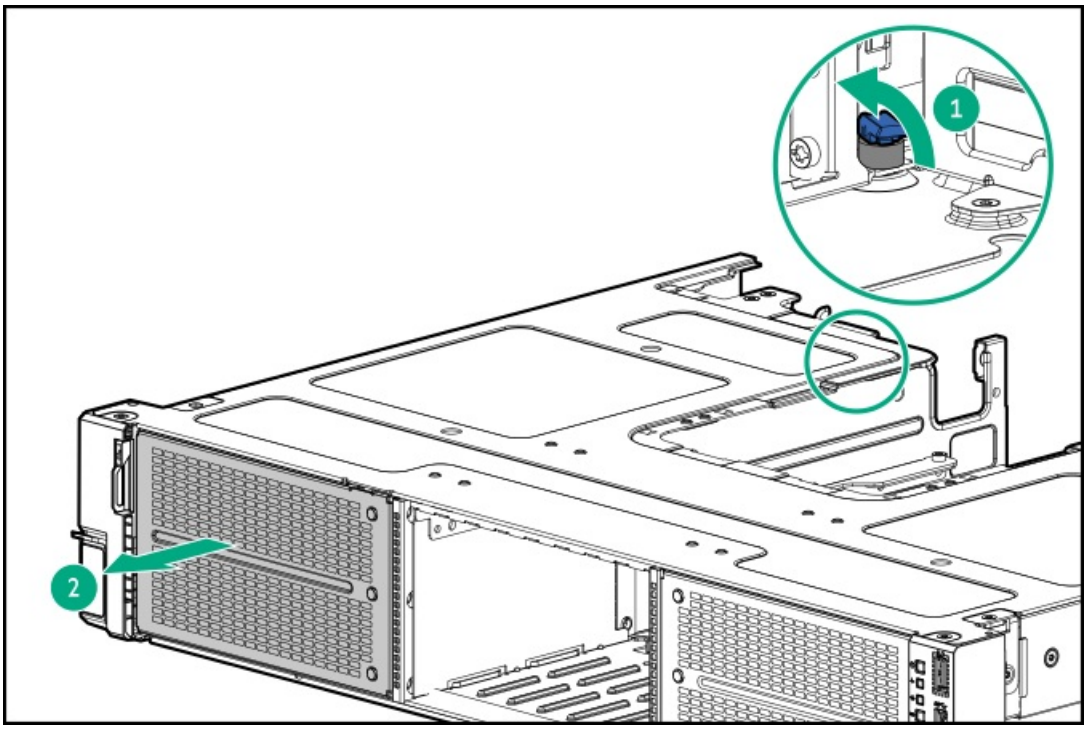
- Review the GPU installation guidelines .
- T-10 Torx screwdriver
- T-15 Torx screwdriver

Procedure

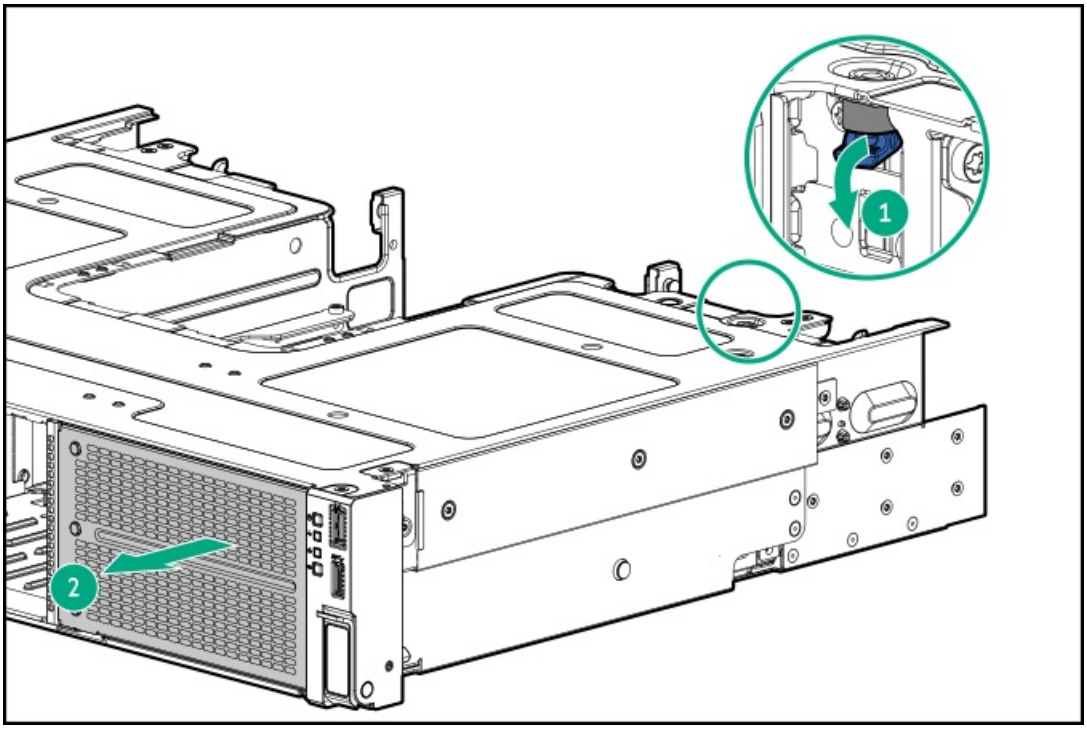
1. Back up all server data.
2. Power down the server .
3. If installed, Open the cable management arm .
4. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
5. Disconnect all peripheral cables from the server.
6. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
7. Place the server on a flat, level work surface.
8. Remove the access panel .
9. Remove an air baffle.
10. Remove the fan cage.
11. Remove the middle cover .
12. Disconnect all GPU riser cables from the system board .
13. Remove a GPU riser cage:
    a. Rotate the locking pin to the open (vertical) position.
    b. Remove the GPU riser cage from the server.

       Carefully feed the riser cables through the cable channel.

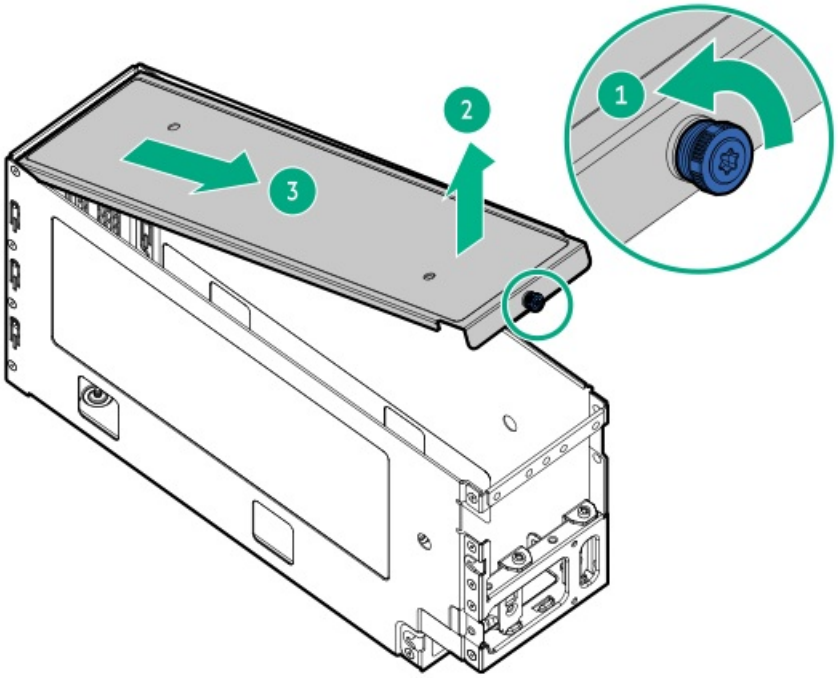
       - GPU riser cage 1



- GPU riser cage 2

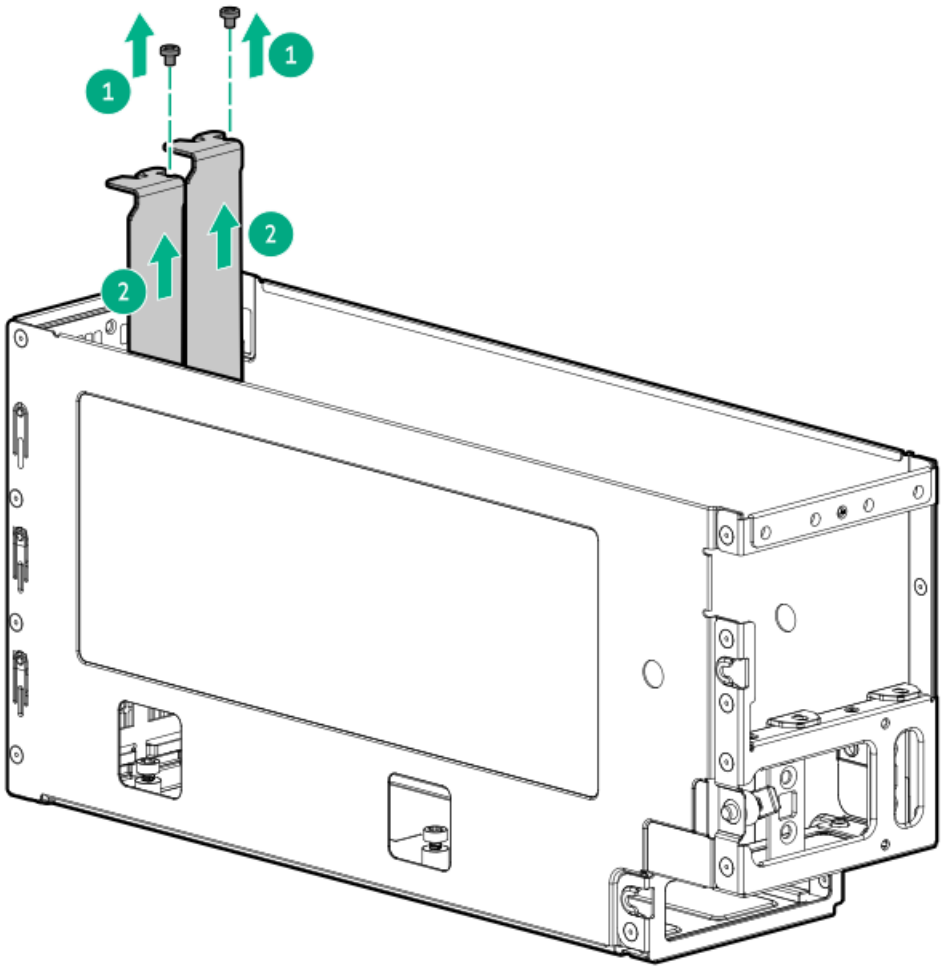


14. Remove the GPU riser cage cover.

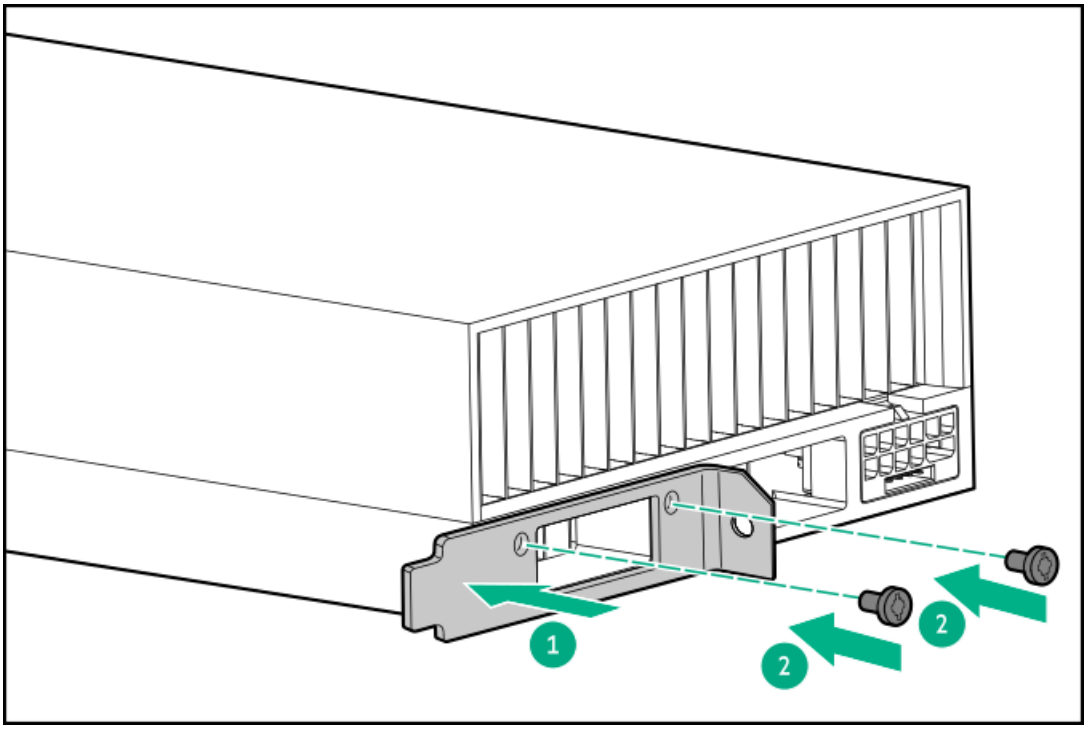


15. Remove the GPU riser slot brackets.

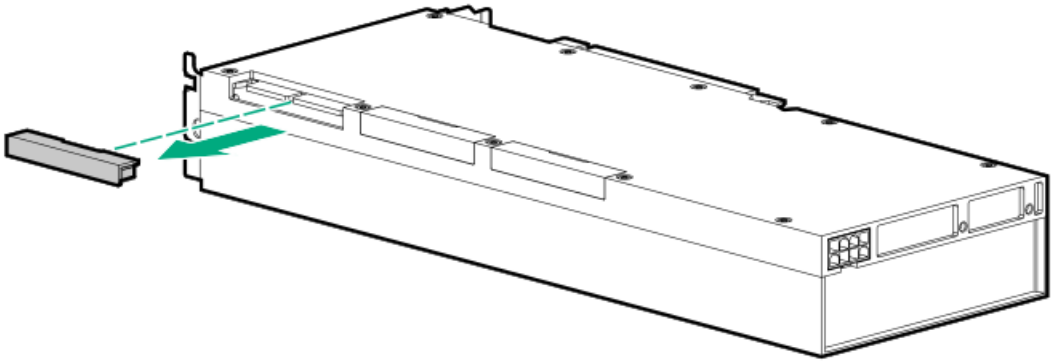
    Retain the screws. These screws will be used to install the double-width GPU.



16. Take the GPU support bracket and the screws from the GPU riser cage package.
17. Install the support bracket on the GPU.



18. If you are planning to install the NVLink Bridge, remove the connector cover from the GPU.

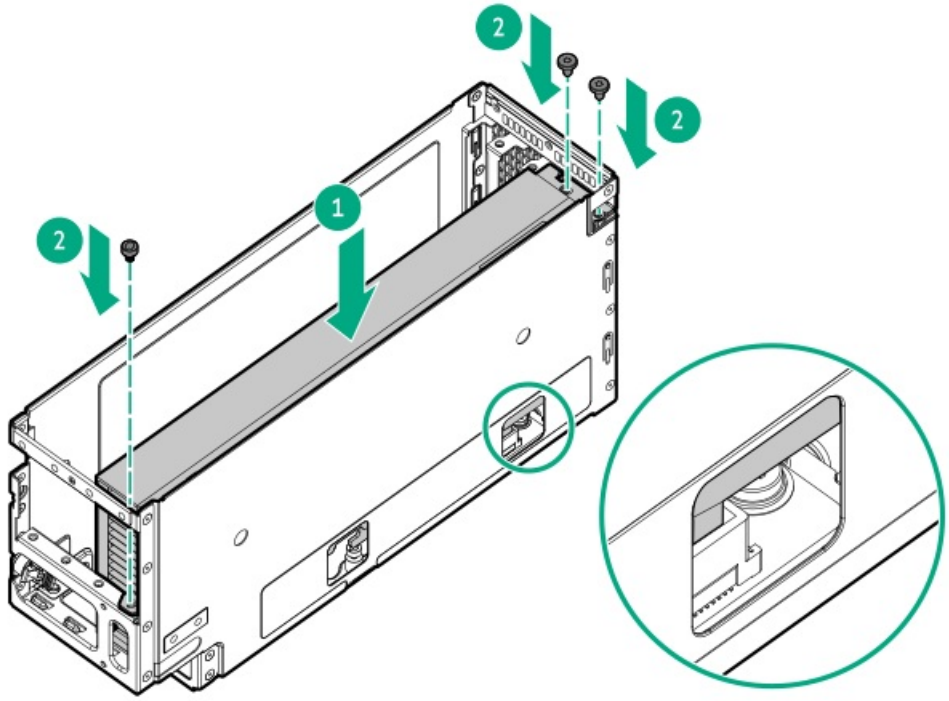


19. Install the GPU in the GPU riser cage:

    a. Install the GPU to make sure that it is seated firmly on the GPU riser.

       A click sound indicates that the GPU is properly engaged.

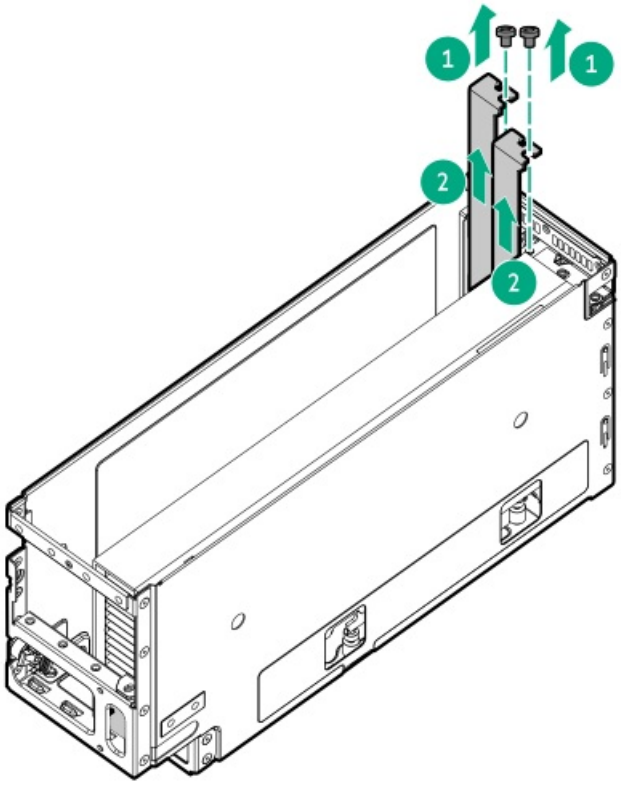
    b. Install the screws.



20. To install a second double-width GPU, do the following:

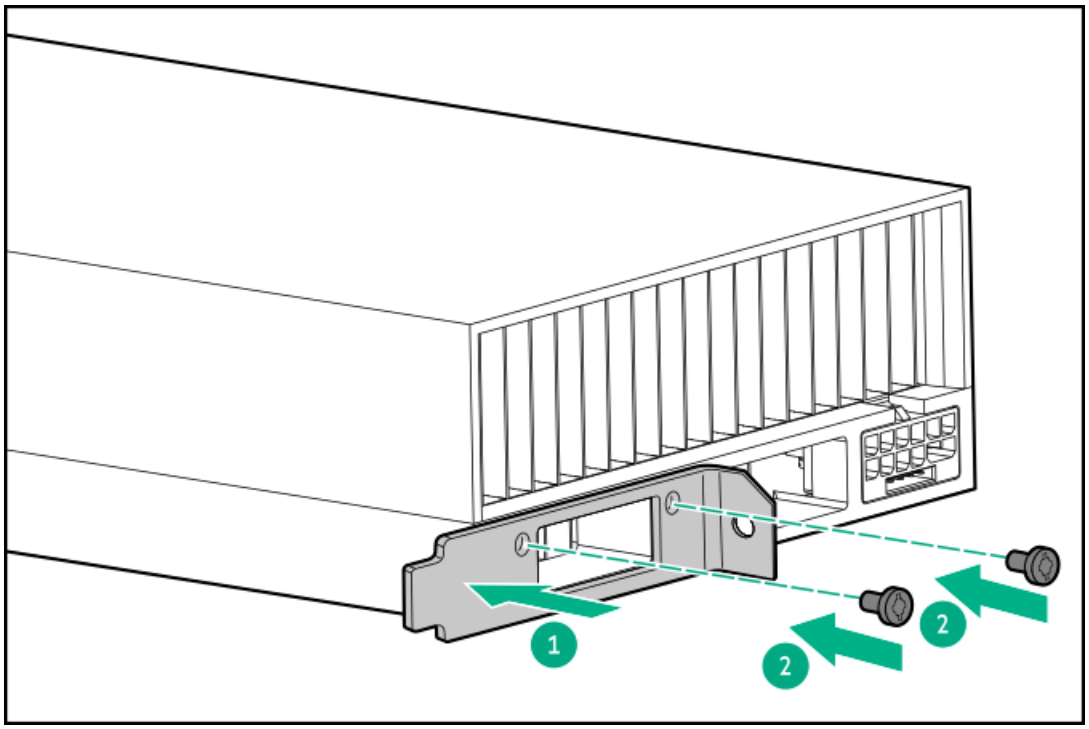
    a. Remove the GPU riser slot blanks.

       Retain the screws. These screws will be used to install the second double-width GPU.



    b. Take the GPU support bracket and screws from the GPU riser cage accompany the package.

    c. Install on the second double-width GPU.

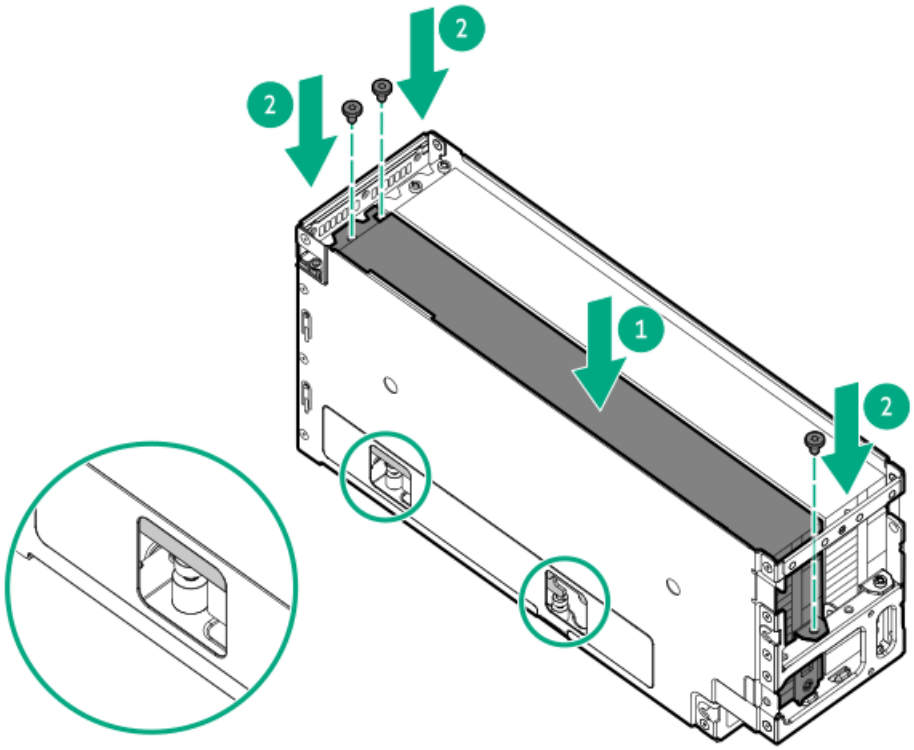


21. Install the second double-width GPU from the GPU riser cage:

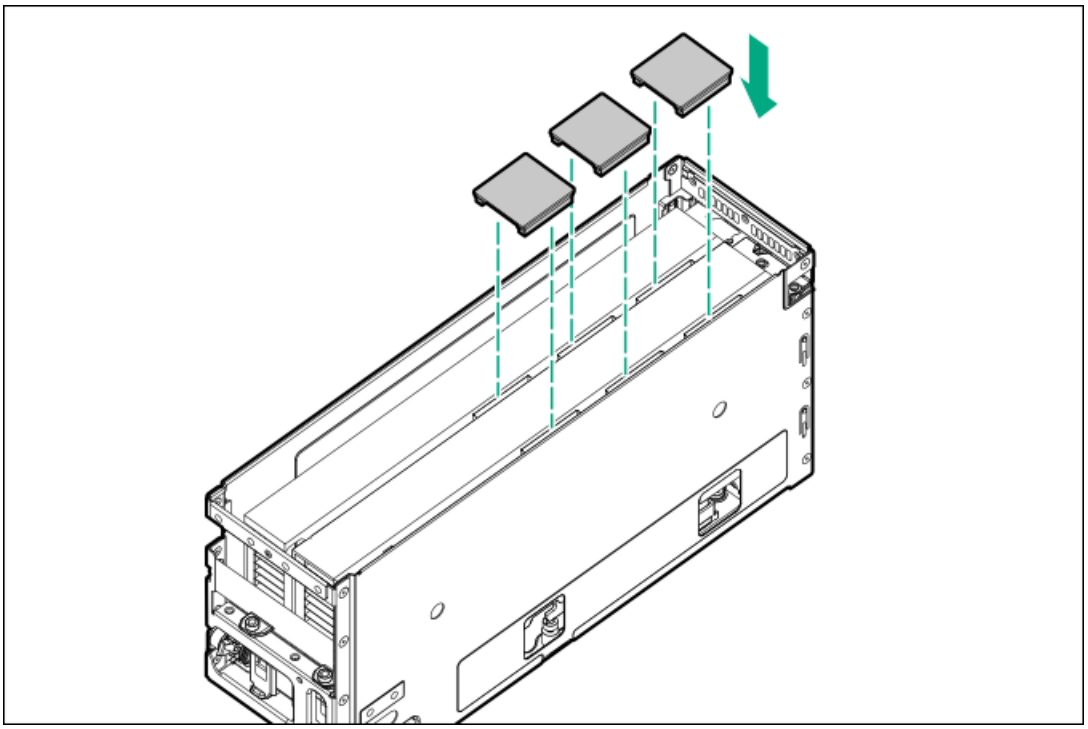
    a. Install the GPU to make sure that it is seated firmly on the GPU riser.

       A click sound indicates that the GPU is properly engaged.

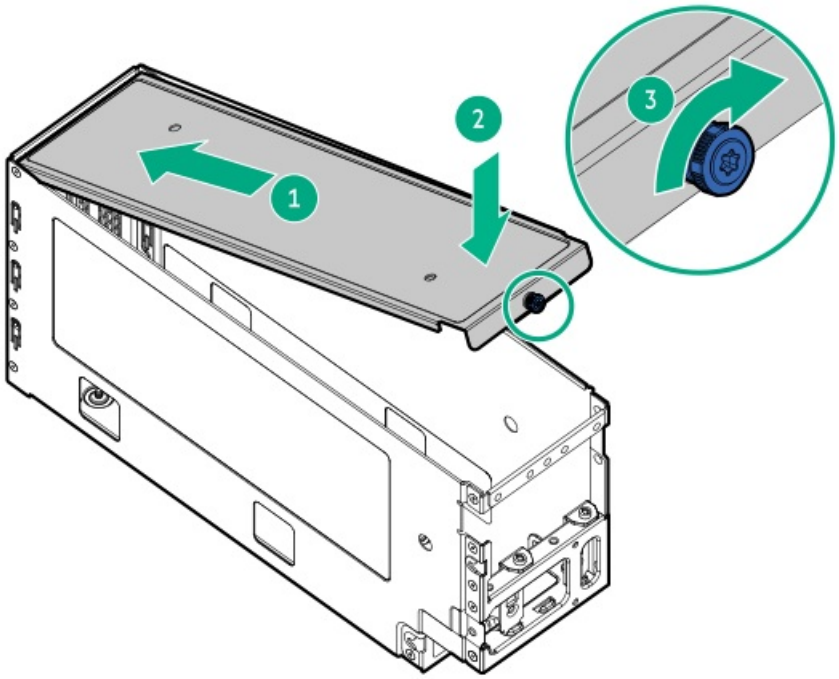
    b. Install the screws.



22. Install the NVLink Bridge on the GPUs.



23. Install the GPU riser cage cover.



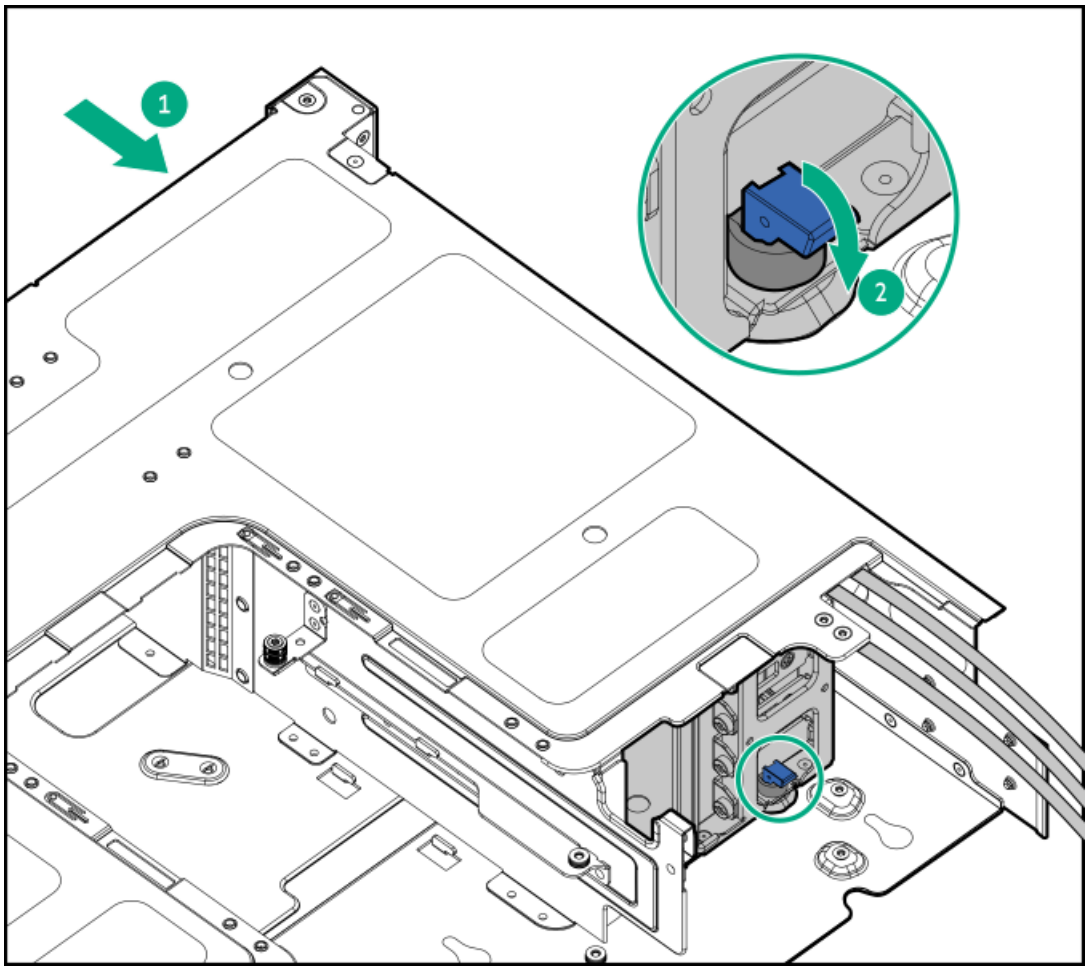
24. Group and route all GPU auxiliary power cables and the GPU riser cables through the GPU riser cage bay.
25. Install the GPU riser cage:
    a. Slide the GPU riser cage into the server.

       Feed the riser cables through the channel nearest to the chassis wall.

