



**Hewlett Packard
Enterprise**

HPE ProLiant DL385 Gen10 Server Maintenance and Service Guide

Abstract

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

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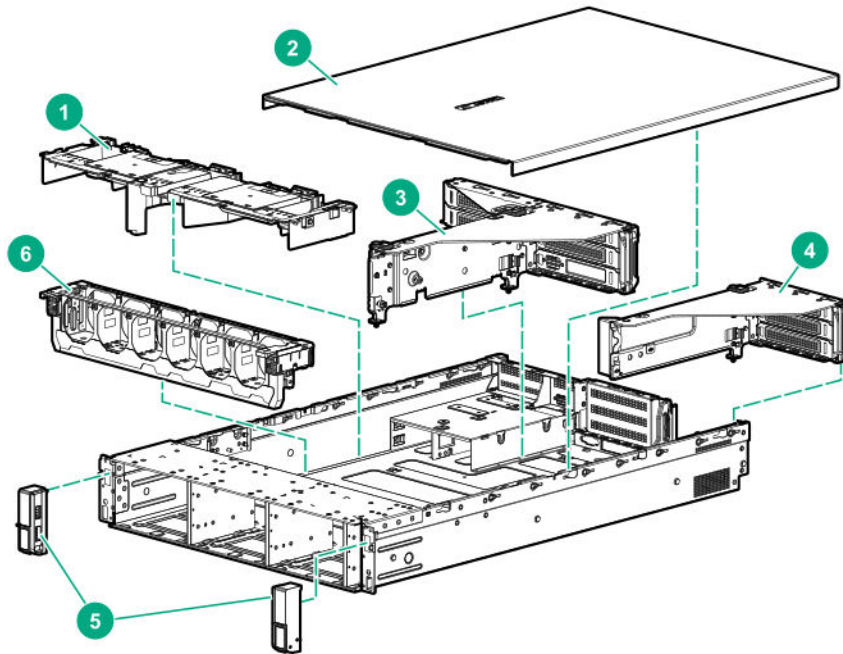
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Illustrated parts catalog

Mechanical components

Hewlett Packard Enterprise continually improves and changes product parts. For complete and current supported parts information, see the Hewlett Packard Enterprise PartSurfer website (<http://www.hpe.com/info/partssurfer>).



Item	Description
1	<u>Air baffle spare part</u> on page 7
2	<u>Access panel spare parts</u> on page 8
3	<u>Tertiary PCI riser cage spare part</u> on page 8
4	<u>Primary and secondary PCI riser cage spare part</u> on page 8
5	<u>Chassis ear spare parts</u> on page 8
6	<u>Fan cage spare part</u> on page 8 ¹
7	<u>2U bezel spare part</u> on page 8 ¹
8	<u>Rail kit spare parts</u> on page 9 ¹
9	<u>Miscellaneous blank kits spare parts</u> on page 9 ¹

¹ Not shown.

For more information, see **Removal and replacement procedures** on page 34.

Air baffle spare part

Customer self repair on page 24: mandatory

Description	Spare part number
Air baffle	P00659-001

Access panel spare parts

Customer self repair on page 24: **mandatory**

Description	Spare part number
Access panel (SFF model)	P00660-001
Access panel (LFF model)	P00661-001

Tertiary PCI riser cage spare part

Customer self repair on page 24: **optional**

Description	Spare part number
Tertiary PCI riser cage	P01087-001

Primary and secondary PCI riser cage spare part

Customer self repair on page 24: **mandatory**

Description	Spare part number
Primary and secondary PCI riser cage	P01088-001

Chassis ear spare parts

Customer self repair on page 24: **mandatory**

Description	Spare part number
SFF standard left and right chassis ears kit	875083-001
LFF power/UID left and right chassis ears kit	875084-001

Fan cage spare part

Customer self repair on page 24: **mandatory**

Description	Spare part number
Fan cage	875055-001

2U bezel spare part

Customer self repair on page 24: **mandatory**

Description	Spare part number
2U bezel	875065-001

Rail kit spare parts

Customer self repair on page 24: **mandatory**

Description	Spare part number
SFF 2U easy install rail kit	744114-001
LFF 2U easy install rail kit	744115-001
2U cable management arm for easy install rail kit	744116-001
SFF 2U BB rail kit	662535-001
LFF 2U BB rail kit	692480-001
2U cable management arm for BB rail kit	675606-001

Miscellaneous blank kits spare parts

Front miscellaneous blanks kit spare parts

Customer self repair on page 24: **mandatory**

Description	Spare part number
Front miscellaneous blanks kit. Includes: <ul style="list-style-type: none">• 2 SFF Flex Bay hard drive blank• Hard drive box, standard blank• Hard drive box blank, NVMe• LFF hard drive box blank	875069-001

Rear miscellaneous blanks kit spare parts

Customer self repair on page 24: **mandatory**

Description	Spare part number
Rear miscellaneous blanks kit. Includes: <ul style="list-style-type: none">• 4LFF backplane bracket (3)• Rear 2SFF serial blank• Secondary PCI blank• PCI riser cage blank for optional board• PCI riser cage blank for optional board, with screw• Optional PCI serial blank	875067-001

Rear 2SFF/miscellaneous blanks and bracket kit spare parts

Customer self repair on page 24: **mandatory**

Description	Spare part number
Rear 2SFF/miscellaneous blanks and bracket kit. Includes:	875068-001
<ul style="list-style-type: none"> • Rear 2SFF 2U bracket • Rear 2SFF module blank assembly • Tertiary riser blank assembly 	

Fan blank, Smart Storage Battery latch, and PCIe retainer kit spare parts

Customer self repair on page 24: **mandatory**

Description	Spare part number
Fan blank, Smart Storage Battery latch, and PCIe retainer kit. Includes:	875066-001
<ul style="list-style-type: none"> • Smart Storage Battery latch • PCIe GPU retainer assembly • Tertiary PCI riser cage retainer assembly • Fan blank (2) 	

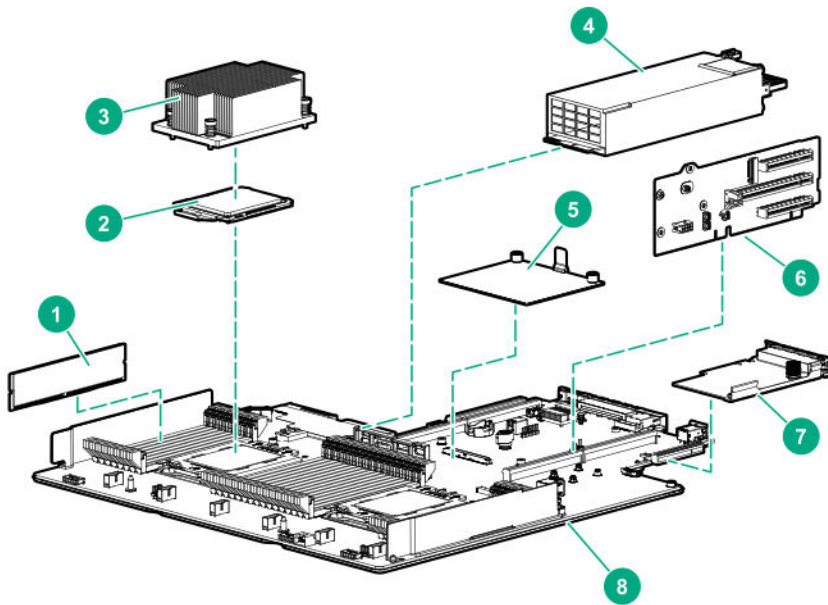
Optical drive blank spare part

Customer self repair on page 24: **mandatory**

Description	Spare part number
Optical drive blank	707300-001

System components

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Item	Description
1	DIMM spare parts on page 11
2	Processor spare parts on page 12
3	Heatsink spare parts on page 12
4	Power supply spare parts on page 12
5	Controller spare parts on page 13
6	PCI riser board spare parts on page 14
	Ethernet adapter spare parts on page 14
7	FlexibleLOM adapter spare parts on page 14
8	System board spare part on page 15
9	System battery spare part on page 15 ¹

¹ Not shown.

For more information, see **Removal and replacement procedures** on page 34.

DIMM spare parts

Customer self repair on page 24: **mandatory**

Description	Spare part number
DIMM, 8GB PC4-2666V-R, 1Gx8	868841-001
DIMM, 16GB PC4-2666V-R, 2Gx4	868842-001
DIMM, 16GB PC4-2666V-R, 1Gx8	870840-001
DIMM, 32GB PC4-2666V-R, 2Gx4	868843-001

Table Continued

Description	Spare part number
DIMM, 64GB PC4-2666V-L, 2Gx4	868844-001
DIMM, 128GB PC4-2666V-L, 2Gx4	868845-001

Processor spare parts

Customer self repair on page 24: **optional**

Description	Spare part number
2.0 G AMD EPYC 7251 processor	882443-001
2.1 G AMD EPYC 7281 processor	P00657-001
2.2 G AMD EPYC 7301 processor	P00655-001
2.4 G AMD EPYC 7351 processor	P00654-001
2.0 G AMD EPYC 7401 processor	P00653-001
2.3 G AMD EPYC 7451 processor	P00652-001
2.0 G AMD EPYC 7501 processor	P00651-001
2.0 G AMD EPYC 7551 processor	P00650-001
2.2 G AMD EPYC 7601 processor	882447-001

Heatsink spare parts

Customer self repair on page 24: **no**

Description	Spare part number
Standard heatsink 1U	P00248-001
Standard heatsink 2U	P00249-001
High-performance heatsink 2U	P00250-001

Power supply spare parts

Customer self repair on page 24: **mandatory**

Description	Spare part number
HPE 800W Flex Slot Universal Hot-Plug Low Halogen Power Supply	866727-001
HPE 800W Flex Slot -48VDC Hot-Plug Low Halogen Power Supply	866728-001
HPE 500W Flex Slot Platinum Hot-plug Low Halogen Power Supply	866729-001
HPE 800W Flex Slot Platinum Hot-Plug Low Halogen Power Supply	866730-001

Table Continued

Description	Spare part number
HPE 800W Flex Slot Titanium Hot-Plug Low Halogen Power Supply	866793-001
HPE 1600W Flex Slot Platinum Hot-Plug Low Halogen Power Supply	863373-001

Controller spare parts

Smart Array controller spare parts

Customer self repair on page 24: mandatory

Description	Spare part number
HPE Smart Array E208i-a Controller	836259-001
HPE Smart Array P408i-a Controller	836260-001
HPE Smart Array P816i-a Controller	836261-001
HPE Smart Array E208i-p Controller	836266-001
HPE Smart Array E208e-p Controller	836267-001
HPE Smart Array P408i-p Controller	836269-001
HPE Smart Array P408e-p Controller	836270-001

Host bus adapter spare parts

Customer self repair on page 24: mandatory

Description	Spare part number
HPE SN1600Q 32Gb 1p FC HBA	868140-001
HPE SN1600Q 32Gb 2p FC HBA	868141-001
HPE SN1600E 32Gb 2p FC HBA	869999-001
HPE SN1600E 32Gv 2p FC HBA	870000-001
HPE SN1200E 16Gb 1p FC HBA	870001-001
HPE SN1200E 16Gb 2p FC HBA	870002-001
HPE SN1100Q 16Gb 1p FC HBA	863010-001
HPE SN1100Q 16Gb 2p FC HBA	853011-001

Converged network adapter spare parts

Customer self repair on page 24: mandatory

Description	Spare part number
HPE CN1100R 2P Converged Network Adapter	706801-001
HPE StoreFabric CN1100R-T 10Gb Converged Network Adapter	872605-001

Table Continued

Description	Spare part number
HPE StoreFabric CN1200E 10Gb Converged Network Adapter	767078-001
HPE StoreFabric CN1200E-T 10Gb Converged Network Adapter	827607-001

PCI riser board spare parts

Customer self repair on page 24: **optional**

Description	Spare part number
2x8 x16 PCIe M.2 riser	877946-001
2x8 x16 PCIe riser	875058-001
x16 x16 PCIe S1/2 riser	875059-001
x16 x16 PCIe S2/3 riser	875060-001
x16 PCIe tertiary riser	875061-001
2 Slim SAS tertiary riser	875062-001
1-S x16 1U riser	875085-001
3 x8/x1 Slim SAS riser	875086-001
Quad Slim SAS riser	875087-001

Ethernet adapter spare parts

Customer self repair on page 24: **mandatory**

Description	Spare part number
Ethernet 1Gb 4-port 331T Adapter	649871-001
Ethernet 1Gb 2-port 332T Adapter	616012-001
Ethernet 1Gb 2-port 361T Adapter	656241-001
Ethernet 1Gb 4-port 366T Adapter	816551-001
Ethernet 10Gb 2-port 521T Adapter	869573-001
Ethernet 10Gb 2-port 535T Adapter	815669-001
Ethernet 10Gb 2-port 562SFP+ Adapter	790316-001
Ethernet 10/25Gb 2-port 631SFP28 Adapter	840130-001
Ethernet 10/25Gb 2-port 640SFP28 Adapter	840140-001

FlexibleLOM adapter spare parts

Customer self repair on page 24: **mandatory**

Description	Spare part number
HPE Ethernet 1Gb 4-port 331FLR adapter	789897-001
HPE Ethernet 1Gb 4-port 366FLR Adapter	669280-001
HPE Ethernet 10Gb 2-port 535FLR-T Adapter	854177-001
HPE FlexFabric 10Gb 4-port 536FLR-T Adapter	768082-001
HPE Ethernet 10Gb 2-port 562FLR-SFP+ Adapter	790317-001
HPE Ethernet 10/25Gb 2-port 631FLR-SFP28 Adapter	840133-001
HPE Ethernet 10/25Gb 2-port 640FLR-SFP28 Adapter	840139-001

System board spare part

Customer self repair on page 24: **optional**

Description	Spare part number
System board	P00648-001

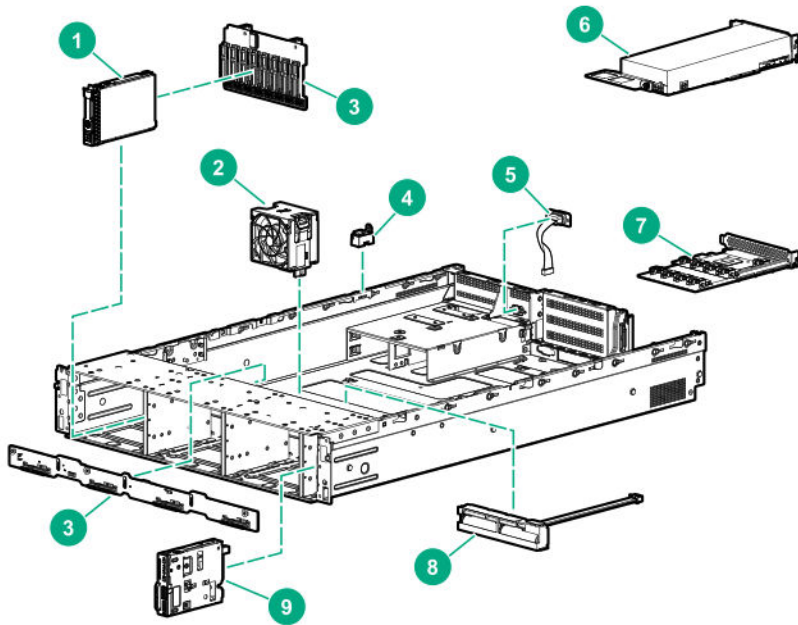
System battery spare part

Customer self repair on page 24: **mandatory**

Description	Spare part number
System battery	319603-001

Server options

Hewlett Packard Enterprise continually improves and changes product parts. For complete and current supported parts information, see the Hewlett Packard Enterprise PartSurfer website (<http://www.hpe.com/info/partssurfer>).



Item	Description
1	<u>Drive spare parts</u> on page 16
2	<u>Fan spare part</u> on page 20
3	<u>Backplane board spare parts</u> on page 20
4	<u>Chassis Intrusion Detection Switch spare part</u> on page 21
5	<u>Rear serial port interface spare part</u> on page 21
6	<u>GPU option spare part</u> on page 21
7	<u>HPE 12Gb DL38x Gen10 SAS Expander Card spare part</u> on page 21
8	<u>HPE Smart Storage Battery spare parts</u> on page 21
9	<u>Power module spare part</u> on page 22
10	<u>LFF I/O UID spare parts</u> on page 22 ¹
11	<u>HPE Trusted Platform Module 2.0 spare part</u> on page 22 ¹
12	<u>Cable spare parts</u> on page 22 ¹
13	<u>Thermal grease spare parts</u> on page 23 ¹

¹ Not shown.

For more information, see **Removal and replacement procedures** on page 34.

Drive spare parts

Hot-plug drive spare parts

Customer self repair on page 24: mandatory

Description	Spare part number
1 TB SAS 7.2K SFF SC DS HDD	832984-001
1 TB SAS 7.2K SFF SC 512e DS HDD	765872-001
1 TB SATA 7.2K LFF SC DS HDD	862128-001
1 TB SAS 7.2K LFF SC DS HDD	846612-001
1 TB SATA 7.2K SFF SC 512e DS HDD	765868-001
1 TB SATA 7.2K SFF SC DS HDD	656108-001
2 TB SAS 7.2K SFF SC 512e DS HDD	765873-001
2 TB SAS 12G 7.2K LFF SC DS HDD	872744-001
2 TB SATA 7.2K SFF SC 512e DS HDD	765869-001
2.4 TB SAS 10K SFF SC 512e DS HDD	881507-001
3 TB SATA 7.2K LFF SC DS HDD	862129-001
3 TB SAS 7.2K LFF SC DS HDD	846614-001
4 TB SAS 7.2K LFF SC 512e DS HDD	862141-001
4 TB SAS 12G 7.2K LFF SC DS HDD	872745-001
4 TB SATA 7.2K 6G LFF SC DS HDD	872772-001
4 TB SATA 7.2K LFF SC 512e DS HDD	862139-001
6 TB SATA 7.2K LFF SC DS HDD	846608-001
6 TB SATA 7.2K LFF SC 512e DS HDD	862138-001
6 TB SAS 7.2K LFF SC 512e DS HDD	862140-001
8 TB SATA 7.2K LFF SC He 512e DS HDD	861609-001
8 TB SATA 7.2K LFF SC 512e DS HDD	820033-001
10 TB SATA 7.2K LFF SC He 512e DS HDD	857967-001
12 TB SATA 7.2K LFF SC He 512e DS HDD	881785-B21
12 TB SAS 7.2K LFF SC He 512e DS HDD	881779-B21
8 TB SAS 7.2K LFF SC He 512e DS HDD	861607-001
8 TB SAS 7.2K LFF SC 512e DS HDD	820032-001
10 TB SAS 7.2K LFF SC He 512e DS HDD	857965-001
300 GB SAS 10K SFF SC DS HDD	872735-001
600 GB SAS 10K SFF SC DS HDD	872736-001
1.2 TB SAS 10K SFF SC DS HDD	872737-001
1.8 TB SAS 10K SFF SC 512e DS HDD	872738-001

Table Continued

Description	Spare part number
300 GB SAS 15K SFF SC DS HDD	870792-001
600 GB SAS 15K SFF SC DS HDD	870794-001
600 GB SAS 15K SFF SC 512e DS HDD	870797-001
900 GB SAS 15K SFF SC DS HDD	870795-001
900 GB SAS 15K SFF SC 512e DS HDD	870798-001

Solid state NVMe spare parts

Customer self repair on page 24: **mandatory**

Description	Spare part number
400 GB NVMe x4 MU SFF SCN SSD	875874-001
480 GB NVMe x4 RI SFF SCN SSD	875871-001
800 GB NVMe x4 MU SFF SCN SSD	875875-001
960 GB NVMe x4 RI SFF SCN SSD	875872-001
1.6 TB NVMe x4 MU SFF SCN SSD	875876-001
1.92 TB NVMe x4 RI SFF SCN SSD	875873-001

Solid state drive uFF M.2 spare parts

Customer self repair on page 24: **mandatory**

Description	Spare part number
150 GB SATA RI M.2 2280 SSD	875835-001
2x150 GB SATA M.2 RI uFF to SFF SCM SSD	882402-001
240 GB SATA MU M.2 2280 SSD	875850-001
480 GB SATA RI M.2 2280 SSD	875836-001
2x480 GB SATA M.2 RI uFF to SFF SCM SSD	882403-001
Universal SATA HH M.2 kit	835802-001

Solid state drive SAS spare parts

Customer self repair on page 24: **mandatory**

Description	Spare part number
400 GB SAS 12G MU SFF SC DS SSD	872505-001
400 GB SAS 12G MU SFF SC DS SSD	873566-001
400 GB SAS 12G WI SFF SC DS SSD	873563-001
480 GB SAS RI SFF SC DS SSD	875681-001
800 GB SAS 12G MU SFF SC DS SSD	872506-001
800 GB SAS 12G MU LFF SCC DS SSD	872507-001

Table Continued

Description	Spare part number
800 GB SAS 12G WI SFF SC DS SSD	873564-001
800 GB SAS 12G MU SFF SC DS SSD	873569-001
960 GB SAS RI SFF SC DS SSD	875682-001
960 GB SAS RI SFF SC DS SSD	872432-001
1.6 TB SAS 12G MU SFF SC DS SSD	873570-001
1.6 TB SAS 12G WI SFF SC DS SSD	873565-001
1.6 TB SAS 12G MU SFF SC DS SSD	872509-001
1.92 TB SAS 12G RI SFF SC DS SSD	872433-001
1.92 TB SAS RI SFF SC DS SSD	875684-001
3.2 TB SAS 12G MU SFF SC DS SSD	873571-001
3.2 TB SAS 12G MU SFF SC DS SSD	872511-001
3.84 TB SAS RI SFF SC DS SSD	875686-001
3.84 TB SAS RI SFF SC DS SSD	872434-001
7.68 TB SAS 12G RI SFF SC DS SSD	870460-001
15.3 TB SAS 12G RI SFF SC DS SSD	870462-001

Solid state drive SATA spare parts

Customer self repair on page 24: **mandatory**

Description	Spare part number
240GB SATA MU SFF SC DS SSD	875703-001
240GB SATA MU SFF SC DS SSD	882219-001
240GB SATA 6G RI SFF SC DS SSD	868924-001
240GB SATA 6G RI SFF SC DS SSD	878844-001
480GB SATA RI SFF SC DS SSD	875655-001
480GB SATA MU LFF SCC DS Spl SSD	875864-001
480GB SATA MU SFF SC DS SSD	875863-001
480GB SATA RI SFF SC DS SSD	878846-001
480GB SATA 6G RI SFF SC DS SSD	868926-001
480GB SATA 6G MU SFF SC DS SSD	872518-001
480GB SATA 6G MU LFF SCC DS SSD	872519-001
480GB SATA MU SFF SC DS SSD	879013-001
960GB SATA RI SFF SC DS SSD	875656-001
960GB SATA MU SFF SC DS SSD	875865-001
960GB SATA MU LFF SCC DS Spl SSD	875866-001

Table Continued

Description	Spare part number
960GB SATA MU LFF SCC DS SSD	879017-001
960GB SATA RI SFF SC DS SSD	878849-001
960GB SATA 6G RI SFF SC DS SSD	868928-001
960GB SATA 6G MU SFF SC DS SSD	872520-001
960GB SATA 6G MU LFF SCC DS SSD	872521-001
960GB SATA MU SFF SC DS SSD	879016-001
1.92TB SATA RI SFF SC DS SSD	875657-001
1.92TB SATA MU LFF SCC DS SSD	875868-001
1.92TB SATA MU SFF SC DS SSD	875867-001
1.92TB SATA MU LFF SCC DS SSD	879020-001
1.92TB SATA MU SFF SC DS SSD	879019-001
1.92TB SATA RI SFF SC DS SSD	878852-001
1.92TB SATA 6G RI SFF SC DS SSD	868930-001
1.92TB SATA 6G MU SFF SC DS SSD	872522-001
3.84TB SATA RI SFF SC DS SSD	878855-001
3.84TB SATA 6G RI SFF SC DS SSD	868932-001

Optical drive spare parts

Customer self repair on page 24: **mandatory**

Description	Spare part number
9.5 mm SATA DVD-ROM Gen9 optical drive	652296-001
9.5 mm SATA DVD-RW Gen9 optical drive	652297-001
Mobile USB Non-Leaded System DVD RW drive	775676-001

Fan spare part

Customer self repair on page 24: **mandatory**

Description	Spare part number
Standard fan	875075-001
High-performance fan	875076-001

Backplane board spare parts

Customer self repair on page 24: **optional**

Description	Spare part number
8SFF SAS backplane, 12 Gbs	878543-001
8SFF 6 SAS/2 NVMe hard drive backplane	874933-001
2SFF SAS rear backplane	875064-001
2SFF SAS/SATA backplane	775401-001
2SFF NVMe backplane	875080-001
3LFF SAS rear backplane	875081-001
4LFF SAS backplane	875082-001
8SFF NVMe backplane	872971-001

Chassis Intrusion Detection Switch spare part

Customer self repair on page 24: mandatory

Description	Spare part number
Chassis Intrusion Detection Switch	878412-001

Rear serial port interface spare part

Customer self repair on page 24: mandatory

Description	Spare part number
Rear serial port interface	875571-001

GPU option spare part

Customer self repair on page 24: optional

Description	Spare part number
HPE NVIDIA Tesla P100 PCIe 16GB Module	868585-001

HPE 12Gb DL38x Gen10 SAS Expander Card spare part

Customer self repair on page 24: optional

Description	Spare part number
HPE 12Gb DL38x Gen10 SAS Expander Card kit	876907-001

HPE Smart Storage Battery spare parts

Customer self repair on page 24: mandatory

Description	Spare part number
HPE Smart Storage Battery	878643-001

Power module spare part

Customer self repair on page 24: **mandatory**

Description	Spare part number
Power/SID module	P00845-001

LFF I/O UID spare parts

Customer self repair: **optional**

Description	Spare part number
LFF I/O UID	875088-001

HPE Trusted Platform Module 2.0 spare part

Customer self repair on page 24: **no**

Description	Spare part number
HPE Trusted Platform Module 2.0 Gen 10 kit, TAA	872159-001

Cable spare parts

Customer self repair on page 24: **mandatory**

Description	Spare part number
2SFF Mini-SAS cable	784625-001
8SFF Mini-SAS cable kit	784621-001
12LFF H240 SAS cable kit	784627-001
SFF Mini-SAS cable kit	875089-001
LFF Mini-SAS cable kit	875090-001
4P Slim SAS NVMe primary riser cable, box 3 cable kit	875091-001
Slim SAS NVMe direct attach cables kit	875092-001
Mini-SAS 12G 2SFF side-by-side SATA	882066-001
Mini-SAS 12G rear 3LFF to SATA, M.2	882068-001
Mini-SAS 12G front/rear 2Premium SATA	P00698-001
8NVMe to Slim SAS	869812-001
Front 2SFF NVMe to side-by-side to Slim SAS	869812-001
8NVMe Bay 1/2 to tertiary NVMe riser	869812-001
USB front 2.0-3.0 + DB9-MB kit	869817-001
HPE DL385 Gen10 Mini-SAS 3POS cable kit	P00658-001

Table Continued

Description	Spare part number
HPE Smart Array type-a controller to 12G SAS expander cable kit	875093-001
Expander Host Controller Cable Set	784629-001
Mini-SAS to 12G SAS expander cable kit	875094-001
Data cables kit	875095-001
DVD SATA cable	784623-001
Power cables kit	875096-001
GPU cables kit	875097-001

Thermal grease spare parts

Customer self repair on page 24: **no**

Description	Spare part number
2.0g thermal grease (1g per processor)	777298-001

Customer self repair

Hewlett Packard Enterprise products are designed with many Customer Self Repair (CSR) parts to minimize repair time and allow for greater flexibility in performing defective parts replacement. If during the diagnosis period Hewlett Packard Enterprise (or Hewlett Packard Enterprise service providers or service partners) identifies that the repair can be accomplished by the use of a CSR part, Hewlett Packard Enterprise will ship that part directly to you for replacement. There are two categories of CSR parts:

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

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

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

For more information about the Hewlett Packard Enterprise CSR program, contact your local service provider. For the North American program, go to the [Hewlett Packard Enterprise CSR website](#).