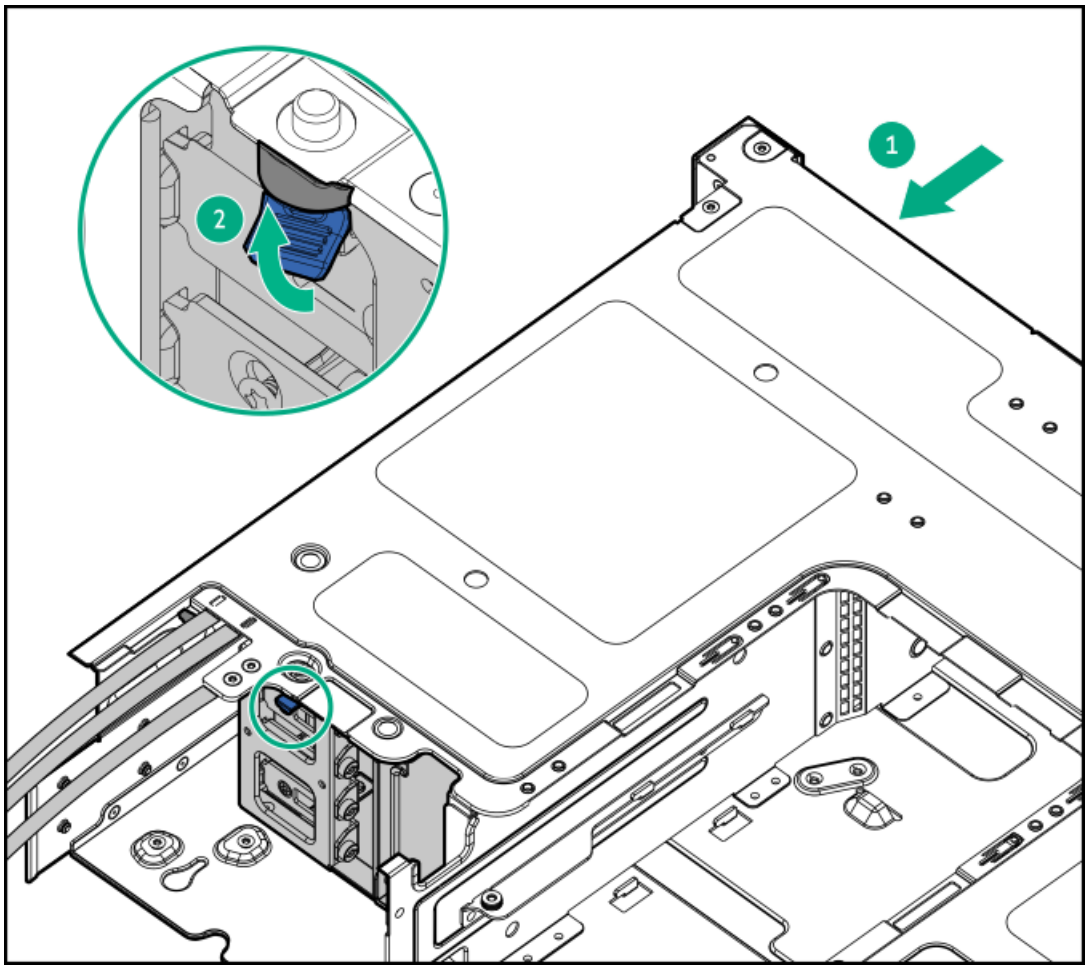
    b. Rotate the locking pin to the close (horizontal) position.

       Make sure that the locking pin is locked on the chassis.

- GPU riser cage 1



- GPU riser cage 2



26. Connect the following cables to the system board and the GPUs:
    - GPU riser cables
    - GPU auxiliary power cables
27. Install the middle cover Install the middle cover.
28. Install the fan cage.
29. Make sure that all the system cables that are secured in the cable guard and routed through the cable channel along the side of the chassis.
30. Install the air baffle.
31. Install the access panel.
32. Install the server into the rack.
33. Connect all peripheral cables to the server.
34. Connect the power cords:
    a. Connect each power cord to the server.
    b. Connect each power cord to the power source.
35. Power up the server.

Results

The installation procedure is complete.

Installing a DPU on the two-slot riser cage

Prerequisites

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

About this task

CAUTION

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

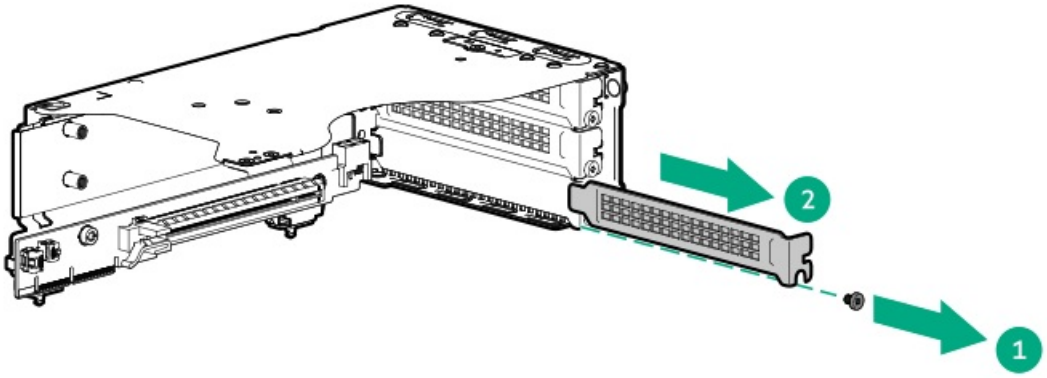
CAUTION

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

Procedure

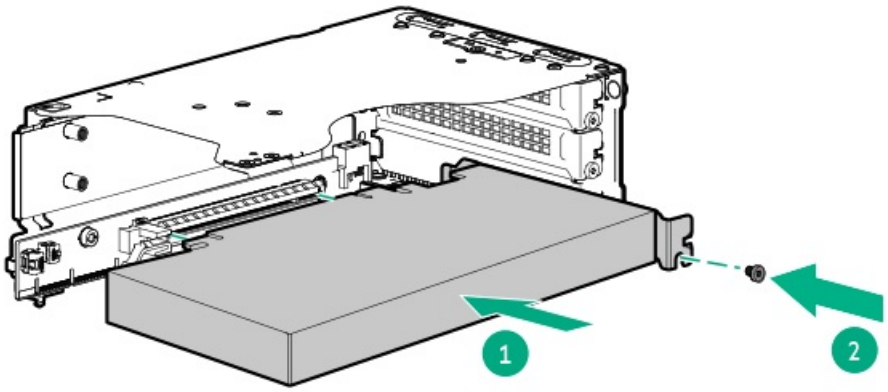
1. Power down the server.
2. If installed, Open the cable management arm.
3. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
4. Disconnect all peripheral cables from the server.
5. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove a riser cage.
9. Install the DPU:
   a. Remove the riser slot blank.

      Retain the screw. The screw will be used to install the new DPU.



b. Install the DPU.

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



10. Connect the DPU auxiliary power cable .
11. Install a riser cageInstall the riser cage.
12. Connect all necessary internal cabling to the expansion card.

    For more information on these cabling requirements, see the documentation that ships with the option.
13. Install the access panel.
14. Install the server into the rack .
15. Connect all peripheral cables to the server.
16. Connect the power cords:
    a. Connect each power cord to the server.
    b. Connect each power cord to the power source.
17. Power up the server.

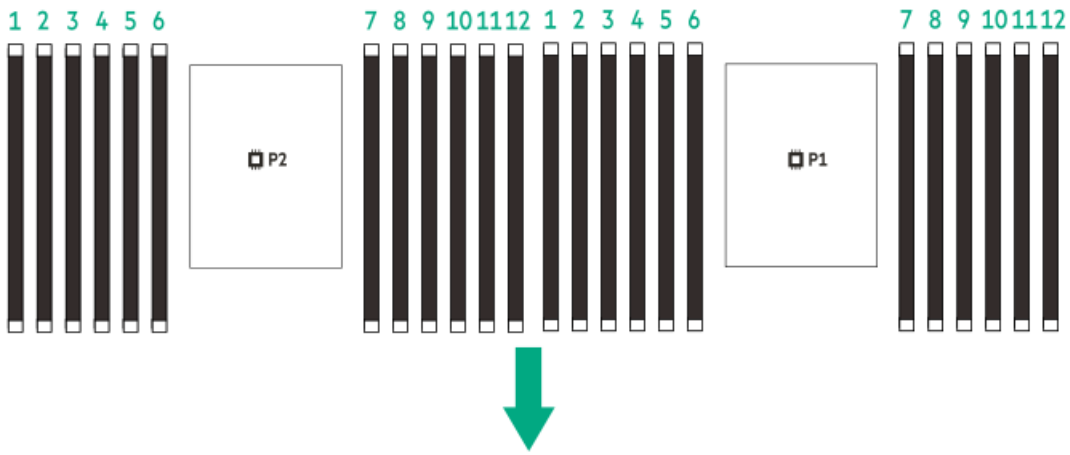
Results

The installation procedure is complete.

Memory option

The server has 12 DIMM slots supporting HPE DDR5 SmartMemory (RDIMM).

The arrow points to the front of the server.



Subtopics

- HPE SmartMemory speed and population information
- DIMM installation guidelines
- Installing a DIMM

HPE SmartMemory speed and population information

For information about memory speed and server-specific DIMM population rules for HPE servers using 4th and 5th Gen Intel Xeon Scalable Processors, see the relevant memory technical paper in:

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

DIMM installation guidelines

When handling a DIMM, observe the following:

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

When installing a DIMM, observe the following:

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

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

Installing a DIMM

About this task

CAUTION

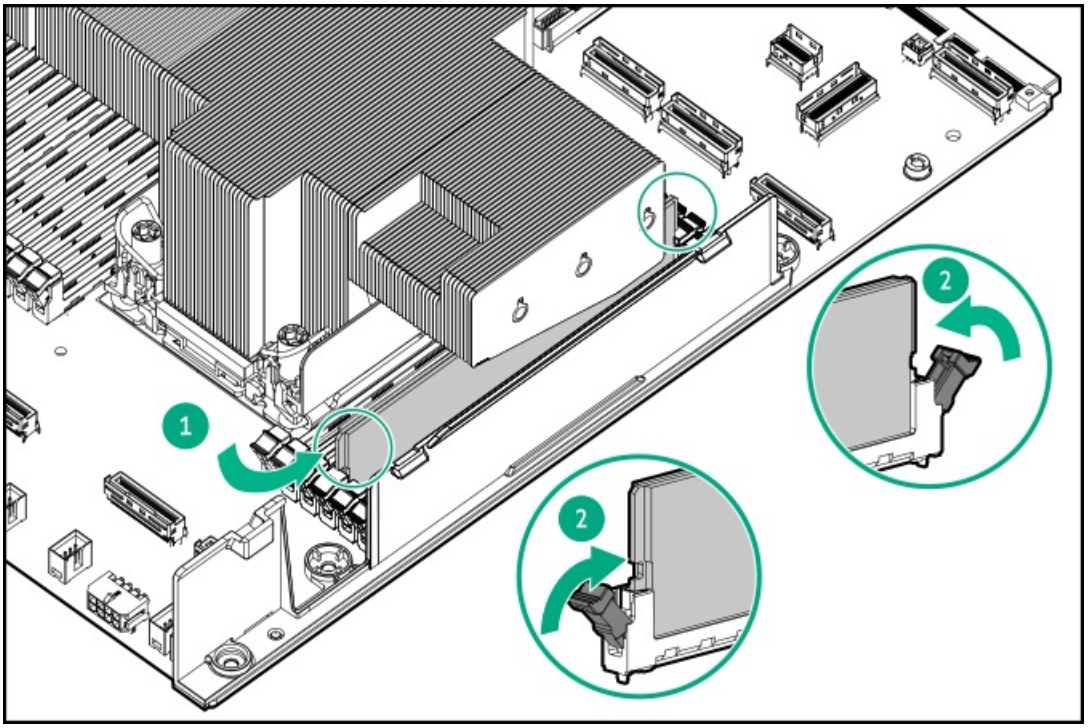
Do not install ×4 and ×8 DRAM widths in the same server. All memory installed in the server must be of the same type. Installing different DIMM types can cause the server to halt during BIOS initialization.

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.

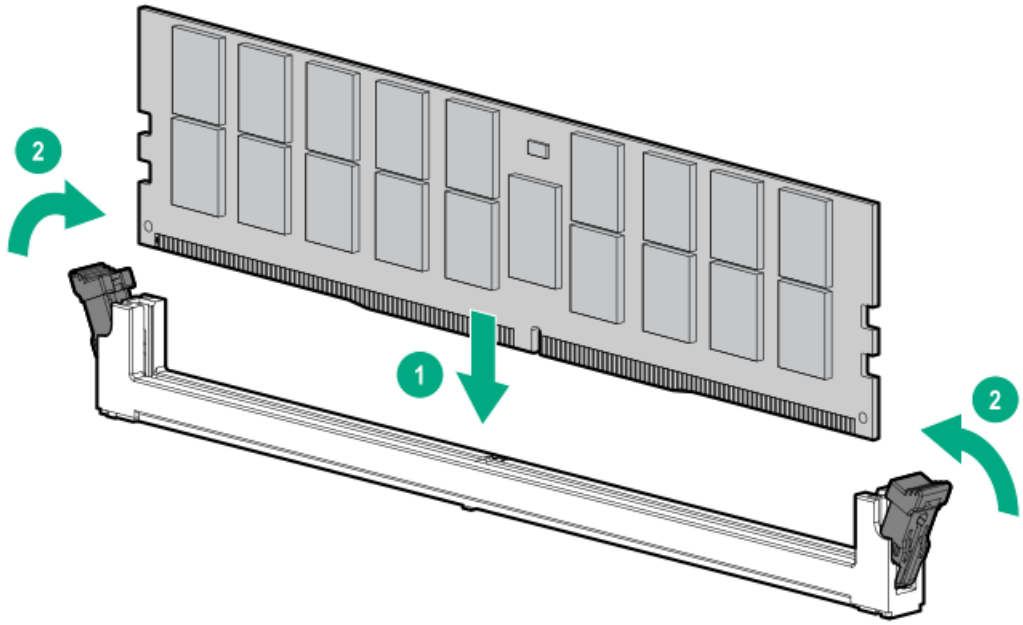
Procedure

1. Back up all server data.
2. Power down the server.
3. If installed, Open the cable management arm.
4. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
5. Disconnect all peripheral cables from the server.
6. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
7. Place the server on a flat, level work surface.
8. Remove the access panel.
9. Remove an air baffle.
10. To install a DIMM with the high performance heatsink installed:
    a. Carefully slide the DIMM under the high performance heatsink.
    b. Fully press the DIMM into the slot to secure the latches.



11. To install a DIMM with the standard heatsink installed:
    a. Open the DIMM slot latches.
    b. Align the notch on the bottom edge of the DIMM with the keyed surface of the DIMM slot, and then fully press the DIMM into the slot until the latches snap back into place.

       The DIMM slots are structured to ensure proper installation. If you try to insert a DIMM but it does not fit easily into the slot, you might have positioned it incorrectly. Reverse the orientation of the DIMM and insert it again.



12. Make sure that all the system cables that are secured in the cable guard and routed through the cable channel along the side of the chassis.
13. Install the air baffle.
14. Install the access panel.

15. Install the server into the rack.
16. Connect all peripheral cables to the server.
17. Connect the power cords:
    a. Connect each power cord to the server.
    b. Connect each power cord to the power source.
18. Power up the server.
19. To configure the memory settings:
    a. From the boot screen, press **F9** to access the UEFI System Utilities.
    b. From the System Utilities screen, select System Configuration > BIOS/Platform Configuration (RBSU) > Memory Options.

Results

The installation procedure is complete.

Stacking riser options

To expend PCIe riser slots, this server supports the stacking riser:

- Connects to the base riser in the primary/secondary riser cage
- Has a docking connector that supplies power and signal

Subtopics

Installing a stacking riser

Installing a stacking riser

Prerequisites

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

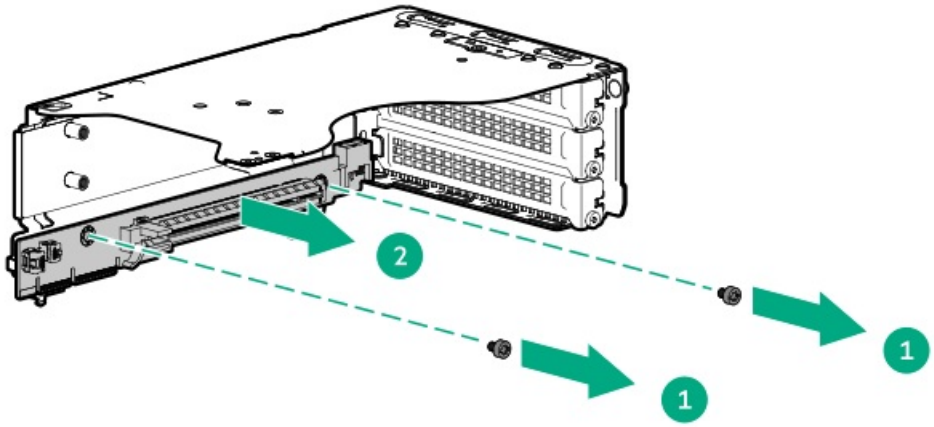
About this task

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

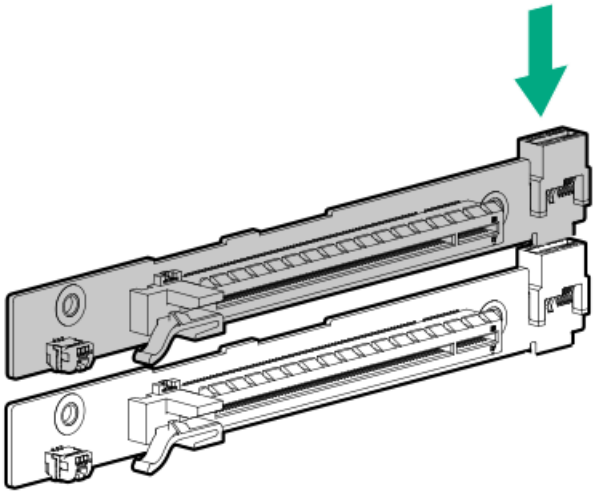
Procedure

1. Back up all server data.
2. Power down the server.
3. If installed, Open the cable management arm.
4. Remove all power:
    a. Disconnect each power cord from the power source.
    b. Disconnect each power cord from the server.

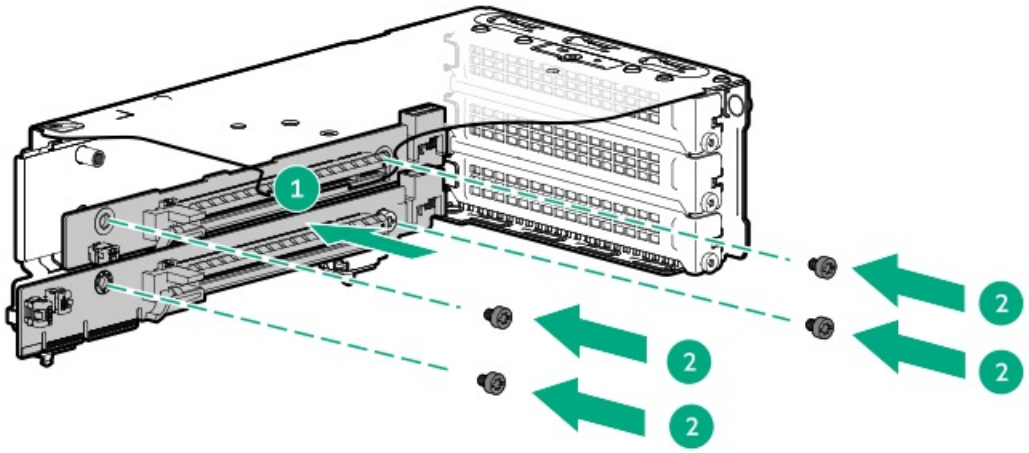
5. Disconnect all peripheral cables from the server.
6. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
7. Place the server on a flat, level work surface.
8. Remove the access panel.
9. Remove an air baffle.
10. Remove a riser cage.
11. Remove the base riser.



12. Connect the stacking riser to the base riser.



13. Install the riser on the riser cage:
    a. Install the risers on the riser cage.
    b. Install the riser screws.



14. Install a riser cageInstall the riser cage.
15. Install the air baffle.
16. Install the access panel.
17. Install the server into the rack .
18. Connect all peripheral cables to the server.
19. Connect the power cords:
    a. Connect each power cord to the server.
    b. Connect each power cord to the power source.
20. Power up the server.

Results

The installation procedure is complete.

Secondary riser cage option

The server supports the secondary riser cage with a standard riser board that connects to the secondary riser connector. The standard riser supports the full-height, half-length, full-height and half-height, half-length (low-profile) expansion card.

The secondary riser cage supports the HPE NS204i Boot Device that includes two 2280 M.2 NVMe SSDs.

Subtopics

Installing the two-slot secondary riser cage

Installing the two-slot secondary riser cage

Prerequisites

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

- T-15 Torx screwdriver
- T-10 Torx screwdriver

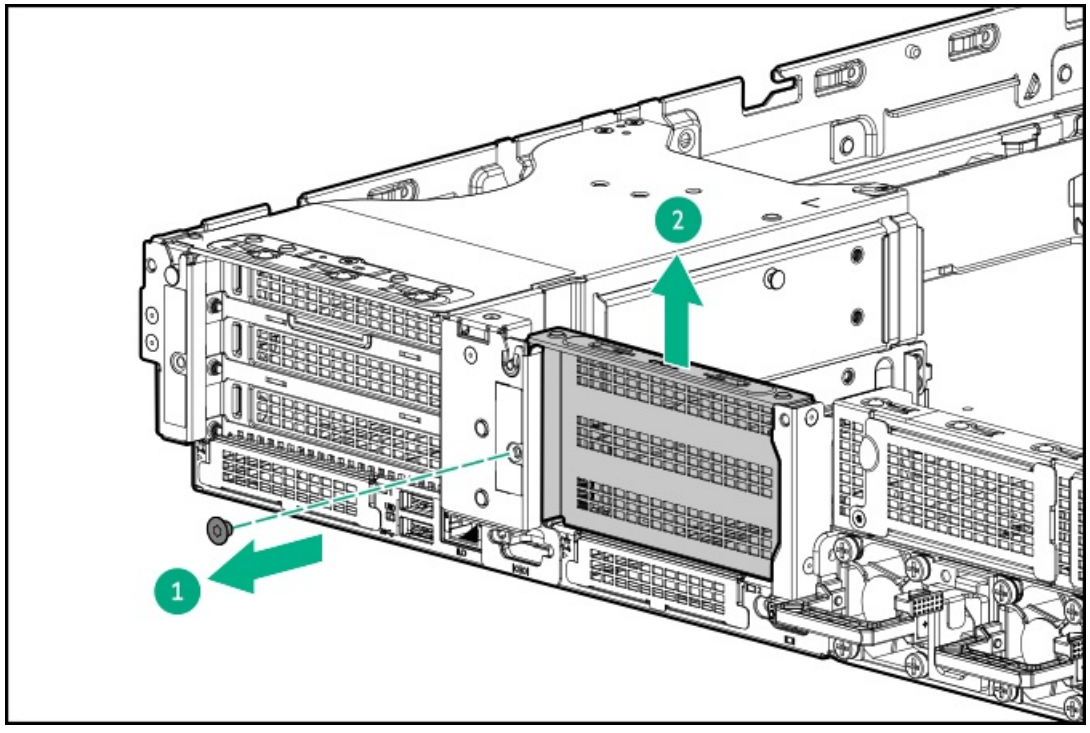
About this task

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.

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:
   - Extend the server out of the rack
   - Remove the server from the rack
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove an air baffle.
9. Remove the secondary riser cage blank.

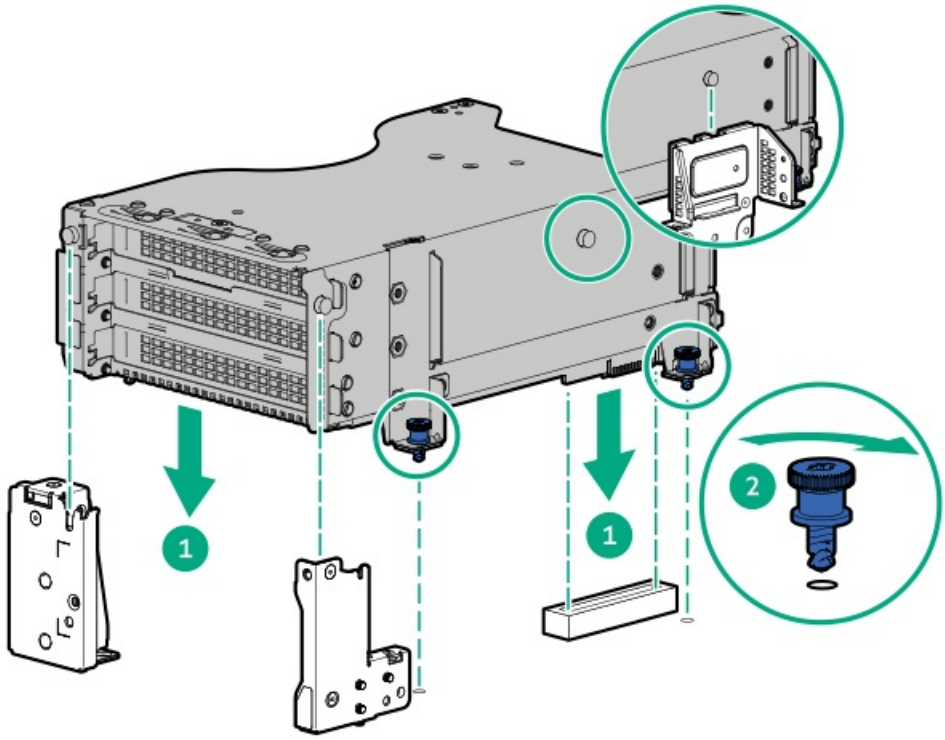


10. Install the following options on the secondary riser cage:
    - Stacking riser

- Expansion card
- Storage controller
- HPE NS204i Boot Device

11. To install the secondary riser cage:
    a. Align the pins on the riser cage with the notches on the rear side of the server, and the notches on the riser cage bracket.
    b. Carefully press the riser down on its system board connector.

       Make sure that the riser board is firmly seated.
    c. Tighten the captive screws.



12. Make sure that all the system cables that are secured in the cable guard and routed through the cable channel along the side of the chassis.
13. Install the air baffle.
14. Install the access panel.
15. Install the server into the rack.
16. Connect all peripheral cables to the server.
17. Connect the power cords:
    a. Connect each power cord to the server.
    b. Connect each power cord to the power source.
18. Power up the server.

Results

The installation procedure is complete.

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

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

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-o storage controller (OROC)

Prerequisites

- To enable the flash-backed write cache (FBWC) feature of a storage controller option, install an energy pack.

  For more information on the controller caching feature, see the controller QuickSpecs on the Hewlett Packard Enterprise website (**https://www.hpe.com/info/qs**).
- Before you perform this procedure, make sure that you have the following items available:
  - Compatible controller cable

- T-10 Torx screwdriver
- Spudger or any small prying tool

About this task

This server supports type-o storage controller installation in the OCP slots 17 and 18.

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.

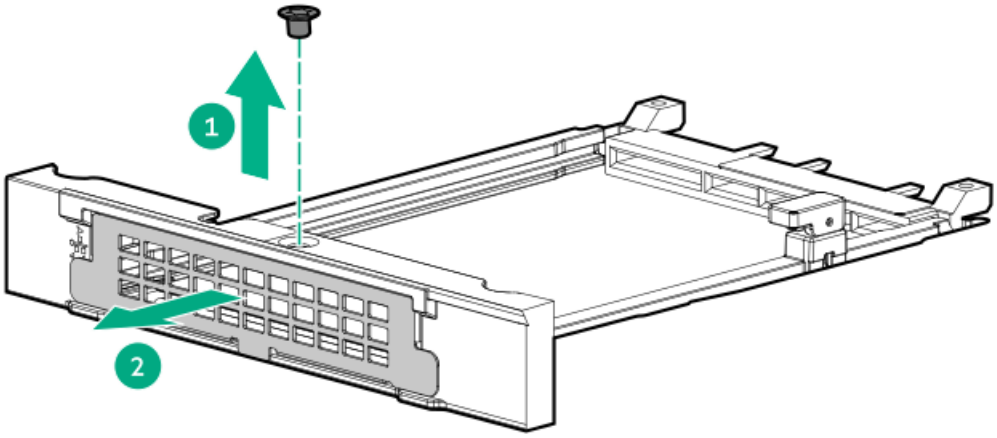
CAUTION

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

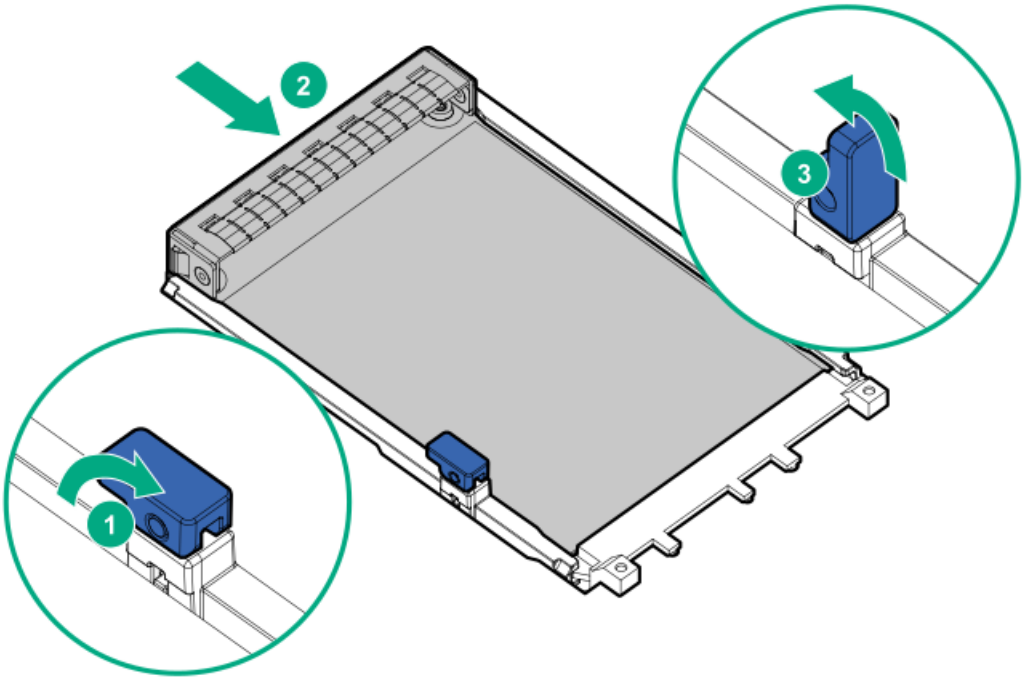
1. Back up all server data.
2. Power down the server.
3. If installed, Open the cable management arm.
4. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
5. Disconnect all peripheral cables from the server.
6. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
7. Place the server on a flat, level work surface.
8. Remove the access panel.
9. Remove an air baffle.
10. Remove a riser cage.
11. Remove the OCP slot blank:
    a. Remove the blank screw.
    b. Remove the blank.

    Retain the screw and blank for future use.



12. 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.



13. Install a riser cageInstall the riser cage.
14. To enable the FBWC feature of the storage controller, install an energy pack.
15. Make sure that all the system cables that are secured in the cable guard and routed through the cable channel along the side of the chassis.
16. Install the air baffle.
17. Install the access panel.
18. Install the server into the rack .

19. Connect all peripheral cables to the server.
20. Connect the power cords:
    a. Connect each power cord to the server.
    b. Connect each power cord to the power source.
21. Power up the server.
22. Update the server firmware if they are not the latest revision .
23. Configure the controller.

Results

The installation procedure is complete.

Installing a type-p storage controller

Prerequisites

- To enable the flash-backed write cache (FBWC) feature of a storage controller option, install an energy pack.

  For more information on the controller caching feature, see the controller QuickSpecs on the Hewlett Packard Enterprise website (**https://www.hpe.com/info/qs**).
- Before you perform this procedure, make sure that you have the following items available:
  - Compatible controller cable
  - T-10 Torx 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
To prevent improper cooling and thermal damage, do not operate the server unless all PCIe slots have either a riser slot blank or an expansion card installed.

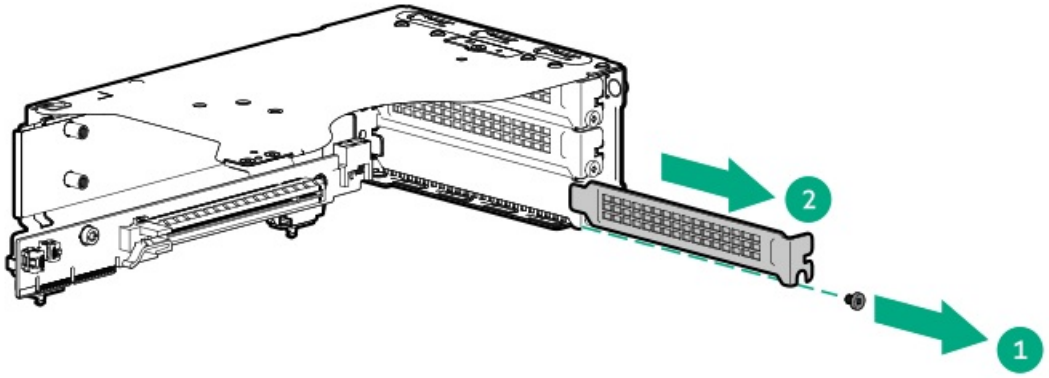
Procedure

1. Back up all server data.
2. Power down the server.
3. If installed, Open the cable management arm .
4. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
5. Disconnect all peripheral cables from the server.
6. Do one of the following:

- Extend the server out of the rack
- Remove the server from the rack

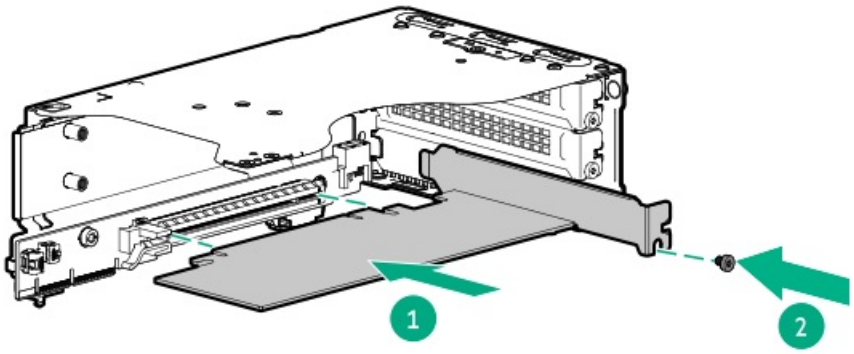
7. Place the server on a flat, level work surface.
8. Remove the access panel.
9. Remove an air baffle.
10. Remove a riser cage.
11. Install the type-p controller:
    a. Remove the riser slot blank.

       Retain the screw and blank. This screw will be used to secure the new type-p storage controller.



    b. Install the storage controller

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



12. Install a riser cageInstall the riser cage.
13. Make sure that all the system cables that are secured in the cable guard and routed through the cable channel along the side of the chassis.
14. Install the air baffle.
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. Power up the server.
20. Update the server firmware if they are not the latest revision .
21. Configure the controller.

Results

The installation procedure is complete.

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

The HPE Smart Storage Battery supports both HPE SR and MR storage 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 96 W HPE Smart Storage Battery with the 145 mm cable.

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

For more information, see HPE Smart Storage Batteries and Hybrid Capacitors QuickSpecs:

https://www.hpe.com/psnow/doc/a00028553enw.pdf?jumpid=in_pdp-psnow-qs

HPE Smart Storage Hybrid Capacitor

The HPE Smart Storage Hybrid Capacitor supports both HPE SR and MR storage controllers.

The capacitor pack can support up to three devices.

This server supports the HPE Smart Storage Hybrid Capacitor with the 145 mm cable.

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.

For more information, see HPE Smart Storage Batteries and Hybrid Capacitors QuickSpecs:

https://www.hpe.com/psnow/doc/a00028553enw.pdf?jumpid=in_pdp-psnow-qs

Subtopics

Minimum firmware versions

Product	Minimum firmware version
Server system ROM	1.20
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 the energy pack

Prerequisites

Before you perform this procedure:

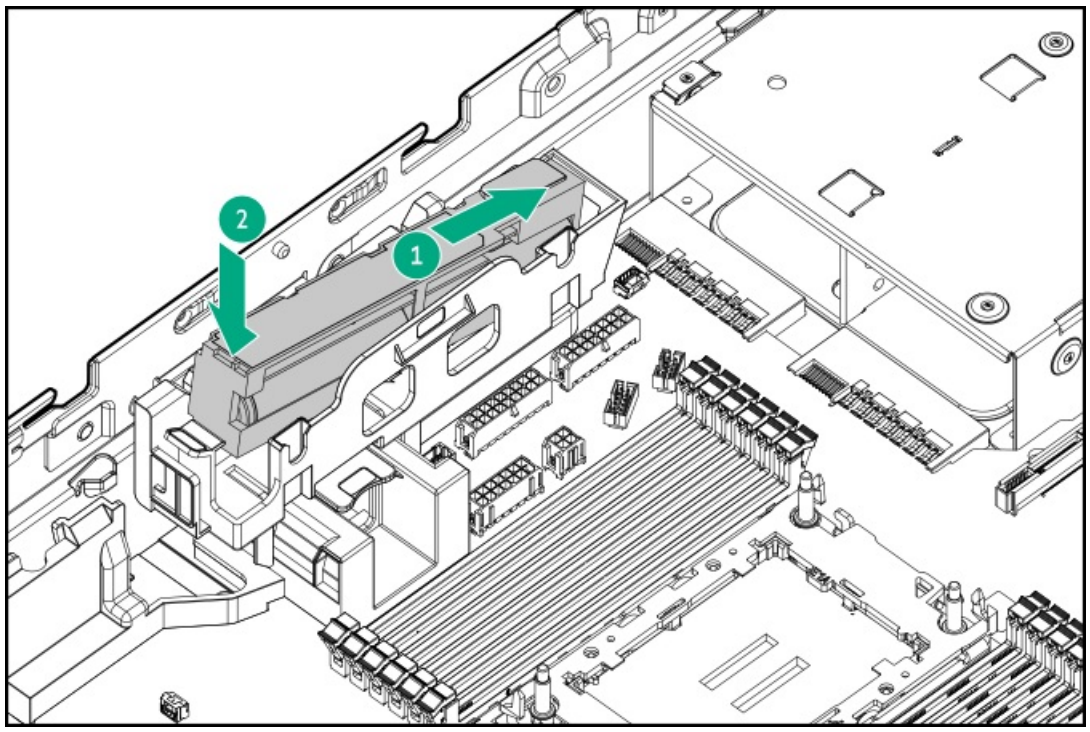
- Make sure that an SR/MR type-p or type-o storage controller is installed .
- Make sure that you have the following items available:
  - Storage controller backup power cable (ships with the storage controller)
  - Energy pack option

Procedure

1. Back up all server data.
2. Power down the server.
3. If installed, Open the cable management arm .
4. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.

5. Disconnect all peripheral cables from the server.
6. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
7. Place the server on a flat, level work surface.
8. Remove the access panel.
9. Remove an air baffle.
10. Install the energy pack:
    a. Insert the energy pack at an angle in the holder.
    b. Pivot the energy pack downward.

       Make sure that the energy pack is locked in the holder.



11. Connect the energy pack cable to the system board.
12. Make sure that all the system cables that are secured in the cable guard and routed through the cable channel along the side of the chassis.
13. Install the air baffle.
14. Install the access panel.
15. Install the server into the rack.
16. Connect all peripheral cables to the server.
17. Connect the power cords:
    a. Connect each power cord to the server.
    b. Connect each power cord to the power source.
18. Power up the server.

Results

The installation procedure is complete.

Expansion card options

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

- HPE type-p storage controller
- Ethernet adapter
- HDR InfiniBand adapter
- Fibre channel host bus adapter (FC HBA)
- Accelerator (workload, computational, or graphics processing unit)

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

https://buy.hpe.com/us/en/p/1014696168

Subtopics

Installing an expansion card on the two-slot riser cage

Prerequisites

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

About this task

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

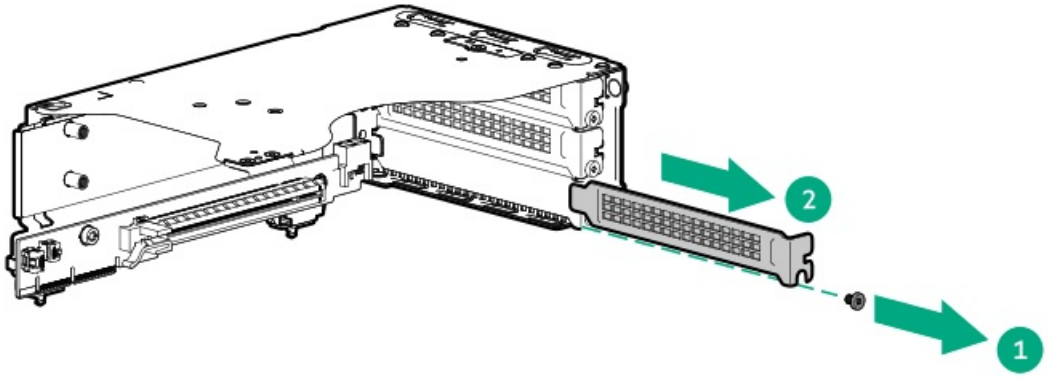
CAUTION
To prevent improper cooling and thermal damage, do not operate the server unless all PCIe slots have either a riser slot blank or an expansion card installed.

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.

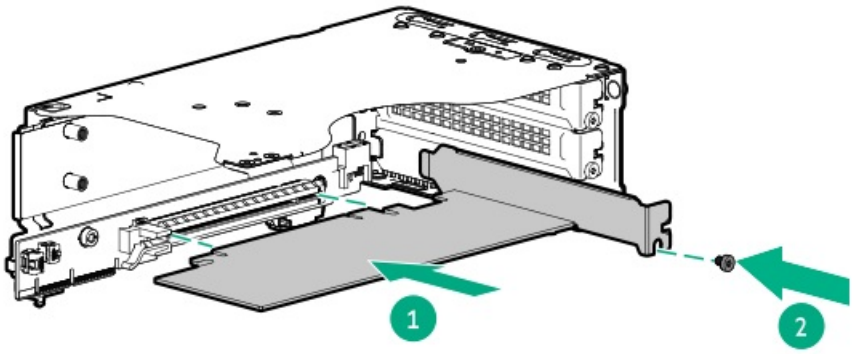
5. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove a riser cage.
9. Install the expansion card:
   a. Remove the riser slot blank.

      Retain the screw and the blank. This screw will be used to install the new expansion card.



   b. Install the expansion card.

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



10. Install a riser cageInstall the riser cage.
11. Connect all necessary internal cabling to the expansion card.

    For more information on these cabling requirements, see the documentation that ships with the option.
12. Install the access panel.
13. Install the server into the rack.
14. Connect all peripheral cables to the server.

15. Connect the power cords:
    a. Connect each power cord to the server.
    b. Connect each power cord to the power source.
16. Power up the server.

Results

The installation procedure is complete.

Processor heatsink assembly option

Subtopics

Processor cautions

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
The pins on the processor socket and on the processor are very fragile and easily damaged . To avoid component damage, **do not touch these pins**. Any damage to them might require replacing the system board and/or processor.

IMPORTANT
Processor socket 1 must be populated at all times or the server does not function.

IMPORTANT
If installing a processor with a faster speed, update the system ROM before installing the processor. To download firmware, see Updating firmware or system ROM.

IMPORTANT
After removing a processor from the system board, the server resets the date and time. For information on reconfiguring these settings, see Reconfiguring the system date and time settings.

Installing the processor heatsink assembly

Prerequisites

- Identify the heatsink and processor socket components.
- Review the processor cautions.
- Before you perform this procedure, make sure that you have the following items available:
  - Torque screwdriver with T-30 Torx bit
  - Two 1.0 gm (0.5 ml) of thermal grease

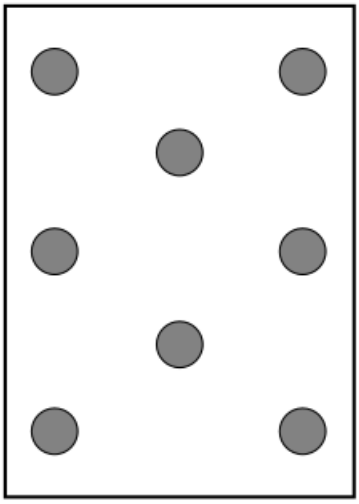
About this task

CAUTION

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

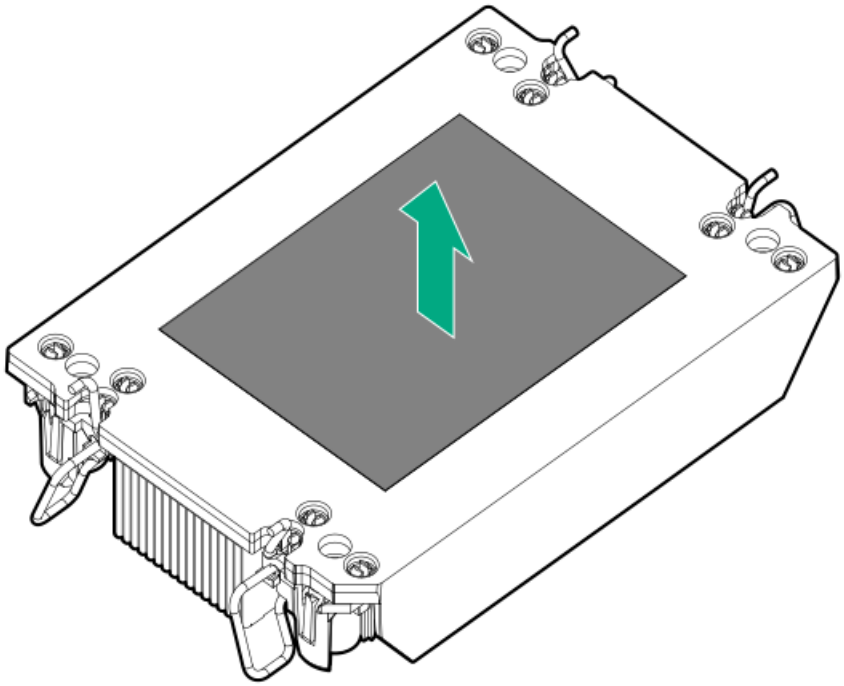
Procedure

1. Power down the server.
2. 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:
   - Extend the server out of the rack
   - Remove the server from the rack
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove an air baffle.
9. 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.

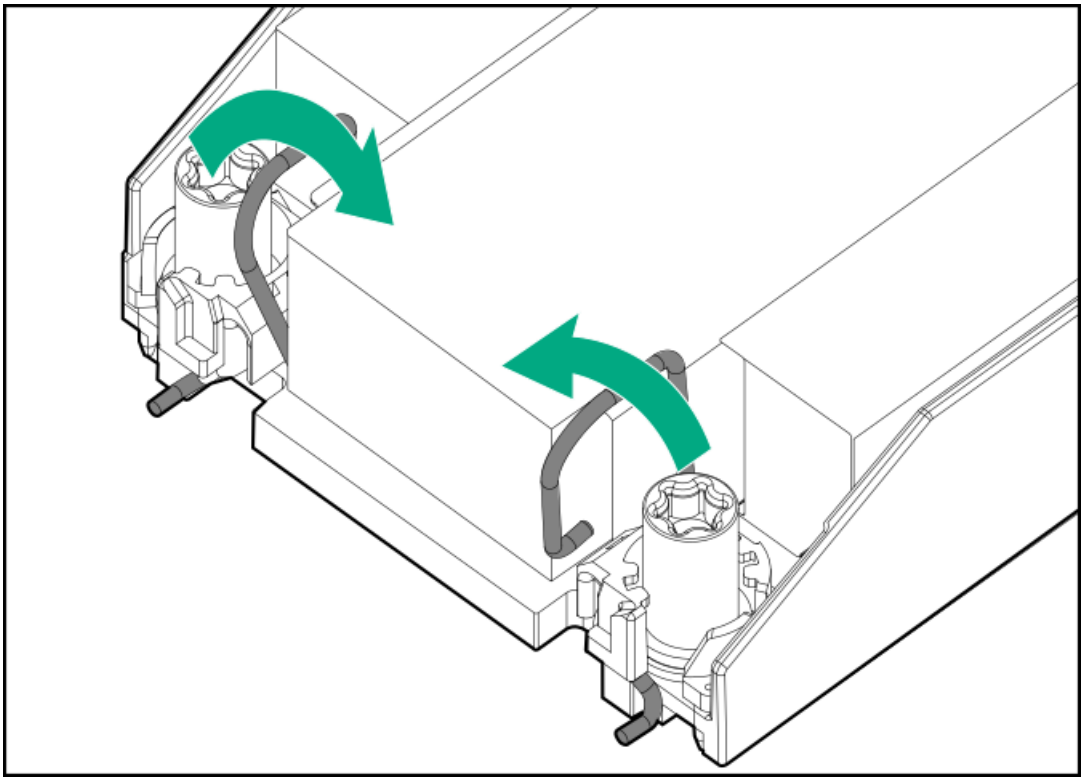


10. If you are using a new heatsink, remove the protective film from the thermal interface material.

> **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.



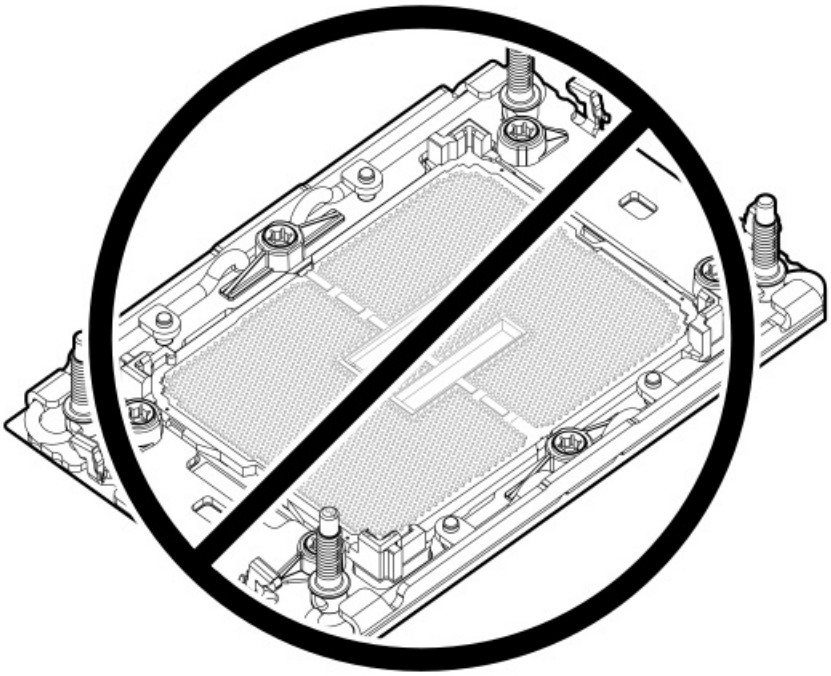
11. Set the anti-tilt wires to the unlocked position.

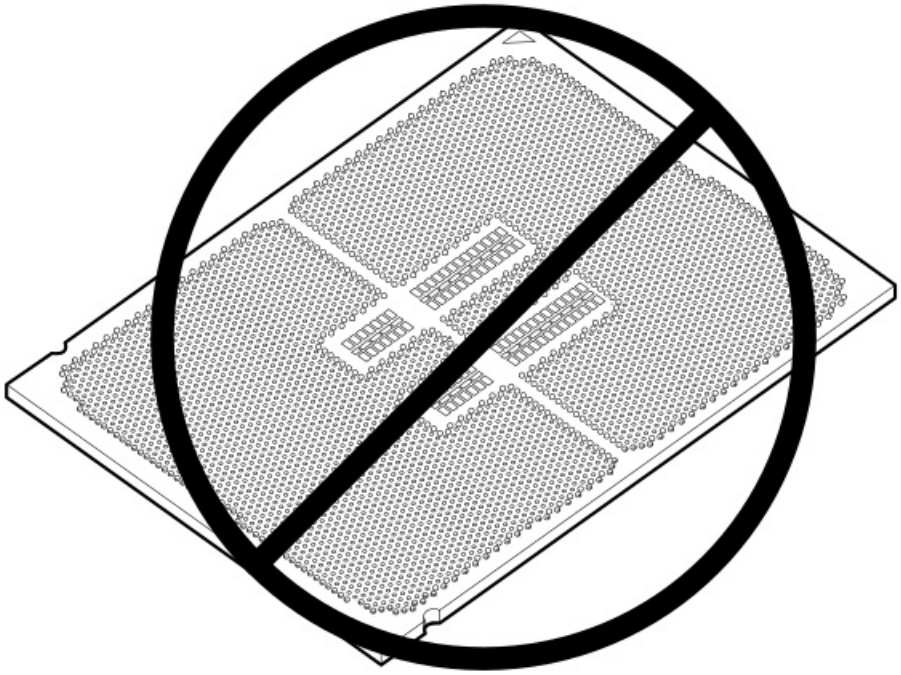


12. Do not touch the pins on the processor socket and the processor.

CAUTION

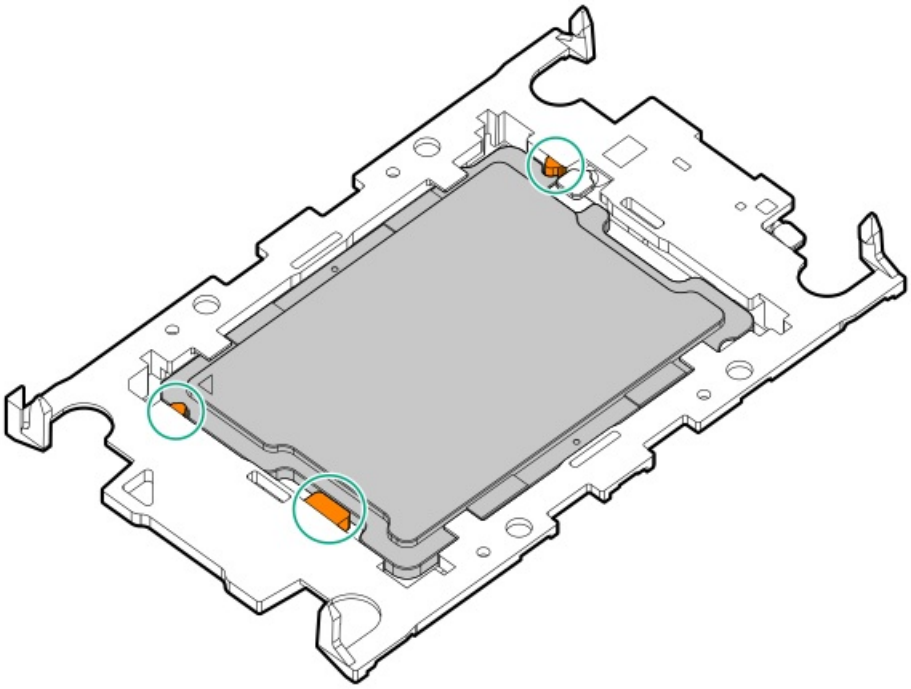
THE PINS ON THE PROCESSOR SOCKET AND ON THE PROCESSOR ARE VERY FRAGILE AND EASILY DAMAGED. Any damage to them might require replacing the system board.





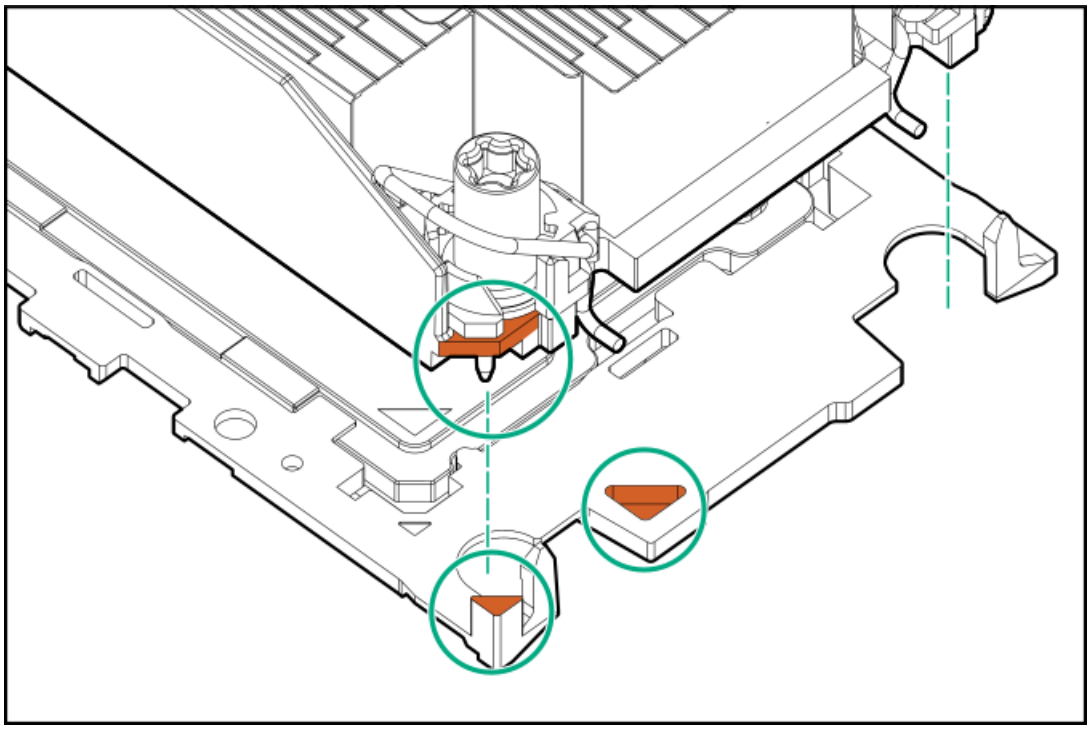
13. Verify that the processor is securely latched to the processor carrier.

    The following illustration calls out the keying feature tabs that secure the processor. Different processor carriers will have these tabs in different locations.



14. Attach the heatsink to the processor carrier:

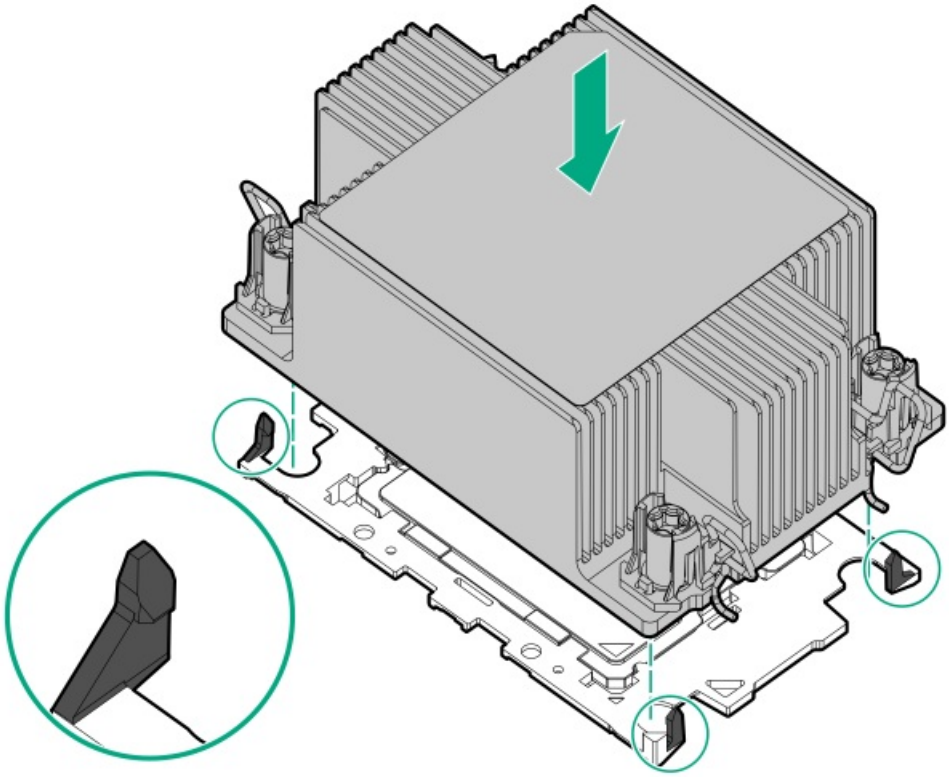
    a. Align the pin 1 indicator on the processor carrier with that on the heatsink.



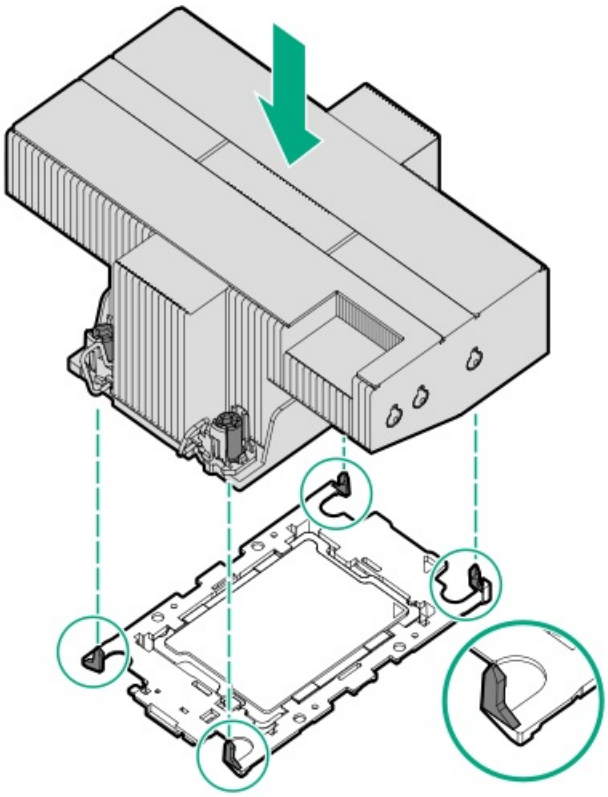
b. Lower the heatsink on the processor carrier until the carrier tabs snap into place.

   There will be an audible click to indicate that the heatsink is properly latched on the processor carrier.

   - Standard heatsink

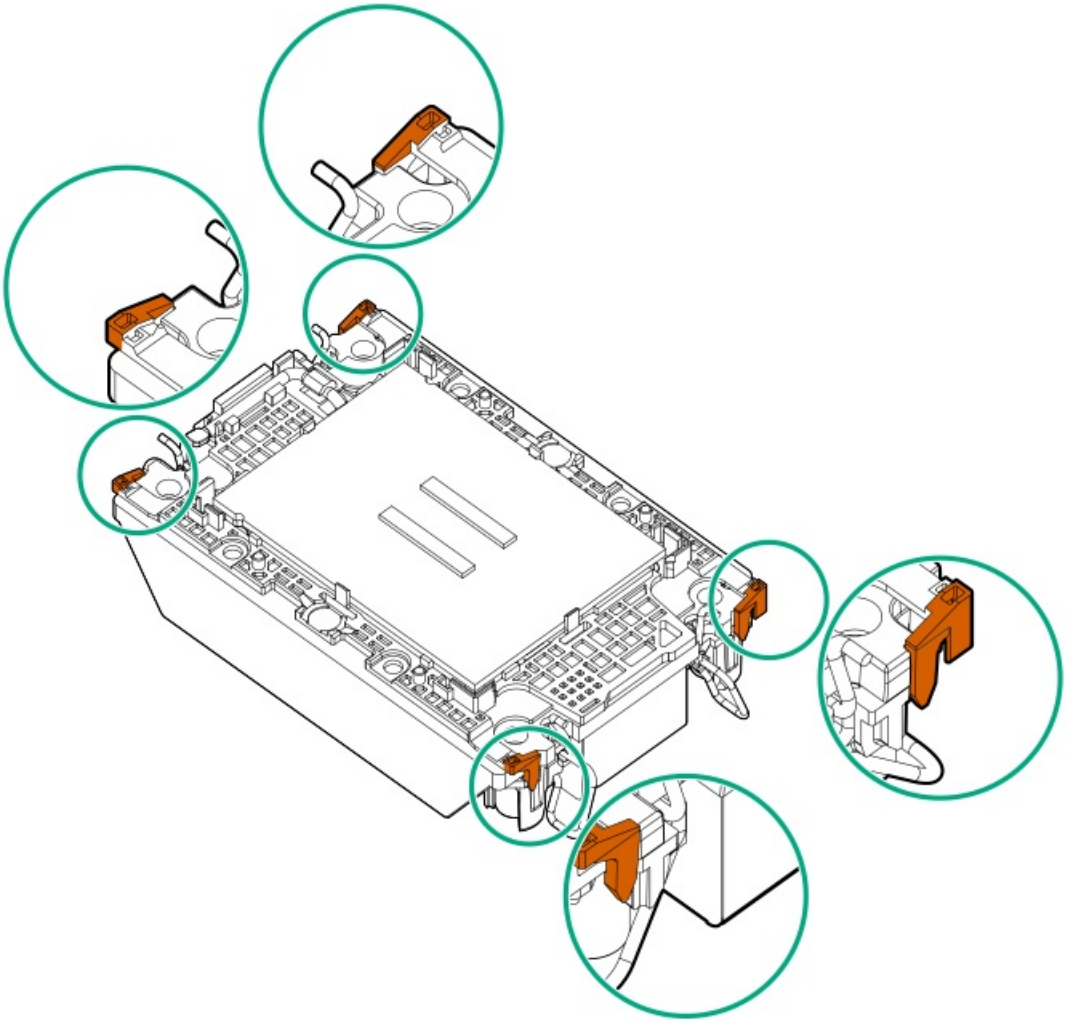


   - High performance heatsink

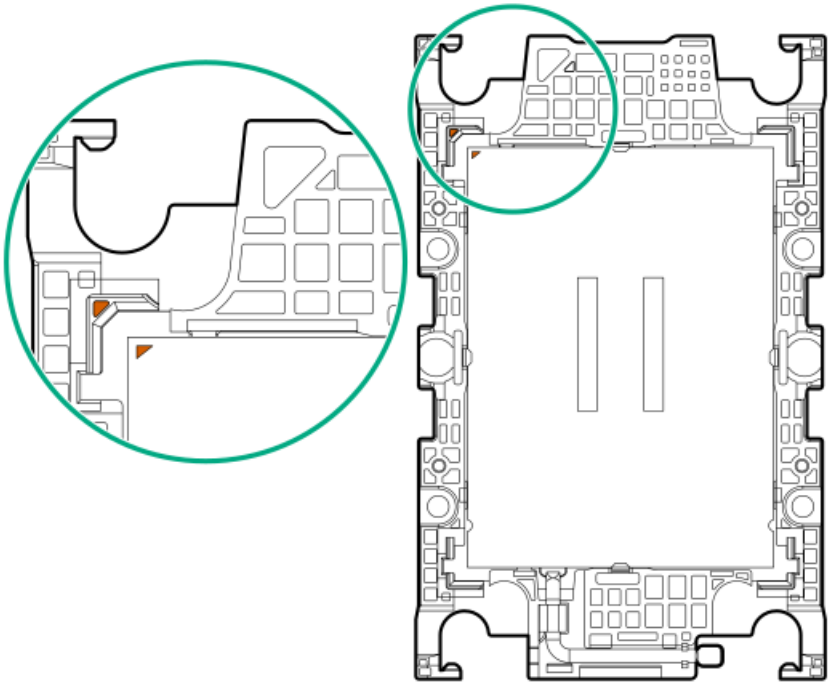


15. Perform the following verification steps:

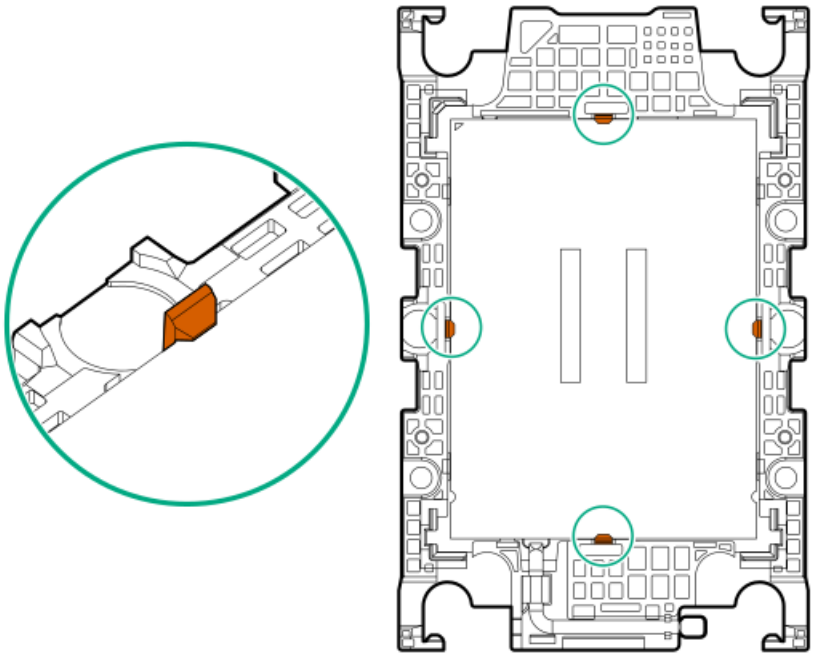
    a. Verify that the tabs on the processor carrier are securely latched on the heatsink.



b. Verify that the pin 1 indicators on the processor and processor carrier are aligned.



c. Verity that the processor is properly secured by the carrier snaps.