Parts only warranty service

Your Hewlett Packard Enterprise Limited Warranty may include a parts only warranty service. Under the terms of parts only warranty service, Hewlett Packard Enterprise will provide replacement parts free of charge.

For parts only warranty service, CSR part replacement is mandatory. If you request Hewlett Packard Enterprise to replace these parts, you will be charged for the travel and labor costs of this service.

Réparation par le client (CSR)

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

- **Obligatoire**—Pièces pour lesquelles la réparation par le client est obligatoire. Si vous demandez à Hewlett Packard Enterprise de remplacer ces pièces, les coûts de déplacement et main d'œuvre du service vous seront facturés.
- **Facultatif**—Pièces pour lesquelles la réparation par le client est facultative. Ces pièces sont également conçues pour permettre au client d'effectuer lui-même la réparation. Toutefois, si vous demandez à

Hewlett Packard Enterprise de remplacer ces pièces, l'intervention peut ou non vous être facturée, selon le type de garantie applicable à votre produit.

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

Les pièces CSR sont livrées le jour ouvré suivant, dans la limite des stocks disponibles et selon votre situation géographique. Si votre situation géographique le permet et que vous demandez une livraison le jour même ou dans les 4 heures, celle-ci vous sera facturée. Pour toute assistance, appelez le Centre d'assistance Hewlett Packard Enterprise pour qu'un technicien vous aide au téléphone. Dans les documents envoyés avec la pièce de rechange CSR, Hewlett Packard Enterprise précise s'il est nécessaire de lui retourner la pièce défectueuse. Si c'est le cas, vous devez le faire dans le délai indiqué, généralement cinq (5) jours ouvrés. La pièce et sa documentation doivent être retournées dans l'emballage fourni. Si vous ne retournez pas la pièce défectueuse, Hewlett Packard Enterprise se réserve le droit de vous facturer les coûts de remplacement. Dans le cas d'une pièce CSR, Hewlett Packard Enterprise supporte l'ensemble des frais d'expédition et de retour, et détermine la société de courses ou le transporteur à utiliser.

Pour plus d'informations sur le programme CSR de Hewlett Packard Enterprise, contactez votre Mainteneur Agréé local. Pour plus d'informations sur ce programme en Amérique du Nord, consultez le site [**Web Hewlett Packard Enterprise**](#).

Service de garantie "pièces seules"

Votre garantie limitée Hewlett Packard Enterprise peut inclure un service de garantie "pièces seules". Dans ce cas, les pièces de rechange fournies par Hewlett Packard Enterprise ne sont pas facturées.

Dans le cadre de ce service, la réparation des pièces CSR par le client est obligatoire. Si vous demandez à Hewlett Packard Enterprise de remplacer ces pièces, les coûts de déplacement et main d'œuvre du service vous seront facturés.

Riparazione da parte del cliente

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

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

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

In base alla disponibilità e alla località geografica, le parti CSR vengono spedite con consegna entro il giorno lavorativo seguente. La consegna nel giorno stesso o entro quattro ore è offerta con un supplemento di costo solo in alcune zone. In caso di necessità si può richiedere l'assistenza telefonica di un addetto del centro di supporto tecnico Hewlett Packard Enterprise. Nel materiale fornito con una parte di ricambio CSR, Hewlett Packard Enterprise specifica se il cliente deve restituire dei componenti. Qualora sia richiesta la resa ad Hewlett Packard Enterprise del componente difettoso, lo si deve spedire ad Hewlett Packard Enterprise entro un determinato periodo di tempo, generalmente cinque (5) giorni lavorativi. Il componente difettoso deve

essere restituito con la documentazione associata nell'imballo di spedizione fornito. La mancata restituzione del componente può comportare la fatturazione del ricambio da parte di Hewlett Packard Enterprise. Nel caso di riparazione da parte del cliente, Hewlett Packard Enterprise sostiene tutte le spese di spedizione e resa e sceglie il corriere/vettore da utilizzare.

Per ulteriori informazioni sul programma CSR di Hewlett Packard Enterprise, contattare il centro di assistenza di zona. Per il programma in Nord America fare riferimento **al sito Web**.

Servizio di garanzia per i soli componenti

La garanzia limitata Hewlett Packard Enterprise può includere un servizio di garanzia per i soli componenti. Nei termini di garanzia del servizio per i soli componenti, Hewlett Packard Enterprise fornirà gratuitamente le parti di ricambio.

Per il servizio di garanzia per i soli componenti è obbligatoria la formula CSR che prevede la riparazione da parte del cliente. Se il cliente invece richiede la sostituzione ad Hewlett Packard Enterprise dovrà sostenere le spese di spedizione e di manodopera per il servizio.

Customer Self Repair

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

- **Zwingend**—Teile, für die das Customer Self Repair-Verfahren zwingend vorgegeben ist. Wenn Sie den Austausch dieser Teile von Hewlett Packard Enterprise vornehmen lassen, werden Ihnen die Anfahrt- und Arbeitskosten für diesen Service berechnet.
- **Optional**—Teile, für die das Customer Self Repair-Verfahren optional ist. Diese Teile sind auch für Customer Self Repair ausgelegt. Wenn Sie jedoch den Austausch dieser Teile von Hewlett Packard Enterprise vornehmen lassen möchten, können bei diesem Service je nach den für Ihr Produkt vorgesehenen Garantiebedingungen zusätzliche Kosten anfallen.

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

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

Weitere Informationen über das Hewlett Packard Enterprise Customer Self Repair Programm erhalten Sie von Ihrem Servicepartner vor Ort. Informationen über das CSR-Programm in Nordamerika finden Sie auf der **Hewlett Packard Enterprise Website unter**.

Parts-only Warranty Service (Garantieservice ausschließlich für Teile)

Ihre Hewlett Packard Enterprise Garantie umfasst möglicherweise einen Parts-only Warranty Service (Garantieservice ausschließlich für Teile). Gemäß den Bestimmungen des Parts-only Warranty Service stellt Hewlett Packard Enterprise Ersatzteile kostenlos zur Verfügung.

Für den Parts-only Warranty Service ist das CSR-Verfahren zwingend vorgegeben. Wenn Sie den Austausch dieser Teile von Hewlett Packard Enterprise vornehmen lassen, werden Ihnen die Anfahrt- und Arbeitskosten für diesen Service berechnet.

Reparaciones del propio cliente

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

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

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

Según la disponibilidad y la situación geográfica, los componentes CSR se enviarán para que lleguen a su destino al siguiente día laborable. Si la situación geográfica lo permite, se puede solicitar la entrega en el mismo día o en cuatro horas con un coste adicional. Si precisa asistencia técnica, puede llamar al Centro de asistencia técnica de Hewlett Packard Enterprise y recibirá ayuda telefónica por parte de un técnico. Con el envío de materiales para la sustitución de componentes CSR, Hewlett Packard Enterprise especificará si los componentes defectuosos deberán devolverse a Hewlett Packard Enterprise. En aquellos casos en los que sea necesario devolver algún componente a Hewlett Packard Enterprise, deberá hacerlo en el periodo de tiempo especificado, normalmente cinco días laborables. Los componentes defectuosos deberán devolverse con toda la documentación relacionada y con el embalaje de envío. Si no enviara el componente defectuoso requerido, Hewlett Packard Enterprise podrá cobrarle por el de sustitución. En el caso de todas sustituciones que lleve a cabo el cliente, Hewlett Packard Enterprise se hará cargo de todos los gastos de envío y devolución de componentes y escogerá la empresa de transporte que se utilice para dicho servicio.

Para obtener más información acerca del programa de Reparaciones del propio cliente de Hewlett Packard Enterprise, póngase en contacto con su proveedor de servicios local. Si está interesado en el programa para Norteamérica, visite [**la página web de Hewlett Packard Enterprise CSR**](#).

Servicio de garantía exclusivo de componentes

La garantía limitada de Hewlett Packard Enterprise puede que incluya un servicio de garantía exclusivo de componentes. Según las condiciones de este servicio exclusivo de componentes, Hewlett Packard Enterprise le facilitará los componentes de repuesto sin cargo adicional alguno.

Para este servicio de garantía exclusivo de componentes, es obligatoria la sustitución de componentes por parte del usuario (CSR). Si solicita a Hewlett Packard Enterprise que realice la sustitución de estos

componentes, tendrá que hacerse cargo de los gastos de desplazamiento y de mano de obra de dicho servicio.

Customer Self Repair

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

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

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

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

Neem contact op met een Service Partner voor meer informatie over het Customer Self Repair programma van Hewlett Packard Enterprise. Informatie over Service Partners vindt u op de **Hewlett Packard Enterprise website**.

Garanteservice "Parts Only"

Het is mogelijk dat de Hewlett Packard Enterprise garantie alleen de garanteservice "Parts Only" omvat. Volgens de bepalingen van de Parts Only garanteservice zal Hewlett Packard Enterprise kosteloos vervangende onderdelen ter beschikking stellen.

Voor de Parts Only garanteservice is vervanging door CSR-onderdelen verplicht. Als u Hewlett Packard Enterprise verzoekt deze onderdelen voor u te vervangen, worden u voor deze service reiskosten en arbeidsloon in rekening gebracht

Reparo feito pelo cliente

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

Hewlett Packard Enterprise) concluir que o reparo pode ser efetuado pelo uso de uma peça CSR, a Hewlett Packard Enterprise enviará a peça diretamente ao cliente. Há duas categorias de peças CSR:

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

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

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

Para obter mais informações sobre o programa de reparo feito pelo cliente da Hewlett Packard Enterprise, entre em contato com o fornecedor de serviços local. Para o programa norte-americano, **visite o site da Hewlett Packard Enterprise**.

Serviço de garantia apenas para peças

A garantia limitada da Hewlett Packard Enterprise pode incluir um serviço de garantia apenas para peças. Segundo os termos do serviço de garantia apenas para peças, a Hewlett Packard Enterprise fornece as peças de reposição sem cobrar nenhuma taxa.

No caso desse serviço, a substituição de peças CSR é obrigatória. Se desejar que a Hewlett Packard Enterprise substitua essas peças, serão cobradas as despesas de transporte e mão-de-obra do serviço.

カスタマーセルフリペア

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

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

注： Hewlett Packard Enterprise製品の一部の部品は、カスタマーセルフリペアの対象外です。製品の保証を継続するためには、Hewlett Packard EnterpriseまたはHewlett Packard Enterprise正規保守代理店による交換作業が必須となります。部品カタログには、当該部品がカスタマーセルフリペア除外品である旨が記載されています。

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

部品のみ保証サービス

Hewlett Packard Enterprise保証サービスには、部品のみ保証サービスが適用される場合があります。このサービスでは、交換部品は無償で提供されます。

部品のみ保証サービスにおいては、CSR部品をお客様により交換作業していただくことが必須となります。当該部品について、もしもお客様がHewlett Packard Enterpriseに交換作業を依頼される場合には、その修理サービスに関する交通費および人件費がお客様のご負担となります。

客户自行维修

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

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

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

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

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

仅部件保修服务

您的 Hewlett Packard Enterprise 有限保修服务可能涉及仅部件保修服务。根据仅部件保修服务条款的规定，Hewlett Packard Enterprise 将免费提供更换的部件。

仅部件保修服务要求进行 CSR 部件更换。如果您请求 Hewlett Packard Enterprise 更换这些部件，则必须为该服务支付差旅费和人工费用。

客戶自行維修

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

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

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

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

如需 Hewlett Packard Enterprise 的 CSR 方案詳細資訊，請連絡您當地的服務供應商。至於北美方案，請參閱 Hewlett Packard Enterprise 的 CSR 網站 <http://www.hpe.com/support/selfrepair>。

僅限零件的保固服務

您的「Hewlett Packard Enterprise 有限保固」可能包含僅限零件的保固服務。在僅限零件的保固服務情況下，Hewlett Packard Enterprise 將免費提供替換零件。

針對僅限零件的保固服務，CSR 零件替換是強制性的。如果您要求 Hewlett Packard Enterprise 更換這些零件，Hewlett Packard Enterprise 將會向您收取此服務所需的外出費用與勞動成本。

고객 셀프 수리

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

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

참고: 일부 Hewlett Packard Enterprise 부품은 고객 셀프 수리가 불가능하도록 설계되었습니다. Hewlett Packard Enterprise는 만족스러운 고객 보증을 위해 공인 서비스 제공업체를 통해 부품을 교체하도록 하고 있습니다. 이러한 부품들은 Illustrated Parts Catalog에 "No"라고 표시되어 있습니다.

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

Hewlett Packard Enterprise CSR 프로그램에 대한 자세한 내용은 가까운 서비스 제공업체에 문의하십시오. 북미 지역의 프로그램에 대해서는 Hewlett Packard Enterprise CSR 웹 사이트(<http://www.hpe.com/support/selfrepair>)를 참조하십시오.

부품 제공 보증 서비스

Hewlett Packard Enterprise 제한 보증에는 부품 제공 보증 서비스가 포함될 수 있습니다. 이러한 경우 Hewlett Packard Enterprise는 부품 제공 보증 서비스의 조건에 따라 교체 부품만을 무료로 제공합니다.

부품 제공 보증 서비스 제공 시 CSR 부품 교체는 의무 사항입니다. 사용자가 Hewlett Packard Enterprise에 이 부품의 교체를 요청할 경우 이 서비스에 대한 출장비 및 작업비가 청구됩니다.

Removal and replacement procedures

Required tools

You need the following items for some procedures:

- T-10 Torx screwdriver
- T-15 Torx screwdriver
- T-20 Torx screwdriver

Safety considerations

Before performing service procedures, review all the safety information.

Preventing electrostatic discharge

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

Procedure

- 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.

Symbols on equipment

The following symbols might be found on the equipment to indicate the presence of potentially hazardous conditions.



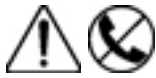
This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel.

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



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

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



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

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



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

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



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

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



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

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

Server warnings and cautions

Before installing a server, be sure that you understand the following warnings and cautions.



WARNING:

To reduce the risk of electric shock, personal injury, and damage to the equipment:

- Do not attempt to service any parts of the equipment other than those specified in the following procedure. Any other activities may require that you shut down the server and remove the power cord.
 - Installation and maintenance of this product must be performed by individuals who are knowledgeable about the procedures, precautions and hazards associated with the product.
-



WARNING:

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



CAUTION:

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

Preparation procedures

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 initiates a controlled shutdown of applications and the OS before the server enters standby mode.
- 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.

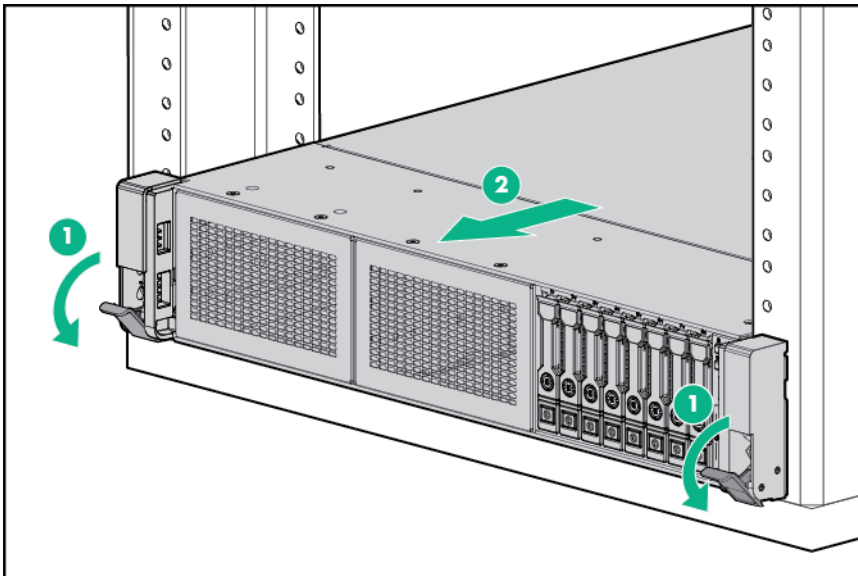
Before proceeding, verify that the server is in standby mode by observing that the system power LED is amber.

Extend the server from the rack

! **WARNING:**

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

1. Pull down the quick release levers on each side of the server.
2. Extend the server from the rack.



3. After performing the installation or maintenance procedure, slide the server back into the rack, and then press the server firmly into the rack to secure it in place.

**WARNING:**

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

Remove the server from the rack

To remove the server from a Hewlett Packard Enterprise, Compaq-branded, Telco, or third-party rack, complete this procedure.

Procedure

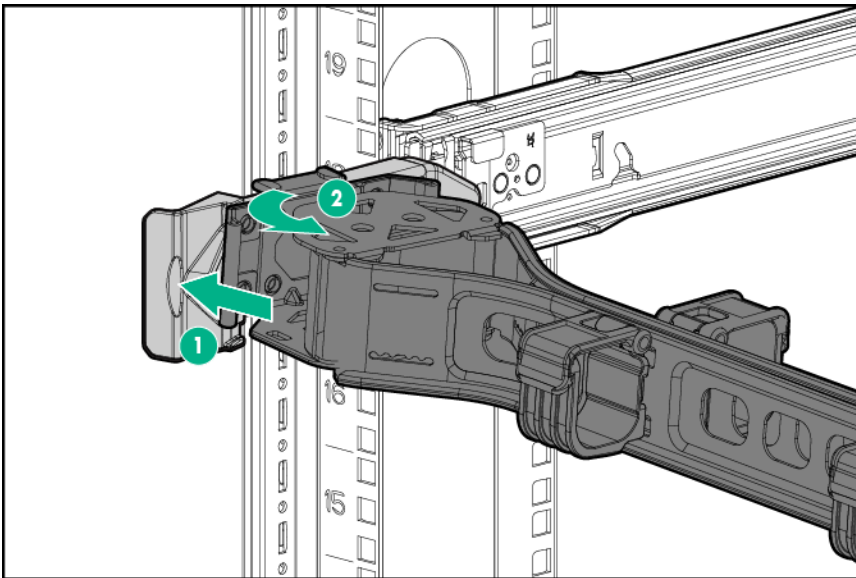
1. **Power down the server** on page 35 .
2. **Extend the server from the rack** on page 36.
3. Disconnect the cabling and remove the server from the rack. For more information, see the documentation that ships with the rack mounting option.
4. Place the server on a sturdy, level surface.

Access the product rear panel

Release the cable management arm

Procedure

Release the cable management arm and then swing the arm away from the rack.

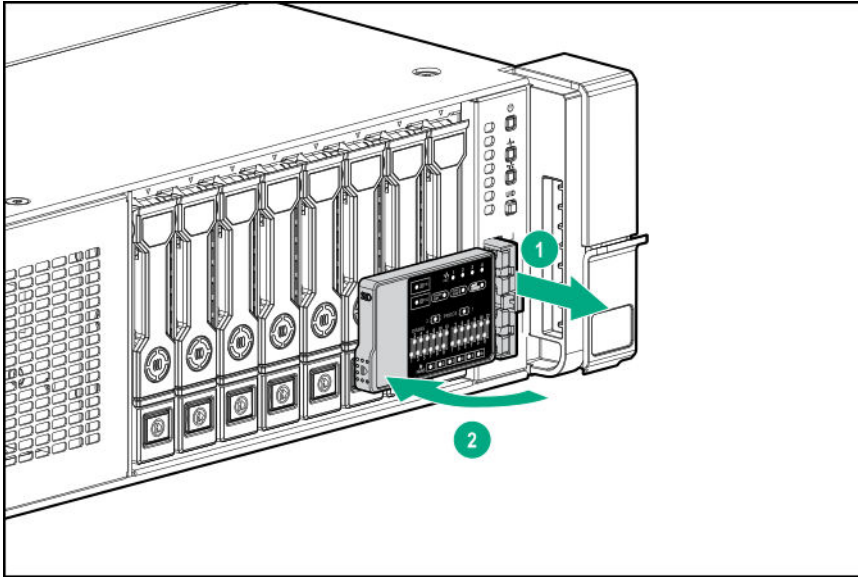


Access the Systems Insight Display

The Systems Insight Display is supported only on SFF models. To access the Systems Insight Display, use the following procedure.

Procedure

1. Press and release the panel.
2. After the display fully ejects, rotate the display to view the LEDs.



Remove the access panel

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

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

Procedure

1. **Power down the server** on page 35.
2. **Extend the server from the rack** on page 36.
3. Open or unlock the locking latch, slide the access panel to the rear of the chassis, and remove the access panel.

Remove the air baffle

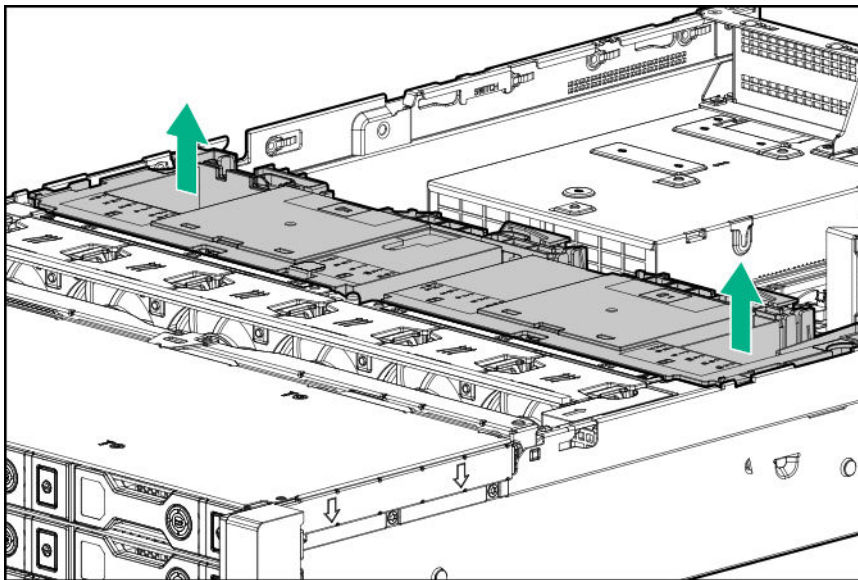
⚠ CAUTION:
Do not detach the cable that connects the battery pack to the cache module. Detaching the cable causes any unsaved data in the cache module to be lost.

**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** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. Remove the air baffle.



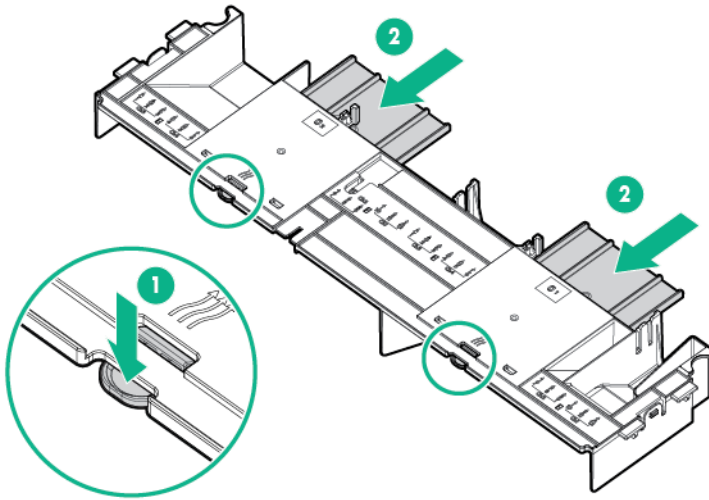
To replace the component, reverse the removal procedure.

Release the full-length expansion board retainer

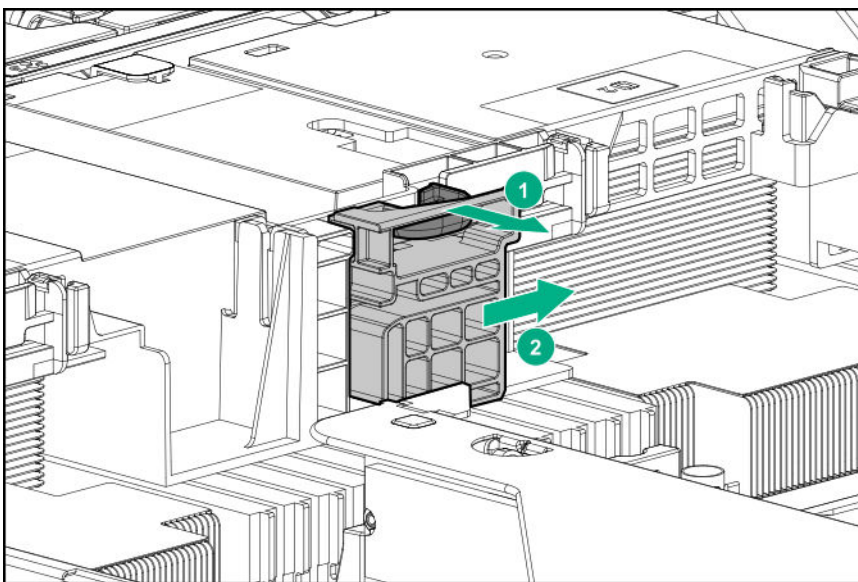
Procedure

1. **Power down the server** on page 35.
2. Remove all power:

- a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
- **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. **Remove the air baffle** on page 38.
6. Remove the air baffle diverters.



7. Install the air baffle.
8. Release the full-length expansion board retainer.



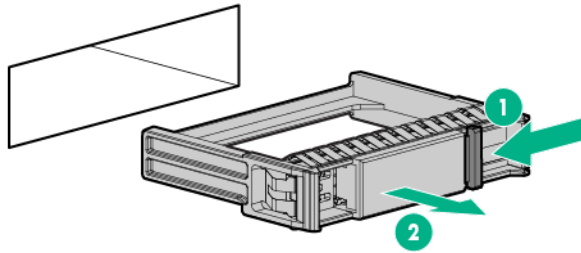
To replace the component, reverse the removal procedure.