16. **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.

Install the processor-heatsink module:

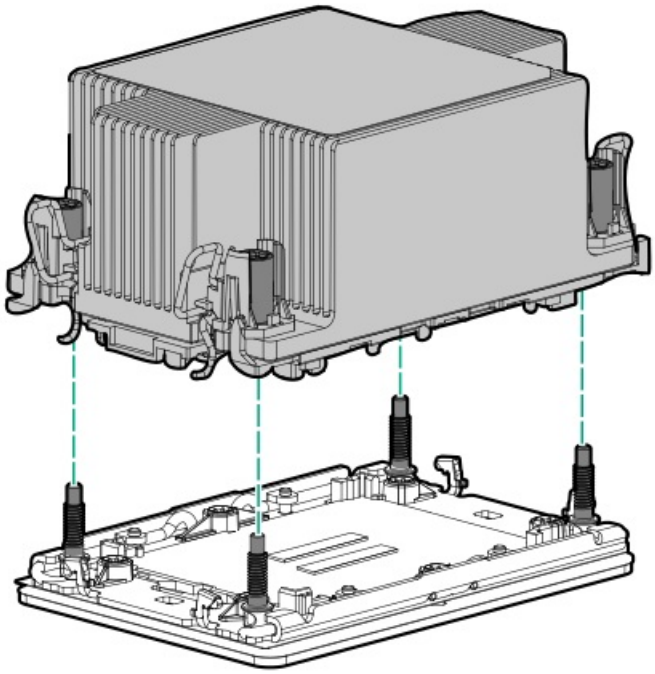
a. When using a torque wrench to tighten the heatsink screws, set 0.9 N-m (8 in-lb) of torque .

b. Note the **Front of server** text on the heatsink label to correctly orient the processor-heatsink module over the bolster plate.

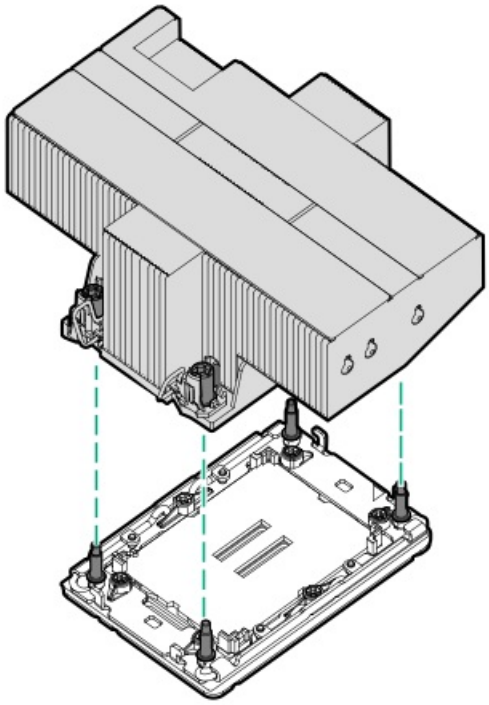
c. Carefully lower the processor-heatsink module onto the bolster plate guide posts.

   The posts are keyed so that the module can only be installed one way. Make sure that the module is properly seated on the bolster plate before securing the screws.

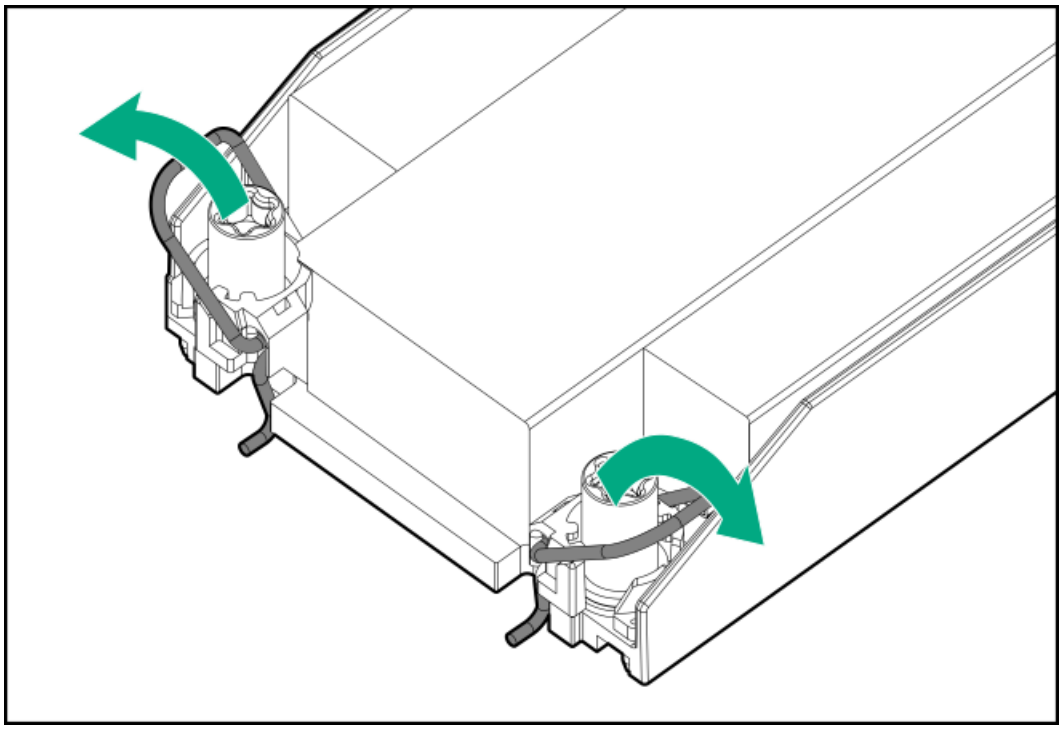
   - Standard heatsink



- High performance heatsink

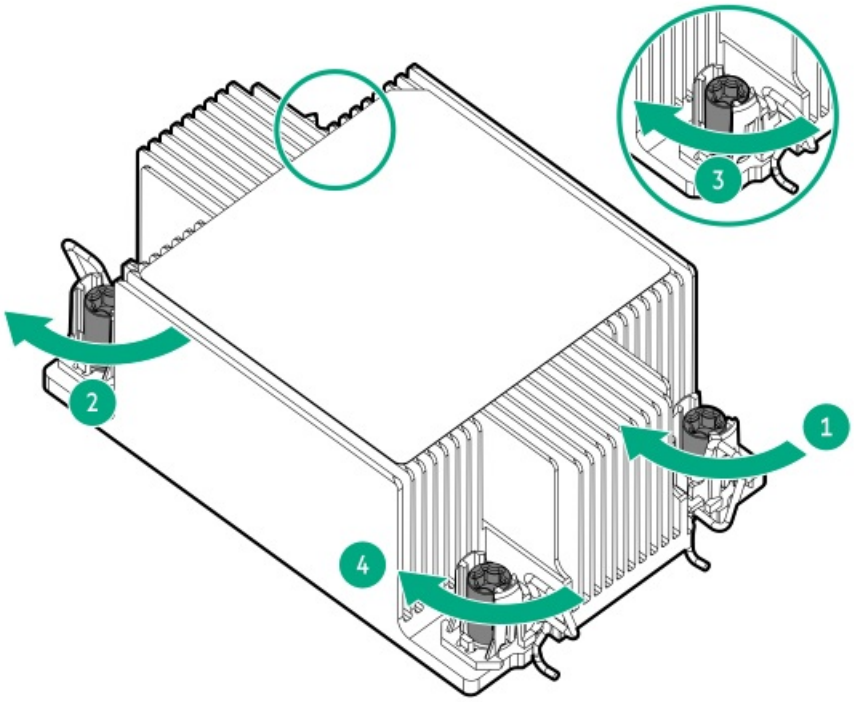


d. Set the anti-tilt wires to the locked position.

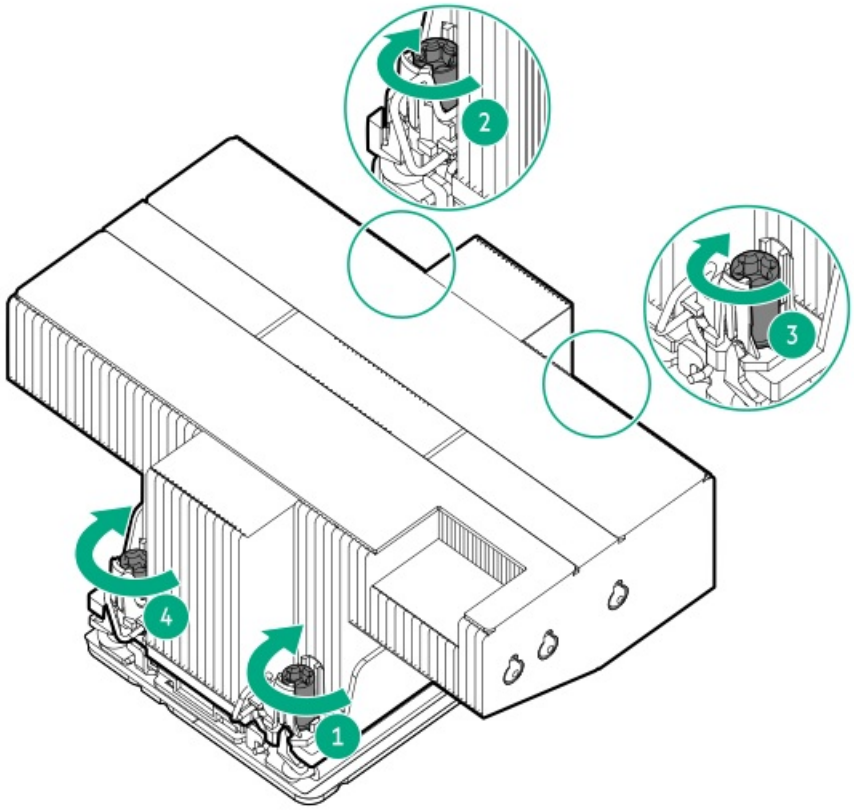


e. Tighten one pair of diagonally opposite heatsink screws, and then tighten the other pair of heatsink screws.

- Standard heatsink



- High performance heatsink



17. Make sure that all the system cables that are secured in the cable guard and routed through the cable channel along the side of the chassis.
18. Install the air baffle.
19. Install the access panel.
20. Install the server into the rack.
21. Connect all peripheral cables to the server.
22. Connect the power cords:
    a. Connect each power cord to the server.
    b. Connect each power cord to the power source.
23. Power up the server.
24. Reconfiguring the system date and time settings.

Results

The installation procedure is complete.

Reconfiguring the system date and time settings

Procedure

1. Access the UEFI System Utilities. During POST, press **F9**.
2. From the System Utilities screen, select System Configuration > BIOS/Platform Configuration (RBSU) > Date and Time.
3. Select a setting, and then complete your entry.

- Date (mm-dd-yyyy)—Enter the date in a month-day-year (mm-dd-yyyy) format.
- Time (hh:mm:ss)—Enter the time in a 24-hour format (hh:mm:ss) format.
- Hour Format—Select either a 12- or 24-hours format. (This setting is supported in Gen10 Plus and later servers.)
- Time Format
  - Coordinated Universal Time (UTC) —Calculates the time stored in the hardware real-time clock (RTC) from the associated Time Zone setting.
  - Local Time—Removes the use of the Time Zone setting. This option is useful for addressing interaction issues in Windows operating systems set in legacy BIOS boot mode.
- Time Zone—Select the time zone for the system.
- Daylight Savings Time
  - Enabled—Adjusts the local time displayed by one hour for Daylight Savings Time.
  - Disabled—Does not adjust the local time displayed for Daylight Savings Time.

4. To confirm and save the settings, press **F12**.

   The server automatically reboots.

HPE NS204i-u Boot Device option

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

- The HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device is a PCIe5 custom form factor module that includes two hot-pluggable 2280 M.2 NVMe SSDs.
- This boot device enables the deployed OS to be mirrored through a dedicated hardware RAID 1.
- The boot device auto-creates a RAID1 volume during boot. This means the boot device does not require further RAID configuration.
- This boot device is compatible with the following native OS:
  - Windows
  - Linux
  - VMware
- This boot device uses native inbox OS NVMe drivers.

Subtopics

Installing the rear HPE NS204i Boot Device

Prerequisites

- Make sure that the server is updated with the latest operating system firmware and drivers.
- Identify the HPE NS204i-u Boot Device components.
- Before you perform this procedure, make sure that you have the following items available:

- T-10 Torx screwdriver
- Phillips No. 1 screwdriver—This tool is required only if the M.2 SSDs are not preinstalled on the boot device carriers.

About this task

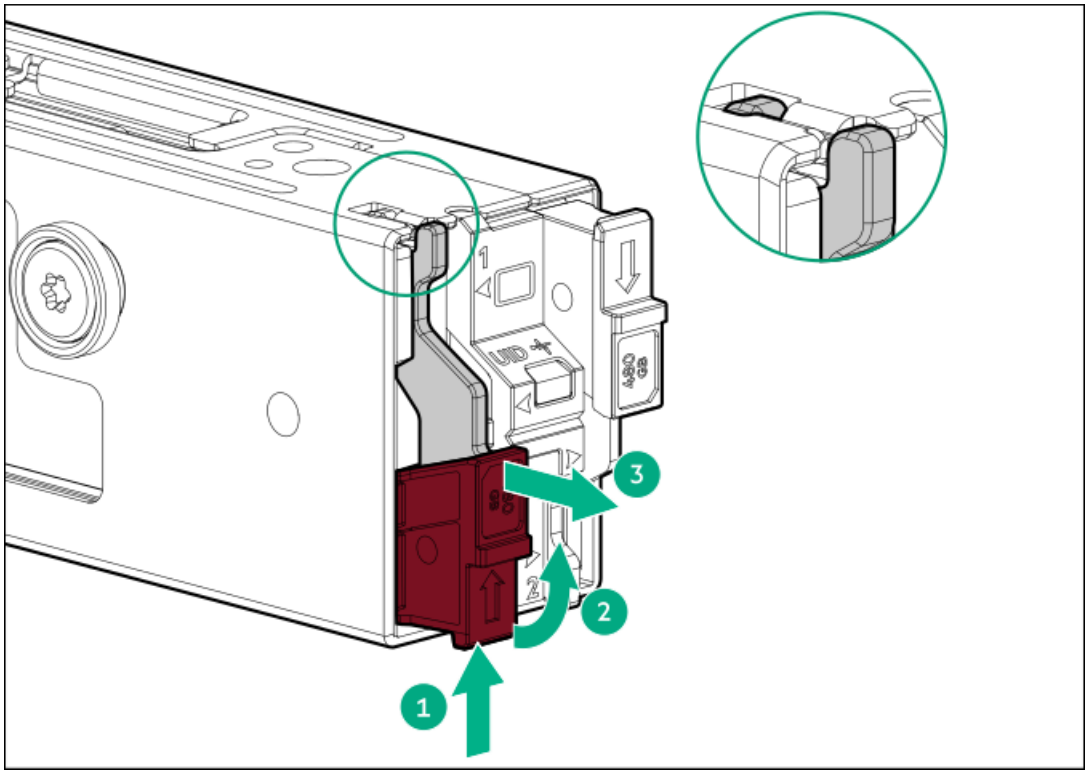
CAUTION

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

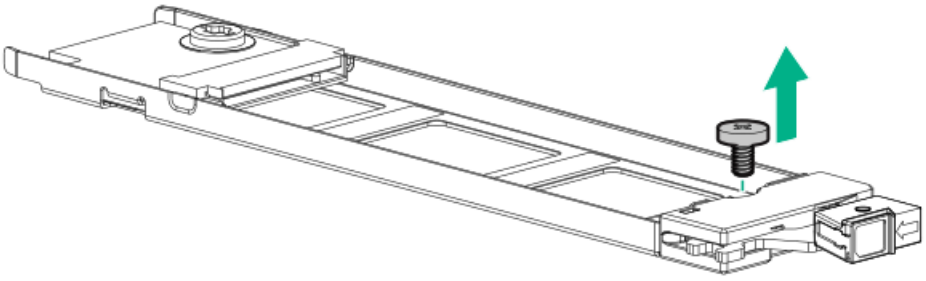
Procedure

Installing drives onto the boot device

1. Remove the boot device carrier:
   a. Press and hold the carrier latch.
   b. Pivot the latch to open.
   c. Slide the carrier out from the boot device cage.

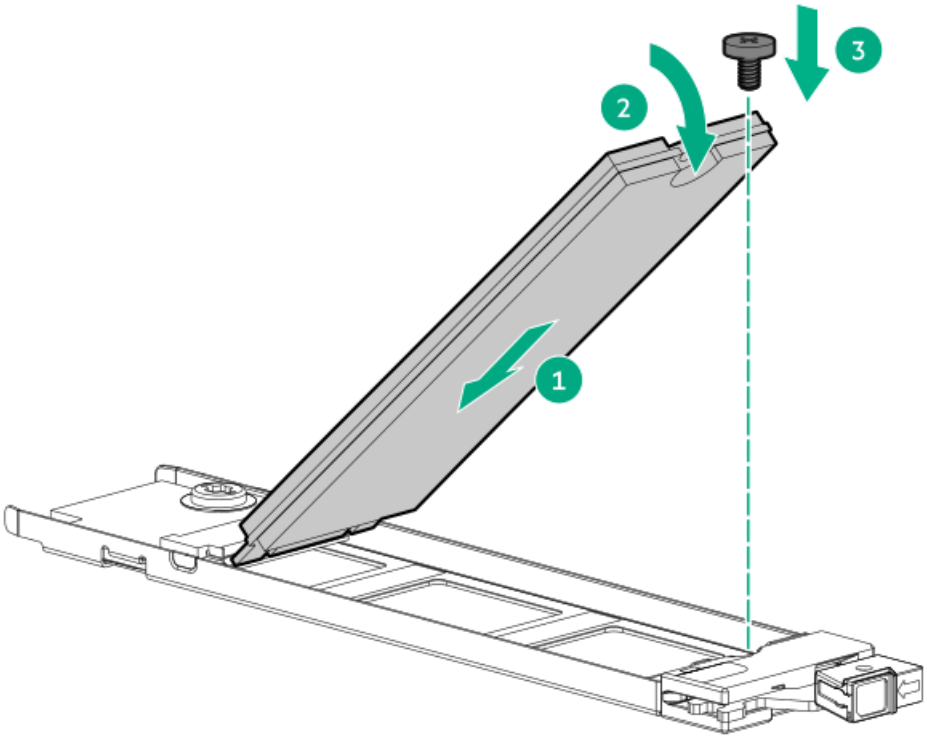


2. Install the SSD on the boot device carrier:
   a. Remove the SSD mounting screw.



   b. Insert the SSD into the M.2 slot at a 45° angle.
   c. Carefully press the SSD down to the horizontal position.

d. Install the SSD mounting screw.



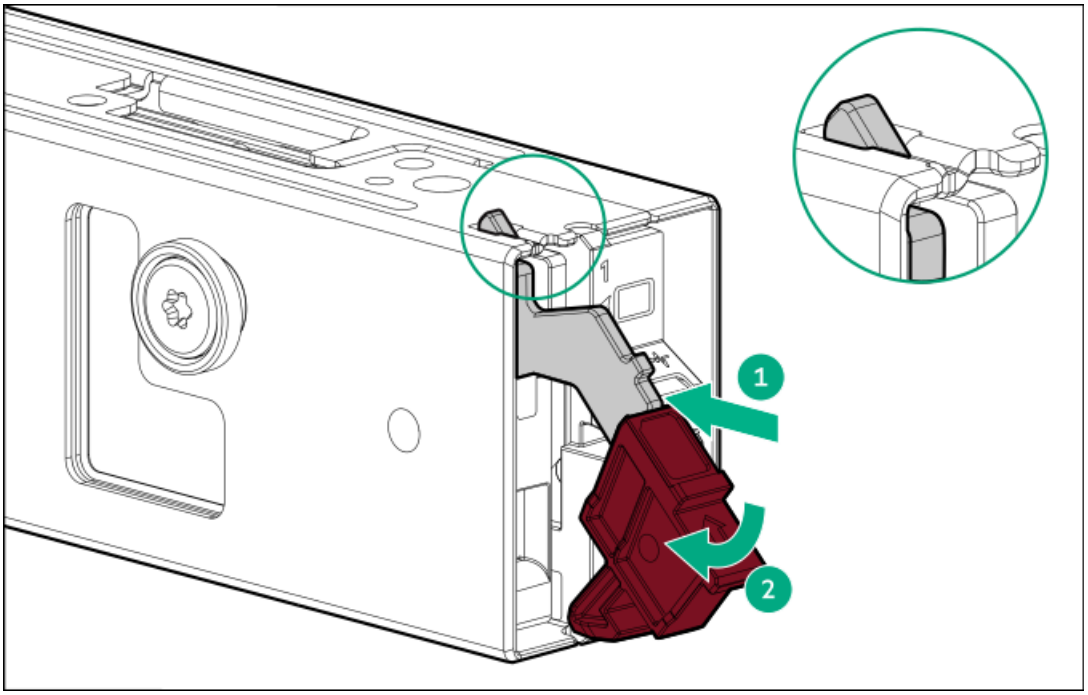
3. Install the boot device carriers:

   a. If closed, pivot the carrier latch to open.

   b. Slide the carrier into the boot device cage.

   c. Pivot the latch to close.

      Make sure that the carrier latch is locked on the boot device cage.

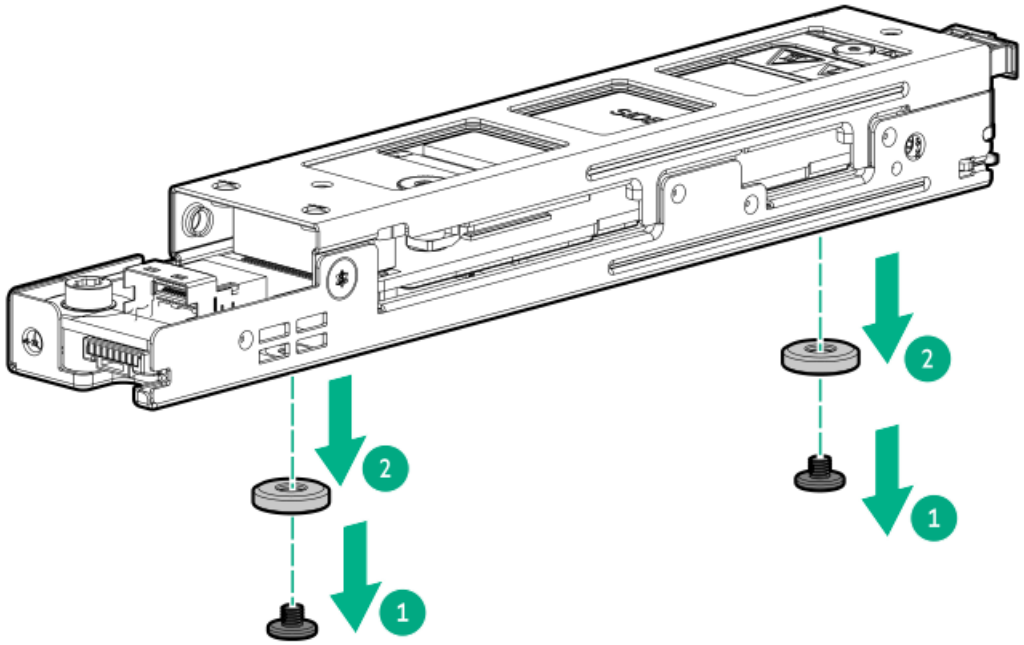


Installing the boot device

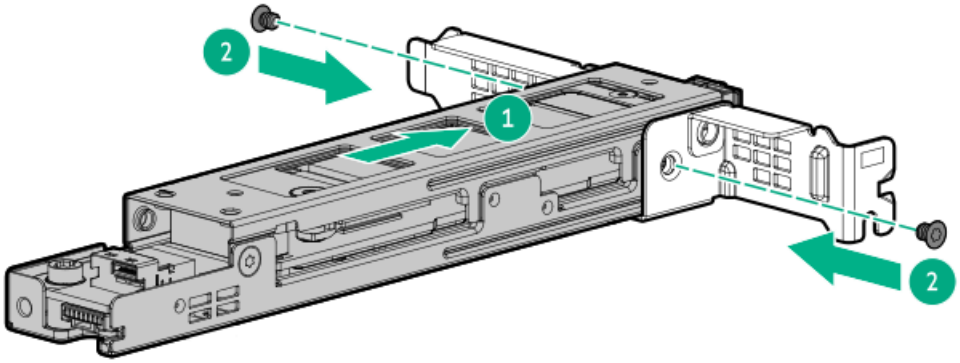
4. Back up all server data.

5. Power down the server.

6. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
7. Disconnect all peripheral cables from the server.
8. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
9. Place the server on a flat, level work surface.
10. Remove the access panel.
11. Remove an air baffle.
12. Remove the screws and spools from the HPE NS204i-u Boot Device.

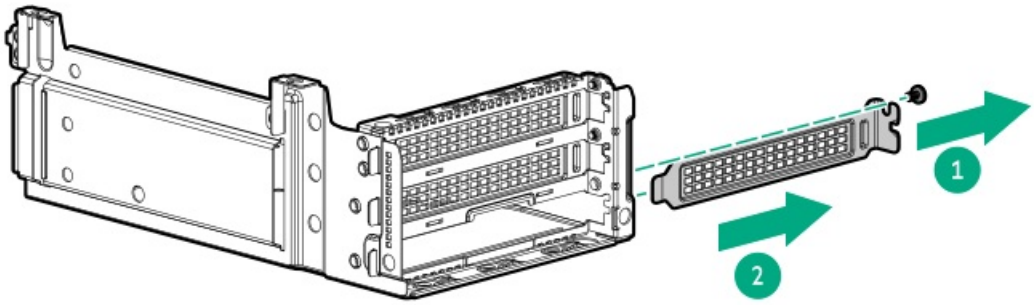


13. Install the boot device onto the bracket:
    a. Slide the boot device onto the bracket.
    b. Install the screws on the side.

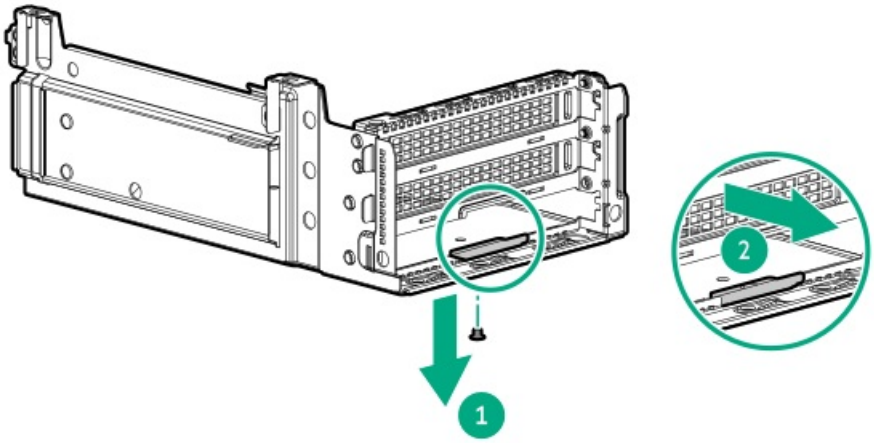


14. Connect the signal and power cables to a boot device.
15. Remove the slot blank from the secondary riser cage.

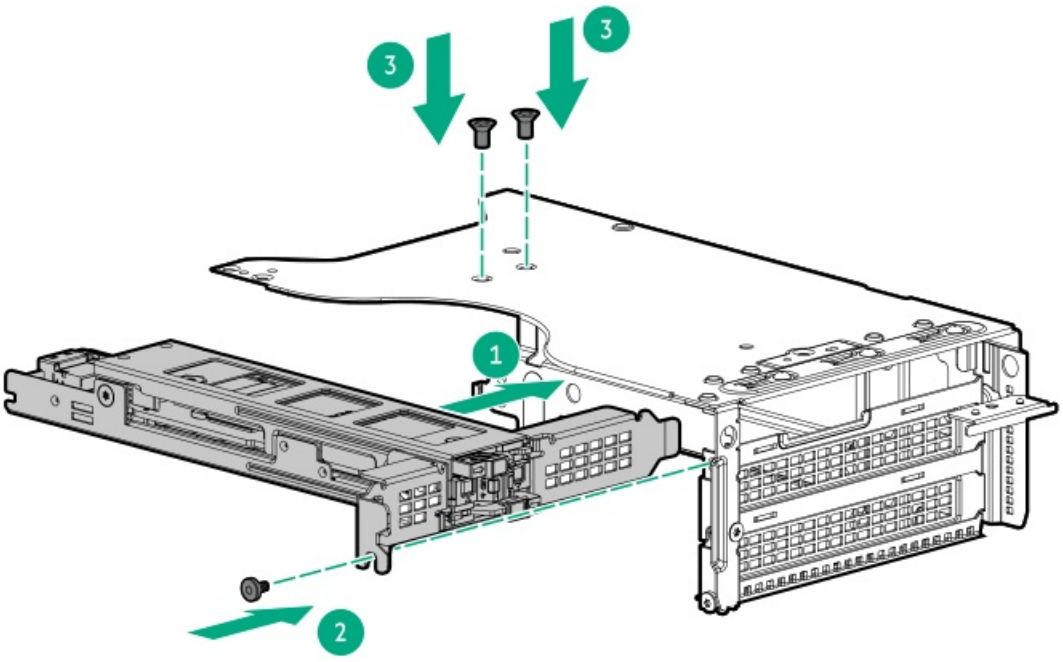
    Retain the screw. This screw will be used to secure the boot device.



16. Remove the boot device cover from the secondary riser cage.



17. Install the boot device assembly on the secondary riser cage.



18. Install a riser cageInstall the riser cage.
19. Connect the HPE NS204i Boot Device cables to the system board.
20. Make sure that all the system cables that are secured in the cable guard and routed through the cable channel along the side of the chassis.
21. Install the air baffle.
22. Install the access panel.
23. Install the server into the rack.
24. Connect all peripheral cables to the server.
25. Connect the power cords:
    a. Connect each power cord to the server.
    b. Connect each power cord to the power source.
26. Power up the server.
27. Verify the Online/Activity LEDs on the HPE NS204i Boot Device are in solid green.

Results

The installation procedure is complete.

Installing the internal HPE NS204i Boot Device

Prerequisites

- Make sure that the server is updated with the latest operating system firmware and drivers.
- Identify the HPE NS204i-u Boot Device components.
- Before you perform this procedure, make sure that you have the following items available:

- T-10 Torx screwdriver
- Phillips No. 1 screwdriver—This tool is required only if the M.2 SSDs are not preinstalled on the boot device carriers.

About this task

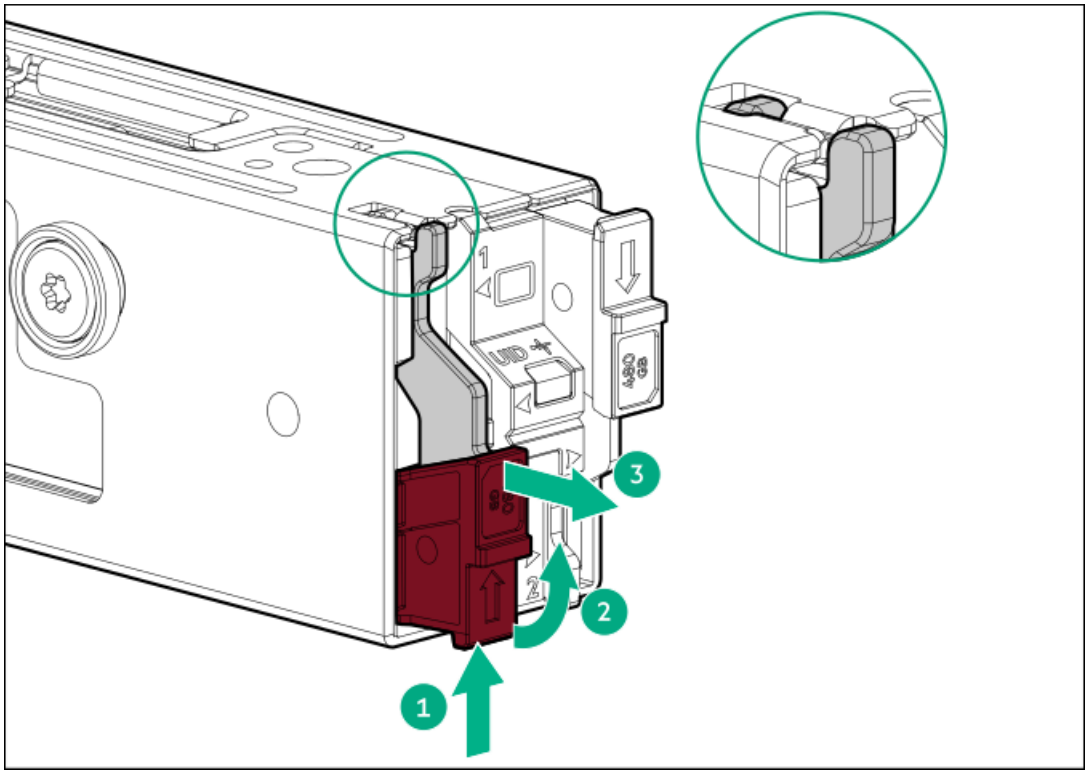
CAUTION

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

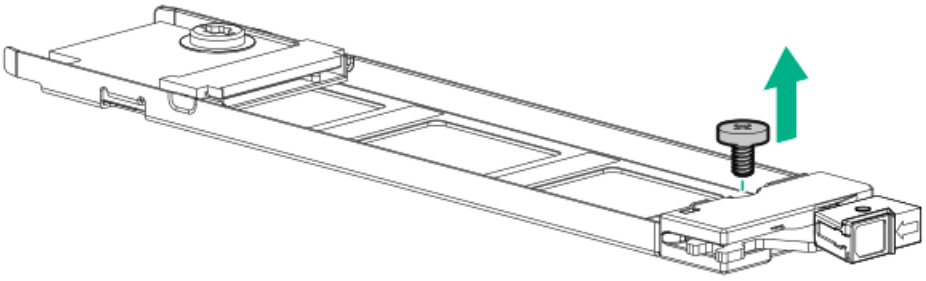
Procedure

Installing drives onto the boot device

1. Remove the boot device carrier:
   a. Press and hold the carrier latch.
   b. Pivot the latch to open.
   c. Slide the carrier out from the boot device cage.

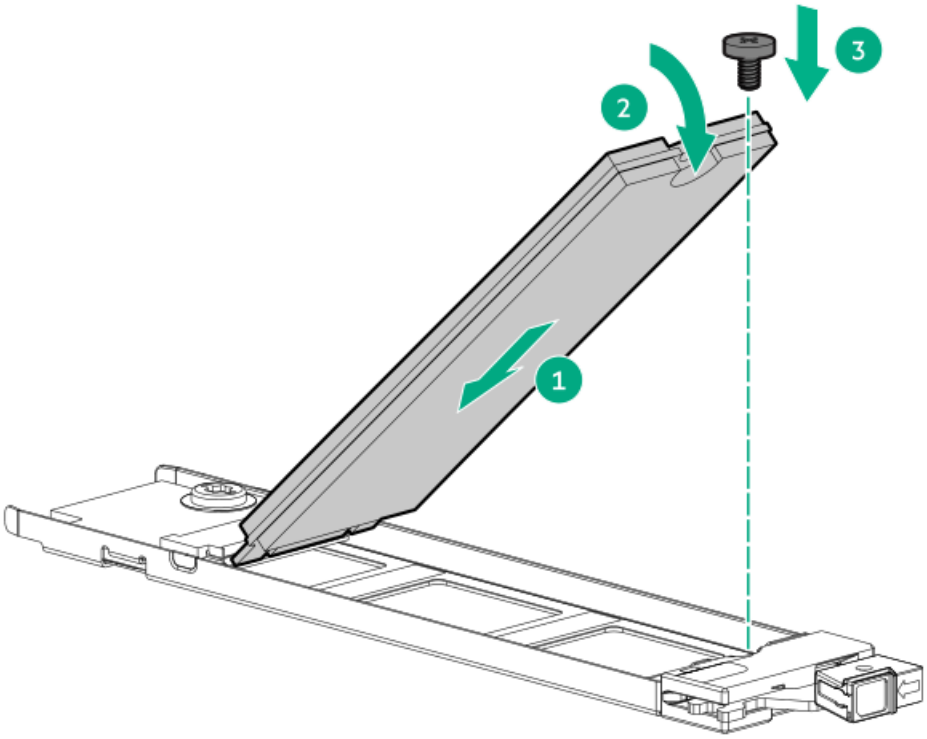


2. Install the SSD on the boot device carrier:
   a. Remove the SSD mounting screw.



   b. Insert the SSD into the M.2 slot at a 45° angle.
   c. Carefully press the SSD down to the horizontal position.

d. Install the SSD mounting screw.



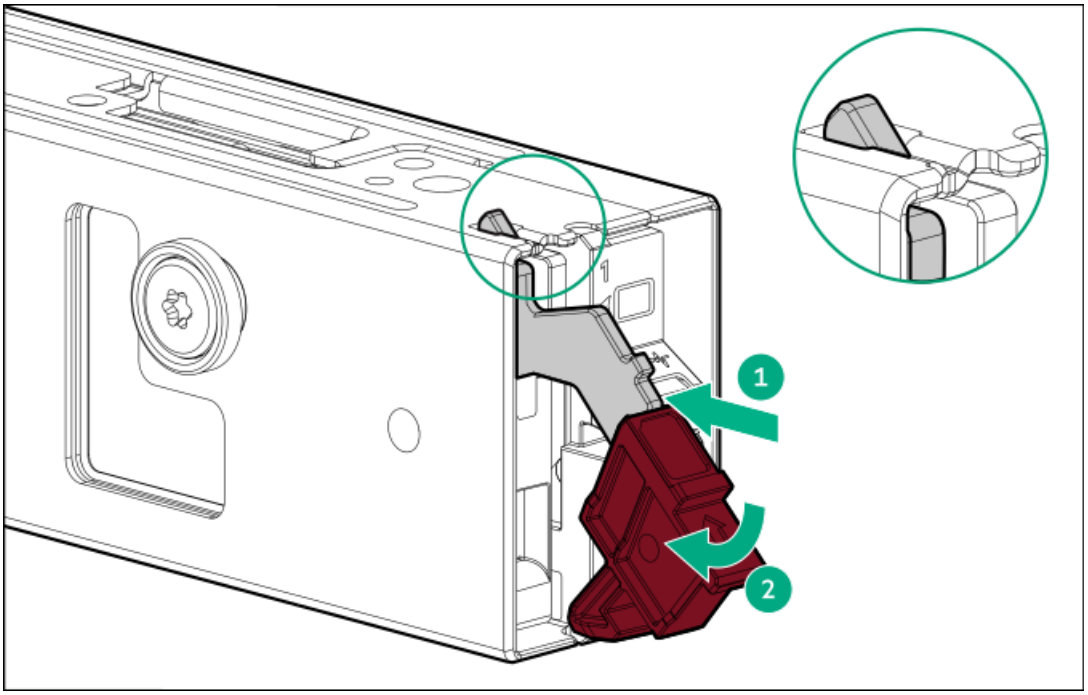
3. Install the boot device carriers:

   a. If closed, pivot the carrier latch to open.

   b. Slide the carrier into the boot device cage.

   c. Pivot the latch to close.

      Make sure that the carrier latch is locked on the boot device cage.



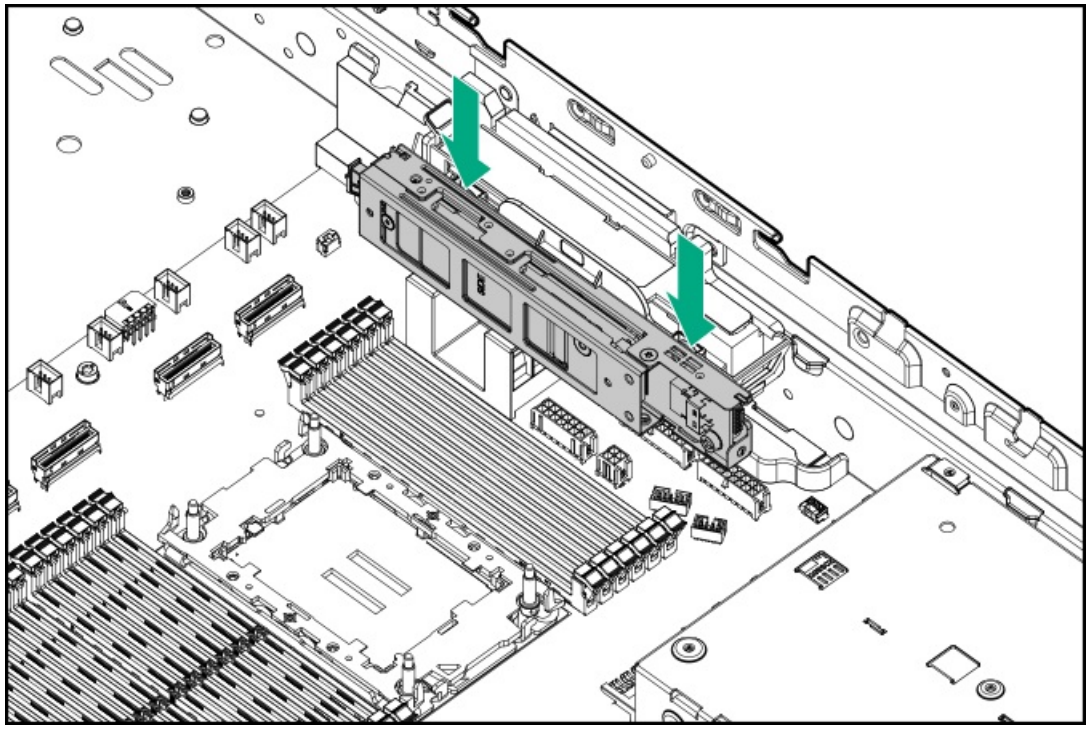
Installing the boot device

4. Back up all server data.

5. Power down the server.

6. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
7. Disconnect all peripheral cables from the server.
8. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
9. Place the server on a flat, level work surface.
10. Remove the access panel.
11. Remove an air baffle.
12. Install the internal HPE NS204i-u Boot Device:
    a. Align the spools on the HPE NS204i-u Boot Device to the energy pack holder.
    b. Press down the HPE NS204i-u Boot Device.

       Make sure that the HPE NS204i-u Boot Device is locked on the energy pack holder.



13. Connect the internal HPE NS204i Boot Device cables.
14. Make sure that all the system cables that are secured in the cable guard and routed through the cable channel along the side of the chassis.
15. Install the air baffle.
16. Install the access panel.
17. Install the server into the rack.
18. Connect all peripheral cables to the server.
19. Connect the power cords:
    a. Connect each power cord to the server.

b. Connect each power cord to the power source.

20. Power up the server.
21. Verify the Online/Activity LEDs on the HPE NS204i Boot Device are in solid green.

Results

The installation procedure is complete.

OCP NIC 3.0 adapter option

The server supports SFF dual-port and quad-port OCP NIC 3.0 adapter options with various interfaces and advanced interconnect features for high-bandwidth applications.

Subtopics

Installing the OCP NIC 3.0 adapter

Installing the OCP NIC 3.0 adapter

Prerequisites

- Review the OCP slot population rules
- Before you perform this procedure, make sure that you have the following items available:
  - T-10 Torx screwdriver
  - Spudger or any small prying tool

About this task

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.

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.

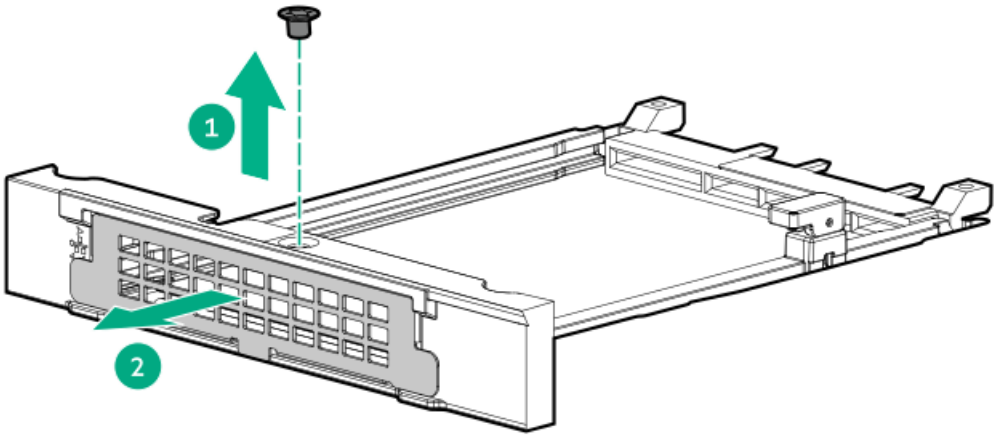
Procedure

1. 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. Disconnect all peripheral cables from the server.
5. Do one of the following:

- Extend the server out of the rack
- Remove the server from the rack

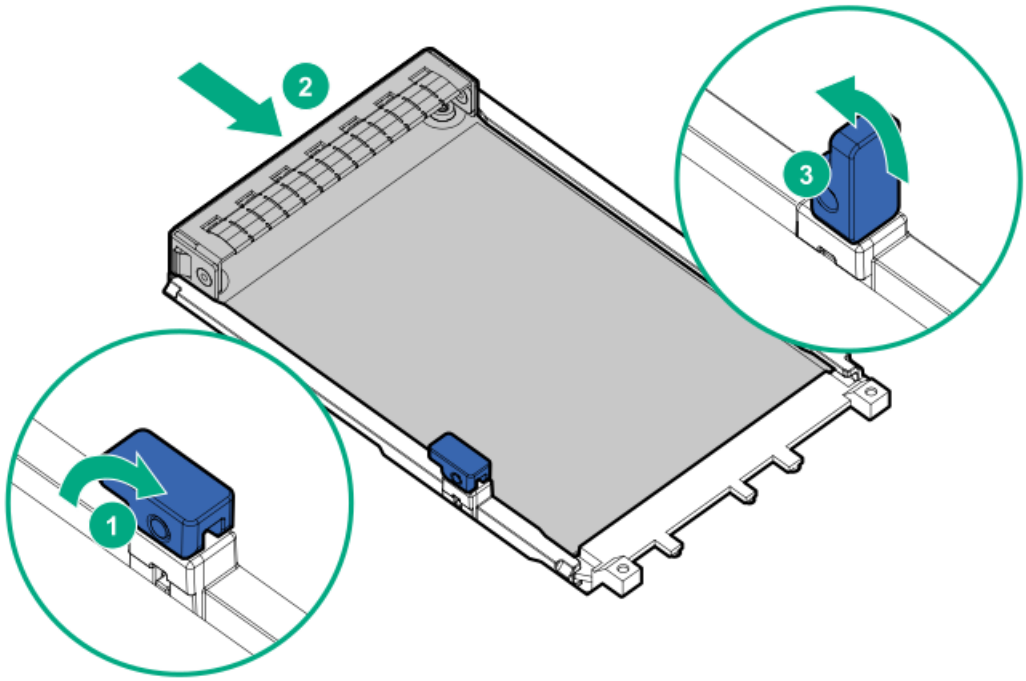
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove an air baffle.
9. Remove a riser cage.
10. Remove the OCP slot blank:
    a. Remove the blank screw.
    b. Remove the blank.

       Retain the screw and blank for future use.



11. Install the OCP NIC 3.0 adapter:
    a. Rotate the locking pin to the open (vertical) position.
    b. Slide the adapter into the bay until it clicks into place.

       Ensure that the adapter is seated firmly in the slot.
    c. Rotate the locking pin to the close (horizontal) position.



12. Install a riser cageInstall the riser cage.
13. Make sure that all the system cables that are secured in the cable guard and routed through the cable channel along the side of the chassis.
14. Install the air baffle.
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. Power up the server.

Results

The installation procedure is complete.

Chassis intrusion detection switch option

The chassis intrusion detection switch enables iLO to record an event in the Integrated Management Log (IML) whenever the access panel is physically opened or removed. An alert is also sent to the BIOS whenever a chassis intrusion is detected. The chassis intrusion detection occurs as long as the server is plugged in, regardless of whether the server is powered on or off.

Subtopics

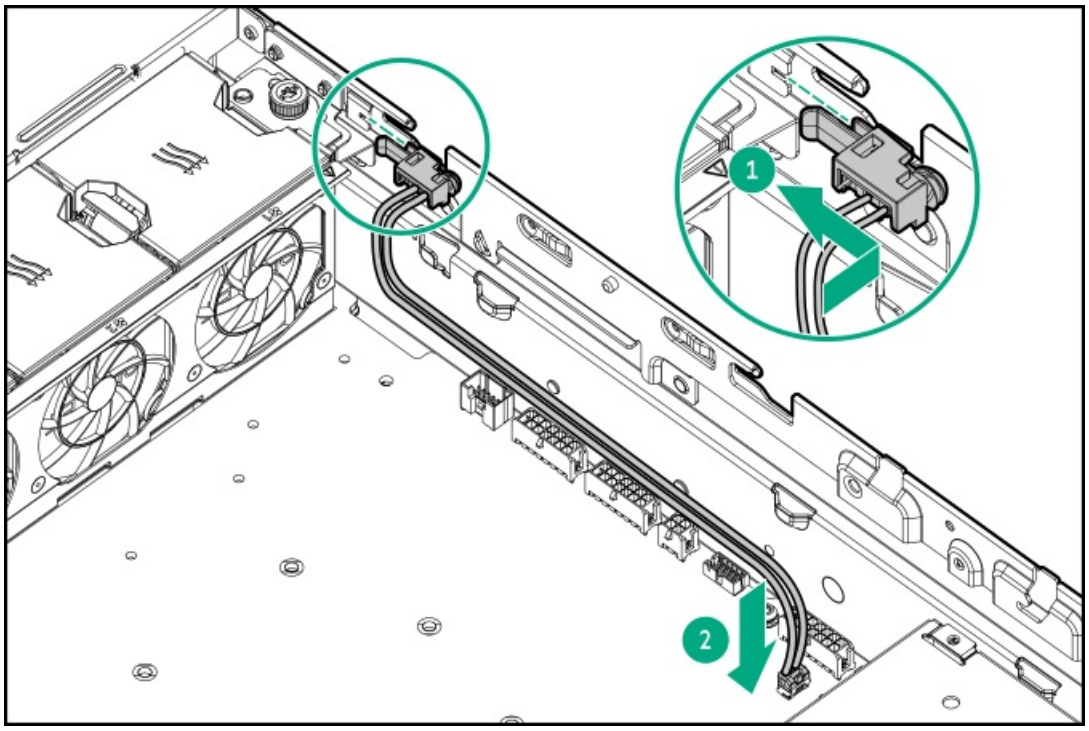
Installing the chassis intrusion detection switch

Installing the chassis intrusion detection switch

Installing the chassis intrusion detection switch

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. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
5. Place the server on a flat, level work surface.
6. Remove the access panel.
7. Remove an air baffle.
8. Install the chassis intrusion detection switch:
   a. Insert the switch tab into the chassis slot until the switch clicks into place.
   b. Connect the switch cable and secure it in the cable clamp.



9. Connect the chassis intrusion detection switch cable to the system board .
10. Make sure that all the system cables that are secured in the cable guard and routed through the cable channel along the side of the chassis.
11. Install the air baffle.
12. Install the access panel.
13. Install the server into the rack .
14. Connect all peripheral cables to the server.

15. Connect the power cords:
    a. Connect each power cord to the server.
    b. Connect each power cord to the power source.
16. Power up the server.

Results

The installation procedure is complete.

The System Intrusion Detection setting in the UEFI System Utilities is automatically enabled after installing the chassis intrusion detection switch. To view a log of intrusion events, use the iLO web interface to access the IML or the iLO event log. For more information, see the iLO user guide on the Hewlett Packard Enterprise website (https://www.hpe.com/support/ilo-docs).

Serial port option

Install the serial port option to enable communication to physical serial devices. You can also use the serial connection to remotely access the system BIOS and view POST error messages.

Subtopics

Installing the serial port

Installing the serial port

Prerequisites

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

- Hex screwdriver
- Spudger or any small prying tool

About this task

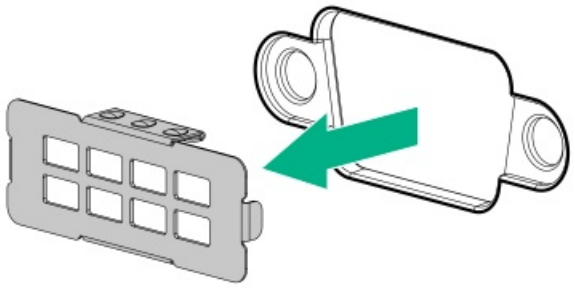
CAUTION
A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

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.

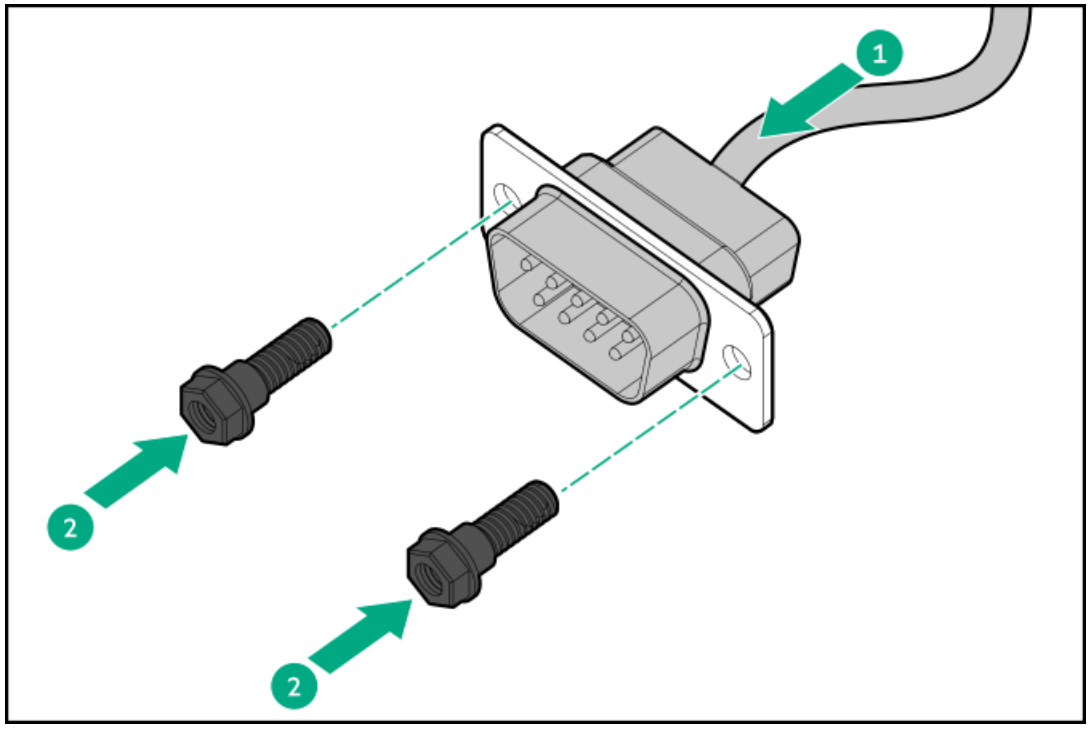
Procedure

1. 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. Disconnect all peripheral cables from the server.
5. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove an air baffle.
9. Remove a riser cage.
10. Remove the serial port blank.



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



12. Connect the serial port cable to the system board .
13. Install a riser cageInstall the riser cage.
14. Make sure that all the system cables that are secured in the cable guard and routed through the cable channel along the side of the chassis.

15. Install the air baffle.
16. Install the access panel.
17. Install the server into the rack.
18. Connect all peripheral cables to the server.
19. Connect the power cords:
    a. Connect each power cord to the server.
    b. Connect each power cord to the power source.
20. Power up the server.

Configuring the serial port

21. To configure the serial port setting:
    a. From the boot screen, press **F9** to access the UEFI System Utilities.
    b. From the System Utilities screen, select System Configuration > BIOS/Platform Configuration (RBSU) > System Options > Serial Port Options > Embedded Serial Port.
    c. Select a setting.
    d. Press **F12** key to save your selection.
    e. Click Yes-Save Changes.
    f. Click Reboot.

Results

The installation procedure is complete.

Internal USB device options

The server has one USB 3.2 Gen1 port that you can use to install an internal USB flash media device for:

- booting up from flash solution
- data backup/redundancy

Subtopics

Installing the internal USB device

Installing the internal USB device

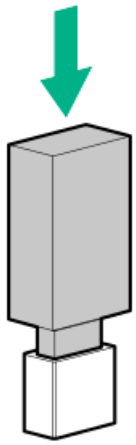
About this task

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

Procedure

1. Power down the server.

2. 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. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
5. Place the server on a flat, level work surface.
6. Remove the access panel.
7. Remove an air baffle.
8. If installed, remove the secondary riser cage.
9. Plug in the USB device into the internal USB port.



10. Install the secondary riser cage.
11. Make sure that all the system cables that are secured in the cable guard and routed through the cable channel along the side of the chassis.
12. Install the air baffle.
13. Install the access panel.
14. Install the server into the rack.
15. Connect all peripheral cables to the server.
16. Connect the power cords:
    a. Connect each power cord to the server.
    b. Connect each power cord to the power source.
17. Power up the server.

Results

The installation procedure is complete.

Cabling

Subtopics

Cabling guidelines

Observe the following:

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

Before connecting cables

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

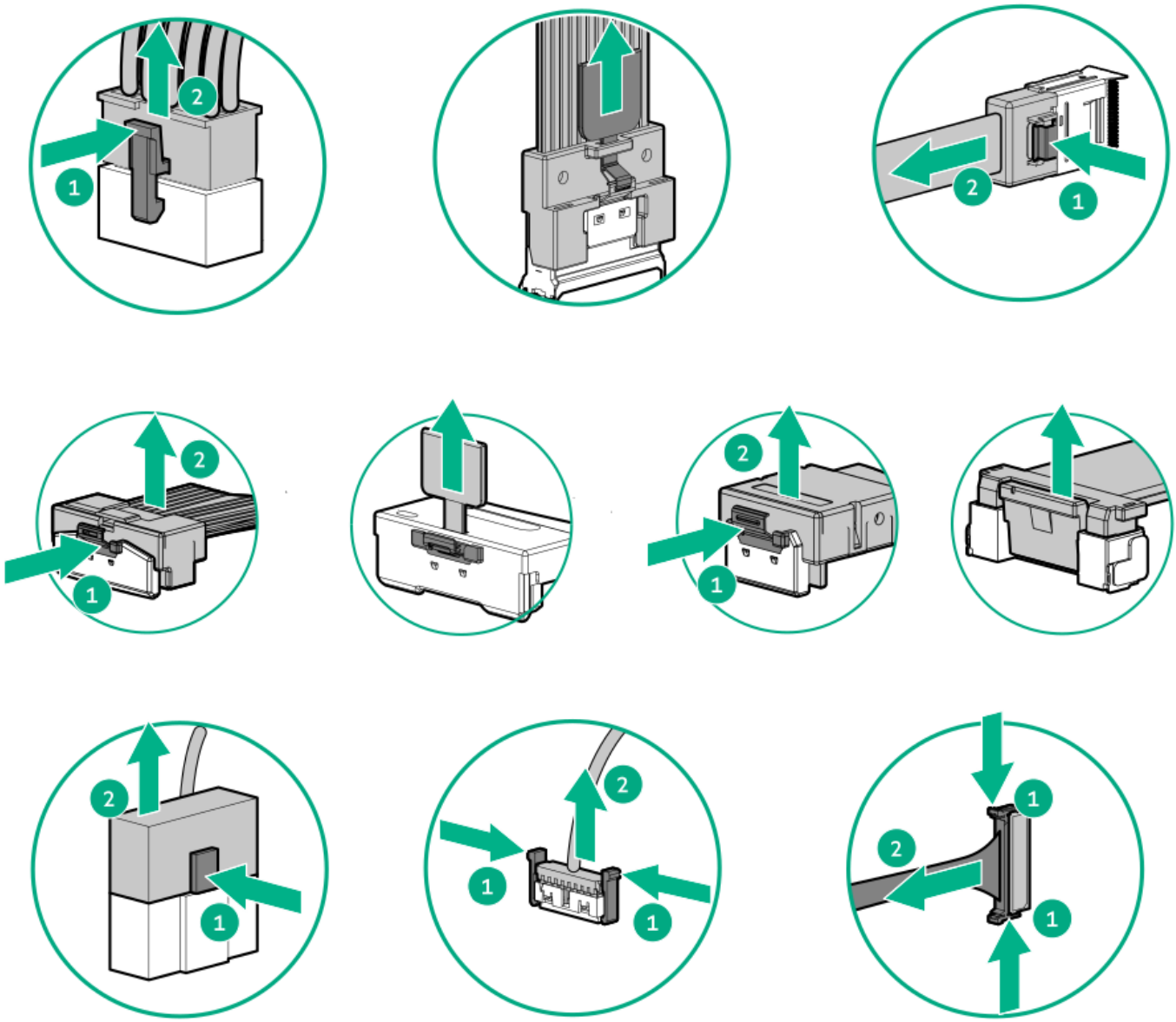
When connecting cables

- Before connecting a cable to a port, lay the cable in place to verify the length of the cable.
- Use the internal cable management features to properly route and secure the cables.
- When routing cables, be sure that the cables are not in a position where they can be pinched or crimped.

- Avoid tight bend radii to prevent damaging the internal wires of a power cord or a server cable. Never bend power cords and server cables tight enough to cause a crease in the sheathing.
- Make sure that the excess length of cables is properly secured to avoid excess bends, interference issues, and airflow restriction.
- To prevent component damage and potential signal interference, make sure that all cables are in their appropriate routing position before installing a new component and before closing up the server after hardware installation/maintenance.