Removing and replacing a drive blank

- ⚠ 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

Remove the drive blank.



To replace the blank, slide the blank into the bay until it locks into place.

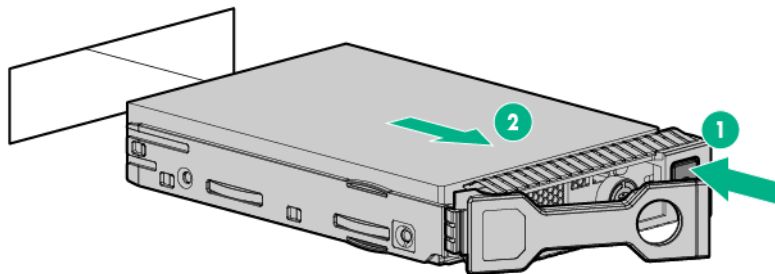
Removing and replacing drives

Removing and replacing a hot-plug drive

- ⚠ 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 on the drive.
2. Determine the status of the drive from the drive LED definitions. For more information, see [SAS/SATA drive components and LEDs](#) on page 128.
3. Remove the drive.



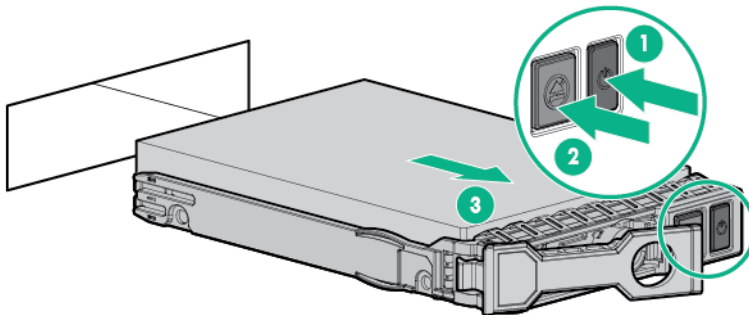
To replace the component, reverse the removal procedure.

Removing and replacing an NVMe drive

An NVMe SSD is a PCIe BUS device. Devices attached to a PCIe bus cannot be removed without allowing the device and the bus to complete and cease signal/traffic flow.

Procedure

1. Back up all server data.
2. Observe the LED status of the drive and determine if it can be removed. For more information, see [SAS/SATA drive components and LEDs](#) on page 128.
3. Remove the drive:
 - a. Push the Power button.
The Do Not Remove button illuminates and flashes.
 - b. Wait until the flashing stops and the Do Not Remove button is no longer illuminated.
 - c. Push the Do Not Remove button and then remove the drive.

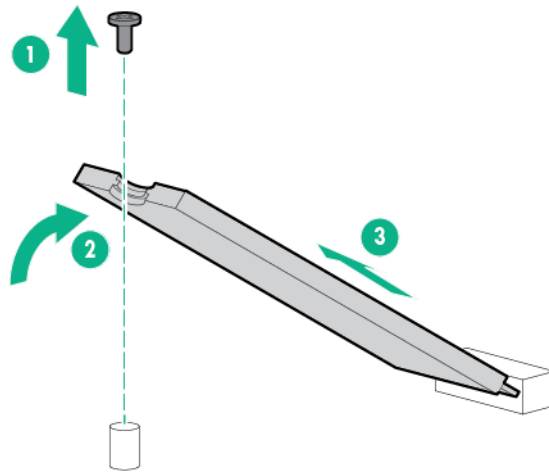


To replace the component, reverse the removal procedure.

Removing and replacing an M.2 SSD

Procedure

1. [Power down the server](#) on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - [Extend the server from the rack](#) on page 36.
 - [Remove the server from the rack](#) on page 37.
4. [Remove the access panel](#) on page 38.
5. Remove the primary riser cage ([Removing and replacing the primary or secondary PCIe riser cages](#) on page 45).
6. Remove the M.2 SSD.



To replace the component, reverse the removal procedure.

Removing and replacing the hot-plug fan

Procedure

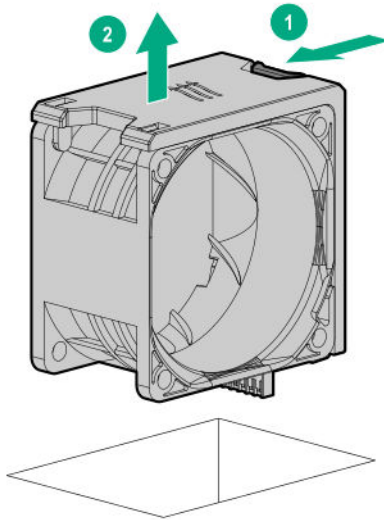
1. **Extend the server from the rack** on page 36.
2. **Remove the access panel** on page 38.

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

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

For more information, see the fan locations table in the server user guide.

3. Remove the fan.

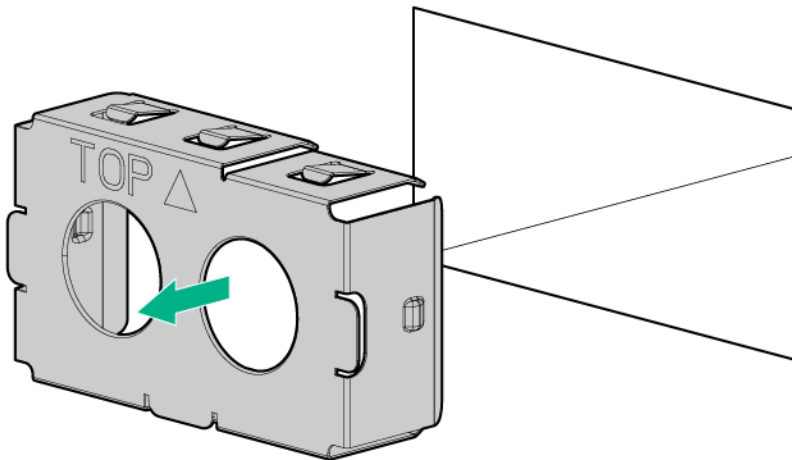


To replace the component, reverse the removal procedure.

Removing and replacing a power supply blank

Procedure

Remove the component as indicated.



To replace the component, reverse the removal procedure.

Removing and replacing the AC power supply

- ⚠ 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.

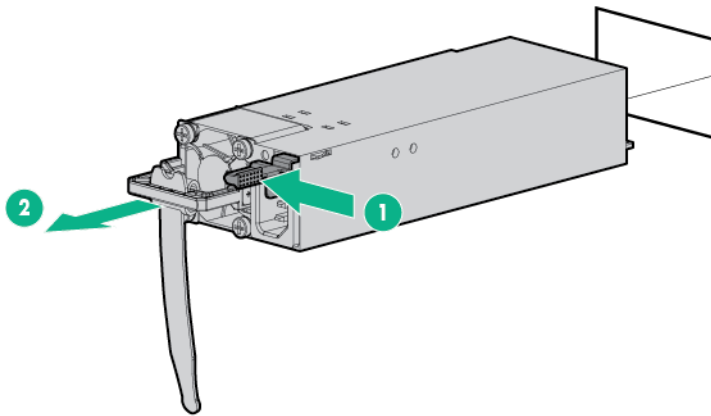
Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. **Access the product rear panel** on page 37.
4. Remove the power supply.



WARNING:

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



To replace the component, reverse the removal procedure.

Removing and replacing the primary or secondary PCIe riser cages



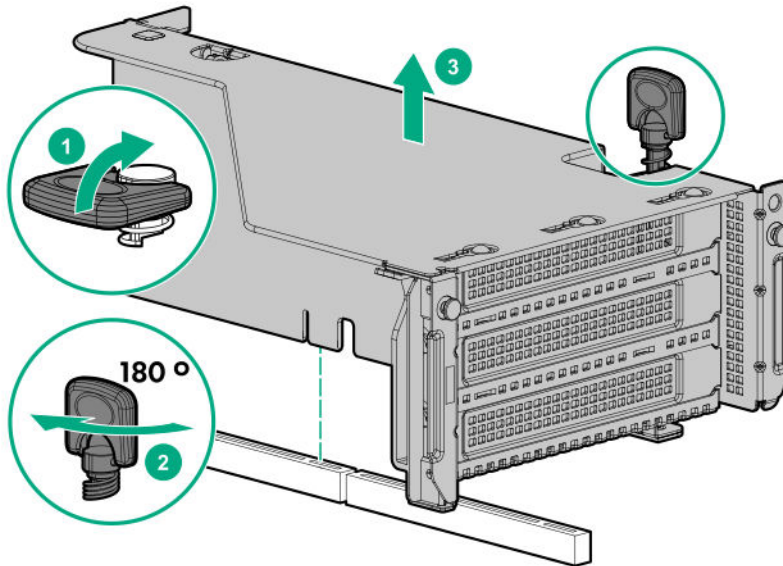
CAUTION:

To prevent improper cooling and thermal damage, do not operate the server unless all PCI slots have either an expansion slot cover or an expansion board installed.

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Disconnect any external cables that are connected to the expansion board.
4. Do one of the following:

- **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
5. **Remove the access panel** on page 38.
 6. Disconnect any internal cables that are connected to the expansion board.
 7. **Release the full-length expansion board retainer** on page 39.
 8. Remove the PCIe riser cage.



To replace the component, reverse the removal procedure.

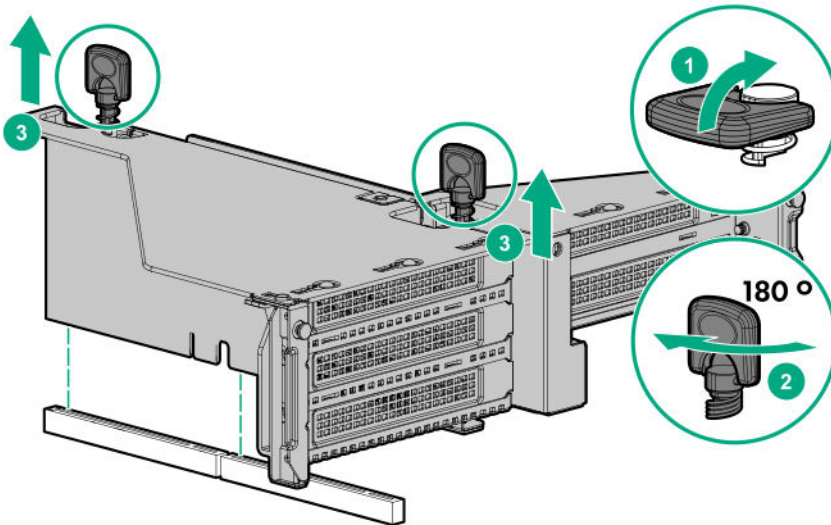
Removing and replacing the tertiary PCIe riser cage

- ⚠ CAUTION:**
To prevent improper cooling and thermal damage, do not operate the server unless all PCI slots have either an expansion slot cover or an expansion board installed.

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Disconnect any external cables that are connected to the expansion board.
4. Do one of the following:

- **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
5. **Remove the access panel** on page 38.
 6. Disconnect any internal cables that are connected to the expansion board.
 7. **Release the full-length expansion board retainer** on page 39.
 8. Remove the PCIe riser cage.



To replace the component, reverse the removal procedure.

Removing and replacing the PCIe riser blank

- ⚠ CAUTION:**
To prevent improper cooling and thermal damage, do not operate the server unless all PCI slots have either an expansion slot cover or an expansion board installed.

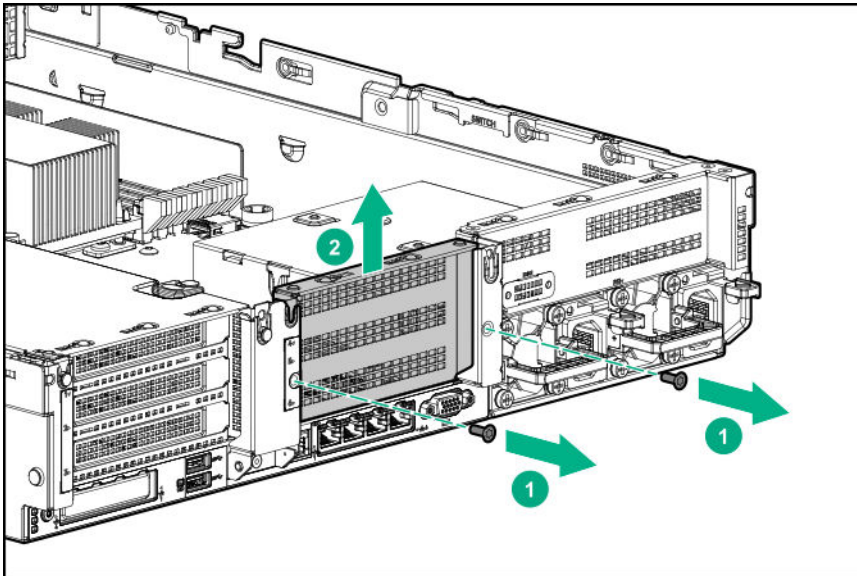
Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.

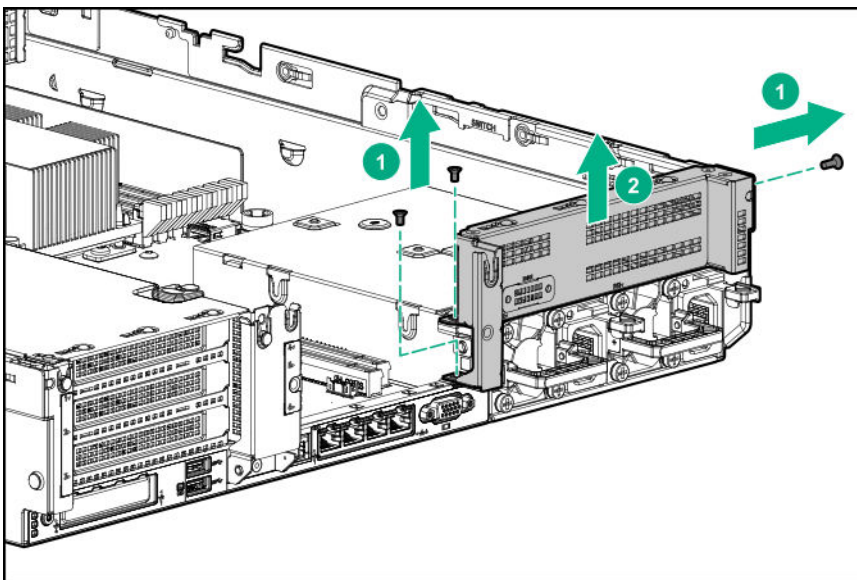
4. **Remove the access panel** on page 38.

5. Remove the PCIe riser blank:

- Primary or secondary



- Tertiary



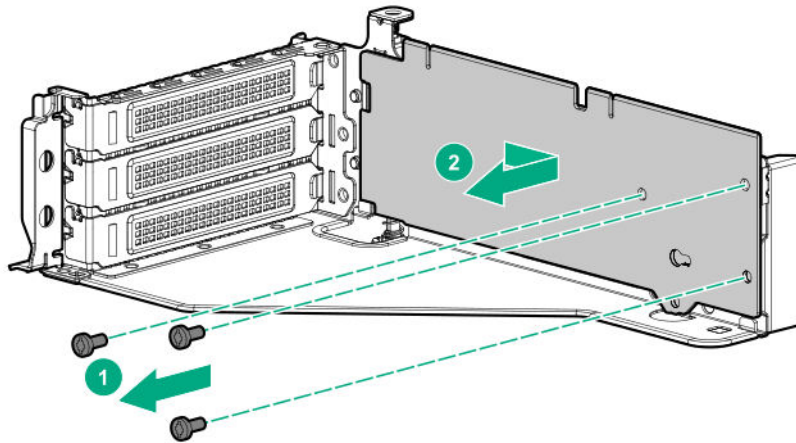
To replace the component, reverse the removal procedure.

Removing and replacing the PCIe riser board

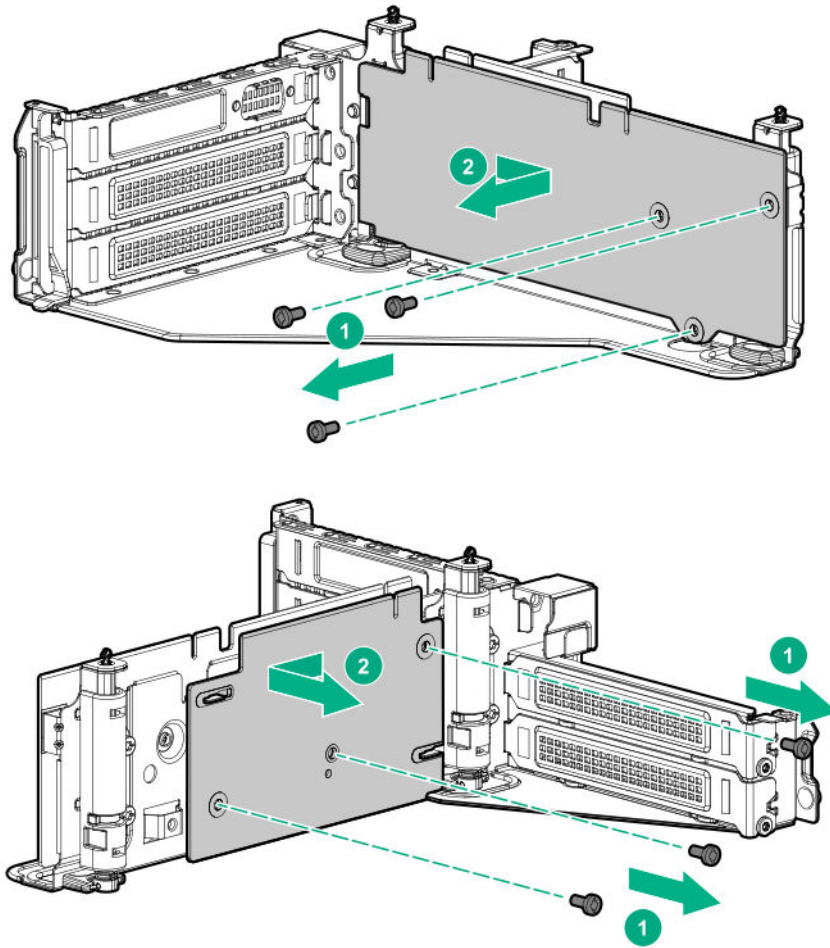
Procedure

1. **Power down the server** on page 35.
2. Remove all power:

- a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
- **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. **Release the full-length expansion board retainer** on page 39.
6. Remove the PCIe riser cage:
- Primary or secondary PCIe riser cage (**Removing and replacing the primary or secondary PCIe riser cages** on page 45)
 - Tertiary PCIe riser cage (**Removing and replacing the tertiary PCIe riser cage** on page 46)
7. Remove any expansion boards from the PCIe riser cage.
8. Remove the PCIe riser board:
- Primary/secondary riser cage



- Tertiary riser cage



To replace the component, reverse the removal procedure.

Removing and replacing an expansion slot blank

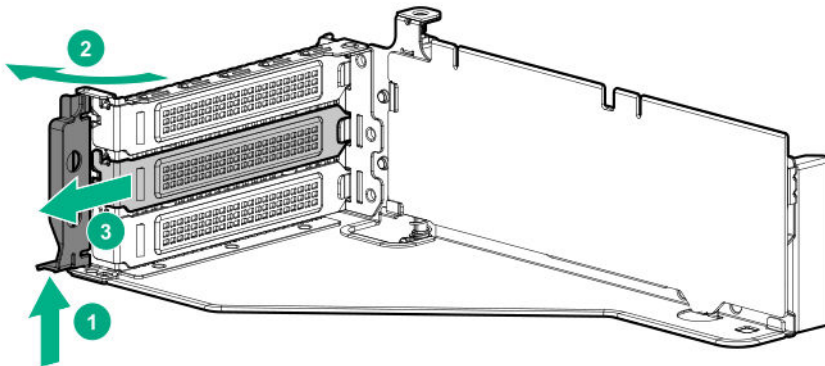
⚠ WARNING:
To reduce the risk of personal injury, electric shock, or damage to the equipment, remove power from the server by removing the power cord. The front panel Power On/Standby button does not shut off system power. Portions of the power supply and some internal circuitry remain active until AC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

⚠ 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** on page 35.
2. Remove all power:

- a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
- **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. Remove the PCIe riser cage:
- Primary or secondary PCIe riser cage (**Removing and replacing the primary or secondary PCIe riser cages** on page 45)
 - Tertiary PCIe riser cage (**Removing and replacing the tertiary PCIe riser cage** on page 46)
6. Remove the expansion slot blank.



To replace the component, reverse the removal procedure.

Removing and replacing an expansion board



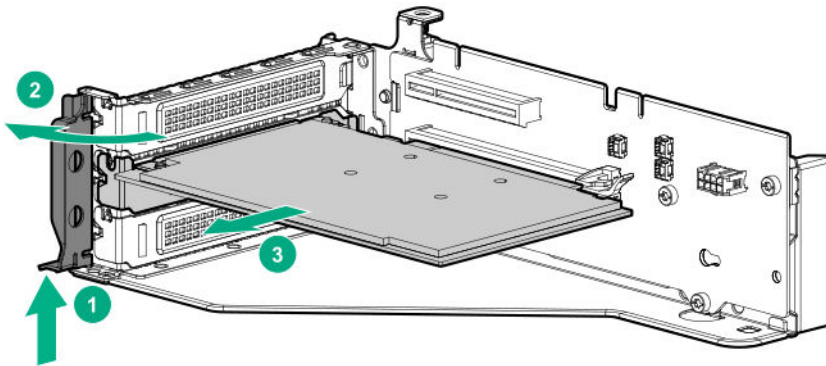
WARNING:

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

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Disconnect any external cables that are connected to the expansion board.

4. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
5. **Remove the access panel** on page 38.
6. Disconnect any internal cables that are connected to the expansion board.
7. **Release the full-length expansion board retainer** on page 39.
8. Remove the PCIe riser cage:
 - Primary or secondary PCIe riser cage (**Removing and replacing the primary or secondary PCIe riser cages** on page 45)
 - Tertiary PCIe riser cage (**Removing and replacing the tertiary PCIe riser cage** on page 46)
9. Remove the expansion board.

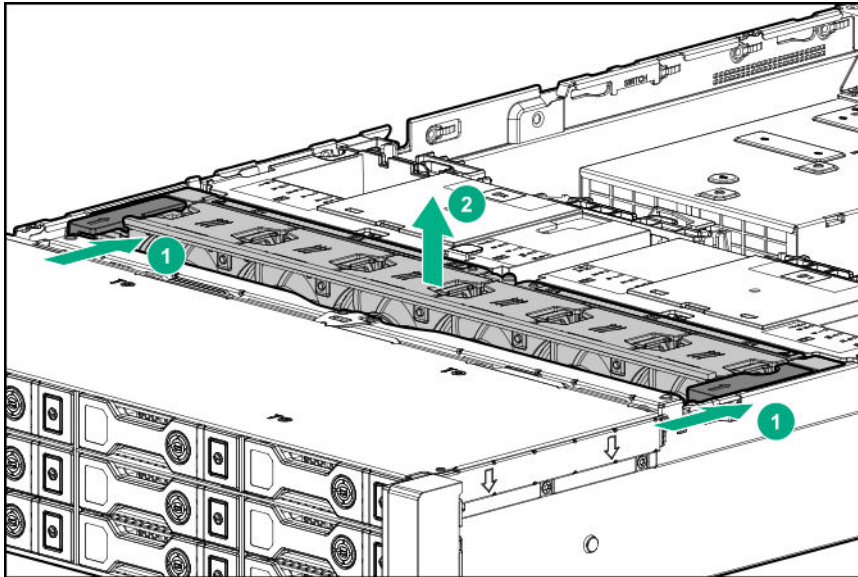


To replace the component, reverse the removal procedure.

Removing and replacing the fan cage

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. Remove the fan cage.



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

⚠ IMPORTANT:
For optimum cooling, install fans in all primary fan locations.

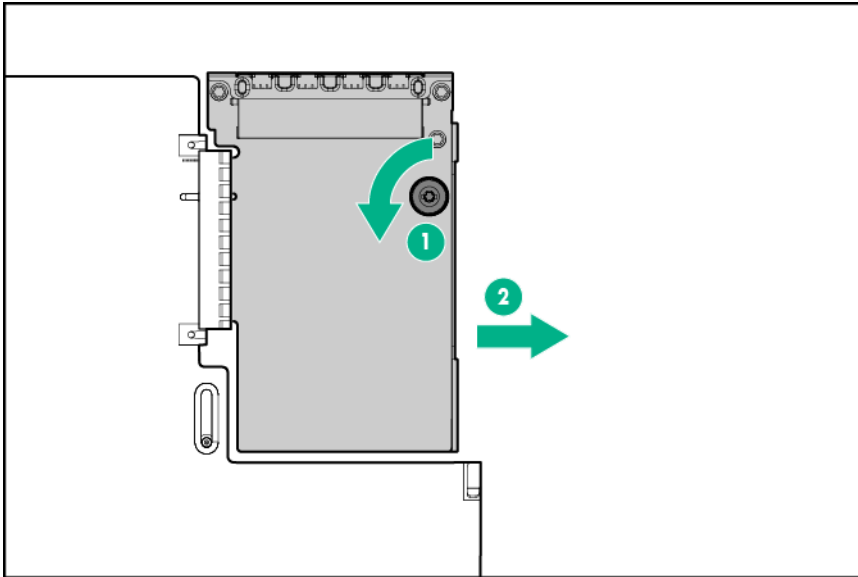
For more information, refer to the fan locations table in the server user guide.

To replace the component, reverse the removal procedure.

Removing and replacing the FlexibleLOM

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Disconnect the LAN segment cables.
4. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
5. Remove the FlexibleLOM.

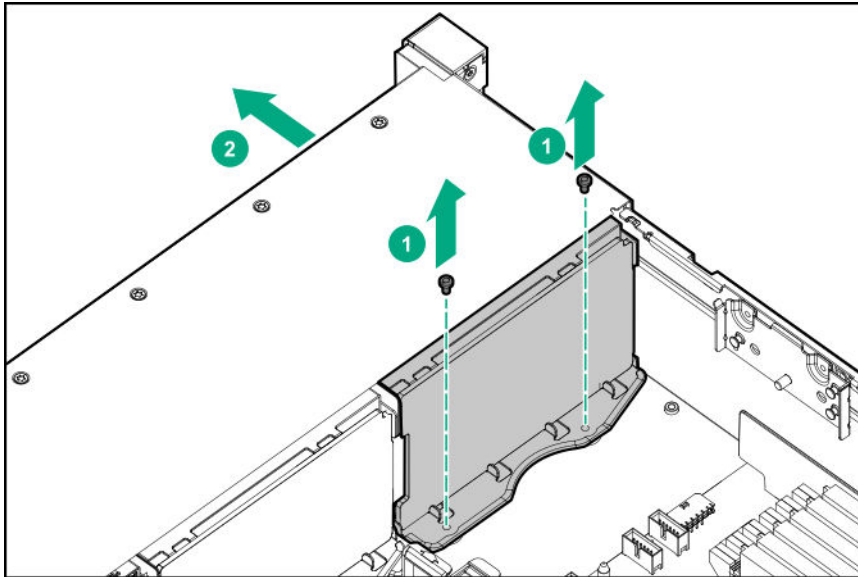


To replace the component, reverse the removal procedure.