When disconnecting cables

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



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

Cabling diagrams

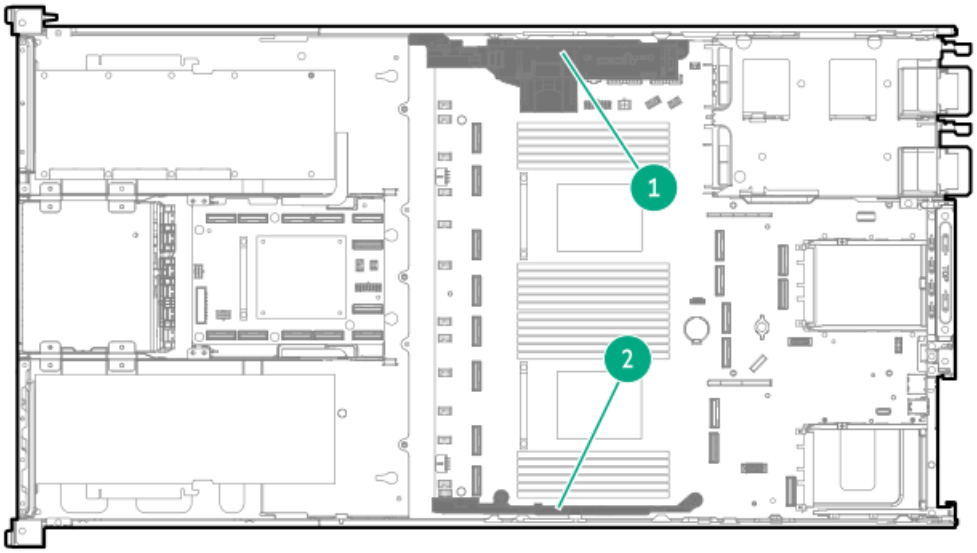
Observe the following:

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

Component cabling	Cable part number
Drive storage controller cabling	—
8 SFF drive cable: Onboard SATA	P54879-001
8 SFF drive cable: Slots 17 and 18 type-o controllers	P54882-001 P54883-001
8 SFF drive cable: Slot 3 SR932i-p controller	P54880-001
8 SFF drive cable: Slots 3 and 6 MR416i-p controllers	P54880-001 P54881-001
8 E3.S drive: Onboard SATA	P54879-001
Drive power cabling	—
8 SFF NVMe drive power cable	P54884-001
8 E3.S drive power cable	P54884-001
Riser cabling	—
Stacking riser cable	P41276-001
GPU riser direct attached signal cable	P44002-001
GPU riser direct attached power cable	P54886-001
GPU riser to PCI switch board signal cable	P44002-001
GPU riser to PCI switch board power cable	P54887-001
GPU/DPU auxiliary power cabling	—
CPU 8-pin GPU auxiliary power cabling: GPU riser slots 9 and 11	P54891-001
CPU 8-pin GPU auxiliary power cabling: GPU riser slots 14 and 16	P54892-001
PCIe 16-pin GPU auxiliary power cabling: GPU riser slots 9 and 11	P58448-001
PCIe 16-pin GPU auxiliary power cabling: GPU riser slots 14 and 16	P58449-001
PCIe 16-pin GPU auxiliary power cabling: H100 NVL GPU in the riser slots 9 and 11	P68288-001
PCIe 16-pin GPU auxiliary power cabling: H100 NVL GPU in the riser slots 14 and 16	P68289-001
DPU auxiliary power cable	P70191-001
PCIe switch board cabling	—
Upper PCIe switch board signal cabling: Direct attached	P54894-001 P54893-001 P54894-001 P54896-001
Upper switch board power Y-cable	P54898-001
Lower PCIe switch board signal cabling: Direct attached	P54893-001 P54895-001 P54893-001 P54894-001
Lower switch board power Y-cable	P54899-001

Component cabling	Cable part number
Lower PCIe switch board sideband cable	P54897-001
PCIe switch board sideband extension cable	P54900-001
HPE NS204i Boot Device cabling	—
HPE NS204i Boot Device signal cable	P54088-001
HPE NS204i Boot Device power cable	P54092-001
OCP bandwidth upgrade cabling	—
OCP bandwidth upgrade cable: Slot 17	P47741-001
OCP bandwidth upgrade cable: Slot 18	P47742-001
	P47742-001
Power distribution board sideband cabling	P54888-001
Serial port cabling	P47752-001
Chassis intrusion detection switch cabling	P54901-001
Front I/O cabling	P54733-001

Internal cabling management



Item	Description
1	Energy pack holder
2	DIMM guard

Storage cabling

Subtopics

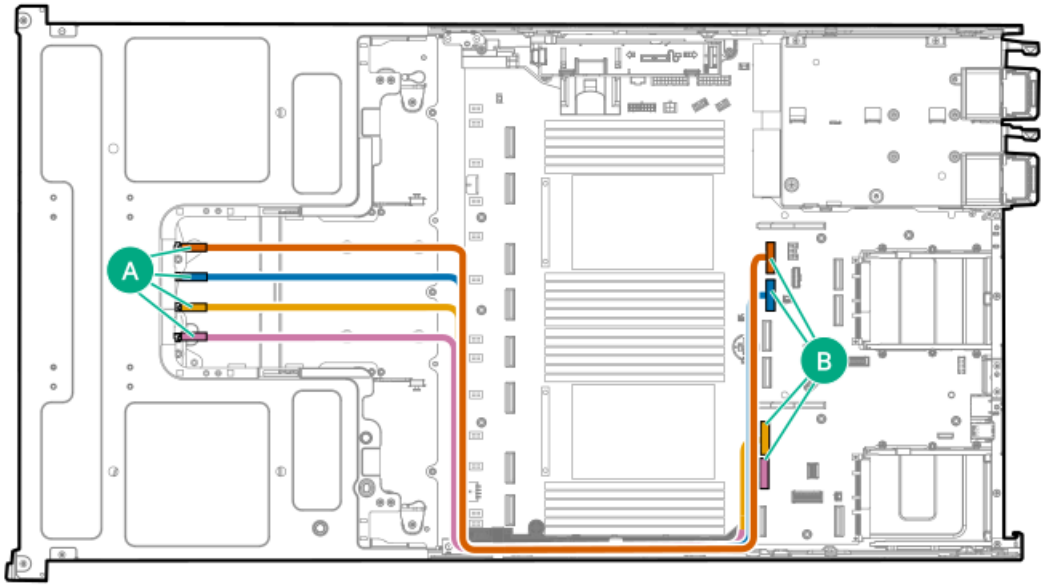
- Storage controller cabling
- Drive power cabling
- Energy pack cabling
- Storage controller backup power cabling

Storage controller cabling

Subtopics

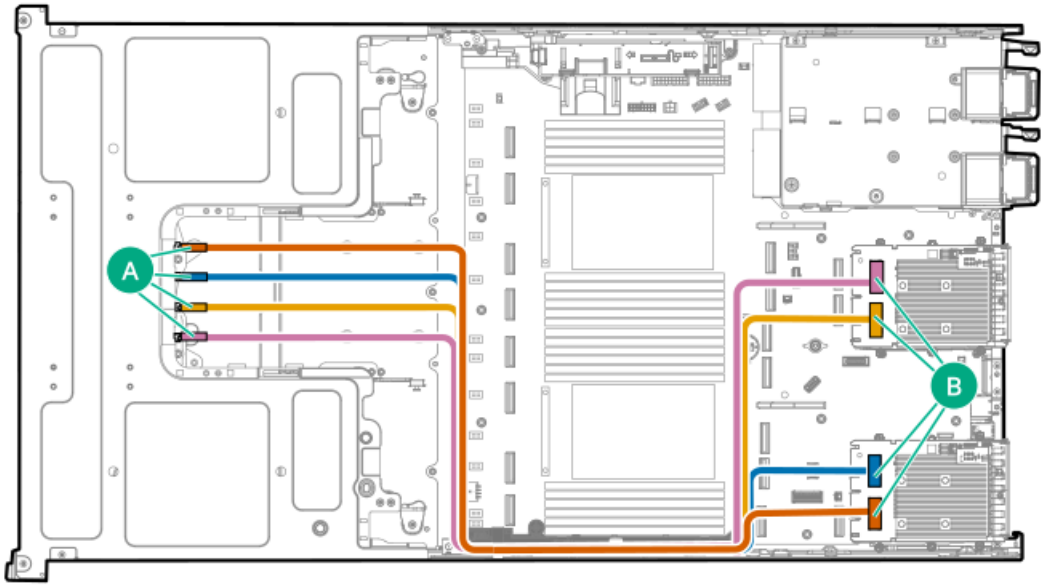
8 SFF NVMe drive controller cabling

8 SFF drive cabling: Onboard SATA



Cable part number	Color	From	To
P54879-001	Orange	Drive backplane port 1	Socket 2 MCIO connector 5B
	Blue	Drive backplane port 2	Socket 2 MCIO connector 6B
	Gold	Drive backplane port 3	Socket 1 MCIO connector 6A
	Pink	Drive backplane port 4	Socket 1 MCIO connector 5A

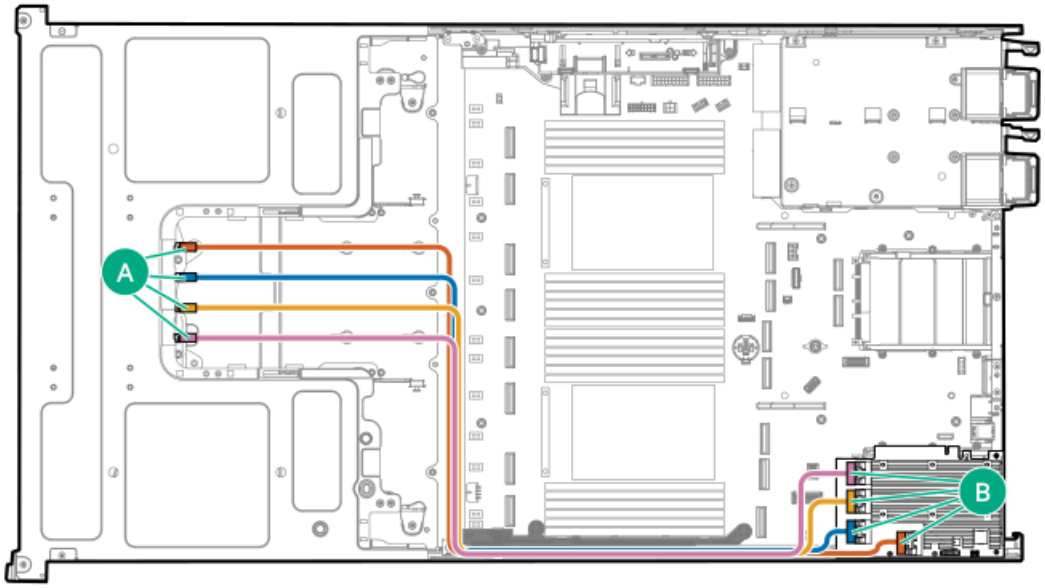
8 SFF drive cabling: Slots 17 and 18 type-o storage controllers



Cable part number	Color	From	To
P54882-001	Orange	Drive backplane port 1	Type-o controller port 1 [1]
	Blue	Drive backplane port 2	Type-o controller port 2 [1]
P54883-001	Gold	Drive backplane port 3	Type-o controller port 1 [2]
	Pink	Drive backplane port 4	Type-o controller port 2 [2]

[1] This storage controller is in Slot 17.
[2] This storage controller is in Slot 18.

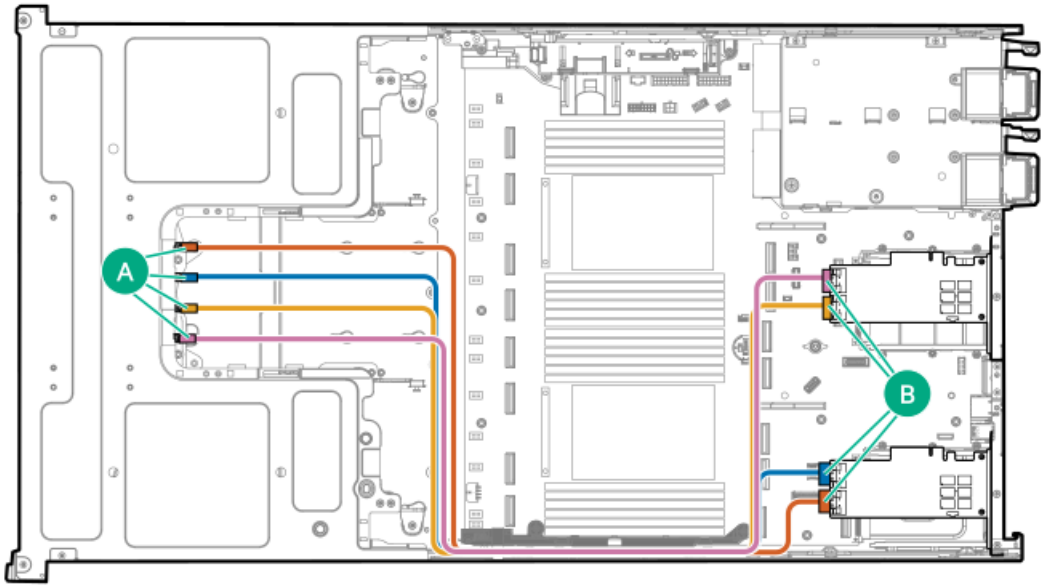
8 SFF drive cabling: Slot 3 SR932i-p controller



Cable part number	Color	From	To
P54880-001	Orange	Drive backplane port 1	SR932i-p controller port 1 [1]
	Blue	Drive backplane port 2	SR932i-p controller port 2 [1]
	Gold	Drive backplane port 3	SR932i-p controller port 3 [1]
	Pink	Drive backplane port 4	SR932i-p controller port 4 [1]

[1] This storage controller is in the primary riser.

8 SFF drive cabling: Slots 3 and 6 MR416i-p controllers

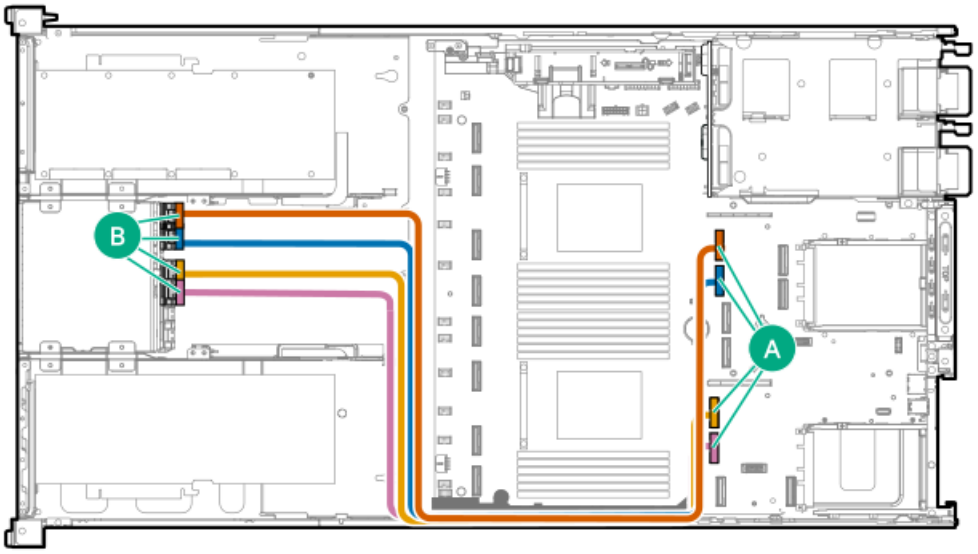


Cable part number	Color	From	To
P54880-001	Orange	Drive backplane port 1	MR416i-p controller port 1 [1]
	Blue	Drive backplane port 2	MR416i-p controller port 2 [1]
P54881-001	Gold	Drive backplane port 3	MR416i-p controller port 3 [2]
	Pink	Drive backplane port 4	MR416i-p controller port 4 [2]

[1] This storage controller is in the primary riser.
[2] This storage controller is in the secondary riser.

8 E3.S drive controller cabling

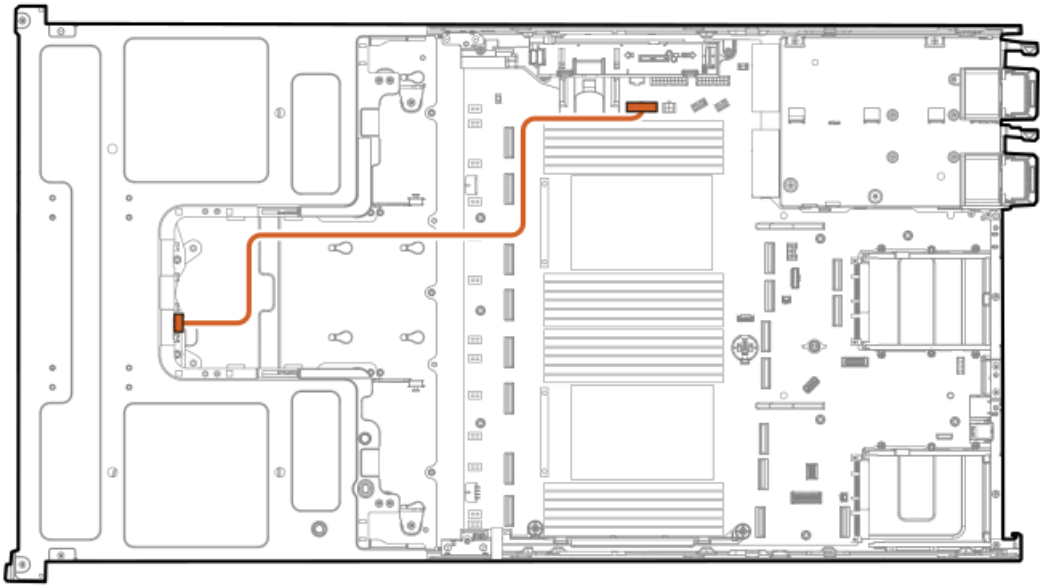
8 E3.S drive: Onboard SATA



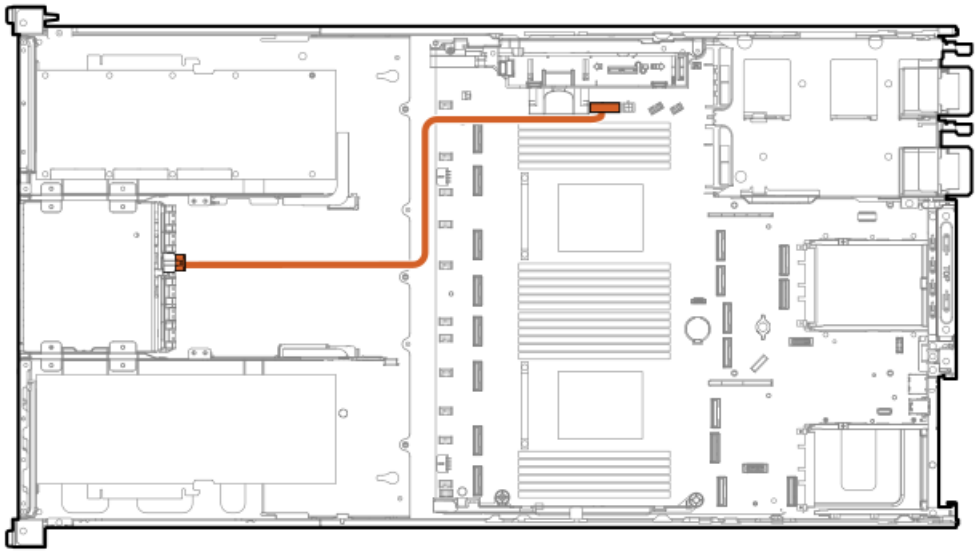
Cable part number	Color	From	To
P54879-001	Orange	Drive backplane port 1	Socket 2 MCIO connector 5B
	Blue	Drive backplane port 2	Socket 2 MCIO connector 6B
	Gold	Drive backplane port 3	Socket 1 MCIO connector 6A
	Pink	Drive backplane port 4	Socket 1 MCIO connector 5A

Drive power cabling

- 8 SFF NVMe drive power cabling

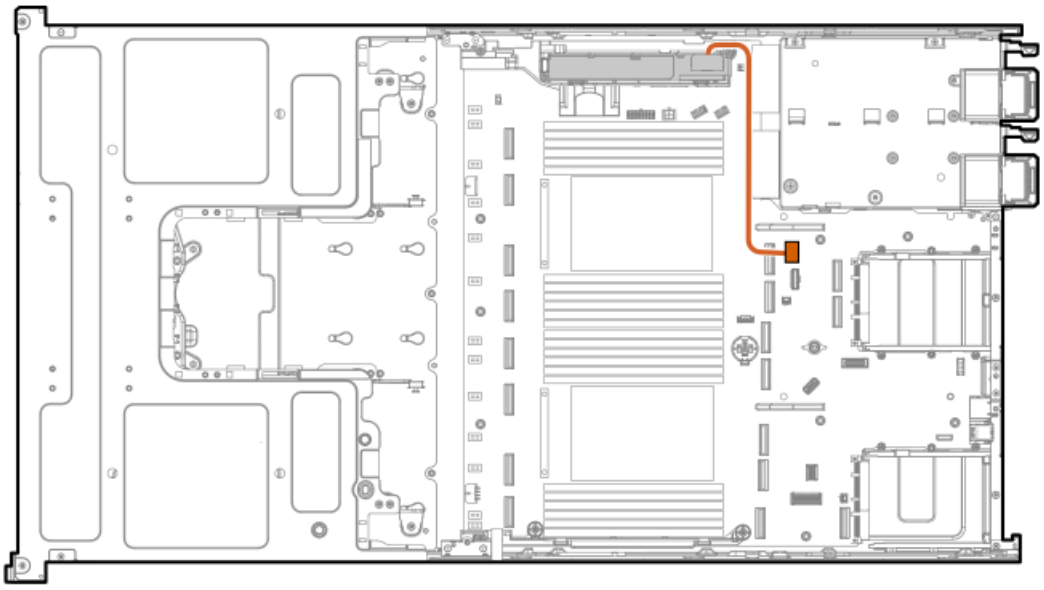


- 8 E3.S drive power cabling



Cable part number	Color	From	To
P54884-001	Orange	Drive backplane	Backplane power connector

Energy pack cabling



Option part number	Color	From	To
P01366-B21	Orange	Energy pack	Energy pack connector

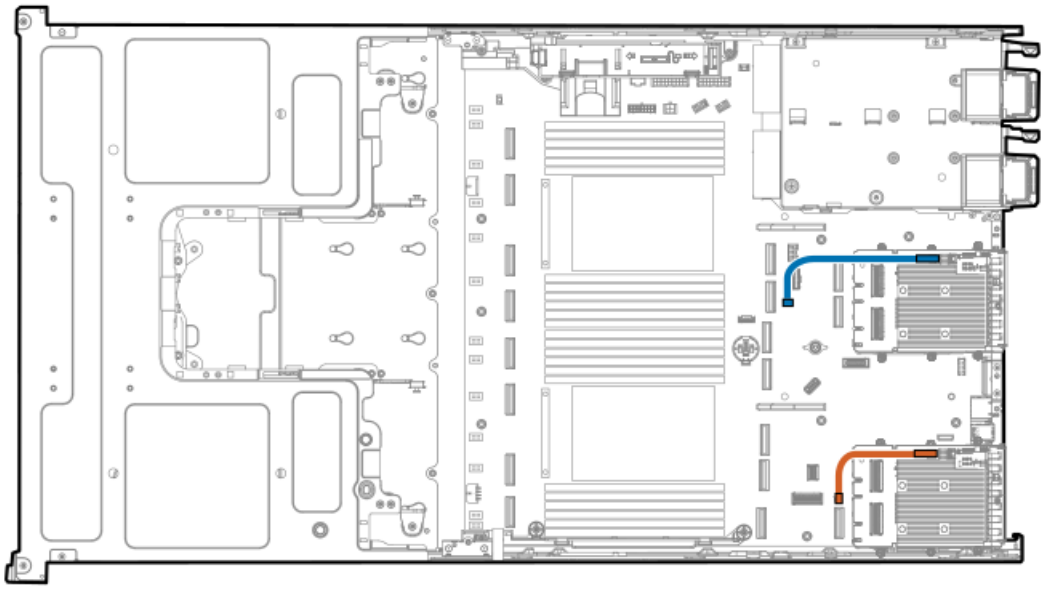
Storage controller backup power cabling

The exact route of the storage controller backup power cabling will depend on:

- The riser slot where the controller is installed
- The location of the storage controller backup power connector on the controller

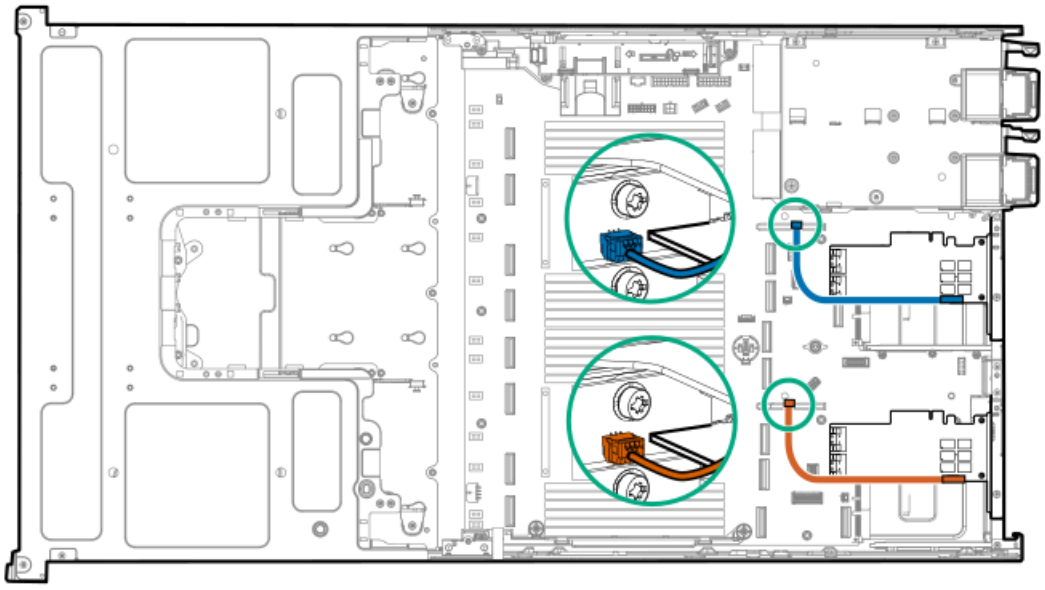
Use the following diagrams for reference only.

MR408i-o/MR416i-o Gen11 controller



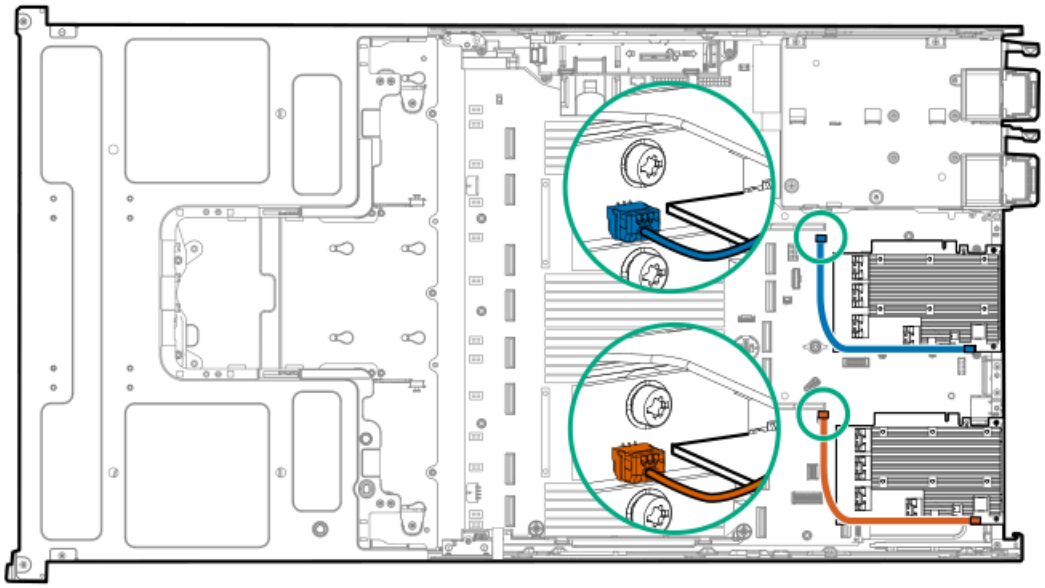
Color	From	To
Orange	MR408i-o/MR416i-o in the Slot 17	Slot 17 OROC storage backup power connector on the system board
Blue	MR408i-o/MR416i-o in the Slot 18	Slot 18 OROC storage backup power connector on the system board

MR416i-p Gen11 controller



Color	From	To
Orange	MR416i-p in the primary riser cage	Storage controller backup power connector on the riser board
Blue	MR416i-p in the secondary riser cage	Storage controller backup power connector on the riser board

SR932i-p Gen11 controller



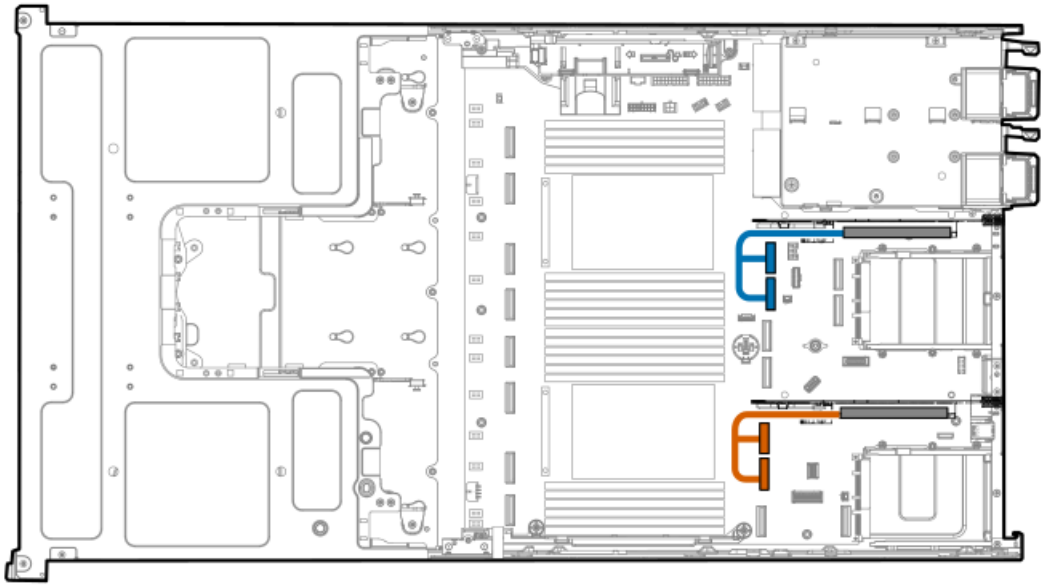
Cable part number	Color	From	To
877850-001	Orange	SR932i-p in the primary riser cage	Storage controller backup power connector on the riser board
877850-001	Blue	SR932i-p in the primary riser cage	Storage controller backup power connector on the riser board

Riser cabling

Subtopics

Stacking riser cabling

Slots 3 and 5 stacking riser cabling



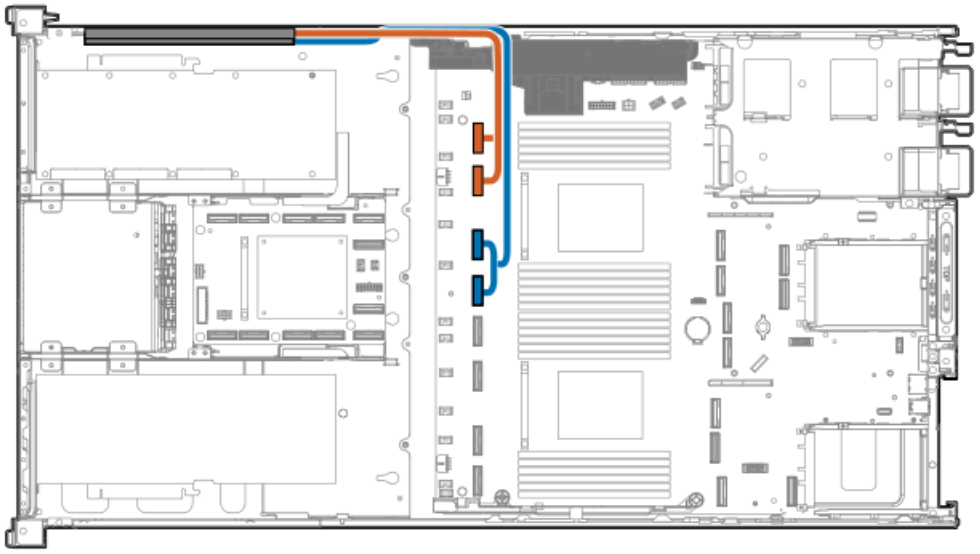
Riser part number	Color	From	To
P41276-001	Orange	Slot 3 stacking riser	Socket 1 MCIO connector 6A (PRIM) [1]
			Socket 1 MCIO connector 5A (SEC) [1]
	Blue	Slot 5 stacking riser	Socket 2 MCIO connector 5B (PRIM) [1]
			Socket 2 MCIO connector 6B (SEC) [1]

[1] This enclosed text (PRIM/SEC) refers to the marker on the riser signal cable connector.