Removing and replacing the small form factor universal media bay

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. Remove all hot-plug hard drives (**Removing and replacing drives** on page 41).
6. Remove the fan cage (**Removing and replacing the fan cage** on page 52).
7. Disconnect all cables from the universal media bay.
8. Remove the universal media bay.

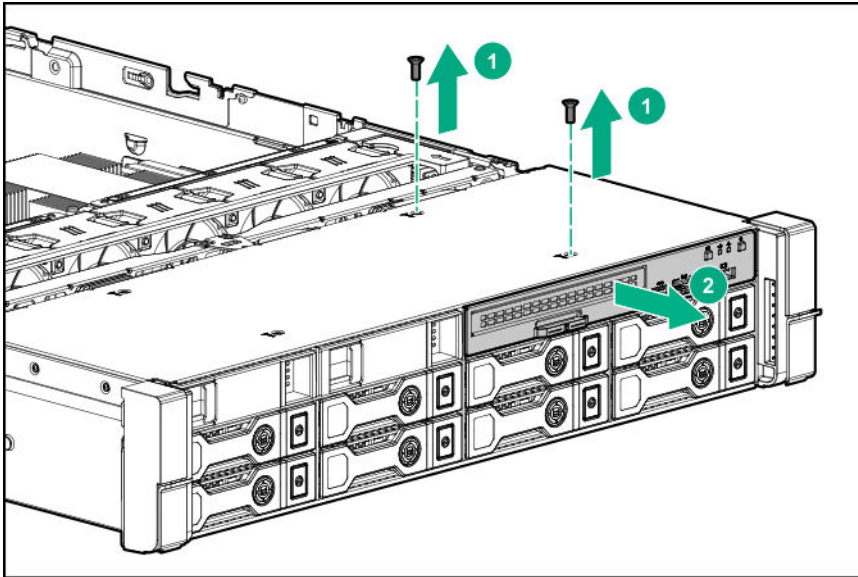


To replace the component, reverse the removal procedure.

Removing and replacing the LFF power switch module

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. Remove all hot-plug hard drives (**Removing and replacing drives** on page 41).
6. Remove the fan cage (**Removing and replacing the fan cage** on page 52).
7. Disconnect all cables connecting the power switch module to the system board and other components.
8. Feeding the cables through the front of the server, remove the power switch module.

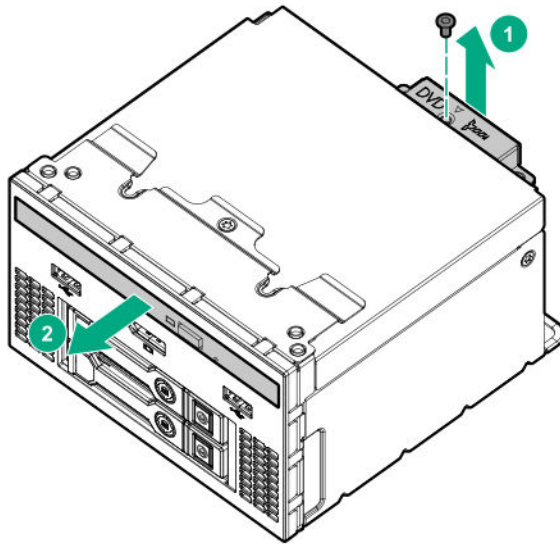


To replace the component, reverse the removal procedure.

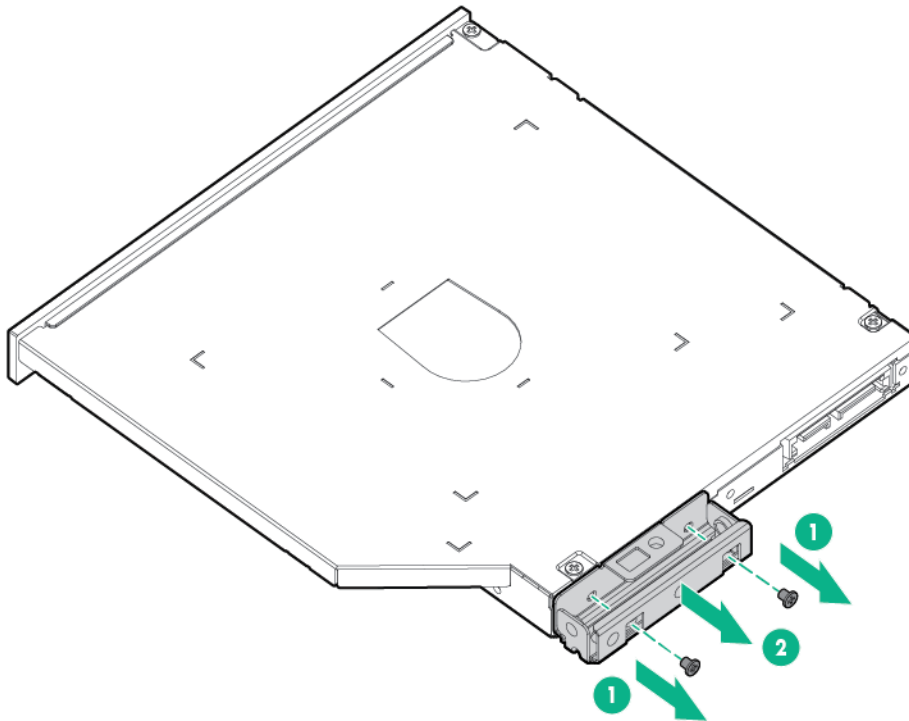
Removing and replacing the SFF optical drive

Procedure

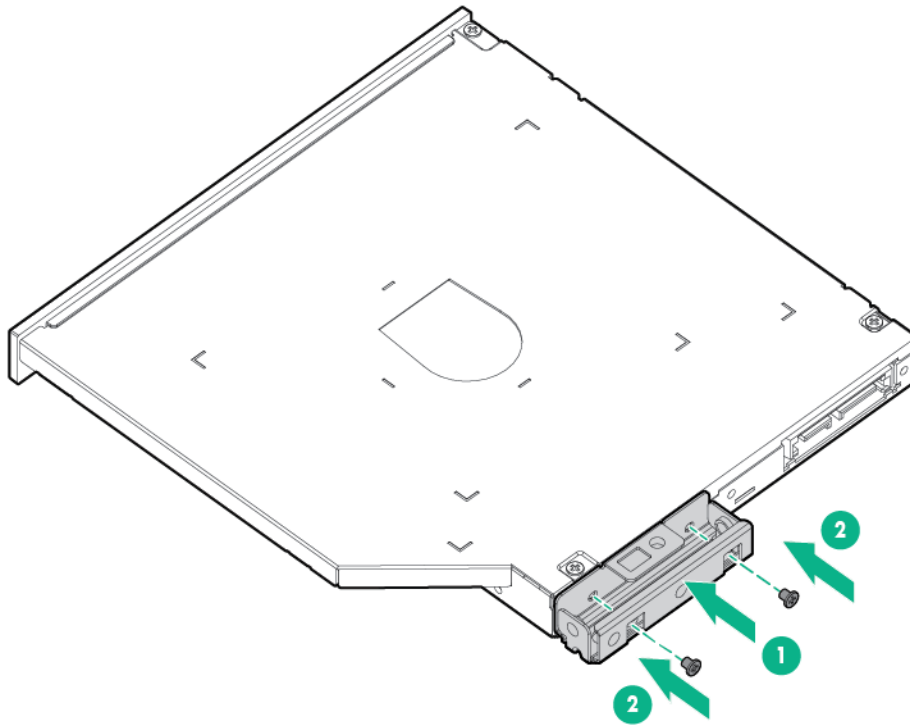
1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. Remove the fan cage (**Removing and replacing the fan cage** on page 52).
6. Disconnect all cables from the SFF universal media bay.
7. Remove the SFF universal media bay (**Removing and replacing the small form factor universal media bay** on page 54).
8. Remove the optical drive.



9. Remove the optical drive bracket, for using with the replacement optical drive.



10. Before replacing the component, install the optical drive bracket retained from the optical drive you are replacing.

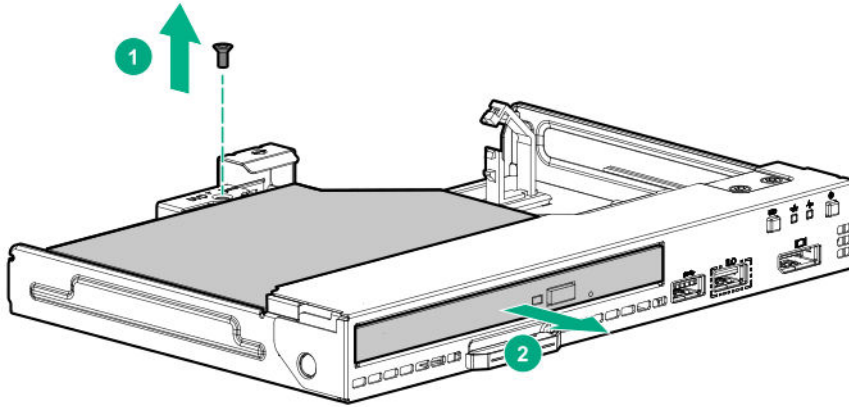


To replace the component, reverse the removal procedure.

Removing and replacing the LFF optical drive

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. Remove the fan cage (**Removing and replacing the fan cage** on page 52).
6. Disconnect all cables from the LFF power switch module.
7. Remove the LFF power switch module (**Removing and replacing the LFF power switch module** on page 55).
8. Remove the optical drive.

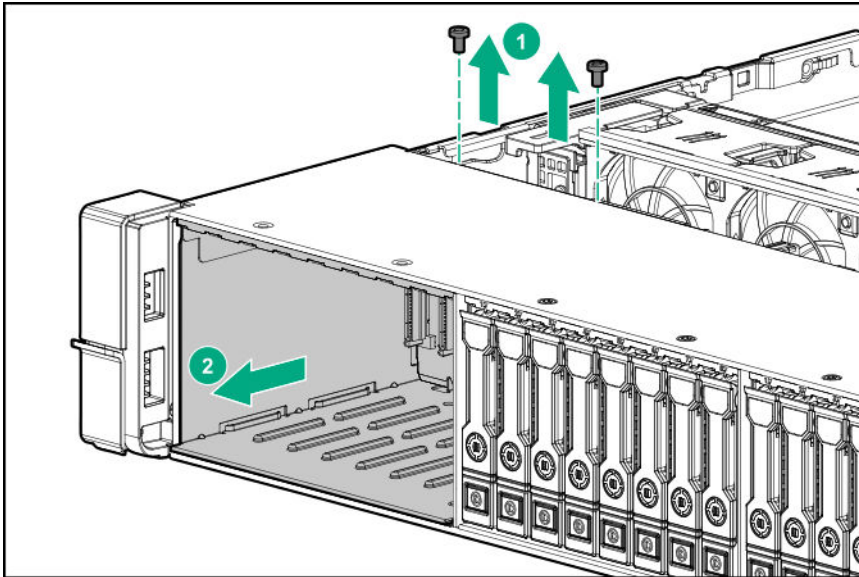


To replace the component, reverse the removal procedure.

Removing and replacing the 8SFF drive cage

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. Remove all drives (**Removing and replacing drives** on page 41).
6. Remove the fan cage (**Removing and replacing the fan cage** on page 52).
7. Disconnect all cables from the drive backplane.
8. Remove the drive cage.

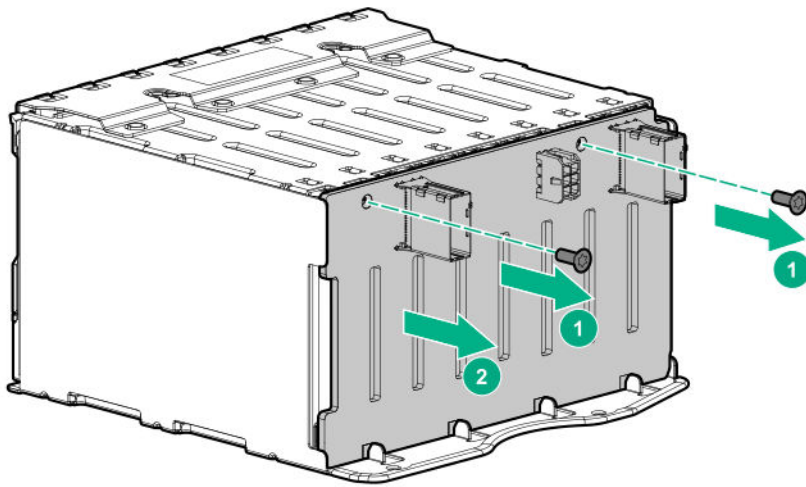


To replace the component, reverse the removal procedure.

Removing and replacing the 8SFF drive backplane

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. Remove the fan cage (**Removing and replacing the fan cage** on page 52).
6. Remove all drives (**Removing and replacing drives** on page 41).
7. Remove the 8SFF drive cage (**Removing and replacing the 8SFF drive cage** on page 59).
8. Remove the drive backplane.

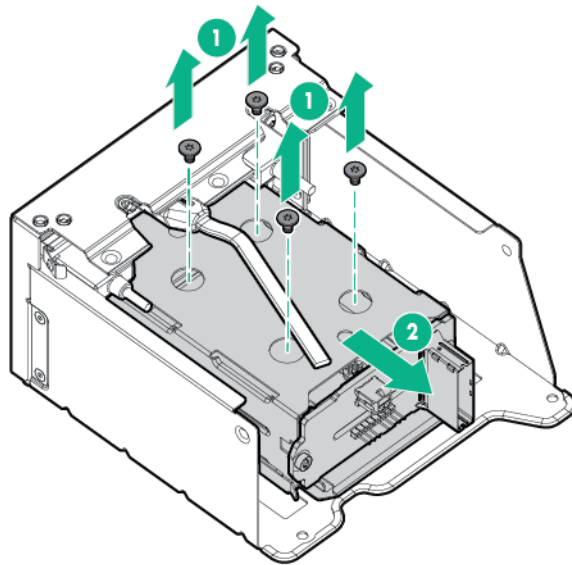


To replace the component, reverse the removal procedure.

Removing and replacing the 2SFF front drive cage

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. **Removing and replacing drives** on page 41.
6. Disconnect all cables from the drive backplane.
7. Remove the drive cage.

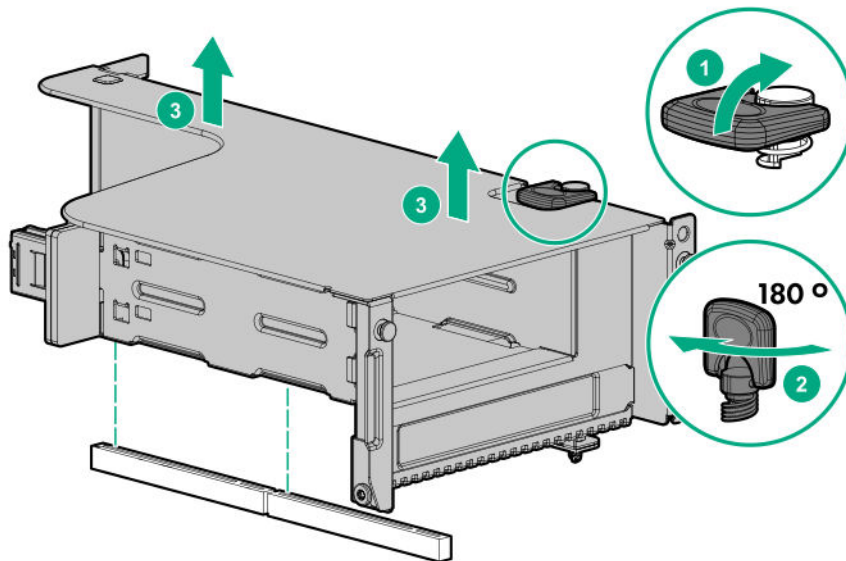


To replace the component, reverse the removal procedure.

Removing and replacing the 2SFF rear drive bay and riser cage

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. Remove all drives (**Removing and replacing drives** on page 41).
6. Disconnect all cables from the drive backplane.
7. Remove the drive cage.

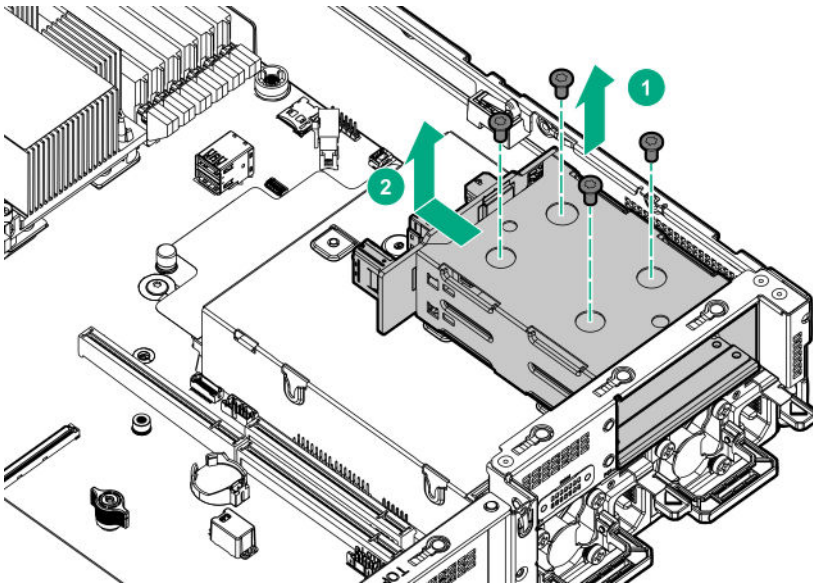


To replace the component, reverse the removal procedure.

Removing and replacing the 2SFF drive cage

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. Remove all drives (**Removing and replacing drives** on page 41).
6. Disconnect all cables from the drive backplane.
7. Remove the drive cage.

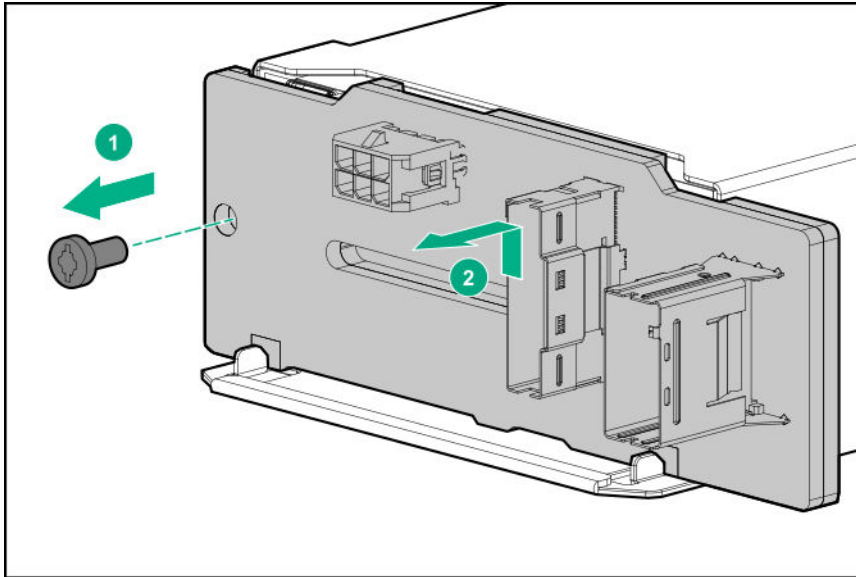


To replace the component, reverse the removal procedure.

Removing and replacing the 2SFF rear drive backplane

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. Remove the fan cage (**Removing and replacing the fan cage** on page 52).
6. Remove all drives (**Removing and replacing drives** on page 41).
7. Remove the 2SFF rear drive cage (**Removing and replacing the 2SFF rear drive bay and riser cage** on page 62).
8. Remove the drive backplane.

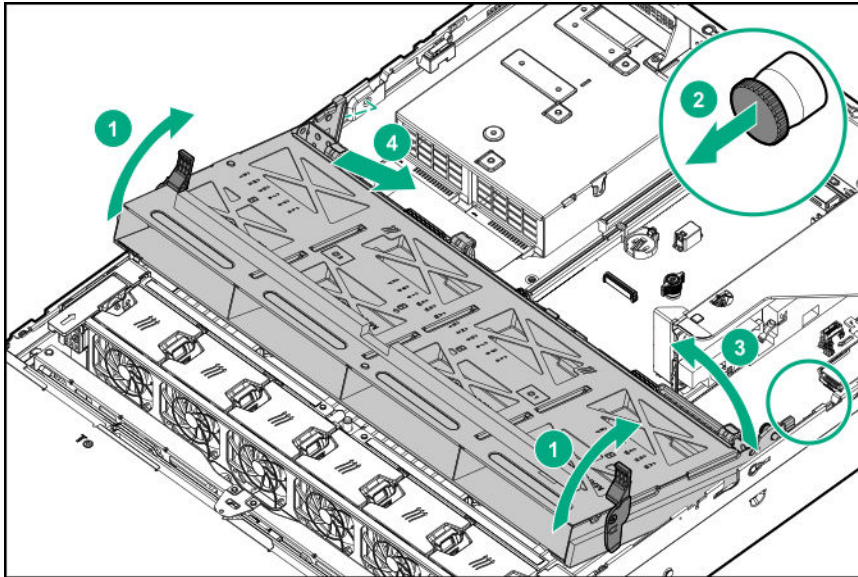


To replace the component, reverse the removal procedure.

Removing and replacing a 4LFF midplane cage

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. If installed, remove all riser cages:
 - Primary or secondary PCIe riser cage (**Removing and replacing the primary or secondary PCIe riser cages** on page 45)
 - Tertiary PCIe riser cage (**Removing and replacing the tertiary PCIe riser cage** on page 46)
6. Disconnect the power and cables from the drive cage.
7. Raise the blue tabs on the drive tray and lift the drive cage to a 15 degree angle.
8. Pull the plunger pin to disengage it.
9. Remove all drives (**Removing and replacing drives** on page 41).
10. Using both hands, remove the drive cage from the server.

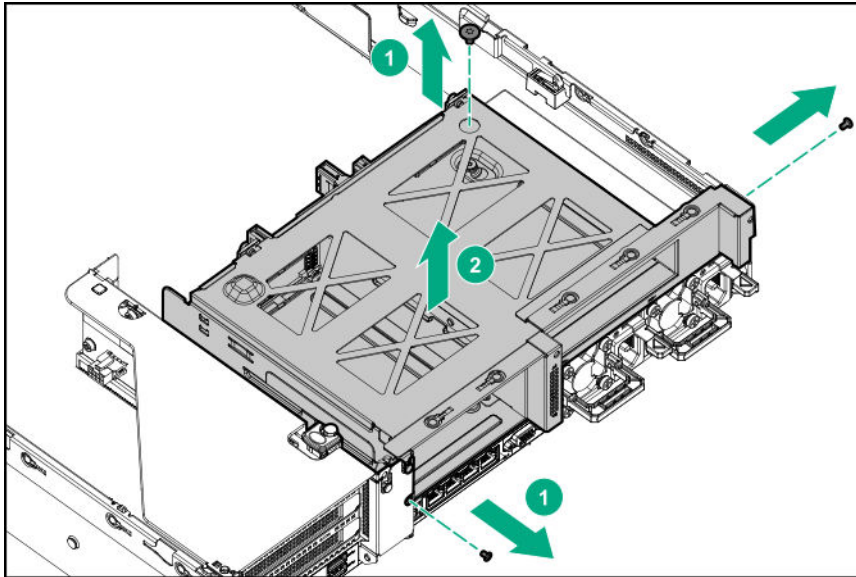


To replace the component, reverse the removal procedure.

Removing and replacing a 3LFF rear drive cage

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. Remove all drives (**Removing and replacing drives** on page 41).
6. Remove the drive cage.

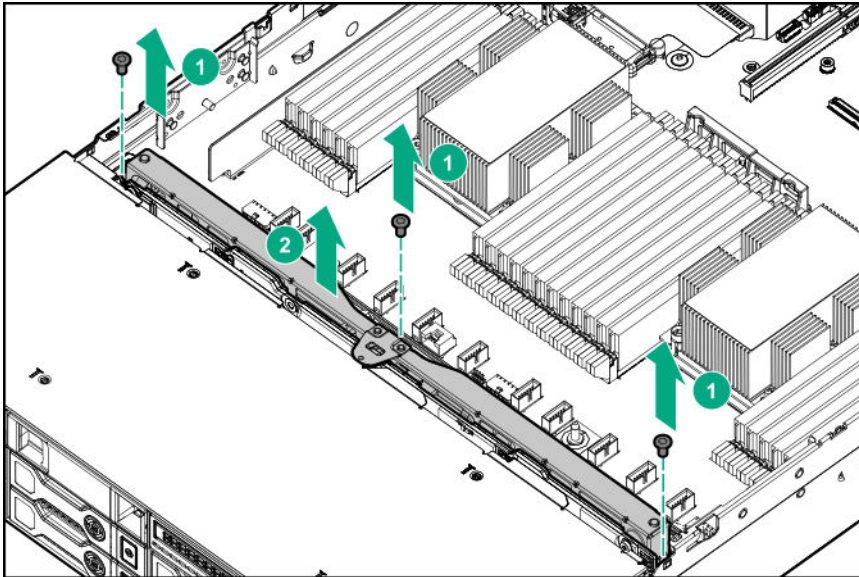


To replace the component, reverse the removal procedure.

Removing and replacing the LFF backplane assembly

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. Remove the fan cage (**Removing and replacing the fan cage** on page 52).
6. Remove all drives (**Removing and replacing drives** on page 41).
7. Disconnect all cables connected the LFF backplane assembly.
8. Remove the LFF backplane assembly.

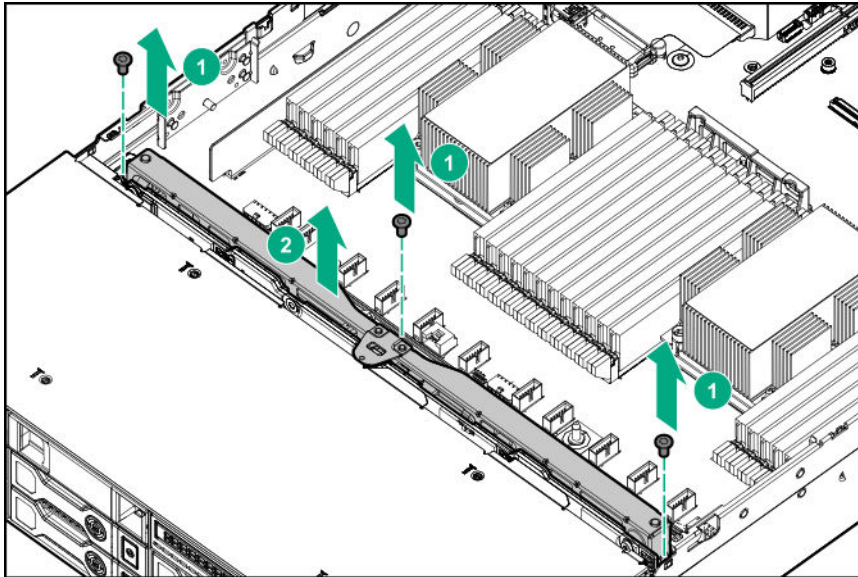


To replace the component, reverse the removal procedure.

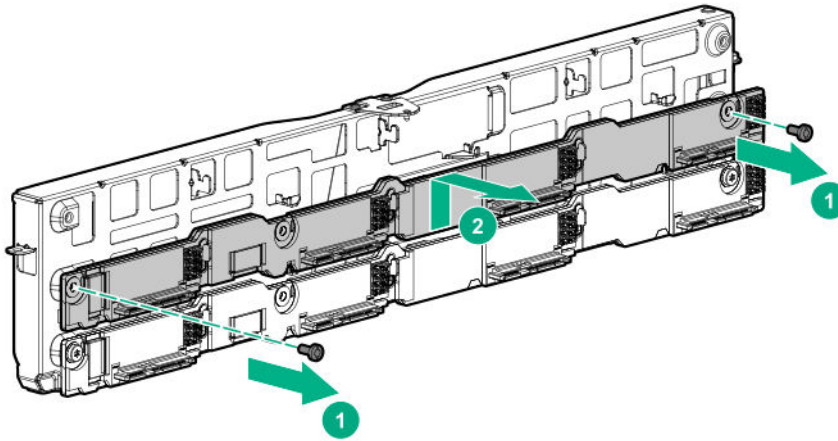
Removing and replacing a front LFF drive backplane

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. Remove the fan cage (**Removing and replacing the fan cage** on page 52).
6. Remove all drives (**Removing and replacing drives** on page 41).
7. Disconnect all cables connected the LFF backplane assembly.
8. Remove the LFF backplane assembly.



9. Remove the drive backplane.



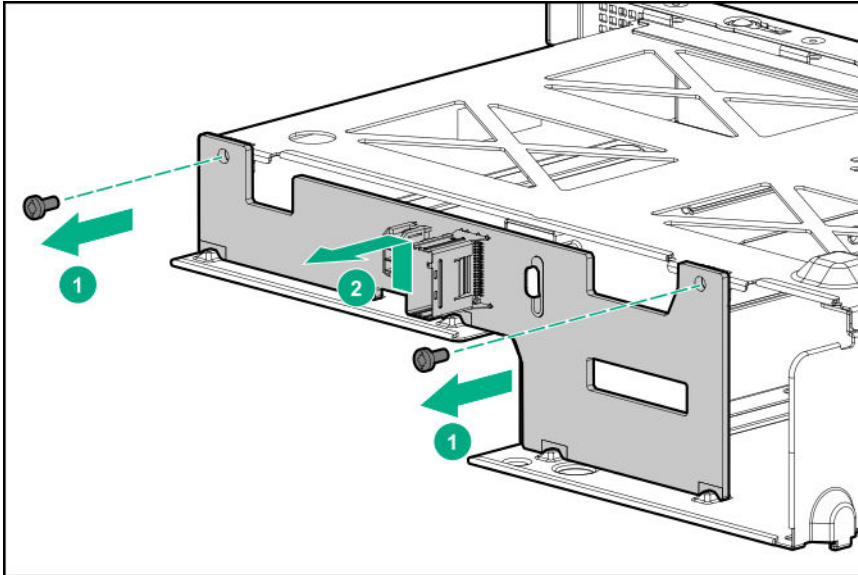
To replace the component, reverse the removal procedure.

Removing and replacing the 3LFF rear drive backplane

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:

- **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
 5. Remove the fan cage (**Removing and replacing the fan cage** on page 52).
 6. Remove all drives (**Removing and replacing drives** on page 41).
 7. Remove the drive backplane.

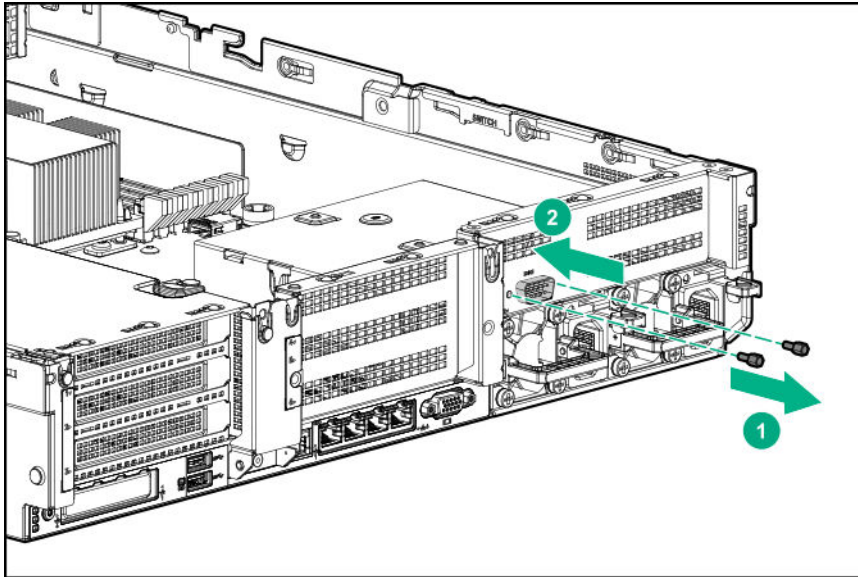


To replace the component, reverse the removal procedure.

Removing and replacing a rear serial port interface (primary/secondary)

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. Using a T-10 Torx screwdriver, remove the screws securing the serial port. Then, disconnect and remove the serial cable.



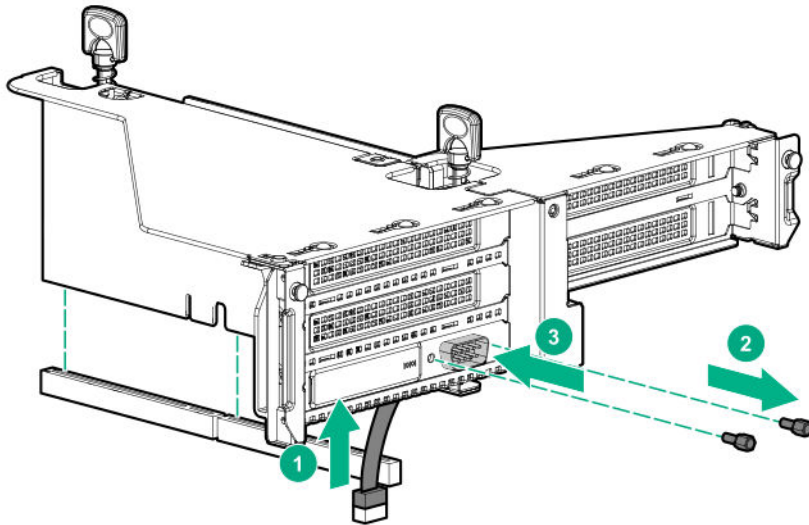
To replace the component, reverse the removal procedure.

Removing and replacing a rear serial port interface (tertiary riser)

Removing a rear serial port interface (tertiary)

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. Disconnect the cable.
6. Remove the tertiary riser cage.
7. Using a T-10 Torx screwdriver, remove the serial port interface.



Replacing a rear serial port interface (tertiary)

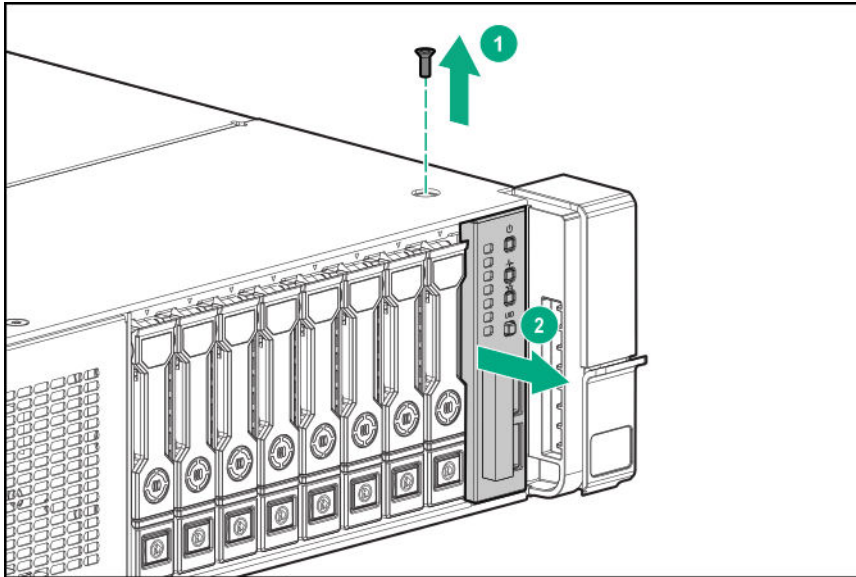
Procedure

1. Install the serial port interface.
2. Connect the cable.
3. Install the riser.

Removing and replacing an SFF power switch module

Procedure

1. **Power down the server** on page 35.
2. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
3. **Remove the access panel** on page 38.
4. Disconnect cables from the power switch module.
5. Remove the power switch module.

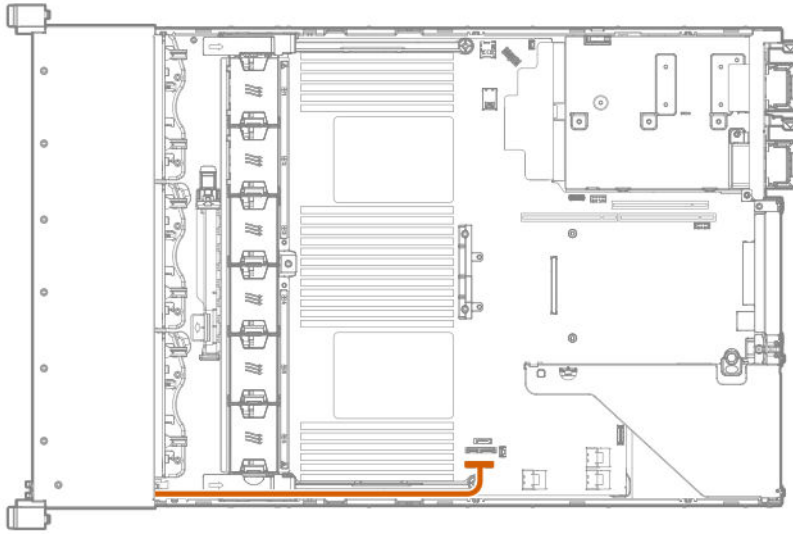


To replace the component, reverse the removal procedure.

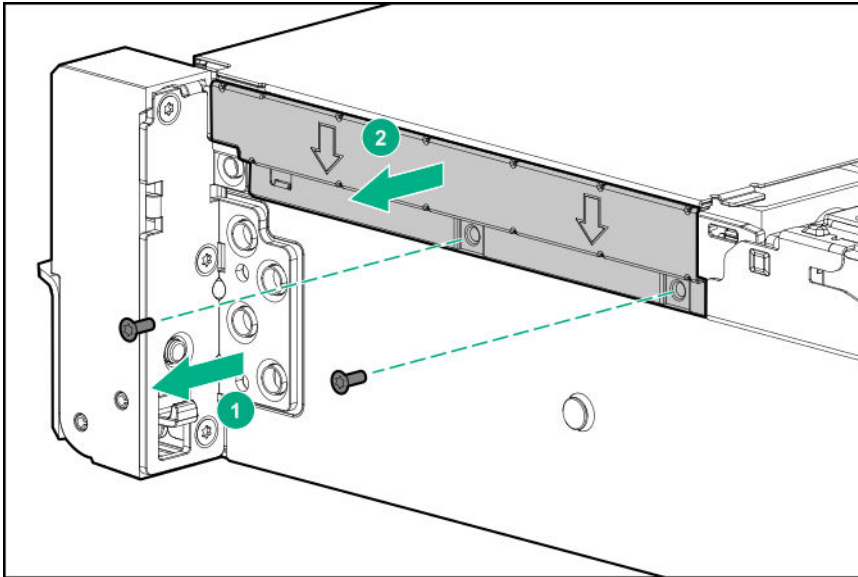
Removing and replacing an LFF chassis ear with power/UID

Procedure

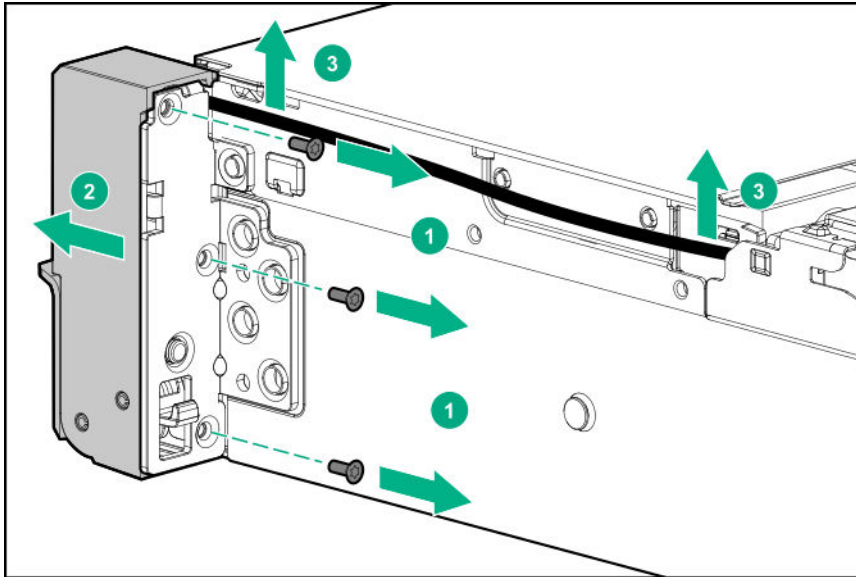
1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. Disconnect the cable.



6. Remove the cable protection panel.



7. Remove the chassis ear.

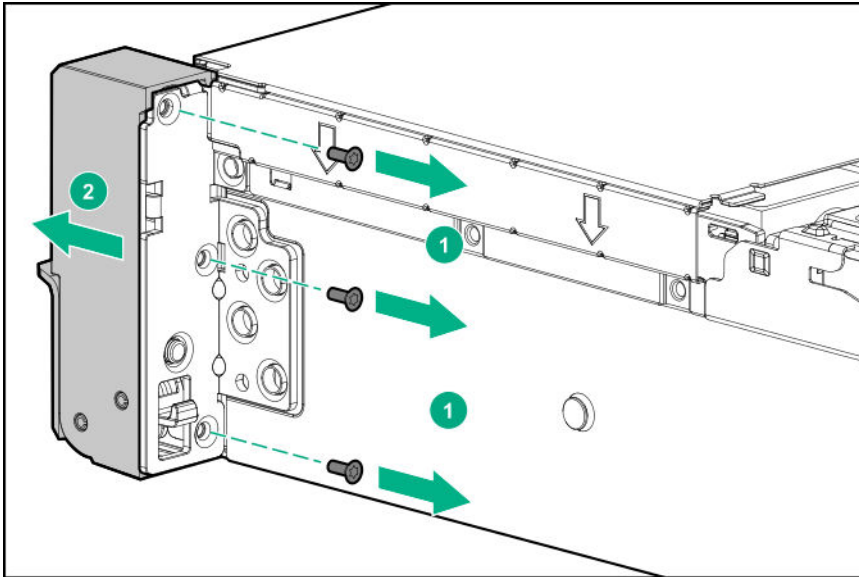


To replace the component, reverse the removal procedure.

Removing and replacing an SFF standard chassis ear

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. Remove the chassis ear.



To replace the component, reverse the removal procedure.

Removing and replacing a GPU enablement board



WARNING:

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



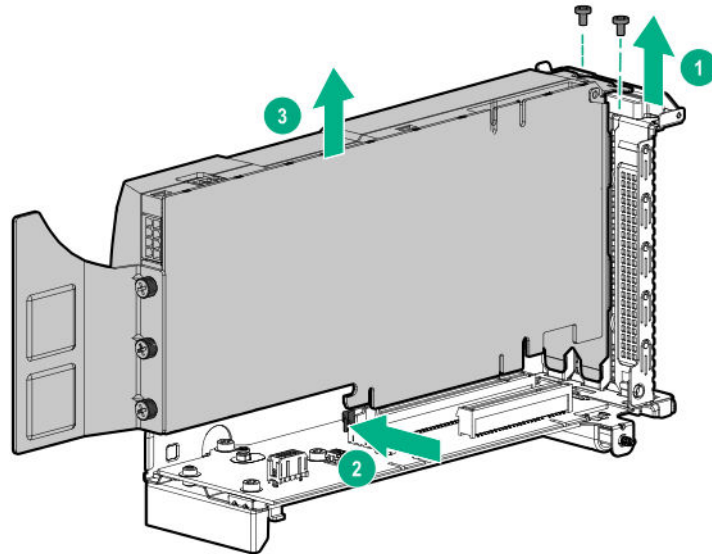
CAUTION:

To prevent improper cooling and thermal damage, do not operate the server unless all PCI slots have either an expansion slot cover or an expansion board installed.

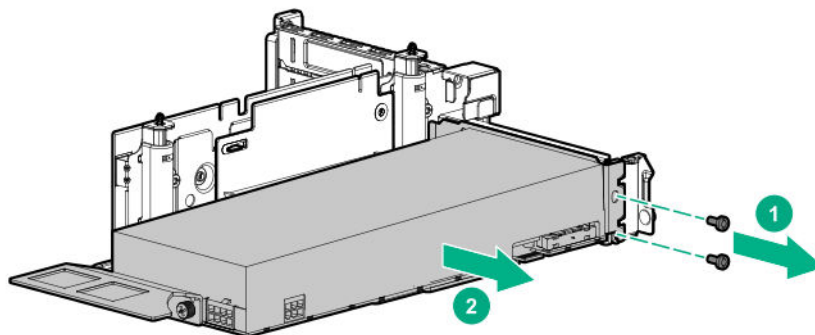
Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. **Remove the air baffle** on page 38.
6. **Release the full-length expansion board retainer** on page 39.
7. Remove the riser cage:

- Primary or secondary PCIe riser cage
([Removing and replacing the primary or secondary PCIe riser cages](#) on page 45)
 - Tertiary PCIe riser cage
([Removing and replacing the tertiary PCIe riser cage](#) on page 46)
8. Disconnect the power cable from the GPU.
9. Remove the GPU enablement board from the GPU-enabled riser cage:
- Primary or secondary riser cage



- Tertiary riser cage



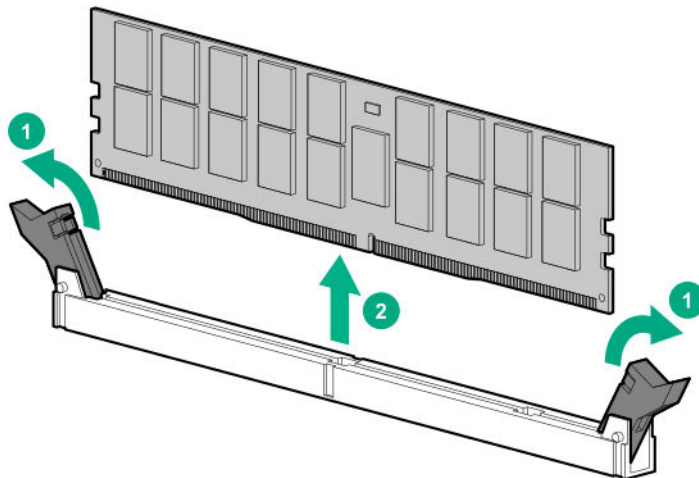
To replace the component, reverse the removal procedure.

Removing and replacing a DIMM

To identify the DIMMs installed in the server, see [DIMM slot locations](#) on page 127.

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. Do one of the following:
 - **Remove the air baffle** on page 38.
 - Remove the 4LFF midplane cage (**Removing and replacing a 4LFF midplane cage** on page 65).
6. Remove the DIMM.



To replace the component, reverse the removal procedure.

For DIMM configuration information, see the server user guide.

Removing and replacing a processor

Procedure

1. Observe the following alerts.

⚠ CAUTION:
When handling the heatsink, always hold it along the top and bottom of the fins. Holding it from the sides can damage the fins.

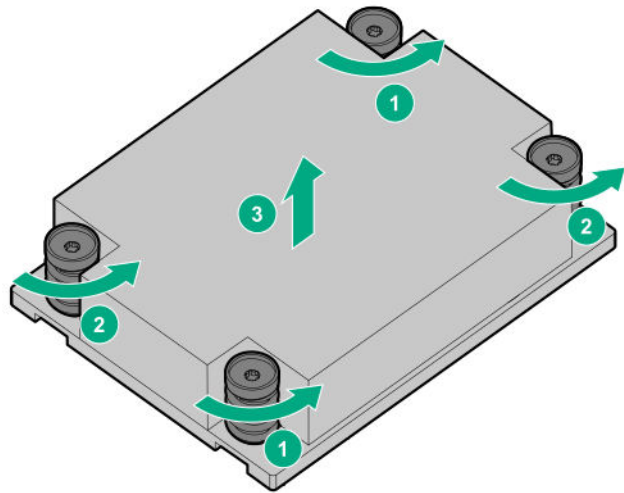
⚠ CAUTION:
To avoid damage to the processor or system board, only authorized personnel should attempt to replace or install the processor in this server.

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

⚠ CAUTION:
If installing a processor with a faster speed, update the system ROM before installing the processor.
To download firmware and view installation instructions, see the [**Hewlett Packard Enterprise Support Center website**](#).

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

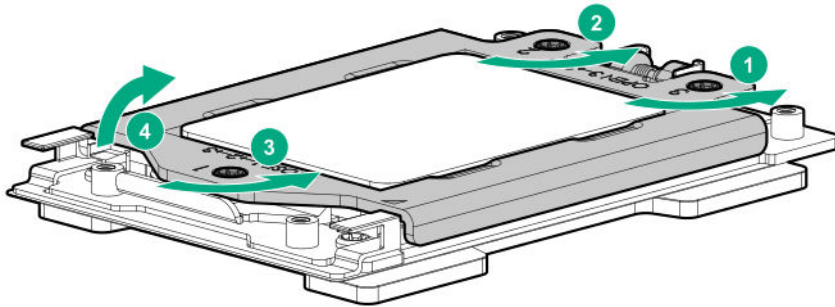
2. **Power down the server** on page 35.
3. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
4. Do one of the following:
 - a. **Extend the server from the rack** on page 36.
 - b. **Remove the server from the rack** on page 37.
5. **Remove the access panel** on page 38.
6. **Remove the air baffle** on page 38.
7. Remove the heatsink:
 - a. Allow the heatsink to cool.
 - b. Using a T-20 Torx screwdriver, loosen the heatsink nuts in the order specified on the label on the heatsink.



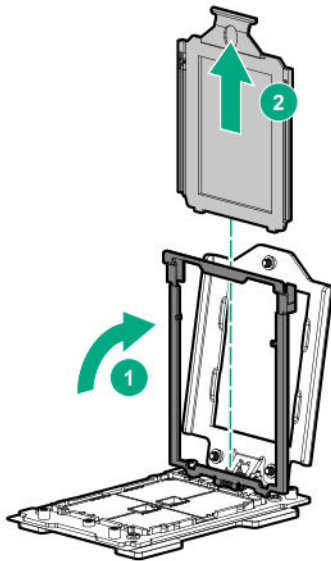
- c. Lift the heatsink away from the system board.
- d. Place the heatsink on a flat work surface.

8. Remove the processor:

- a. Unscrew the three force frame screws in the order indicated.



- b. Pivot the rail frame to the upright position.
- c. Slide the processor out of the rail frame.

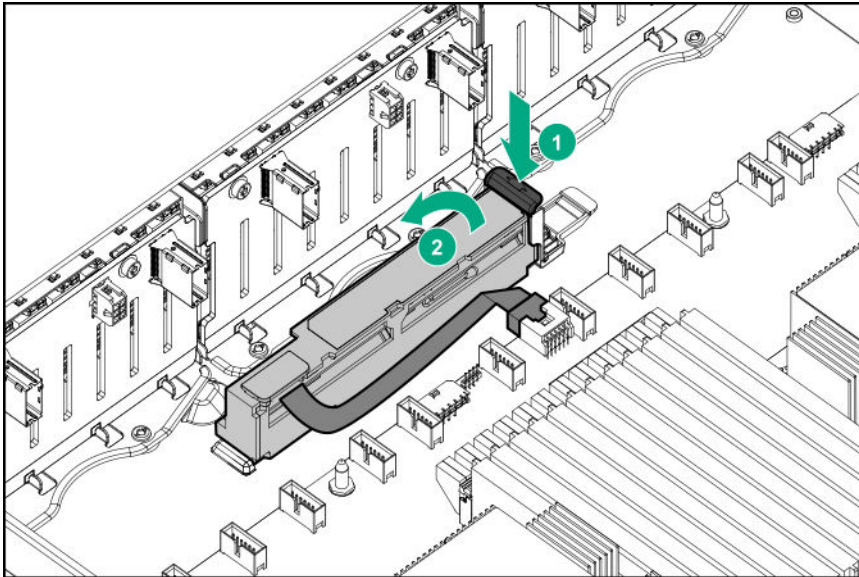


To replace the component, reverse the removal procedure.

Removing and replacing the HPE Smart Storage Battery

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. Do one of the following:
 - **Remove the air baffle** on page 38.
 - Remove the 4LFF midplane cage (**Removing and replacing a 4LFF midplane cage** on page 65).
6. Remove the fan cage (**Removing and replacing the fan cage** on page 52).
7. Disconnect the cable, and then remove the Smart Storage Battery.