GPU riser cabling

GPU riser signal cabling: Direct attached

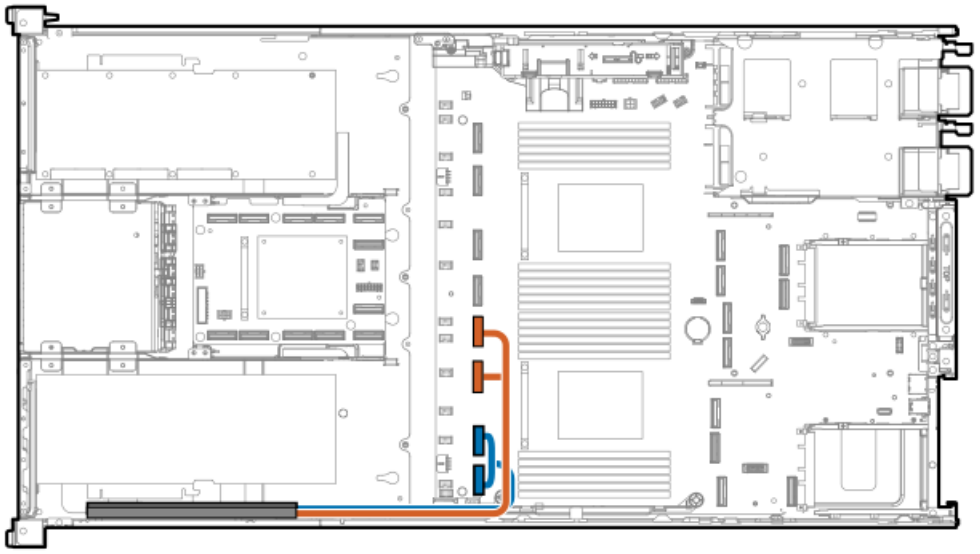
- GPU riser cage 1



Option part number	Color	From	To
P44002-001	Orange	Slot 9 GPU riser	Socket 2 MCIO connector 4B (SEC) [1]
			Socket 2 MCIO connector 3B (PRIM) [1]
	Blue	Slot 11 GPU riser	Socket 2 MCIO connector 2B (SEC) [1]
			Socket 2 MCIO connector 1B (PRIM) [1]

[1] This enclosed text (PRIM/SEC) refers to the marker on the riser signal cable connector.

- GPU riser cage 2

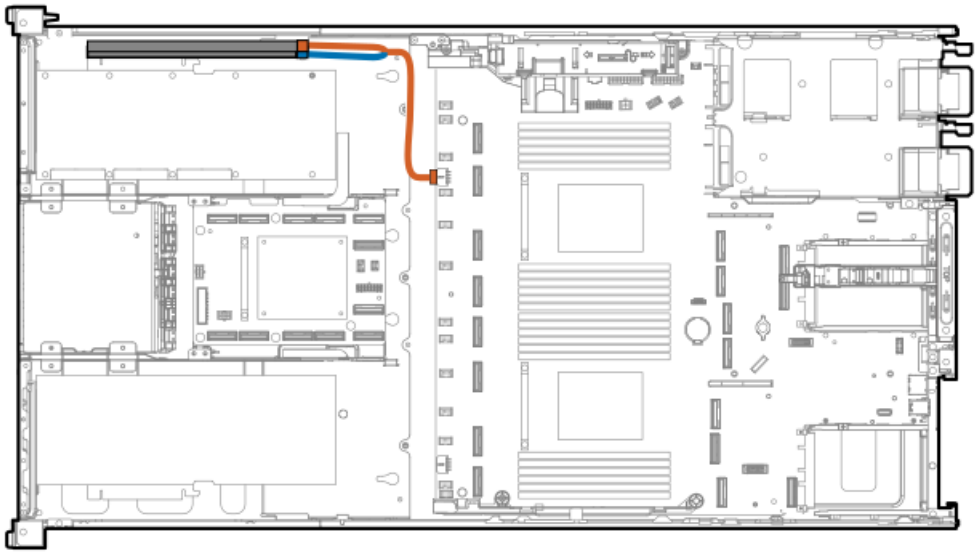


Option part number	Color	From	To
P44002-001	Orange	Slot 14 GPU riser	Socket 1 MCIO connector 4A (SEC) [1]
			Socket 1 MCIO connector 3A (PRIM) [1]
	Blue	Slot 16 GPU riser	Socket 1 MCIO connector 2A (SEC) [1]
			Socket 1 MCIO connector 1A (PRIM) [1]

[1] This enclosed text (PRIM/SEC) refers to the marker on the riser signal cable connector.

GPU riser power cabling

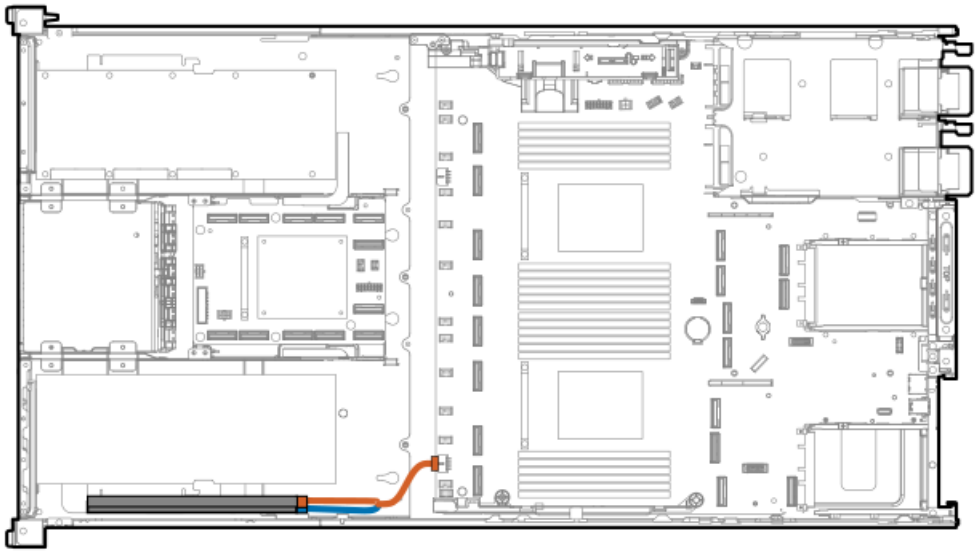
- GPU riser cage 1



Option part number	Color	From	To
P54886-001	Orange	Slot 9 GPU riser (P2) [1]	GPU riser/PCIe switch board power connector (P3)
	Blue	Slot 11 GPU riser (P1) [1]	

[1] This enclosed text (P1/P2/P3) refers to the marker on the riser power cable connector.

- GPU riser cage 2



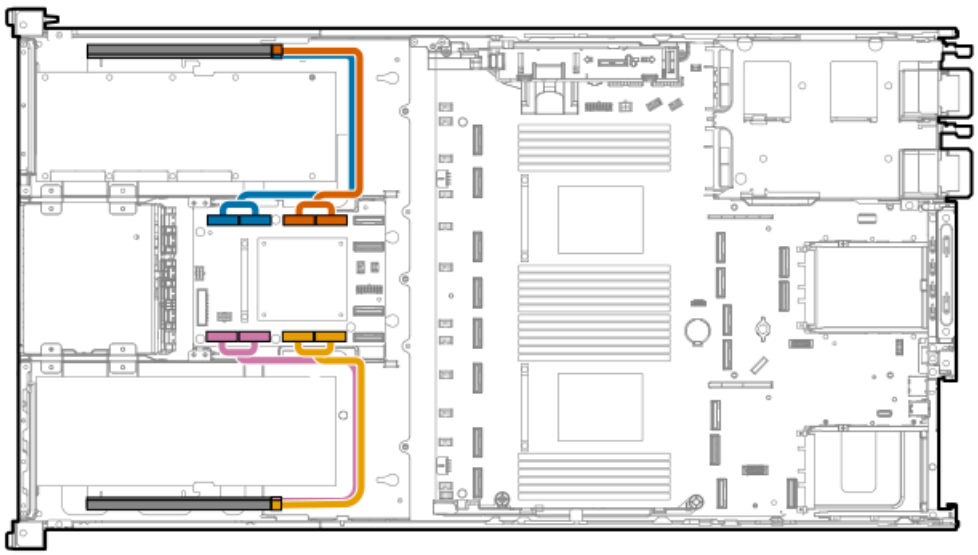
Option part number	Color	From	To
P54886-001	Orange	Slot 14 GPU riser (P1) [1]	GPU riser/PCIe switch board power connector (P3) [1]
	Blue	Slot 16 GPU riser (P2) [1]	

[1] This enclosed text (P1/P2/P3) refers to the marker on the riser power cable connector.

GPU riser to PCIe switch board cabling

GPU riser signal cabling

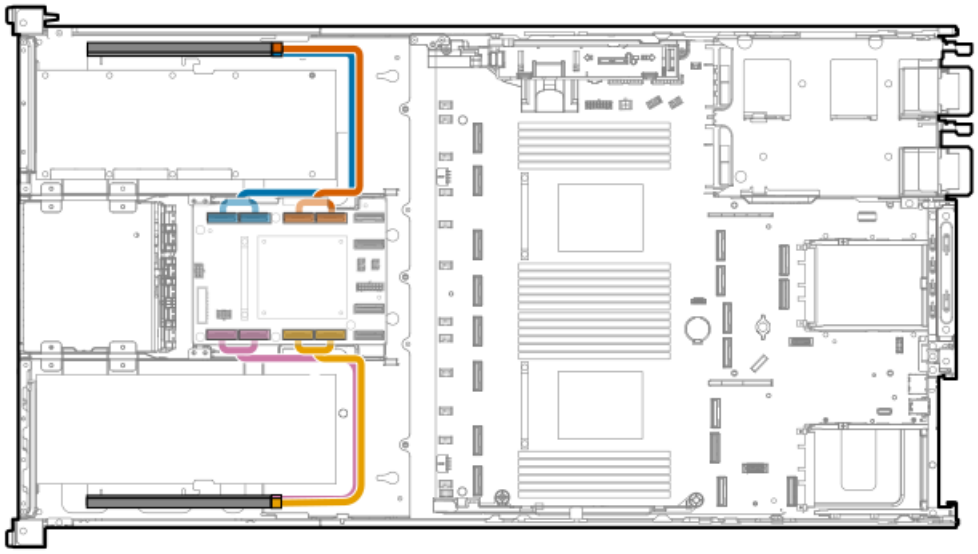
- Upper PCIe switch board



Option part number	Color	From	To
P44002-001	Orange	Slot 10 GPU riser	GPU riser slot 10 MCIO connector (SEC) [1]
			GPU riser slot 10 MCIO connector (PRIM) [1]
	Blue	Slot 9 GPU riser	GPU riser slot 9 MCIO connector (SEC) [1]
			GPU riser slot 9 MCIO connector (PRIM) [1]
	Gold	Slot 14 GPU riser	GPU riser slot 14 MCIO connector (SEC) [1]
			GPU riser slot 14 MCIO connector (PRIM) [1]
	Pink	Slot 13 GPU riser	GPU riser slot 13 MCIO connector (SEC) [1]
			GPU riser slot 13 MCIO connector (PRIM) [1]

[1] This enclosed text (PRIM/SEC) refers to the marker on the riser signal cable connector.

- Lower PCIe switch board

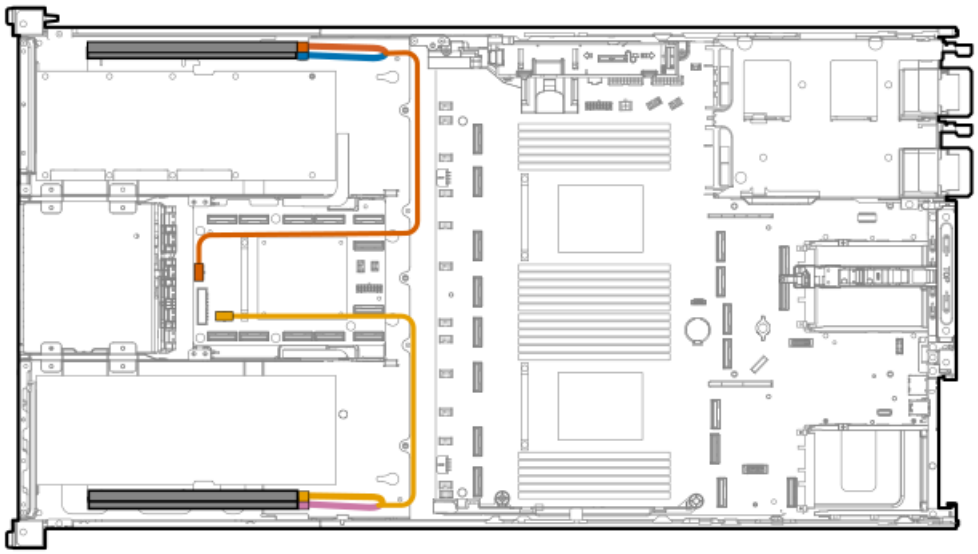


Option part number	Color	From	To
P44002-001	Orange	Slot 12 GPU riser	GPU riser slot 11 MCIO connector (SEC) [1]
			GPU riser slot 11 MCIO connector (PRIM) [1]
	Blue	Slot 11 GPU riser	GPU riser slot 12 MCIO connector (SEC) [1]
			GPU riser slot 12 MCIO connector (PRIM) [1]
	Gold	Slot 16 GPU riser	GPU riser slot 16 MCIO connector (SEC) [1]
			GPU riser slot 16 MCIO connector (PRIM) [1]
	Pink	Slot 15 GPU riser	GPU riser slot 15 MCIO connector (SEC) [1]
			GPU riser slot 15 MCIO connector (PRIM) [1]

[1] This enclosed text (PRIM/SEC) refers to the marker on the riser signal cable connector.

GPU riser power cabling

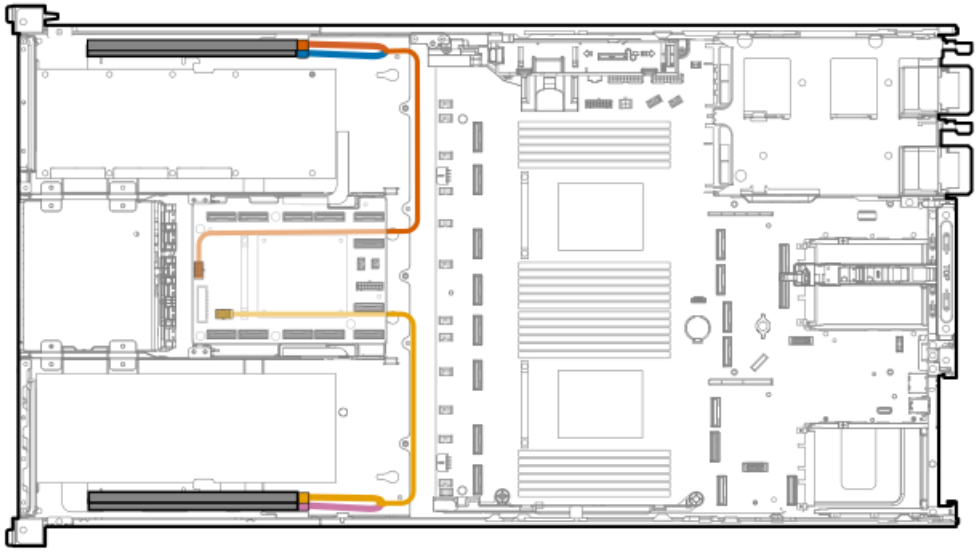
- Upper PCIe switch board



Cable part number	Color	From	To
P54887-001	Orange	Slot 9 GPU riser (P3) [1]	GPU riser slot 9 and 10 power connector (P1) [1]
	Blue	Slot 10 GPU riser (P2) [1]	
	Gold	Slot 13 GPU riser (P2) [1]	GPU riser slot 13 and 14 power connector (P1) [1]
	Pink	Slot 14 GPU riser (P3) [1]	

[1] This enclosed text (P1/P2/P3) refers to the marker on the riser power cable connector.

- Lower PCIe switch board

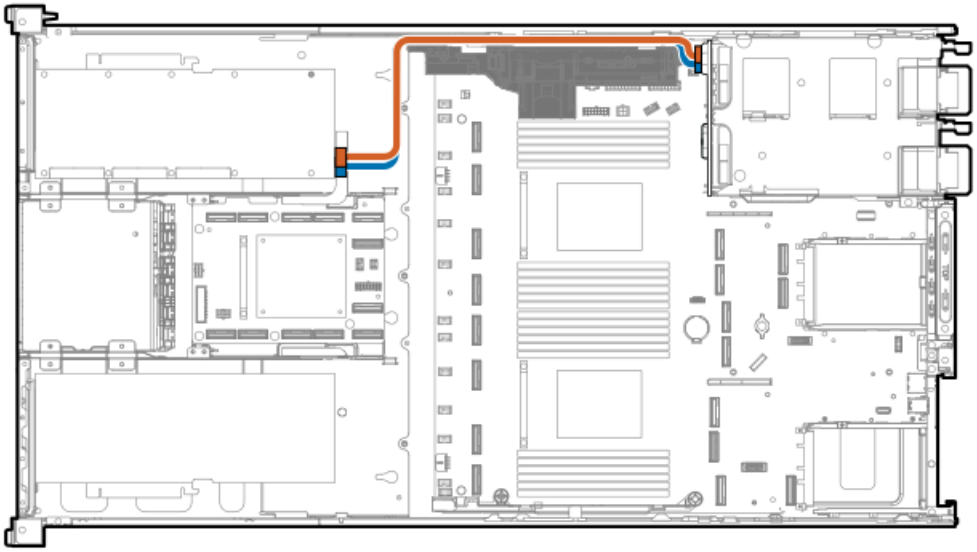


Cable part number	Color	From	To
P54887-001	Orange	Slot 11 GPU riser (P3) [1]	GPU riser slot 11 and 12 power connector (P1) [1]
	Blue	Slot 12 GPU riser (P2) [1]	
	Gold	Slot 15 GPU riser (P2) [1]	GPU riser slot 15 and 16 power connector (P1) [1]
	Pink	Slot 16 GPU riser (P3) [1]	

[1] This enclosed text (P1/P2/P3) refers to the marker on the riser power cable connector.

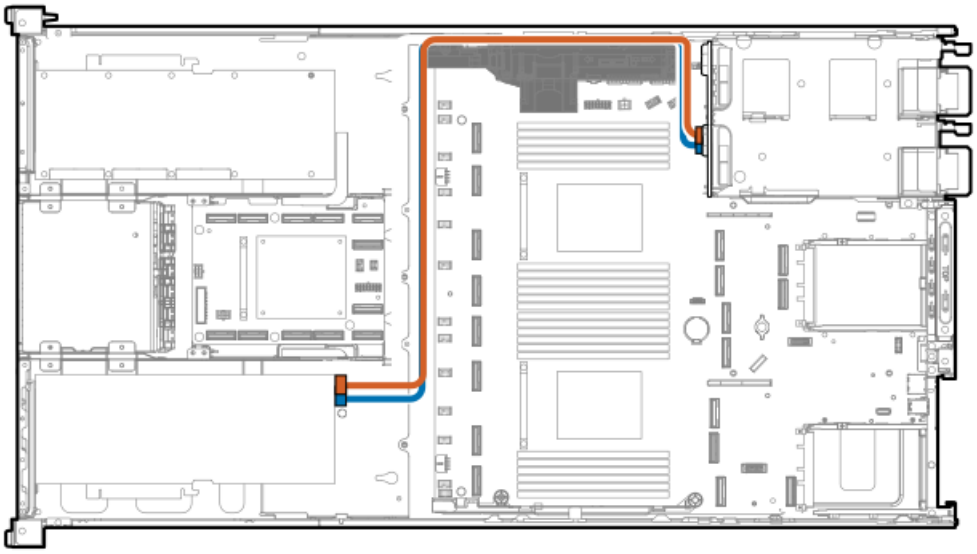
GPU auxiliary power cabling

CPU 8-pin GPU auxiliary power cabling: GPU riser slots 9 and 11



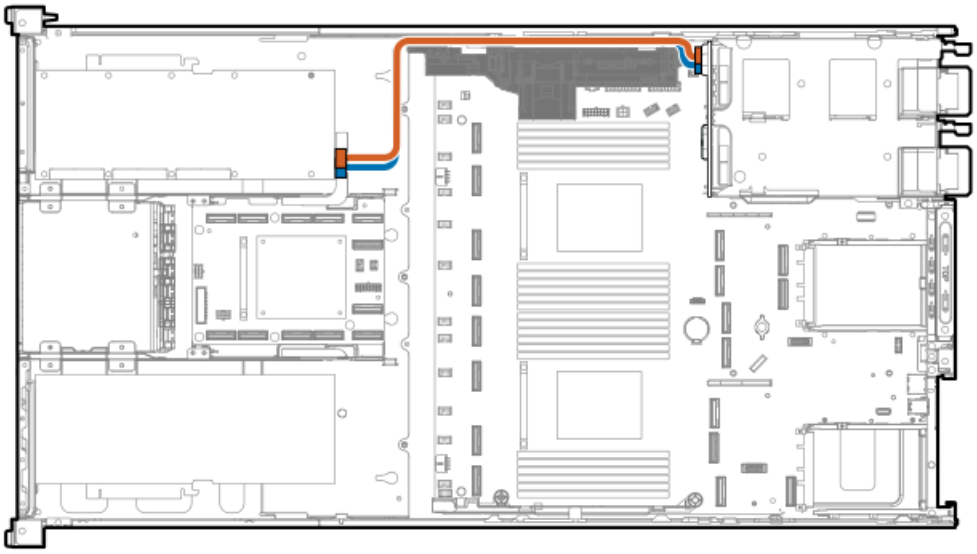
Cable part number	Color	From	To
P54891-001	Orange	Slot 9 double-width GPUs	Power distribution board
P54891-001	Blue	Slot 11 double-width GPUs	

CPU 8-pin GPU auxiliary power cabling: GPU riser slots 14 and 16



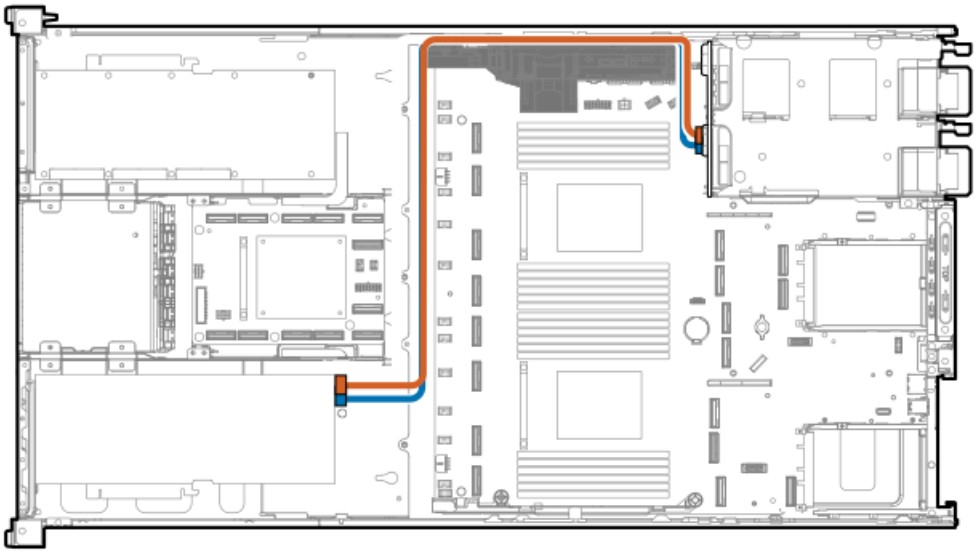
Cable part number	Color	From	To
P54892-001	Orange	Slot 14 double-width GPUs	Power distribution board
P54892-001	Blue	Slot 16 double-width GPUs	

PCIe 16-pin GPU auxiliary power cabling: GPU riser slots 9 and 11



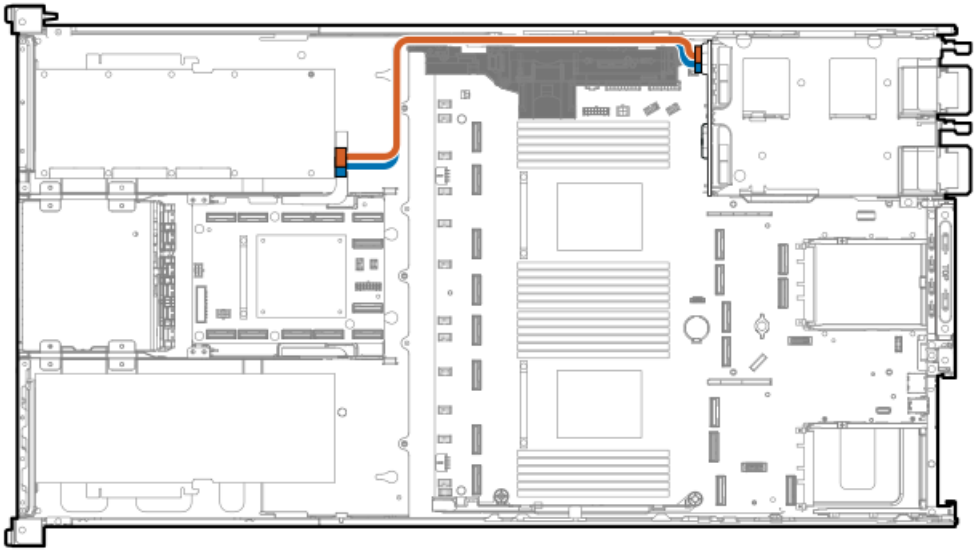
Cable par number	Color	From	To
P58448-001	Orange	Slot 9 double-width GPUs	Power distribution board
P58448-001	Blue	Slot 11 double-width GPUs	

PCIe 16-pin GPU auxiliary power cabling: GPU riser slots 14 and 16



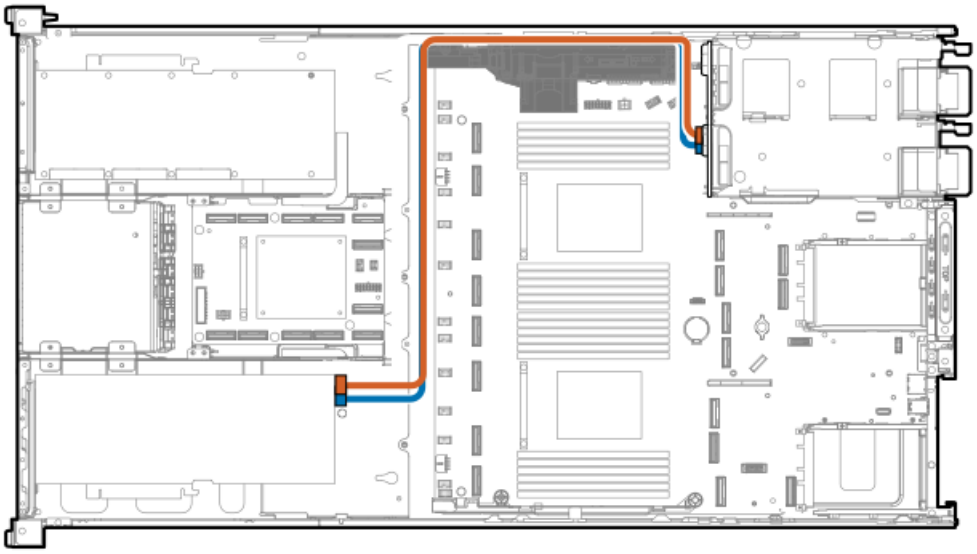
Cable par number	Color	From	To
P58449-001	Orange	Slot 14 double-width GPUs	Power distribution board
P58449-001	Blue	Slot 16 double-width GPUs	

PCIe 16-pin GPU auxiliary power cabling: H100 NVL GPU in the riser slots 9 and 11



Cable par number	Color	From	To
P68288-001	Orange	H100 NVL GPU in the slot 9	Power distribution board
P68288-001	Blue	H100 NVL GPU in the slot 11	

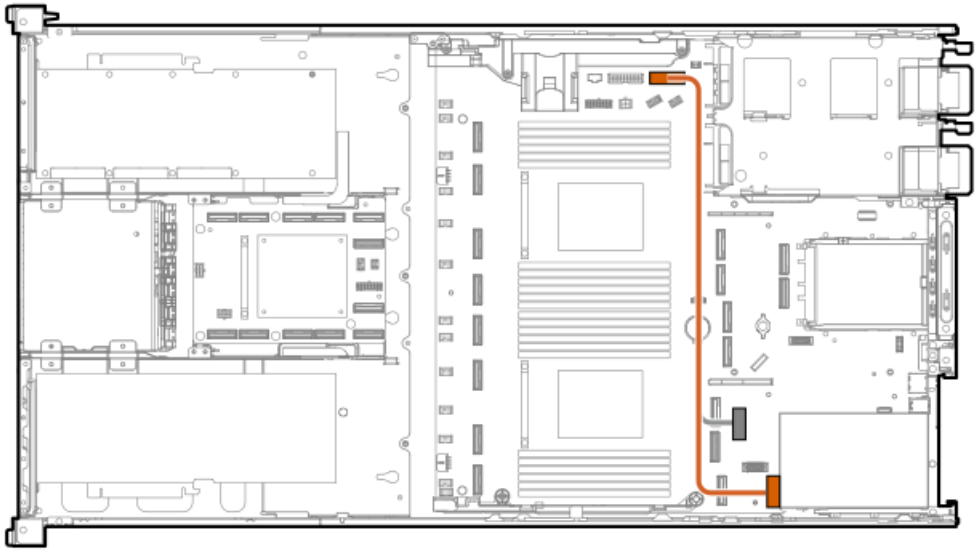
PCIe 16-pin GPU auxiliary power cabling: H100 NVL GPU in the riser slots 14 and 16



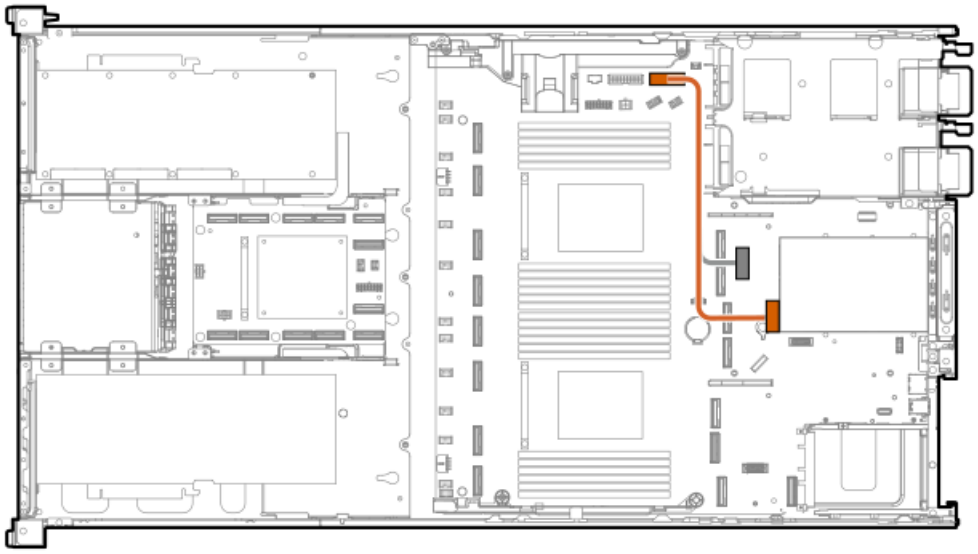
Cable par number	Color	From	To
P68289-001	Orange	H100 NVL GPU in the slot 14	Power distribution board
P68289-001	Blue	H100 NVL GPU in the slot 16	

DPU auxiliary power cabling

- Primary riser cage



- Secondary riser cage



Cable part number	Color	From	To
P70191-001	Orange	Lower PCIe switch board power connector	DPU

PCIe switch board cabling

Subtopics

PCIe switch board signal cabling
PCIe switch board power cabling

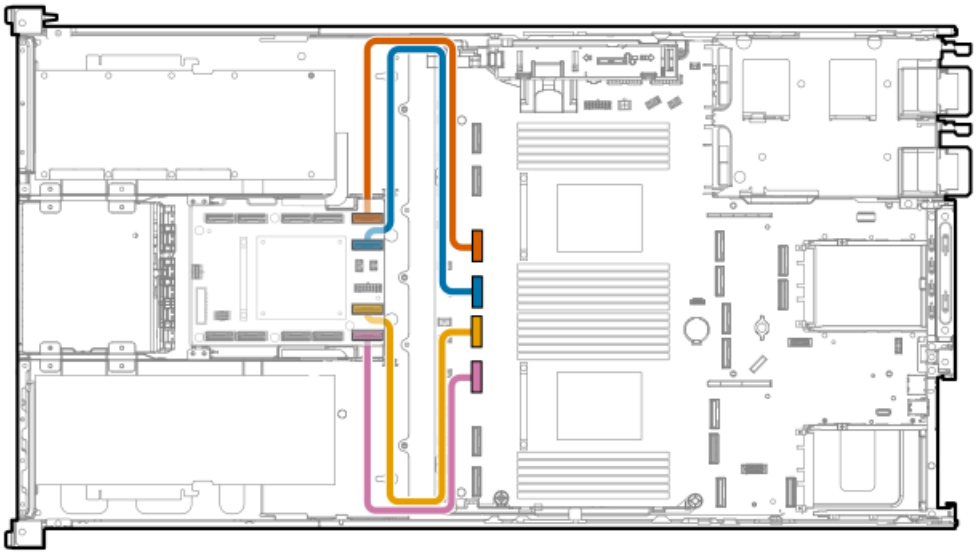
PCIe switch board signal cabling

Upper PCIe switch board signal cabling: Direct attached

Cable part number	Color	From	To
P54894-001 [1]	Orange	Upper PCIe switch board downstream port 1	Socket 2 MCIO connector 4B (SEC) [2]
P54893-001 [1]	Blue	Upper PCIe switch board downstream port 2	Socket 2 MCIO connector 3B (PRIM) [2]
P54894-001 [1]	Gold	Upper PCIe switch board downstream port 3	Socket 1 MCIO connector 2A (SEC) [2]
P54896-001 [1]	Pink	Upper PCIe switch board downstream port 4	Socket 1 MCIO connector 1A (PRIM) [2]

1 Option kit: P56360-B21
2 This enclosed text (PRIM/SEC) refers to the marker on the upper PCIe switch board signal cable connector.