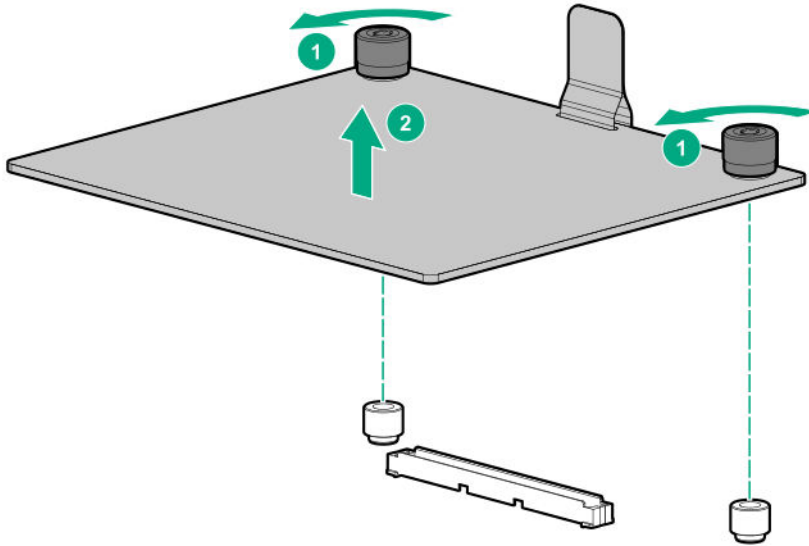


To replace the component, reverse the removal procedure.

Removing and replacing a type -a Smart Array Controller

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.
5. Do one of the following:
 - **Remove the air baffle** on page 38.
 - Remove the 4LFF midplane cage (**Removing and replacing a 4LFF midplane cage** on page 65).
6. Disconnect the SAS cables.
7. Remove the controller.



To replace the component, reverse the removal procedure.

Removing and replacing the system battery

The system battery provides power to the real-time clock. If the server no longer automatically displays the correct date and time, you might need to replace the system battery.



WARNING:

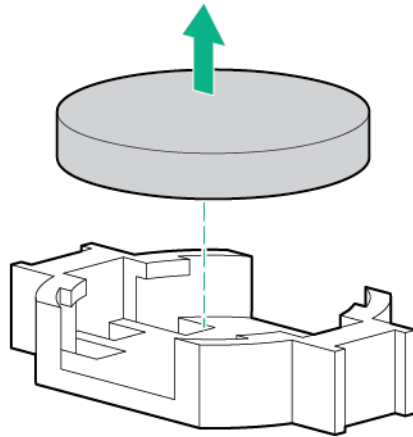
The computer contains an internal lithium manganese dioxide, a vanadium pentoxide, or an alkaline battery pack. A risk of fire and burns exists if the battery pack is not properly handled. To reduce the risk of personal injury:

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

Procedure

1. **Power down the server** on page 35.
2. Remove all power:
 - Disconnect each power cord from the power source.
 - Disconnect each power cord from the server.
3. Do one of the following:
 - **Extend the server from the rack** on page 36.
 - **Remove the server from the rack** on page 37.
4. **Remove the access panel** on page 38.

5. If installed, remove the tertiary PCIe riser cage (**Removing and replacing the tertiary PCIe riser cage** on page 46).
6. Locate the battery. For battery location, see **System components** on page 10.
7. Remove the battery.



To replace the component, reverse the removal procedure.

Properly dispose of the old battery.

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

Removing and replacing the system board

Procedure

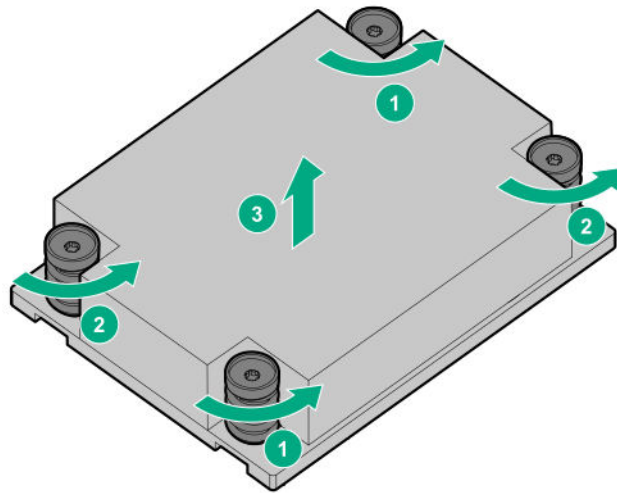
1. **Power down the server** on page 35.
2. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
3. **Remove the server from the rack** on page 37.
4. Remove all power supplies (**Removing and replacing the AC power supply** on page 44).
5. **Remove the access panel** on page 38.
6. Do one of the following:
 - **Remove the air baffle** on page 38.
 - Remove the 4LFF midplane cage (**Removing and replacing a 4LFF midplane cage** on page 65).
7. Remove the primary or secondary PCIe riser cage (**Removing and replacing the primary or secondary PCIe riser cages** on page 45).

8. If installed, remove the tertiary PCIe riser cage (**Removing and replacing the tertiary PCIe riser cage** on page 46).
9. Remove the FlexibleLOM (**Removing and replacing the FlexibleLOM** on page 53).
10. Remove all DIMMs (**Removing and replacing a DIMM** on page 77).
11. Remove the fan cage (**Removing and replacing the fan cage** on page 52).
12. Disconnect all cables connected to the system board.
13. Observe the following cautions.

⚠ CAUTION:
Be sure to loosen each heatsink nut in the order indicated. Otherwise, damage might occur to the heatsink or processor.

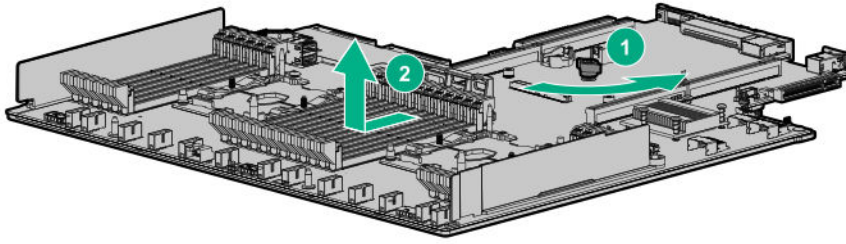
⚠ CAUTION:
Install the processor heatsink assembly as soon as possible after removing it. Do not leave the processor socket unpopulated for extended periods of time.

14. Remove the processor heatsink assembly:
 - a. Allow the heatsink to cool.
 - b. Using a T-20 Torx screwdriver, loosen the heatsink nuts.

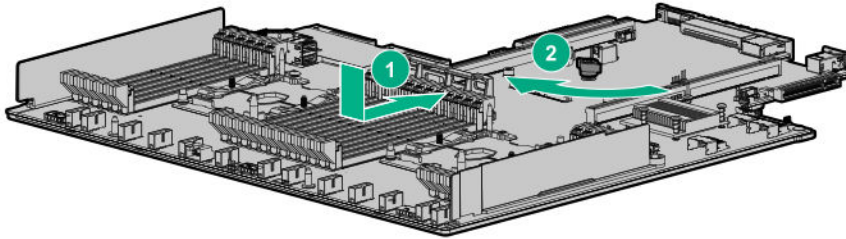


- c. Lift the processor heatsink assembly up and away from the system board.

15. Loosen the system board thumbscrews.
16. Remove the system board, using the handle to lift it out of the chassis.



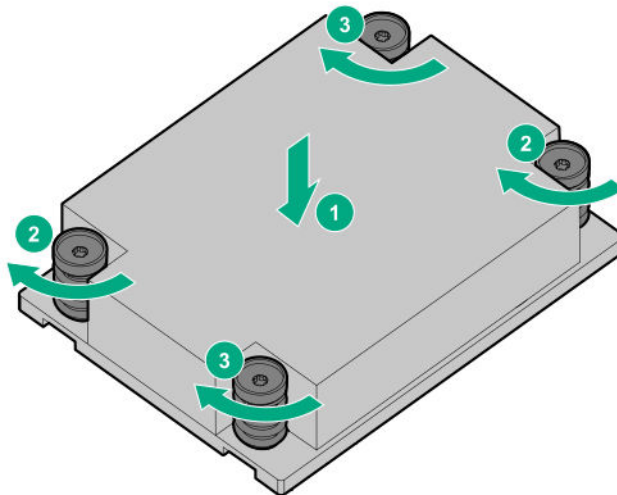
17. Install the spare system board.



18. Install the processor heatsink assembly:

- a. Locate the Pin 1 indicator on the processor frame and the socket.
- b. Align the heatsink with the heatsink alignment sockets and gently lower it down until it sits evenly on the sockets.


The heatsink alignment pins are keyed. The processor heatsink assembly will only install one way.



- c. Using a T-20 Torx screwdriver, fully tighten each heatsink nut until it no longer turns.

**CAUTION:**

Be sure to tighten each heatsink nut fully in the order indicated. Otherwise, boot failure or intermittent shutdowns might occur.

19.  **IMPORTANT:**
Install all components with the same configuration that was used on the failed system board.
-

Install all components removed from the failed system board.

20. Install the access panel.
21. Install the power supplies.
22. Power up the server.
23. Ensure all firmware, including option cards and embedded devices, is updated to the same versions to ensure that the latest drivers are being used.
24. Re-enter any Secure Boot Keys that were previously added in the Secure Boot configuration.
25. Re-enter the server serial number and the product ID (**Re-entering the server serial number and product ID** on page 87).

Re-entering the server serial number and product ID

After you replace the system board, you must re-enter the server serial number and the product ID.

Procedure

1. During the server startup sequence, press the **F9** key to access UEFI System Utilities.
2. Select **System Configuration > BIOS/Platform Configuration (RBSU) > Advanced Options > Advanced System ROM Options > Serial Number**, and then press the **Enter** key.
3. Enter the serial number and press the **Enter** key.

The following message appears:

```
The serial number should only be modified by qualified service personnel. This value should always match the serial number located on the chassis.
```

4. To clear the warning, press the **Enter** key.
5. Enter the serial number and press the **Enter** key.
6. Select **Product ID**.

The following warning appears:

```
Warning: The Product ID should ONLY be modified by qualified service personnel. This value should always match the Product ID located on the chassis.
```

7. Enter the product ID and press the **Enter** key.
8. To confirm exiting System Utilities, press the **F10** key.

The server automatically reboots.

HPE Trusted Platform Module 2.0 Gen10 Option

The HPE Trusted Platform Module 2.0 Gen10 Option is not a customer-removable part.



CAUTION:

If the TPM is removed from the original server and powered up on a different server, data stored in the TPM including keys will be erased.

If you suspect a TPM board failure, leave the TPM installed and remove the system board (**Removing and replacing the system board** on page 84). Contact a Hewlett Packard Enterprise authorized service provider for a replacement system board and TPM board.

Cabling

HPE ProLiant Gen10 DL Servers Storage Cabling Guidelines

When installing cables, observe the following:

- All ports are labeled:
 - System board ports
 - Controller ports
 - 12G SAS Expander ports
- Most data cables have labels near each connector with destination port information.
- Some data cables are pre-bent. Do not unbend or manipulate the cables.
- Before connecting a cable to a port, lay the cable in place to verify the length of the cable.
- When routing cables from the front to the rear of the server, use the cable channels on either side of the chassis.

Cabling diagrams

Use the following tables to find cabling information and diagrams.

Table 1: SAS/SATA kits

Option kit	Cable part number	From	To	Power cable part number
Front 2SFF SAS side by side (LFF)	<u>882066-001</u> ¹	Drive backplane	System board	869810-001 ⁷
Front 2SFF SAS/SATA drive cage (SFF)	<u>869826-001</u> ²	Drive backplane	<ul style="list-style-type: none">• System board• SAS Expander• Controller	869810-001 ⁷ 869825-001 ⁷
Front 2SFF SAS/SATA 1U drive cage (LFF)	<u>869826-001</u> ²	Drive backplane	<ul style="list-style-type: none">• System board• SAS Expander• Controller	869810-001 ⁷

Table Continued

Option kit	Cable part number	From	To	Power cable part number
Front/rear 2SFF 2Premium SAS (SFF + LFF)	<u>P00698-001</u> ¹	Drive backplane	System board	869810-001 ⁷
Front 4LFF SAS/SATA drive cages	869827-001 ²	Drive backplane	<ul style="list-style-type: none"> • System board • SAS Expander • Controller 	869825-001 ⁷
Front 8SFF SAS/SATA drive cages	<u>776402-001</u> ⁵	Drive backplane	<ul style="list-style-type: none"> • System board • SAS Expander • Controller 	869825-001 ⁷
Mid 4LFF SAS/SATA drive cage	<u>869824-001</u> ³	Drive backplane	<ul style="list-style-type: none"> • System board • SAS Expander • Controller 	—
Rear 2SFF SAS/SATA riser drive cage	<u>869823-001</u> ⁴	Drive backplane	<ul style="list-style-type: none"> • System board • SAS Expander • Controller 	869806-001 ⁷
Rear 3LFF SAS/SATA drive cage for system board	<u>882068-001</u> ¹	Drive backplane	System board	869806-001 ⁷
Rear 3LFF SAS/SATA drive cage for SAS Expander	<u>869823-001</u> ⁴	Drive backplane	<ul style="list-style-type: none"> • SAS Expander • Controller 	869806-001 ⁷
HPE 12G SAS Expander card	<u>869802-001</u> ⁶ <u>869803-001</u> ⁶	SAS Expander	Controller	-

To order spare cables, use the following kits and spare part numbers.

¹ HPE DL385 Gen10 Mini-SAS 3POS cable kit (P00658-001)

² Mini SAS LFF Kit (875090-001)

³ 12G SAS Expander Kit (875094-001)

⁴ Mini SAS SFF Kit (875089-001)

⁵ SAS 8SFF Kit (784629-001)

⁶ 12G SAS Expander to controller kit (875093-001)

⁷ Power cables kit (875096-001)

Table 2: NVMe bay/riser kits

Option kit	Cable part number	From	To	Power cable part number
Front 2SFF NVMe side by side	<u>869812-001</u> ¹	Drive backplane	System board	869825-001 ³
Front/rear 2SFF Premium	<u>869812-001</u> ¹	Drive backplane	System board	869825-001 ³
Front 8SFF SAS/SATA/NVMe Premium for SFF	776402-001 <u>NVMe cable included with NVMe riser</u>	Drive backplane	SATA to: <ul style="list-style-type: none"> • System board • SAS Expander • Controller • Tertiary riser 	869825-001 ³
Front 8SFF NVMe drive cage	<u>NVMe cable included with NVMe riser</u> ²	Drive backplane	Primary riser	869825-001 ³
Bay 1 8NVMe drive cage	<u>869812-001</u> ¹	Drive backplane	System board	869825-001 ³
Bay 1 8Premium	<u>869812-001</u> ¹	Drive backplane	System board	869825-001 ³
Bay 2 8Premium	<u>869812-001</u> ¹	Drive backplane	System board	869825-001 ³
HPE DL380 Gen10 4-Port Slim SAS Riser, Secondary PCIe	<u>869814-001</u> ¹ <u>869813-001</u> ¹	PCIe riser	Backplane	-
HPE DL380 Gen10 2-Port Slim SAS Riser, Tertiary PCIe	<u>869812-001</u> ¹ <u>869812-001</u> ¹	PCIe riser	Backplane	-
HPE DL380 Gen10 4-Port Slim SAS Riser	<u>869811-001</u> <u>776402-001</u>	PCIe riser	Backplane	-
HPE DL380 Gen10 1-Port Slim SAS Riser	<u>869812-001</u> ¹	PCIe riser	Backplane	-

¹ NVMe Direct Attach Kit (875092-001)

² NVMe SFF Riser Kit (875091-001)

³ Power cables kit (875096-001)

Table 3: GPU power (not shown)

Option kit	Cable part number	From	To
HPE GPU 6px6p Y-Power Cable Kit	873193-001 ¹	GPU	Riser
HPE GPU 8px6p Y-Power Cable Kit	869805-001 ¹	GPU	Riser
HPE GPU 8p Keyed GPU Cable Kit	869820-001 ¹	GPU	Riser
HPE GPU 8p Cable Kit	869821-001 ¹	GPU	Riser
HPE GPU power adapter	869828-001 ¹	GPU	System board

¹ GPU cables kit (875097-001)

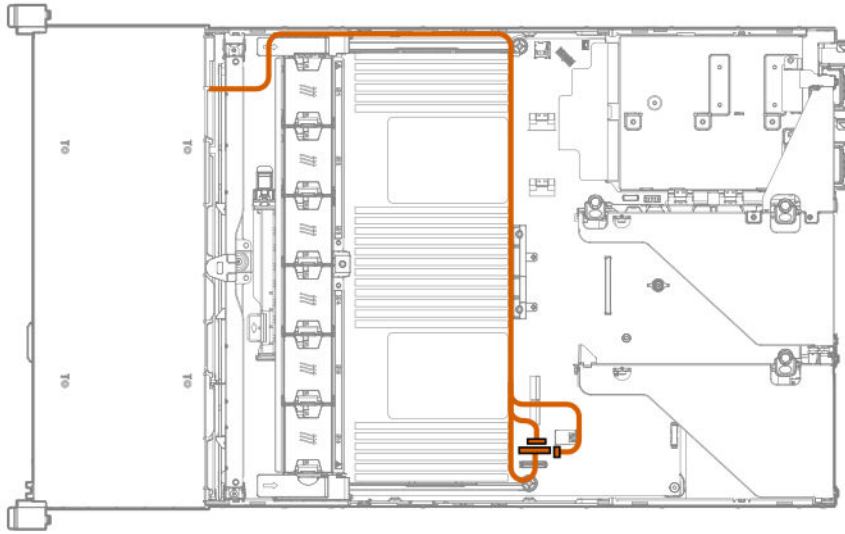
Table 4: Data kits (not shown)

Option kit	Cable part number	From	To
Front USB/display port (SFF UMB)	869804-001 ¹	Component	System board
External USB 2.0	869817-001 ¹	Component	System board
Front USB port (SFF UMB)	869829-001 ¹	Component	System board
Front display port (LFF)	869808-001 ¹	Component	System board
Optical disk drive	756914-001 ²	Component	System board
Systems Insight Display	Included with component	Component	System board

¹ Data cables kit (875095-001)

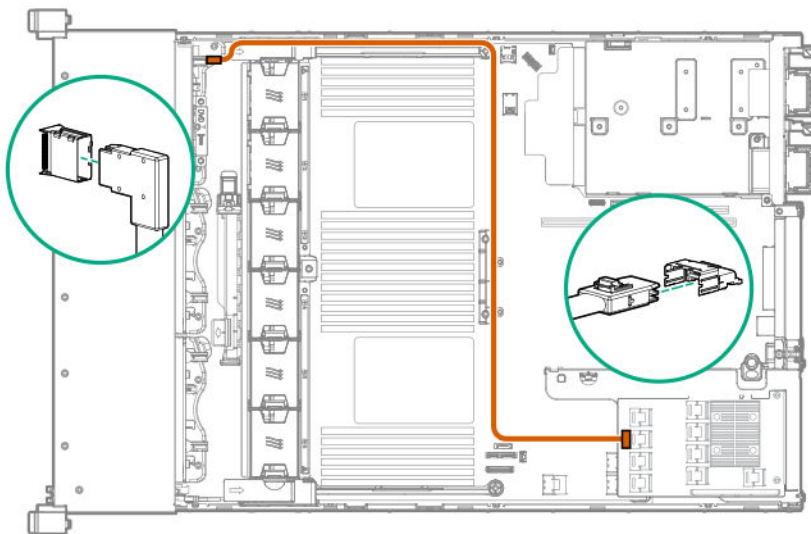
² DVD cable kit (784623-001)

Cable routing: Front 2SFF SAS side by side for LFF



Cable routing: Front 2SFF drive option for SFF

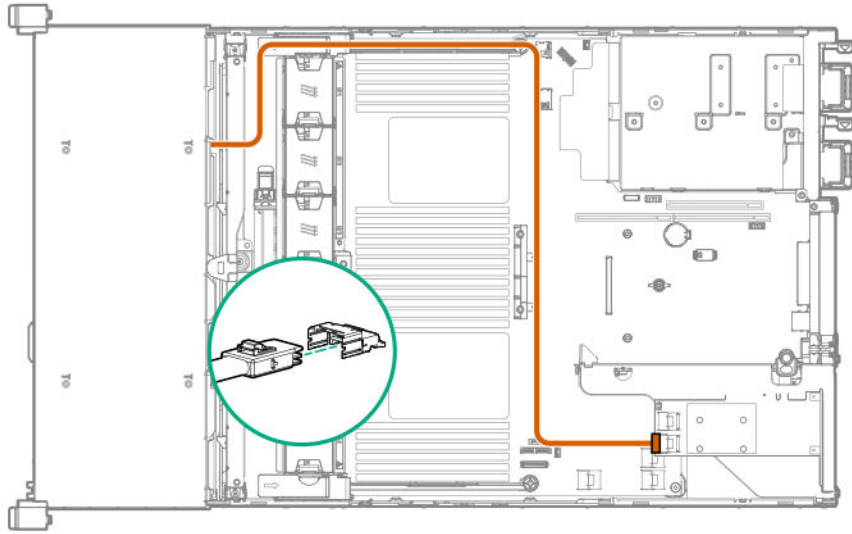
SAS Expander



Controller option not shown.

Cable routing: Front 2SFF drive option for LFF

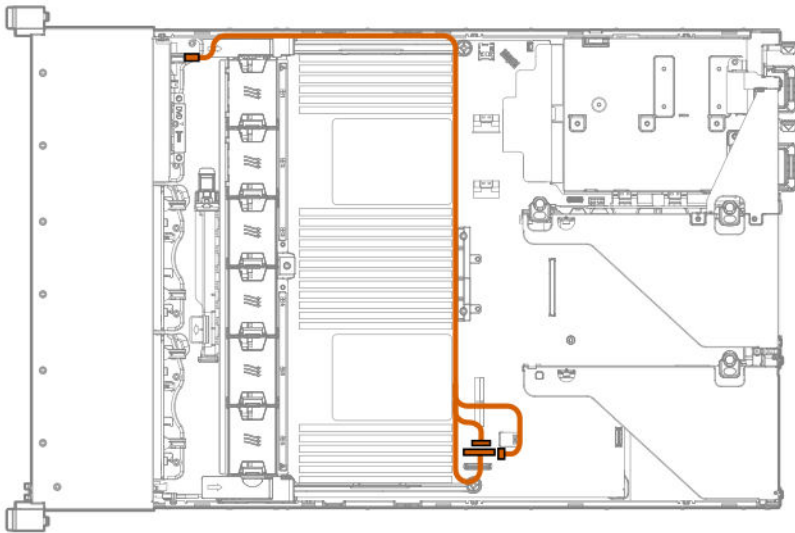
Controller



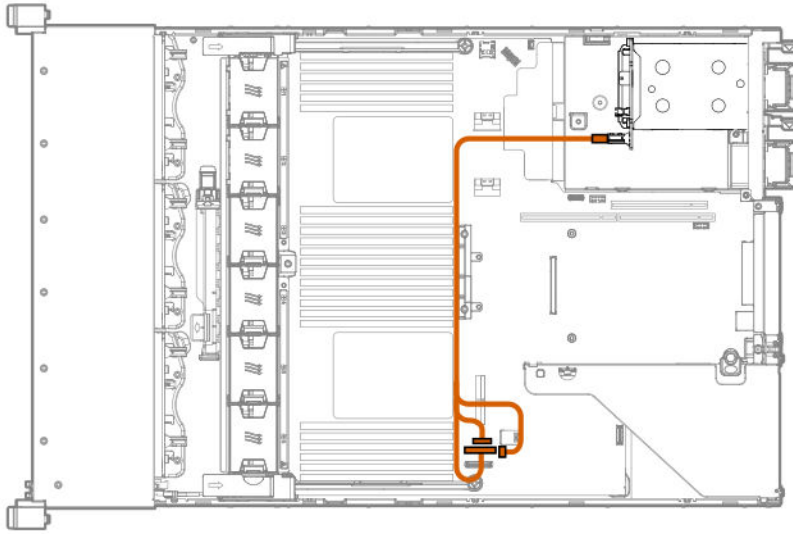
SAS Expander option not shown.

Cable routing: Front/rear 2Premium SAS (SFF + LFF)

Front 2SFF to system board

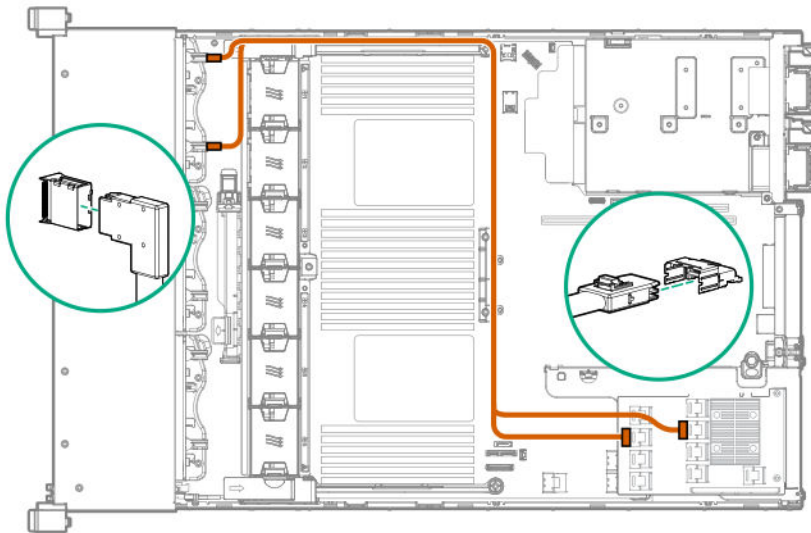


Rear 2SFF to system board

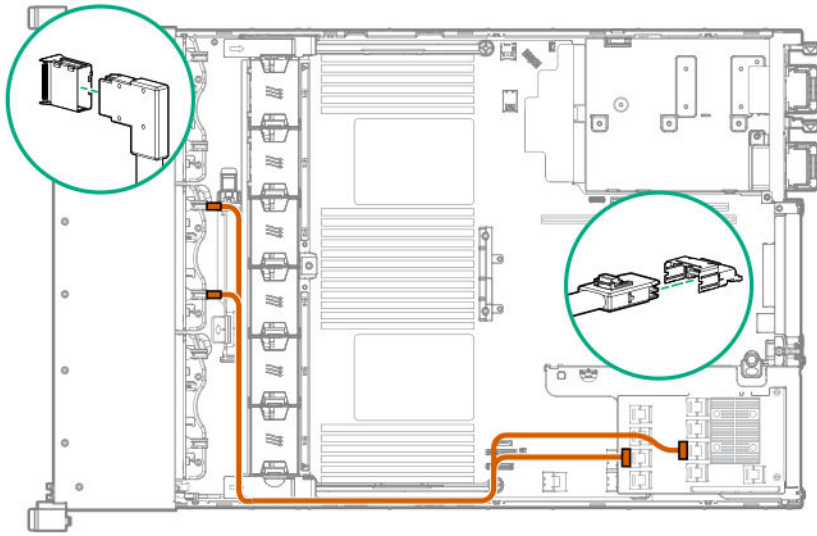


Cable routing: Front 8SFF SAS/SATA drive options

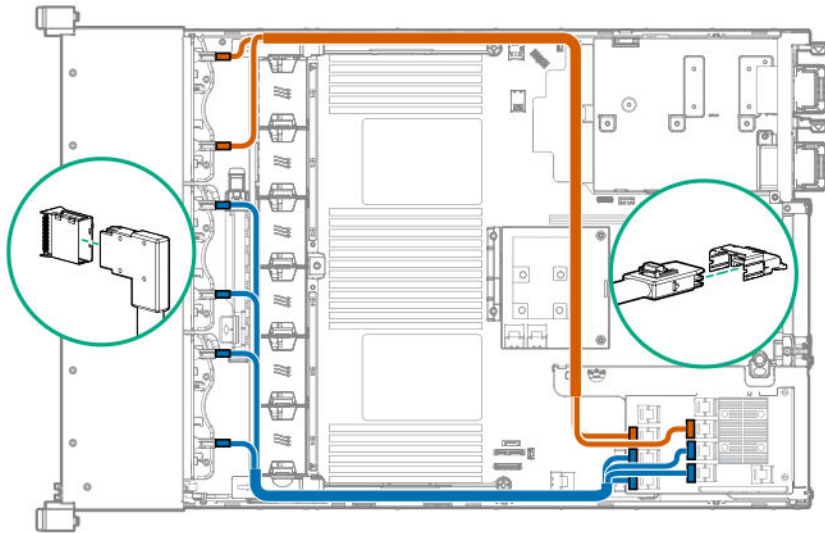
Box 1 to SAS Expander



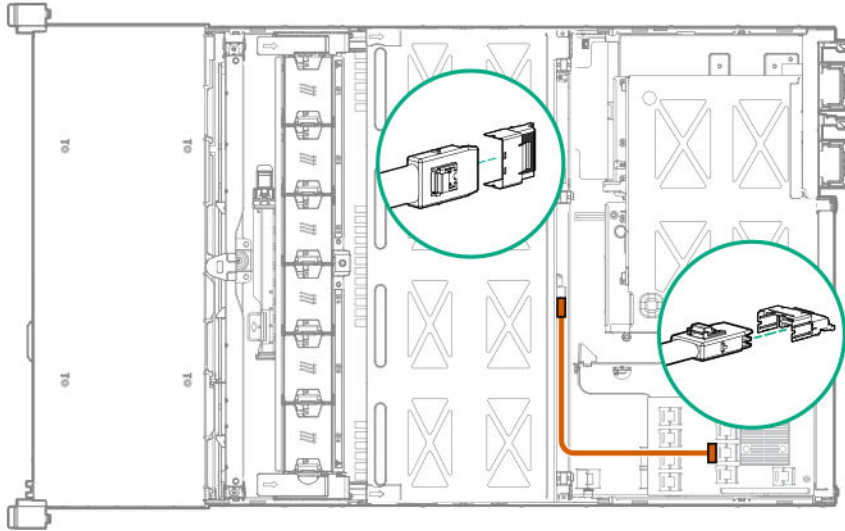
Box 2 to SAS Expander



All boxes to SAS Expander (orange cable)

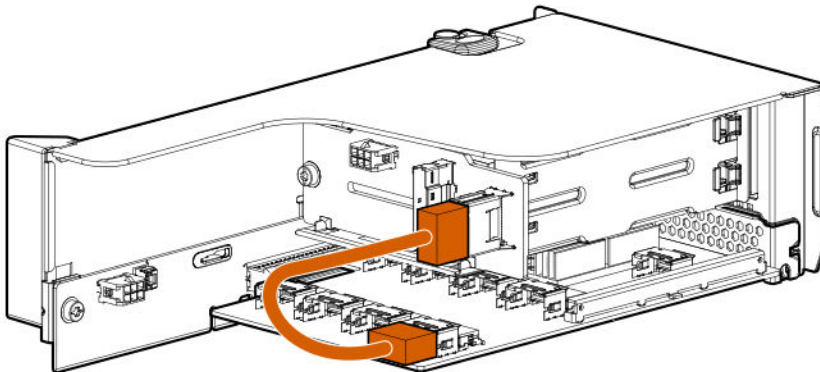


Cable routing: Midplane 4LFF SAS/SATA drive option

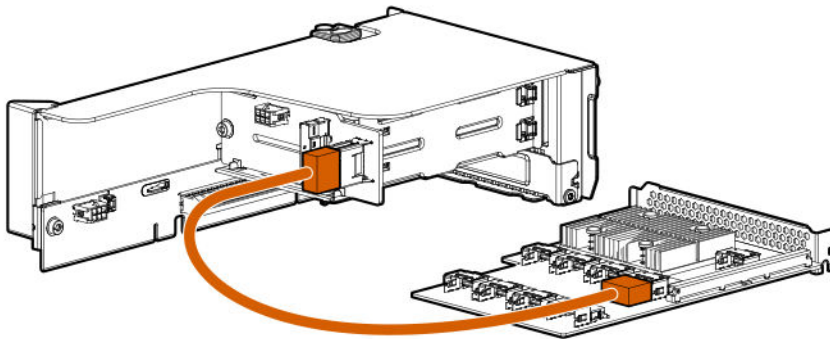


Cable routing: Rear 2SFF SAS/SATA riser drive options

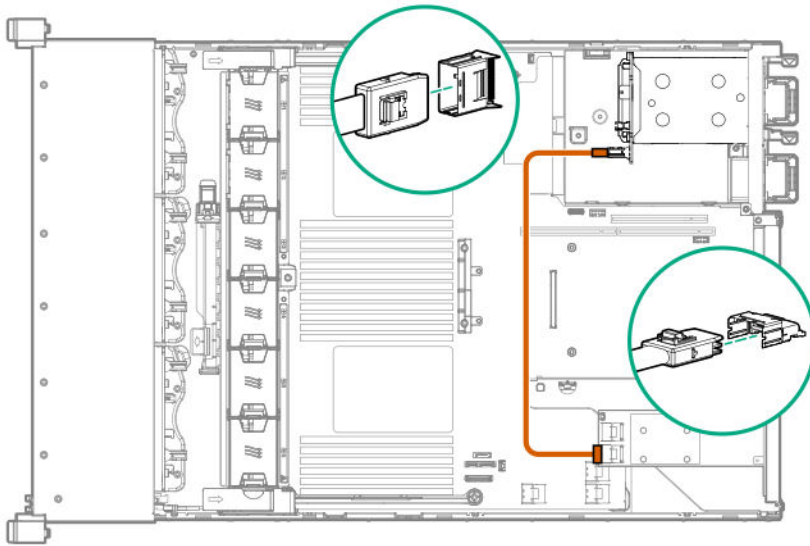
Rear 2SFF drive option to a SAS Expander, both in the primary slot



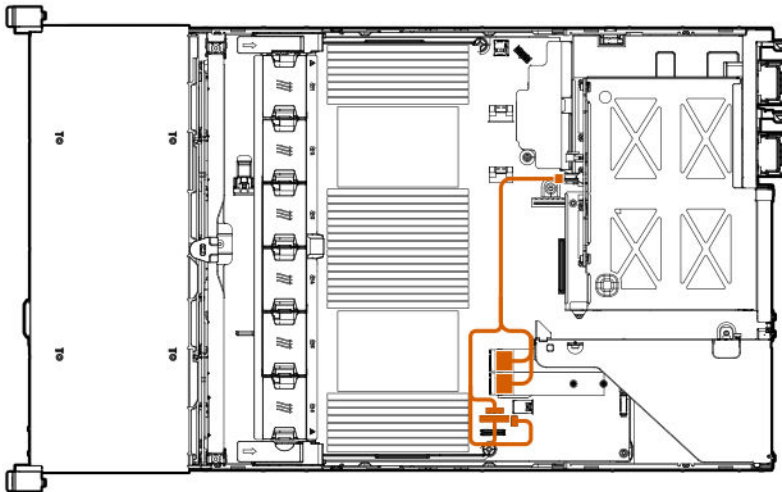
Rear 2SFF drive option in the secondary slot to a SAS Expander in the primary slot



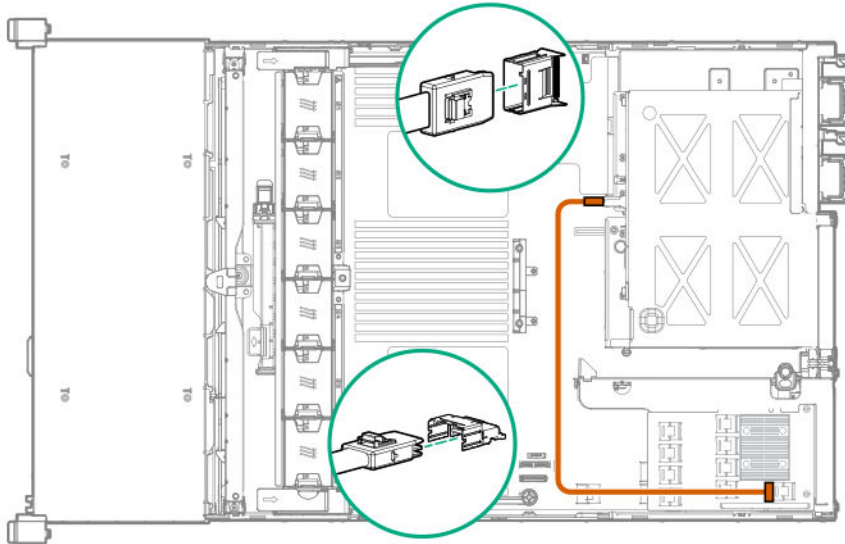
Rear 2SFF drive option above the power supplies to a controller



Cable routing: Rear 3LFF SAS/SATA drive option for system board



Cable routing: Rear 3LFF SAS/SATA drive option for SAS Expander



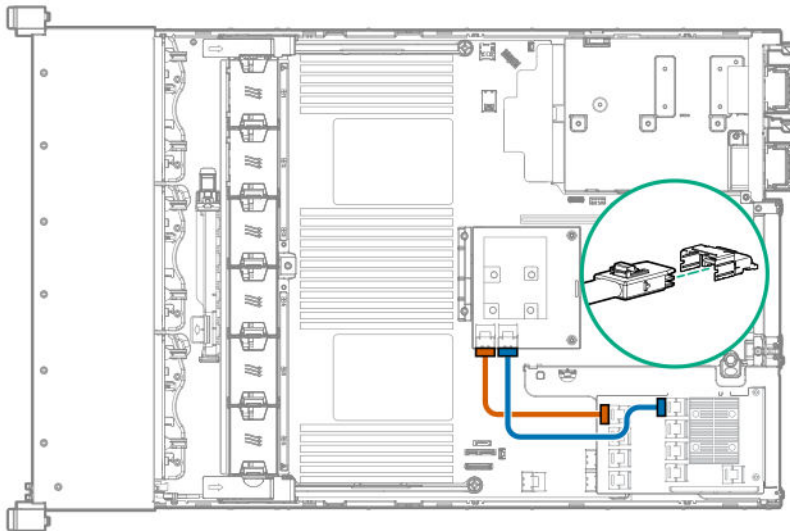
Controller option not shown.

Cable routing: HPE 12G SAS Expander

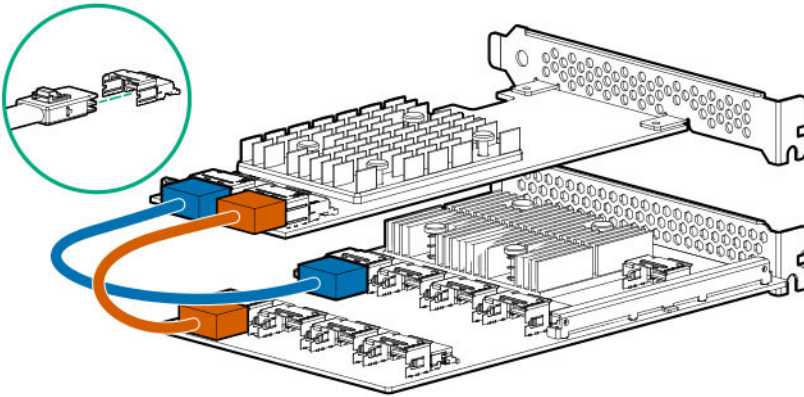
Observe the following:

- Port 1 always connects to port 1 of the controller.
- Port 2 always connects to port 2 of the controller.

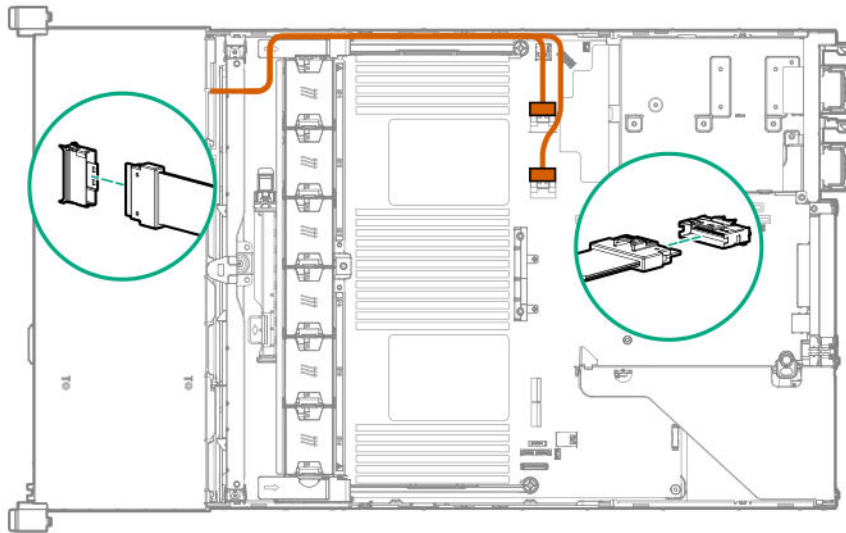
SAS expander to a type -a controller



SAS expander to a type -p controller

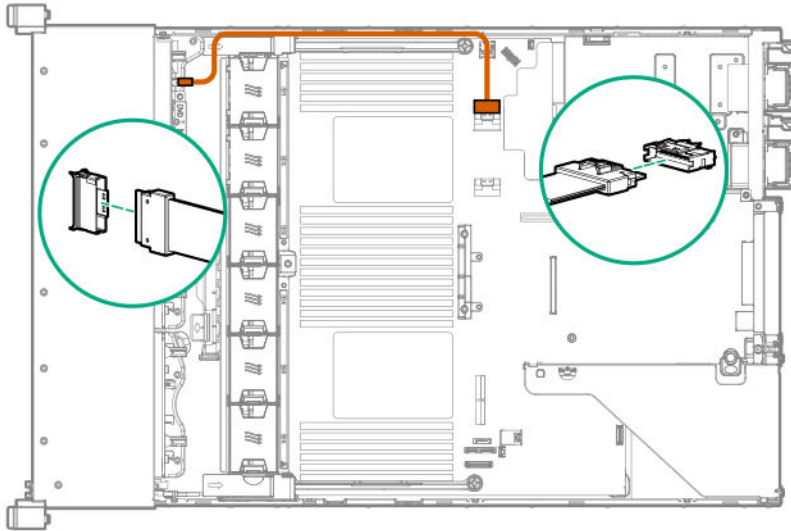


Cable routing: Front 2SFF NVMe side-by-side drive options

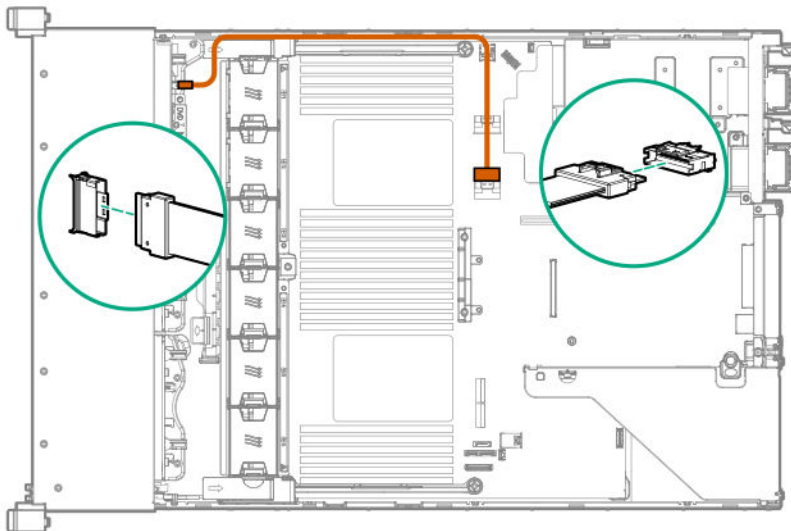


Cable routing: Front/rear 2SFF Premium

Front 2SFF to PCIe port 7B

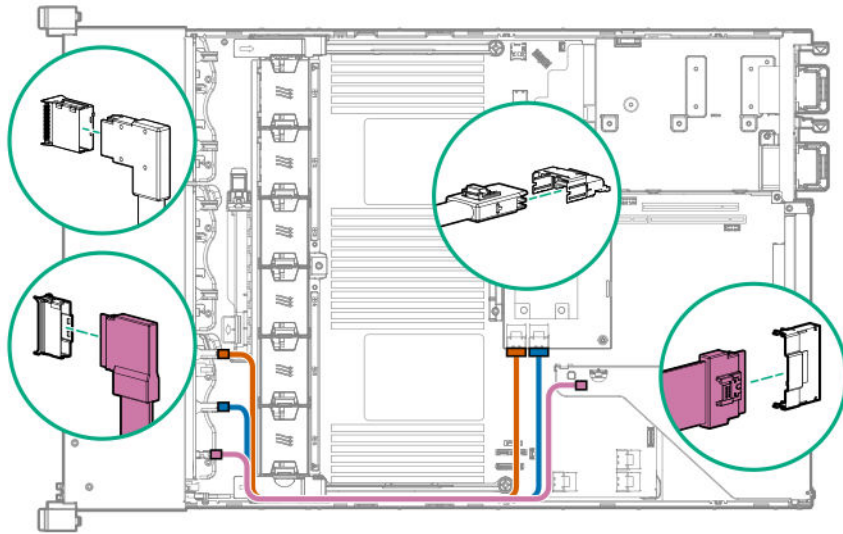


Front 2SFF to PCIe port 8B



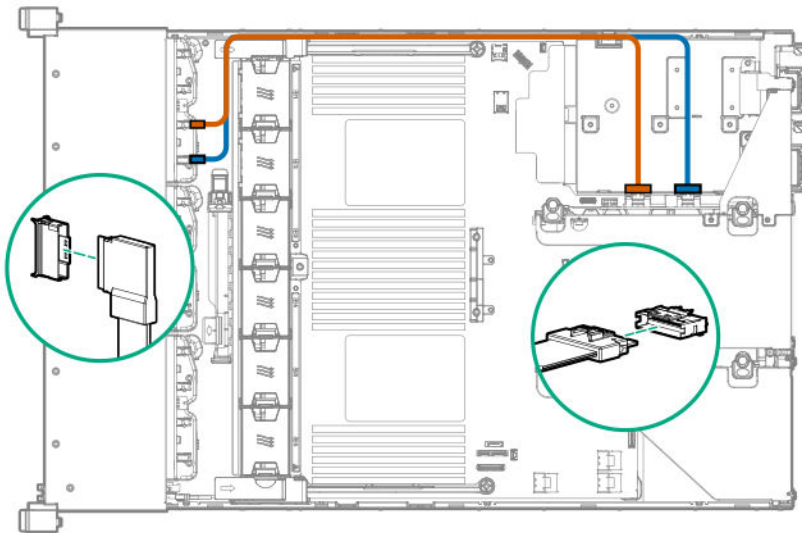
Cable routing: Front 8SFF NVMe/SAS premium drive option

The backplane shown is in box 3.

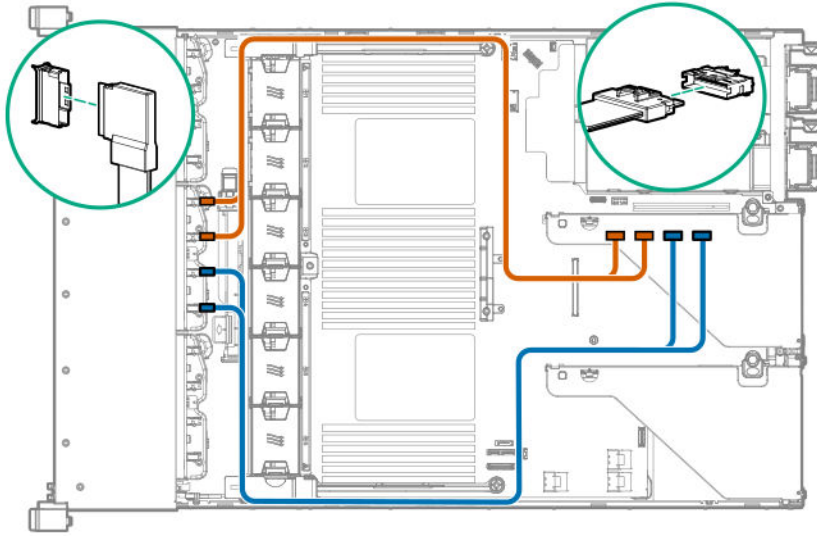


Cable routing: Front 8SFF NVMe drive options

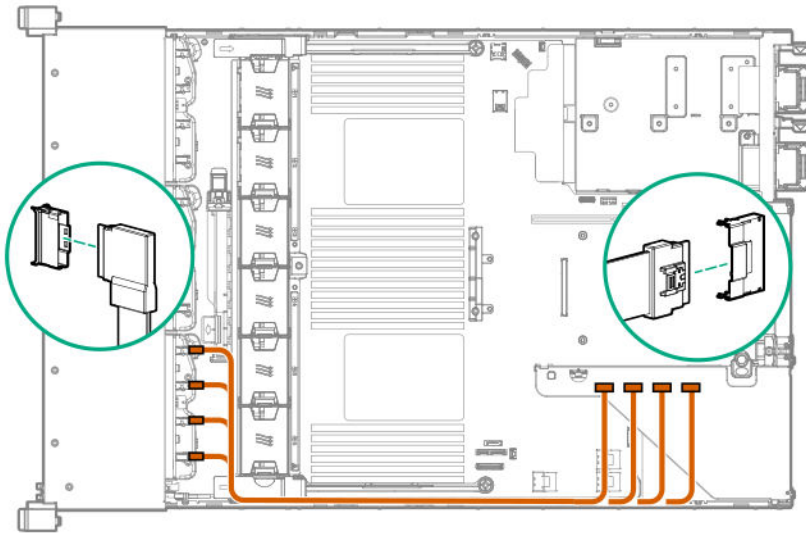
Box 1



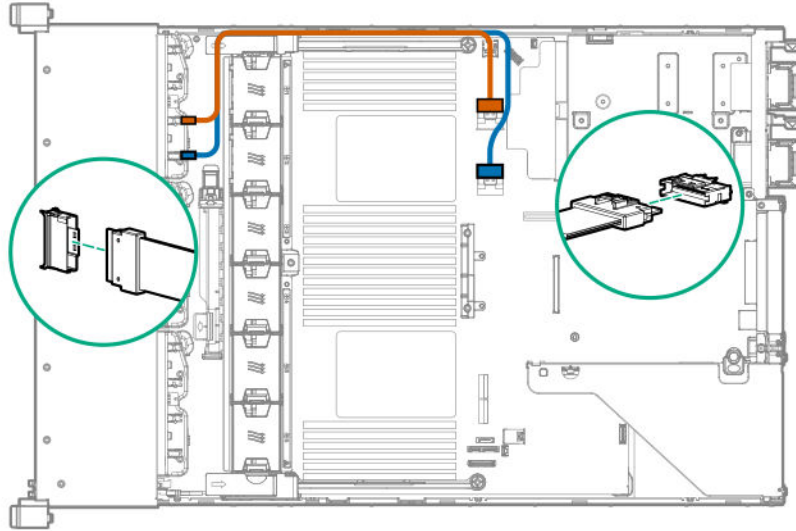
Box 2



Box 3

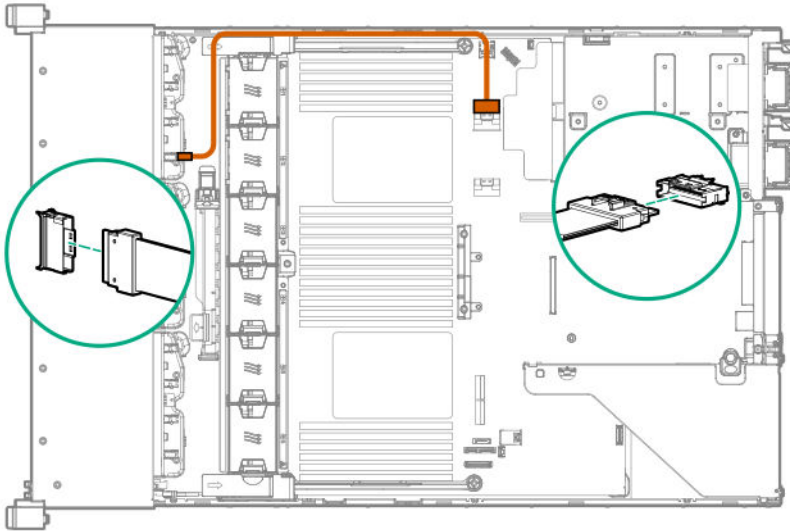


Cable routing: 8NVMe Bay 1 drive options

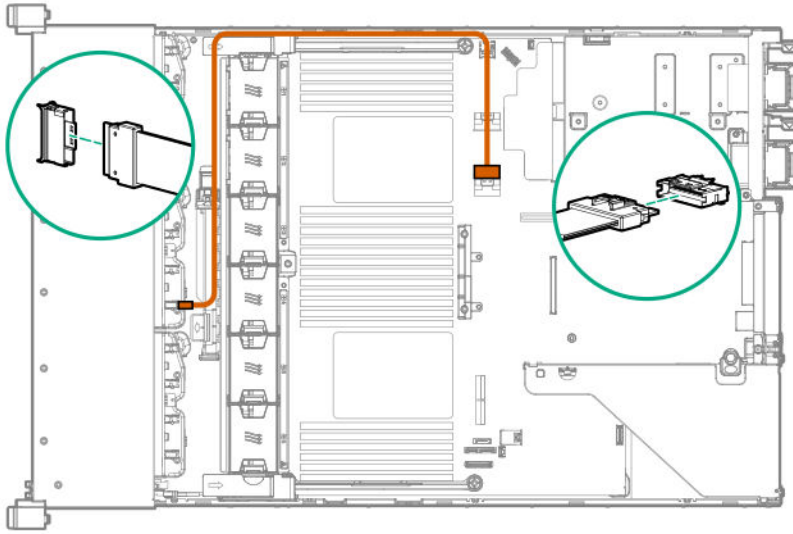


Cable routing: Bays 1 and 2 8Premium

Bay 1 to system board

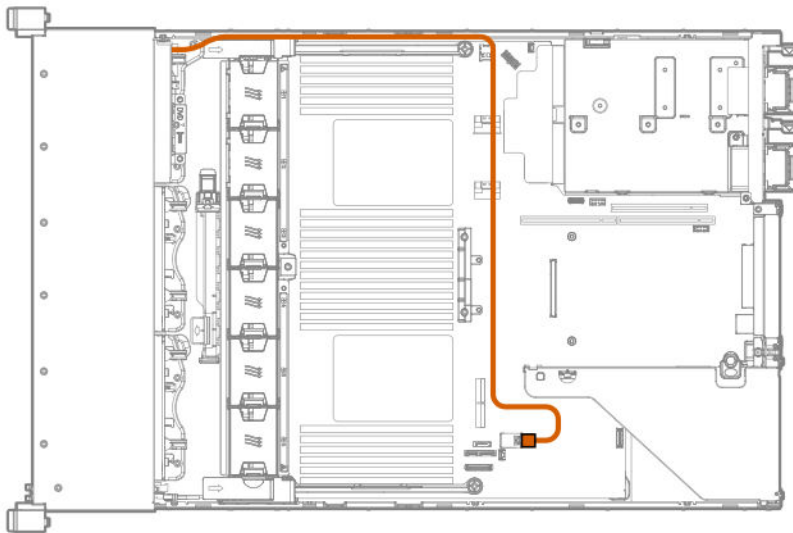


Bay 2 to system board



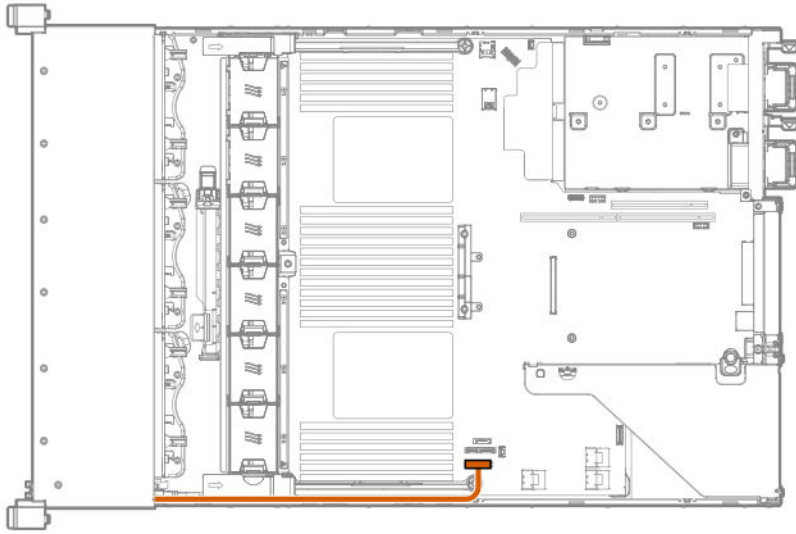
Cable routing: External USB 2.0 cable

Front 2SFF to system board



Cable routing: Systems Insight Display

An SFF model is shown. The routing is the same for LFF.