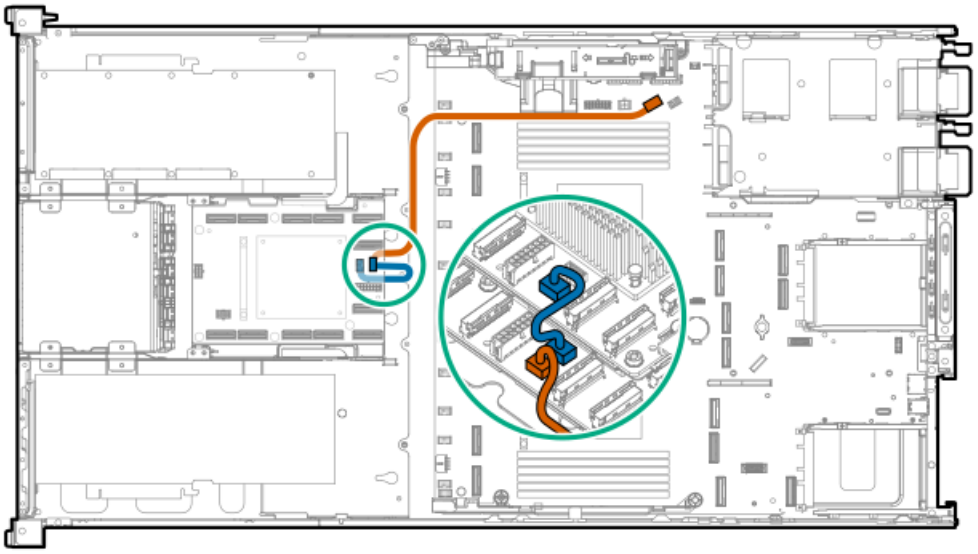
Lower PCIe switch board signal cabling: Direct attached



Cable part number	Color	From	To
P54893-001 [1]	Orange	Upper PCIe switch board downstream port 1	Socket 2 MCIO connector 2B (SEC) [2]
P54895-001 [1]	Blue	Upper PCIe switch board downstream port 2	Socket 2 MCIO connector 1B (PRIM) [2]
P54893-001 [1]	Gold	Upper PCIe switch board downstream port 3	Socket 1 MCIO connector 4A (SEC) [2]
P54894-001 [1]	Pink	Upper PCIe switch board downstream port 4	Socket 1 MCIO connector 3A (PRIM) [2]

1 Option kit: P56360-B21
2 This enclosed text (PRIM/SEC) refers to the marker on the upper PCIe switch board signal cable connector.

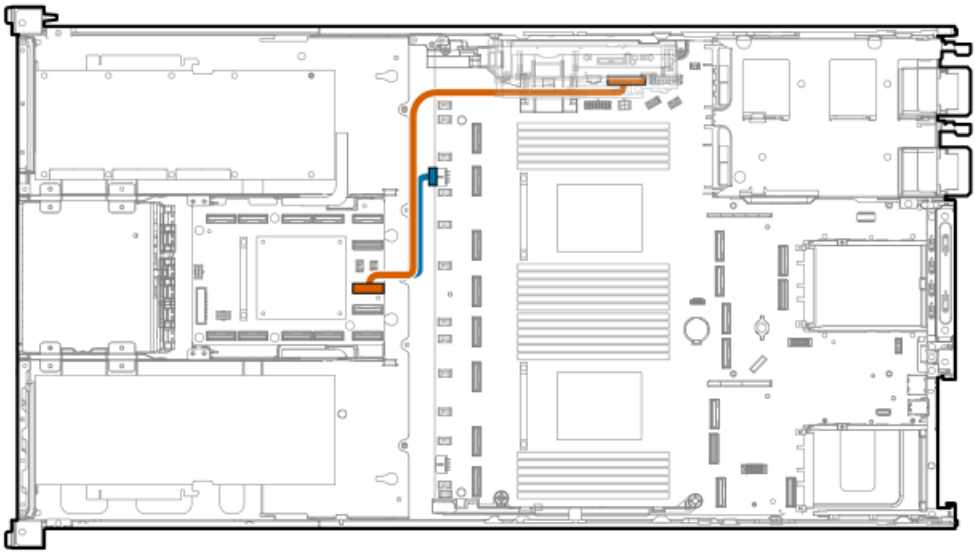
PCIe switch board sideband cabling



Cable part number	Color	From	To
P54897-001	Orange	PCIe switch board signal connector on system board	Lower PCIe switch board signal connector
P54900-001	Blue	Lower PCIe switch board signal connector	Upper PCIe switch board signal extension connector

PCIe switch board power cabling

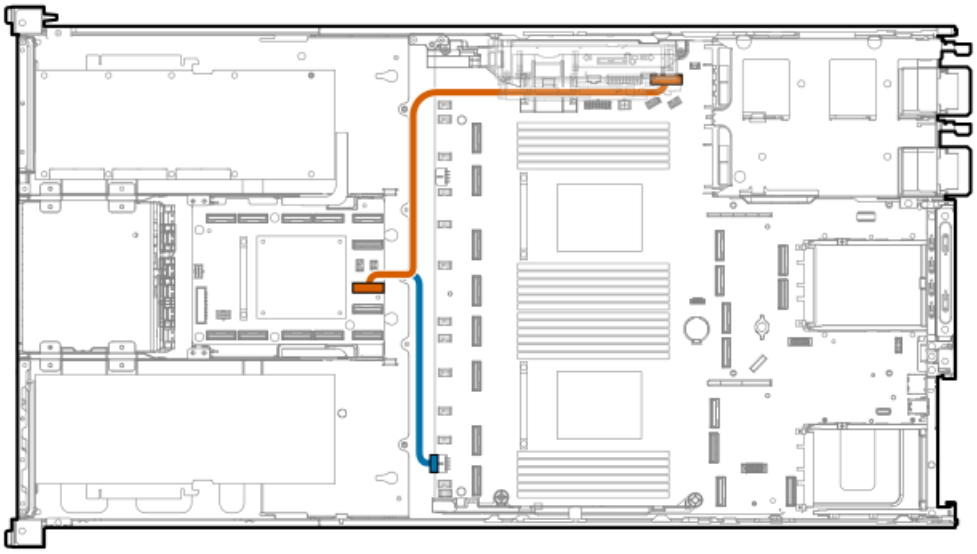
Upper switch board power Y-cable



Cable part number	Color	From	To
P54898-001	Orange	Upper switch power connector (P1) [1]	PCIe switch board power connector (P2) [1]
	Blue		GPU auxiliary power connector (P3) [1]

[1] This enclosed text (P1/P2/P3) refers to the marker on the upper PCIe switch board power cable connector.

Lower switch board power Y-cable

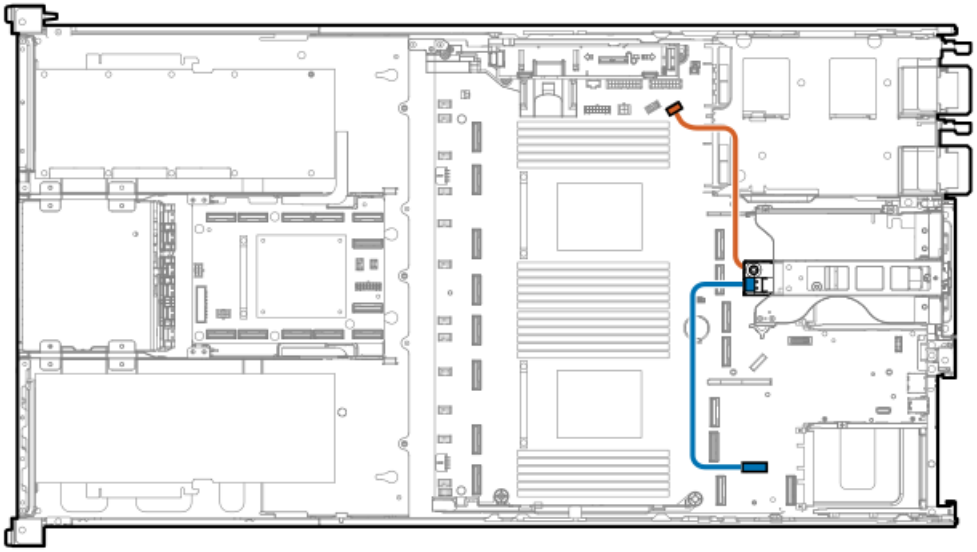


Cable part number	Color	From	To
P54899-001	Orange	Lower switch power connector (P1) [1]	PCIe switch board power connector (P2) [1]
	Blue		GPU auxiliary power connector (P3) [1]

[1] This enclosed text (P1/P2/P3) refers to the marker on the lower PCIe switch board power cable connector.

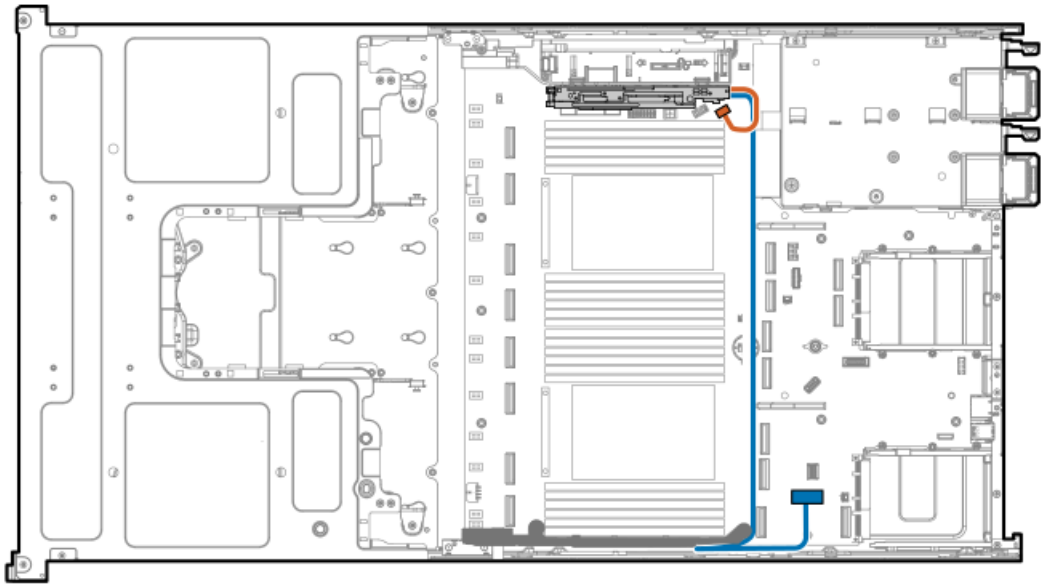
HPE NS204i-u Boot Device cabling

HPE NS204i-u Boot Device from the secondary riser cage



Cable part number	Color	From	To
P54088-001	Orange	HPE NS204i-u Boot Device	NS204i-u sideband connector
P54092-001	Blue		SlimSAS x8 connector

Internal HPE NS204i-u Boot Device

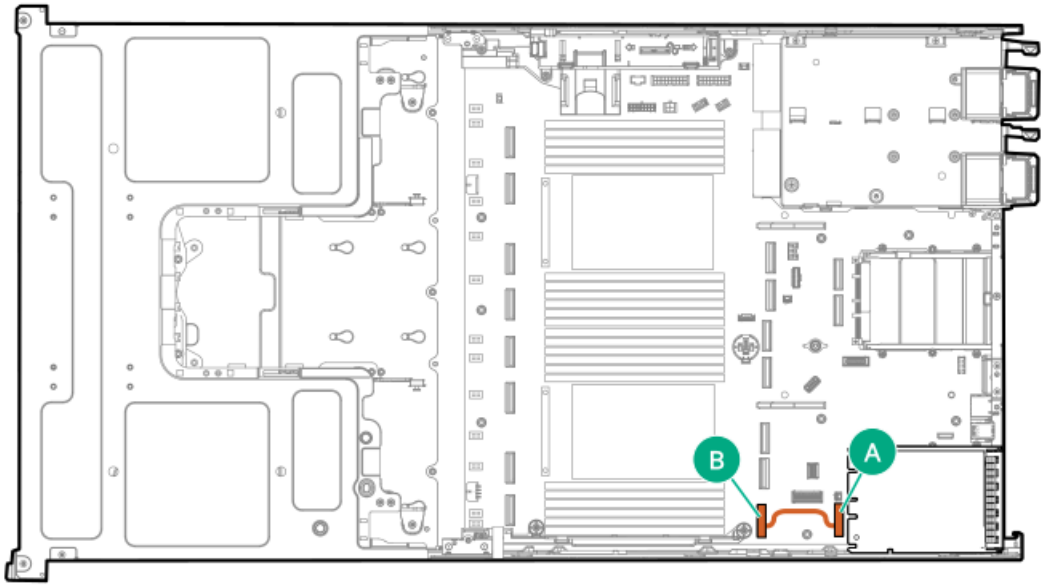


Cable part number	Color	From	To
P54088-001	Orange	HPE NS204i-u Boot Device	NS204i-u sideband connector
P54092-001	Blue		SlimSAS x8 connector

OCP bandwidth upgrade cabling

OCP bandwidth upgrade cable: Slot 17

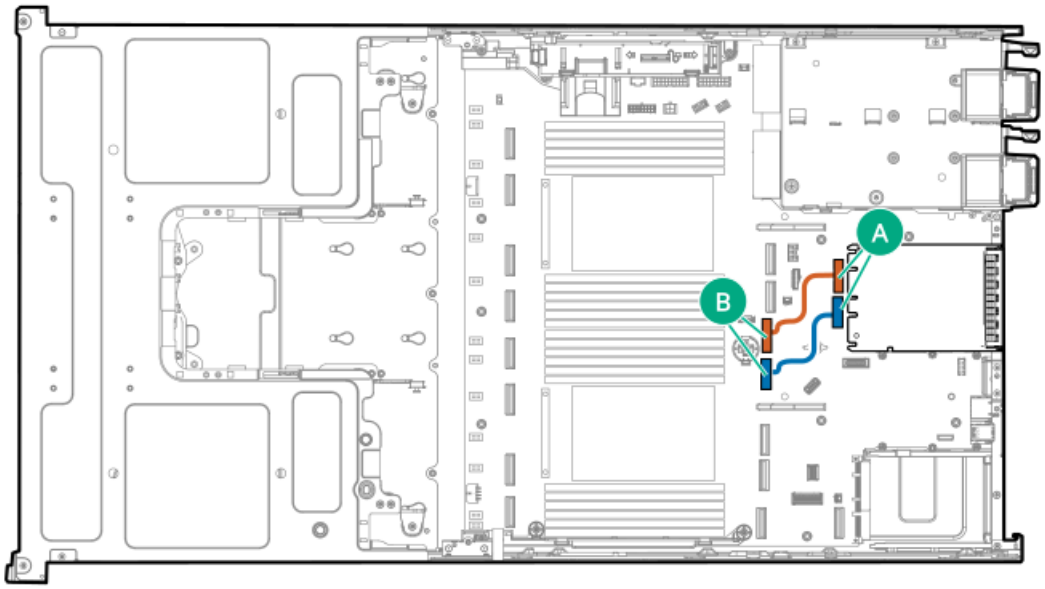
The OCP bandwidth upgrade cable is required when installing an OCP NIC 3.0 x16 adapter in the OCP Slot 17.



Cable part number	Color	From	To
P47741-001	Orange	Socket 1 MCIO connector 9A	Slot 17 OCP x16 upgrade connector

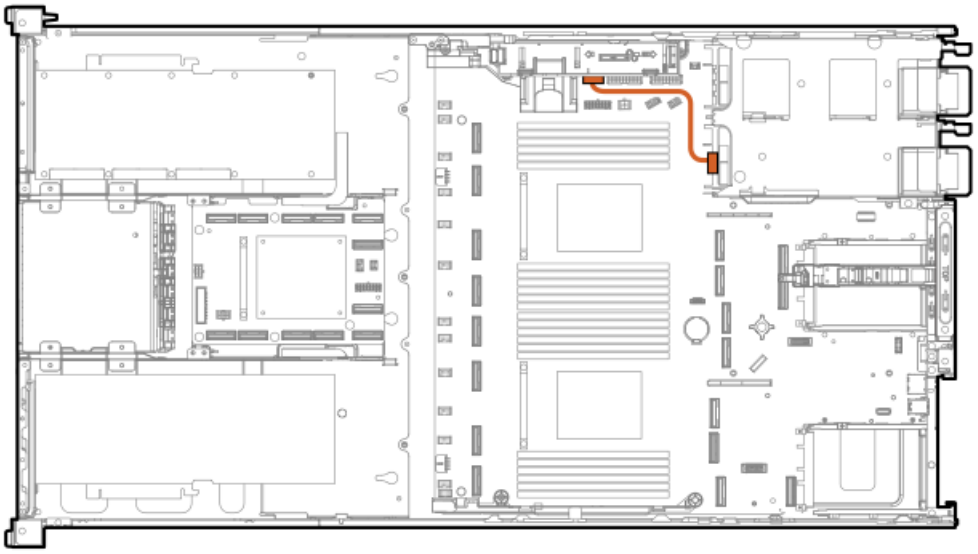
OCP bandwidth upgrade cable: Slot 18

The two OCP bandwidth upgrade cables are required when installing an OCP NIC 3.0 adapter in the OCP Slot 18.



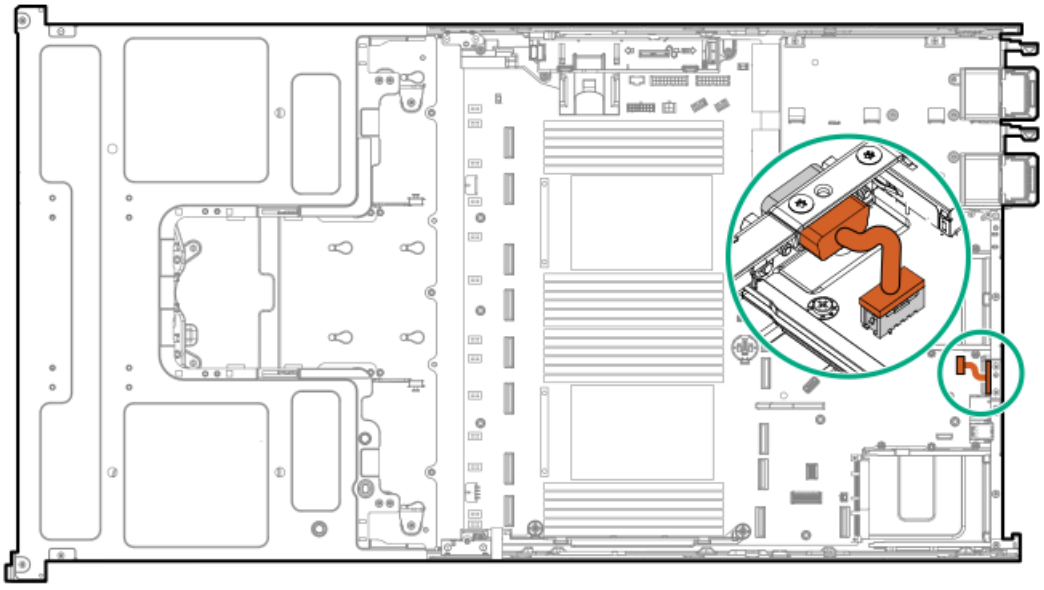
Cable part number	Color	From	To
P47742-001	Orange	Socket 2 MCIO connector 5B	Slot 18 OCP x16 upgrade connector A
P47742-001	Blue	Socket 2 MCIO connector 6B	Slot 18 OCP x16 upgrade connector B

Power distribution board sideband cabling



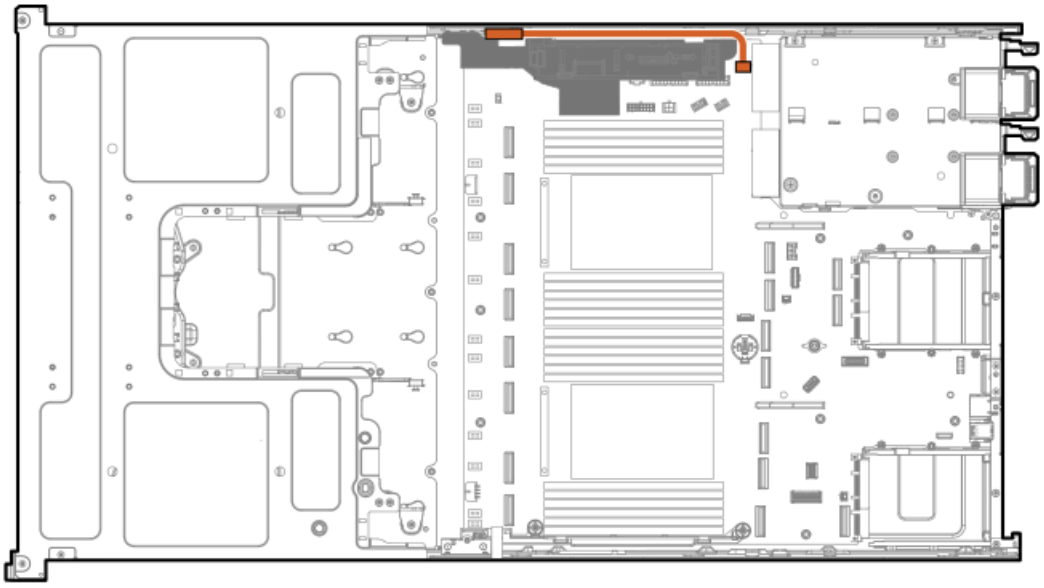
Option part number	Color	From	To
P54888-001	Orange	Power distribution board	Power supply sideband option connector

Serial port cabling



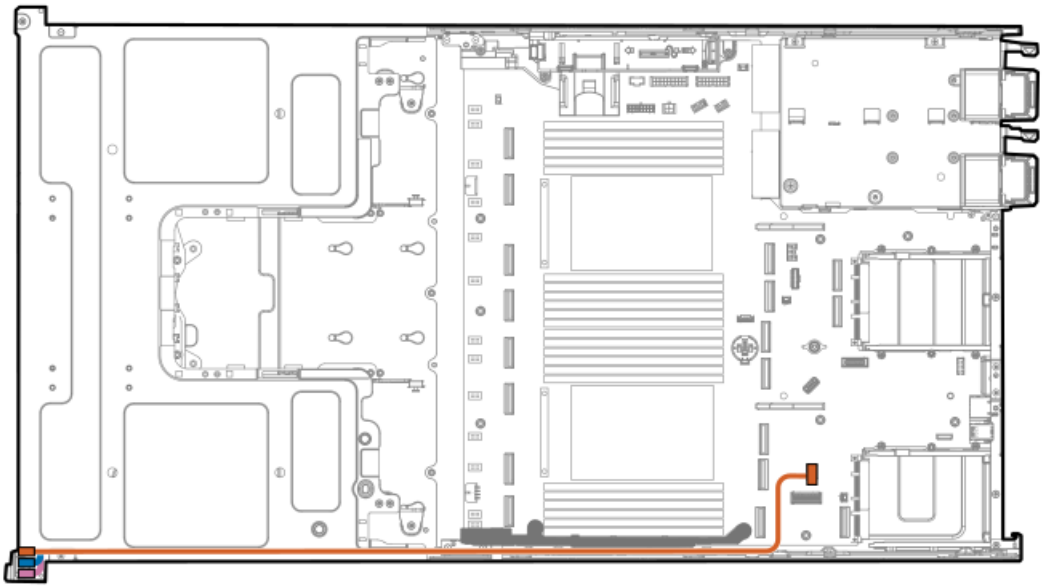
Cable part number	Color	From	To
P57842-001	Orange	Serial port	Serial port connector

Chassis intrusion detection switch cabling



Cable part number	Color	From	To
P54901-001	Orange	Chassis intrusion detection switch	Chassis intrusion detection switch connector

Front I/O cabling



Option part number	Color	From	To
P54733-001	Orange	• Front I/O module • iLO service port • USB 3.2 Gen1 port	Front I/O connector

Configuration resources

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

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

Subtopics

Updating firmware or system ROM

To	Use
Download service packs	Service Pack for ProLiant (SPP) https://www.hpe.com/servers/spp/download
Deploy service packs to a single server	Smart Update Manager (SUM) https://www.hpe.com/info/sum-docs
Deploy service packs to multiple servers	HPE OneView https://www.hpe.com/support/oneview-docs
Updating iLO or system firmware in a single server or multiple servers	iLO user guide https://www.hpe.com/support/ilo6
• Enable policy-based management of server or server group firmware for distributed server infrastructure • Monitor server compliance with a configured firmware baseline • Receive automatic iLO firmware updates • Receive baseline update alerts	HPE 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 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 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 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
Intel VROC for HPE Gen11	Intel Virtual RAID on CPU for HPE User Guide https://hpe.com/support/VROC-Gen11-UG OS-specific configuration guides: • Intel Virtual RAID on CPU (Intel VROC) for Windows User Guide https://www.intel.com/content/dam/support/us/en/documents/memory-and-storage/338065_Intel_VROC_UserGuide_Windows.pdf • Intel Virtual RAID on CPU (Intel VROC) for Linux User Guide https://www.intel.com/content/dam/support/us/en/documents/memory-and-storage/linux-intel-vroc-userguide-333915.pdf • Intel Volume Management Device Driver for VMware ESXi User Guide https://www.intel.com/content/dam/support/us/en/documents/memory-and-storage/ESXi-Intel-VROC-UserGuide.pdf

Managing the HPE NS204i-u Boot Device

For more information on supported features and maintenance information for the HPE NS204i-u Boot Device, see the HPE NS204i-u Boot Device User Guide:

https://www.hpe.com/support/NS204-UG

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 Compute Ops Management	HPE 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 Compute Ops Management https://www.hpe.com/info/com-docs

Managing Linux-based high performance compute clusters

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

Troubleshooting

Subtopics

NMI functionality

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

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

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

Troubleshooting resources

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

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

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

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

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

System battery replacement

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

Subtopics

System battery information

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

WARNING

If this battery is not properly handled, a risk of fire or burning exists. To reduce the risk of personal injury:

- **Do not attempt to recharge the battery.**
- **Do not expose the battery to temperatures higher than 60°C (140°F).**
- **Do not expose the battery to low air pressure as it might lead to explosion or leakage of flammable liquid or gas.**
- **Do not disassemble, crush, puncture, short external contacts, or dispose of the battery in fire or water.**

Removing and replacing the system battery

Prerequisites

Before you perform this procedure, make sure that you have a spudger or any small prying tool available.

About this task

IMPORTANT

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

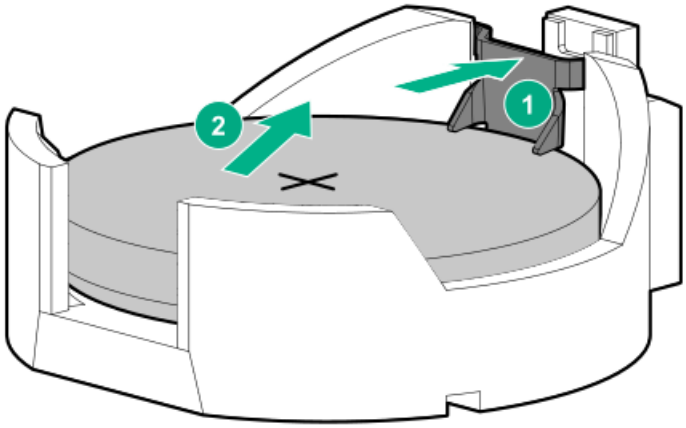
CAUTION

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

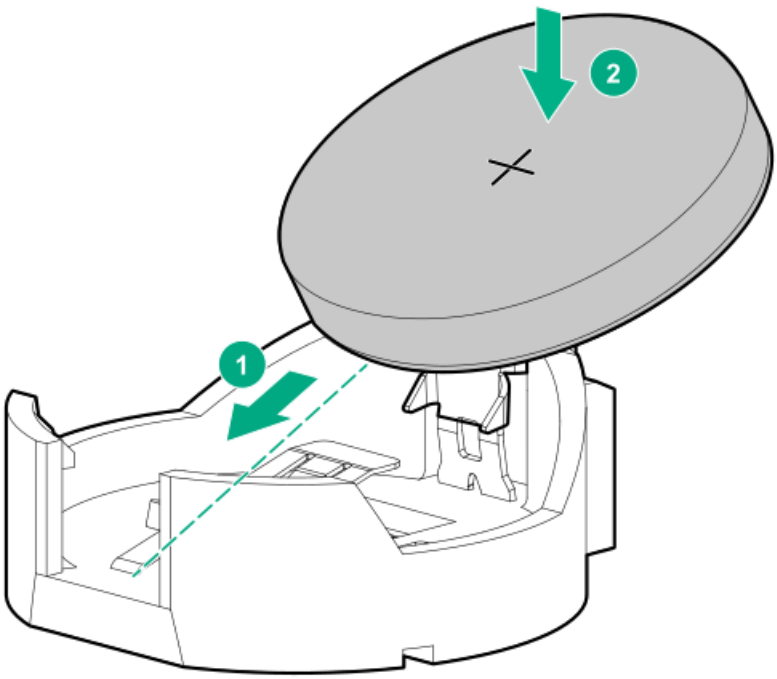
Procedure

1. Power down the server.
2. 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. Do one of the following:
   - Extend the server out of the rack
   - Remove the server from the rack
5. Place the server on a flat, level work surface.
6. Remove the access panel.
7. Remove an air baffle.
8. Remove the system battery:
   a. Use a small flat-bladed, nonconductive tool to press the battery latch.
   b. Remove the system battery from the socket.



9. Install the system battery:
   a. With the side of the battery showing the "+" sign facing up, insert the battery into the socket.
   b. Press the system battery down until it clicks into place.



10. Install the access panel.
11. Connect all peripheral cables to the server.
12. Connect each power cord to the server.
13. Connect each power cord to the power source.
14. Wait for 10 minutes for the server to reset and reinitialize the iLO configuration settings stored in SRAM.

    IMPORTANT

    If iLO security is disabled, the configuration will not be restored. To restore the configuration manually, see **https://www.hpe.com/support/ilo6**.

15. Power up the server.
16. Properly dispose of the old battery.

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

Results

The installation procedure is complete.

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:

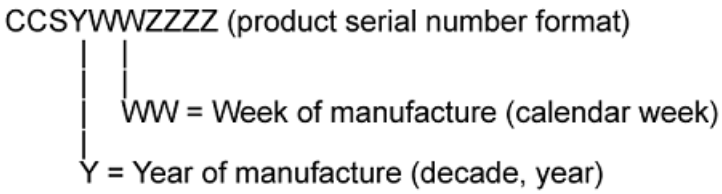
- **Russia**
  ООО "Хьюлетт Паккард Энтерпрайз", Российская Федерация, 125171, г. Москва, Ленинградское шоссе, 16А, стр.3, Телефон: +7 499 403 4248 Факс: +7 499 403 4677
- **Kazakhstan**
  ТОО «Хьюлетт-Паккард (К)», Республика Казахстан, 050040, г. Алматы, Бостандыкский район, проспект Аль-Фараби, 77/7,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



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

Turkey RoHS material content declaration

Türkiye Cumhuriyeti: AEEE Yönetmeliğine Uygundur

Ukraine RoHS material content declaration

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

Warranty information

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

Specifications

Subtopics

- Environmental specifications
- Mechanical specifications
- Power supply 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**.

Mechanical specifications

Specification	Value
Dimensions	—
Height	8.75 cm (3.44 in)
Depth	81.60 cm (32.12 in)
Width	44.80 cm (17.64 in)
Weight, approximate values	—
Weight, minimum	11.00 kg (24.25 lbs)
Weight, maximum	35.95 kg (79.25 lbs)

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 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 (**https://www.hpe.com/info/proliant/powersupply**).

Subtopics

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 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

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 DL380a Gen11 Server product page

https://buy.hpe.com/us/en/p/1014696168

HPE ProLiant DL380a Gen11 Server user documents

https://www.hpe.com/info/dl380Agen11-docs

Support and other resources

Subtopics

Accessing Hewlett Packard Enterprise Support

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

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

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

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

Information to collect

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

- Third-party products or components

HPE product registration

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

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

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

Accessing updates

- Some software products provide a mechanism for accessing software updates through the product interface. Review your product documentation to identify the recommended software update method.
- To download product updates:

  Hewlett Packard Enterprise Support Center

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

  My HPE Software Center

  https://www.hpe.com/software/hpesoftwarecenter
- To subscribe to eNewsletters and alerts:

  https://www.hpe.com/support/e-updates
- To view and update your entitlements, and to link your contracts and warranties with your profile, go to the Hewlett Packard Enterprise Support Center More Information on Access to Support Materials page:

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

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

Customer self repair

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

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

Remote support

Remote support

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

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