Diagnostic tools

Product QuickSpecs

For more information about product features, specifications, options, configurations, and compatibility, see the product QuickSpecs on the Hewlett Packard Enterprise website (<http://www.hpe.com/info/qs>).

UEFI System Utilities

The UEFI System Utilities is embedded in the system ROM. Its features enable you to perform a wide range of configuration activities, including:

- Configuring system devices and installed options.
- Enabling and disabling system features.
- Displaying system information.
- Selecting the primary boot controller or partition.
- Configuring memory options.
- Launching other preboot environments.

HPE servers with UEFI can provide:

- Support for boot partitions larger than 2.2 TB. Such configurations could previously only be used for boot drives when using RAID solutions.
- Secure Boot that enables the system firmware, option card firmware, operating systems, and software collaborate to enhance platform security.
- UEFI Graphical User Interface (GUI)
- An Embedded UEFI Shell that provides a preboot environment for running scripts and tools.
- Boot support for option cards that only support a UEFI option ROM.

Selecting the boot mode

This server provides two **Boot Mode** configurations: UEFI Mode and Legacy BIOS Mode. Certain boot options require that you select a specific boot mode. By default, the boot mode is set to **UEFI Mode**. The system must boot in **UEFI Mode** to use certain options, including:

- Secure Boot, UEFI Optimized Boot, Generic USB Boot, IPv6 PXE Boot, iSCSI Boot, and Boot from URL
- Fibre Channel/FCoE Scan Policy

NOTE:

The boot mode you use must match the operating system installation. If not, changing the boot mode can impact the ability of the server to boot to the installed operating system.

Prerequisite

When booting to **UEFI Mode**, leave **UEFI Optimized Boot** enabled.

Procedure

1. From the **System Utilities** screen, select **System Configuration > BIOS/Platform Configuration (RBSU) > Boot Options > Boot Mode**.
2. Select a setting.
 - **UEFI Mode** (default)—Configures the system to boot to a UEFI compatible operating system.
 - **Legacy BIOS Mode**—Configures the system to boot to a traditional operating system in Legacy BIOS compatibility mode.
3. Save your setting.
4. Reboot the server.

Secure Boot

Secure Boot is a server security feature that is implemented in the BIOS and does not require special hardware. Secure Boot ensures that each component launched during the boot process is digitally signed and that the signature is validated against a set of trusted certificates embedded in the UEFI BIOS. Secure Boot validates the software identity of the following components in the boot process:

- UEFI drivers loaded from PCIe cards
- UEFI drivers loaded from mass storage devices
- Preboot UEFI Shell applications
- OS UEFI boot loaders

When Secure Boot is enabled:

- Firmware components and operating systems with boot loaders must have an appropriate digital signature to execute during the boot process.
- Operating systems must support Secure Boot and have an EFI boot loader signed with one of the authorized keys to boot. For more information about supported operating systems, see <http://www.hpe.com/servers/ossupport>.

You can customize the certificates embedded in the UEFI BIOS by adding or removing your own certificates, either from a management console directly attached to the server, or by remotely connecting to the server using the iLO Remote Console.

You can configure Secure Boot:

- Using the **System Utilities** options described in the following sections.
- The RESTful API. For more information, see the Hewlett Packard Enterprise website (www.hpe.com/support/restfulinterface/docs).
- Using the iLO RESTful API to clear and restore certificates. For more information, see the Hewlett Packard Enterprise website (<http://www.hpe.com/info/redfish>).
- Using the `secboot` command in the Embedded UEFI Shell to display Secure Boot databases, keys, and security reports.

Launching the Embedded UEFI Shell

Use the **Embedded UEFI Shell** option to launch the Embedded UEFI Shell. The Embedded UEFI Shell is a pre-boot command-line environment for scripting and running UEFI applications, including UEFI boot loaders. The Shell also provides CLI-based commands you can use to obtain system information, and to configure and update the system BIOS.

Prerequisites

- **Boot Mode** is set to **UEFI Mode**.
- **Embedded UEFI Shell** is set to enabled.

Procedure

1. From the **System Utilities** screen, select **Embedded Applications > Embedded UEFI Shell**.

The **Embedded UEFI Shell** screen appears.

2. Press any key to acknowledge that you are physically present.

This step ensures that certain features, such as disabling **Secure Boot** or managing the **Secure Boot** certificates using third-party UEFI tools, are not restricted.

3. If an administrator password is set, enter it at the prompt and press **Enter**.

The `Shell>` prompt appears.

4. Enter the commands required to complete your task.

5. Enter the `exit` command to exit the Shell.

Intelligent Provisioning

Intelligent Provisioning is a single-server deployment tool embedded in ProLiant servers and HPE Synergy compute modules. Intelligent Provisioning simplifies server setup, providing a reliable and consistent way to deploy servers.

Intelligent Provisioning prepares the system for installing original, licensed vendor media and Hewlett Packard Enterprise-branded versions of OS software. Intelligent Provisioning also prepares the system to integrate optimized server support software from the Service Pack for ProLiant (SPP). SPP is a comprehensive systems software and firmware solution for ProLiant servers, server blades, their enclosures, and HPE Synergy compute modules. These components are preloaded with a basic set of firmware and OS components that are installed along with Intelligent Provisioning.

IMPORTANT:

HPE ProLiant XL servers do not support operating system installation with Intelligent Provisioning, but they do support the maintenance features. For more information, see "Performing Maintenance" in the *Intelligent Provisioning User Guide* and online help.

After the server is running, you can update the firmware to install additional components. You can also update any components that have been outdated since the server was manufactured.

To access Intelligent Provisioning:

- Press **F10** from the POST screen.
- From the iLO web browser user interface using **Always On**. **Always On** allows you to access Intelligent Provisioning without rebooting your server.

Intelligent Provisioning operation

Intelligent Provisioning includes the following components:

- Critical boot drivers
- Active Health System (AHS)
- Erase Utility
- Deployment Settings

IMPORTANT:

- Although your server is pre-loaded with firmware and drivers, you should update the firmware upon initial setup to ensure you have the latest versions. Also, downloading and updating the latest version of Intelligent Provisioning ensures the latest supported features are available.
- For ProLiant servers, firmware is updated using the Intelligent Provisioning Firmware Update utility.
- For HPE Synergy compute modules, firmware is updated using HPE OneView.
- Do not update firmware if the version you are currently running is required for compatibility.

NOTE:

Intelligent Provisioning does not function within multihomed configurations. A multihomed host is one that is connected to two or more networks or has two or more IP addresses.

Intelligent Provisioning provides installation help for the following operating systems:

- Microsoft Windows Server
- Red Hat Enterprise Linux
- SUSE Linux Enterprise Server
- VMware ESXi/vSphere Custom Image

Not all versions of an OS are supported. For information about specific versions of a supported operating system, see the OS Support Matrix on the Hewlett Packard Enterprise website (<http://www.hpe.com/info/ossupport>).

HPE Insight Remote Support

Hewlett Packard Enterprise strongly recommends that you register your device for remote support to enable enhanced delivery of your Hewlett Packard Enterprise warranty, HPE support services, or Hewlett Packard Enterprise contractual support agreement. Insight Remote Support supplements your monitoring continuously to ensure maximum system availability by providing intelligent event diagnosis, and automatic, secure submission of hardware event notifications to Hewlett Packard Enterprise, which will initiate a fast and accurate resolution, based on your product's service level. Notifications can be sent to your authorized Hewlett Packard Enterprise Channel Partner for onsite service, if configured and available in your country.

For more information, see *Insight Remote Support and Insight Online Setup Guide for ProLiant Servers and BladeSystem c-Class Enclosures* on the [Hewlett Packard Enterprise website](#). Insight Remote Support is available as part of Hewlett Packard Enterprise Warranty, HPE support services, or Hewlett Packard Enterprise contractual support agreement.

USB support

Hewlett Packard Enterprise Gen10 servers support all USB operating speeds depending on the device that is connected to the server.

External USB functionality

Hewlett Packard Enterprise provides external USB support to enable local connection of USB devices for server administration, configuration, and diagnostic procedures.

For additional security, external USB functionality can be disabled through USB options in UEFI System Utilities.

HPE Smart Storage Administrator

HPE SSA is the main tool for configuring arrays on HPE Smart Array SR controllers. It exists in three interface formats: the HPE SSA GUI, the HPE SSA CLI, and HPE SSA Scripting. All formats provide support for configuration tasks. Some of the advanced tasks are available in only one format.

The diagnostic features in HPE SSA are also available in the standalone software HPE Smart Storage Administrator Diagnostics Utility CLI.

During the initial provisioning of the server or compute module, an array is required to be configured before the operating system can be installed. You can configure the array using SSA.

HPE SSA is accessible both offline (either through HPE Intelligent Provisioning or as a standalone bootable ISO image) and online:

- Accessing HPE SSA in the offline environment



IMPORTANT:

If you are updating an existing server in an offline environment, obtain the latest version of HPE SSA through Service Pack for ProLiant before performing configuration procedures.

Using one of multiple methods, you can run HPE SSA before launching the host operating system. In offline mode, users can configure or maintain detected and supported devices, such as optional Smart Array controllers and integrated Smart Array controllers. Some HPE SSA features are only available in the offline environment, such as setting the boot controller and boot volume.

- Accessing HPE SSA in the online environment

This method requires an administrator to download the HPE SSA executables and install them. You can run HPE SSA online after launching the host operating system.

For more information, see *HPE Smart Array SR Gen10 Configuration Guide* at the [Hewlett Packard Enterprise website](#).

Troubleshooting

Troubleshooting resources

Troubleshooting resources are available for HPE Gen10 server products in the following documents:

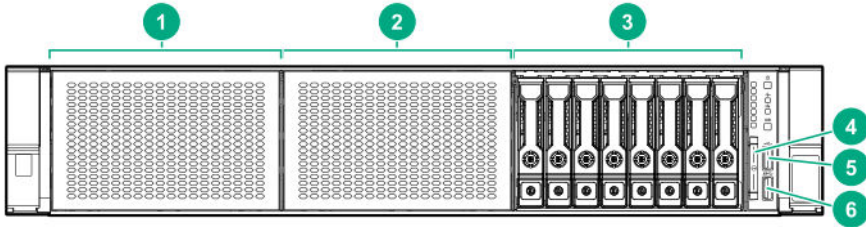
- *Troubleshooting Guide for HPE ProLiant Gen10 servers* provides procedures for resolving common problems and comprehensive courses of action for fault isolation and identification, issue resolution, and software maintenance.
- *Error Message Guide for HPE ProLiant Gen10 servers and HPE Synergy* provides a list of error messages and information to assist with interpreting and resolving error messages.
- *Integrated Management Log Messages and Troubleshooting Guide for HPE ProLiant Gen10 and HPE Synergy* provides IML messages and associated troubleshooting information to resolve critical and cautionary IML events.

To access the troubleshooting resources, see the Hewlett Packard Enterprise Information Library (<http://www.hpe.com/info/gen10-troubleshooting>).

Component identification

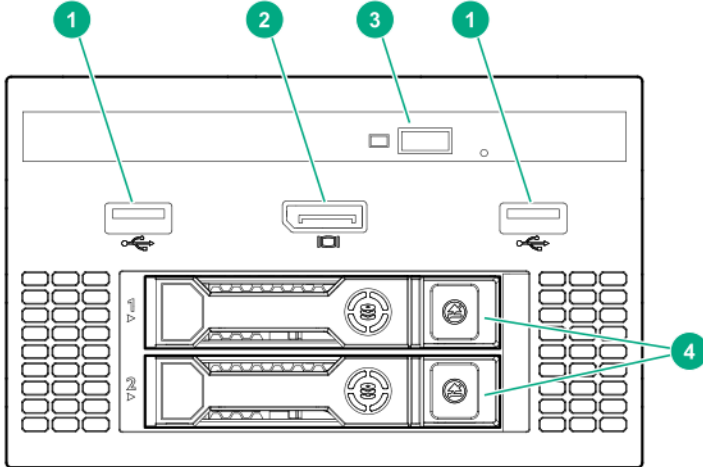
Front panel components

SFF front panel components



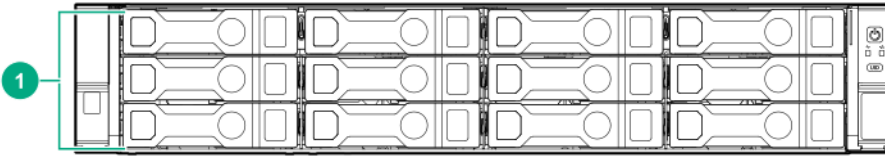
Item	Description
1	Box 1 (optional drives or universal media bay)
2	Box 2 (optional drives)
3	Box 3 drives 1 through 8
4	Serial label pull tab or optional Systems Insight Display
5	iLO service port
6	USB 3.0 port

Universal media bay components



Item	Description
1	USB 2.0 port
2	Video display port
3	Optical disk drive (optional)
4	Drives (optional)

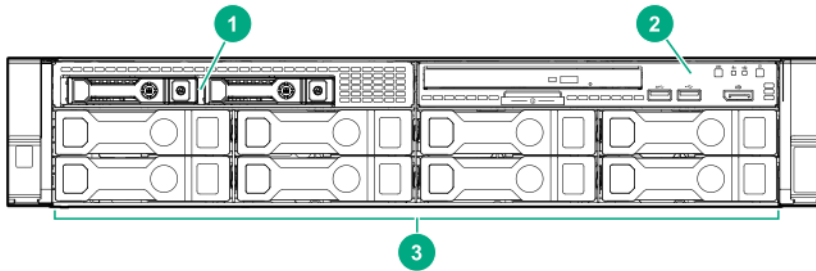
12LFF front panel components



Item	Description
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1	Drive bays
---	------------

8LFF front panel components



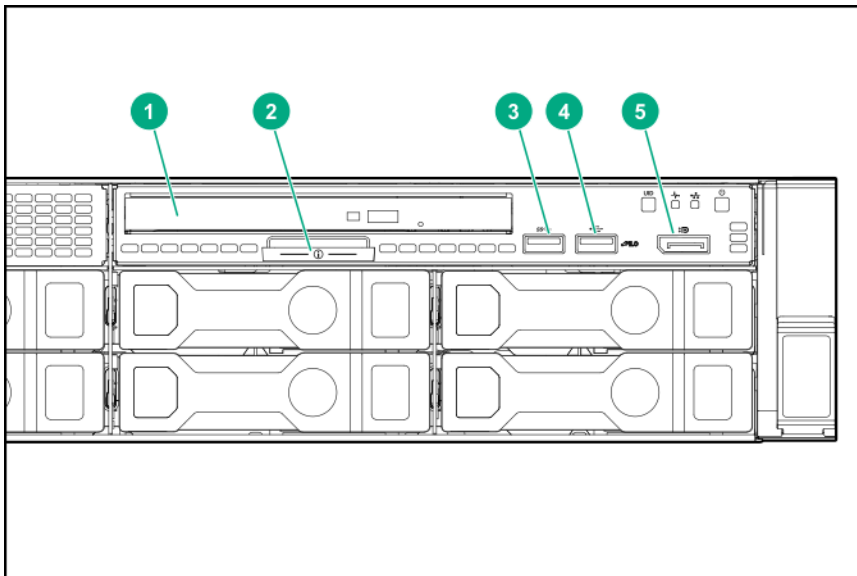
Item	Description
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1	Drives (optional)
---	-------------------

2	LFF power switch module
---	--------------------------------

3	Drive bays
---	------------

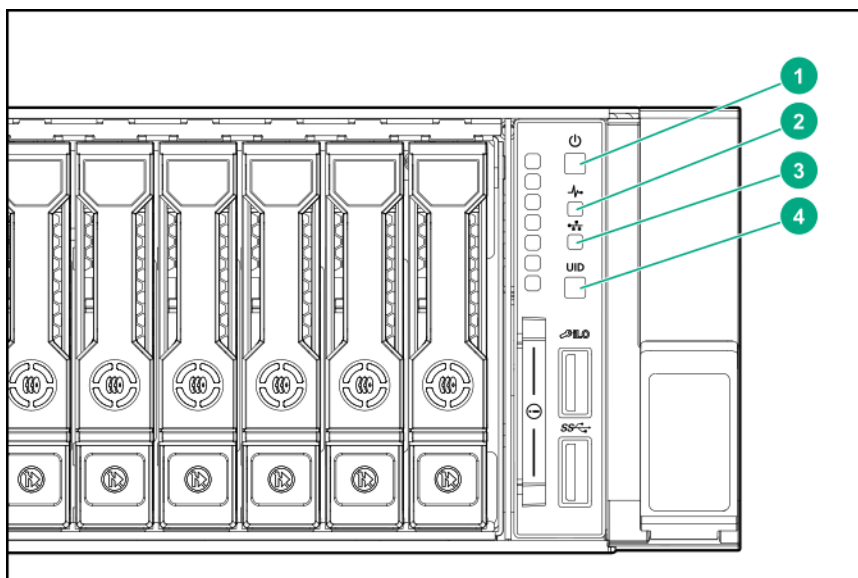
LFF power switch module components



Item	Description
1	Optical disk drive
2	Serial label pull tab
3	USB 3.0 port
4	iLO service port
5	Video display port

Front panel LEDs and buttons

SFF front panel LEDs and button



Item	Description	Status
1	Power On/Standby button and system power LED ¹	<ul style="list-style-type: none"> • Solid green = System on • Flashing green (1 Hz/cycle per sec) = Performing power on sequence • Solid amber = System in standby • Off = No power present²
2	Health LED ¹	<ul style="list-style-type: none"> • Solid green = Normal • Flashing green (1 Hz/cycle per sec) = iLO is rebooting • Flashing amber = System degraded • Flashing red (1 Hz/cycle per sec) = System critical³

Table Continued

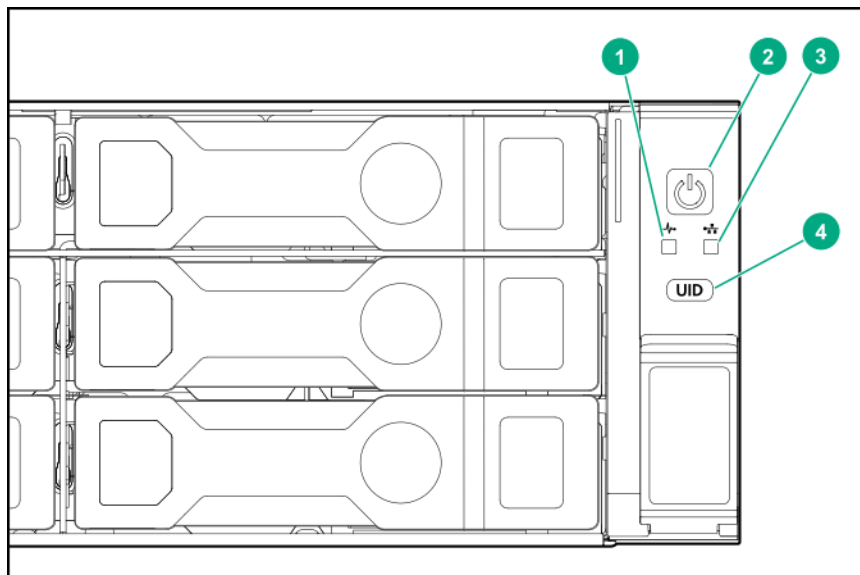
Item	Description	Status
3	NIC status LED ¹	<ul style="list-style-type: none"> • Solid green = Link to network • Flashing green (1 Hz/cycle per sec) = Network active • Off = No network activity
4	UID button/LED ¹	<ul style="list-style-type: none"> • Solid blue = Activated • Flashing blue: <ul style="list-style-type: none"> ◦ 1 Hz/cycle per sec = Remote management or firmware upgrade in progress ◦ 4 Hz/cycle per sec = iLO manual reboot sequence initiated ◦ 8 Hz/cycle per sec = iLO manual reboot sequence in progress ◦ Off = Deactivated

¹ When all four LEDs described in this table flash simultaneously, a power fault has occurred.

² Facility power is not present, the power cord is not attached, no power supplies are installed, power supply failure has occurred, or the power button cable is disconnected.

³ If the health LED indicates a degraded or critical state, review the system IML or use iLO to review the system health status.

12LFF front panel LEDs and button



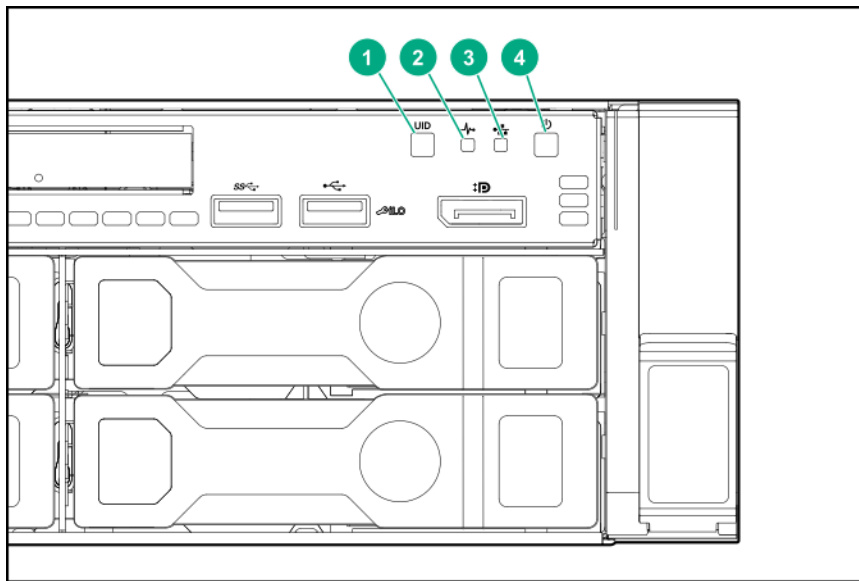
Item	Description	Status
1	Health LED ¹	<ul style="list-style-type: none"> • Solid green = Normal • Flashing green (1 Hz/cycle per sec) = iLO is rebooting • Flashing amber = System degraded • Flashing red (1 Hz/cycle per sec) = System critical²
2	Power On/Standby button and system power LED ¹	<ul style="list-style-type: none"> • Solid green = System on • Flashing green (1 Hz/cycle per sec) = Performing power on sequence • Solid amber = System in standby • Off = No power present³
3	NIC status LED ¹	<ul style="list-style-type: none"> • Solid green = Link to network • Flashing green (1 Hz/cycle per sec) = Network active • Off = No network activity
4	UID button/LED ¹	<ul style="list-style-type: none"> • Solid blue = Activated • Flashing blue: <ul style="list-style-type: none"> ◦ 1 Hz/cycle per sec = Remote management or firmware upgrade in progress ◦ 4 Hz/cycle per sec = iLO manual reboot sequence initiated ◦ 8 Hz/cycle per sec = iLO manual reboot sequence in progress • Off = Deactivated

¹ When all four LEDs described in this table flash simultaneously, a power fault has occurred.

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

³ Facility power is not present, the power cord is not attached, no power supplies are installed, power supply failure has occurred, or the power button cable is disconnected.

LFF power switch module LEDs and button



Item	Description	Status
1	UID button/LED ¹	<ul style="list-style-type: none"> • Solid blue = Activated • Flashing blue: <ul style="list-style-type: none"> ◦ 1 Hz/cycle per sec = Remote management or firmware upgrade in progress ◦ 4 Hz/cycle per sec = iLO manual reboot sequence initiated ◦ ◦ 8 Hz/cycle per sec = iLO manual reboot sequence in progress • Off = Deactivated
2	Health LED ¹	<ul style="list-style-type: none"> • Solid green = Normal • Flashing green (1 Hz/cycle per sec) = iLO is rebooting • Flashing amber = System degraded • Flashing red (1 Hz/cycle per sec) = System critical²

Table Continued

Item	Description	Status
3	NIC status LED ¹	<ul style="list-style-type: none"> • Solid green = Link to network • Flashing green (1 Hz/cycle per sec) = Network active • Off = No network activity
4	Power On/Standby button and system power LED ¹	<ul style="list-style-type: none"> • Solid green = System on • Flashing green (1 Hz/cycle per sec) = Performing power on sequence • Solid amber = System in standby • Off = No power present³

¹ When all four LEDs described in this table flash simultaneously, a power fault has occurred.

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

³ Facility power is not present, the power cord is not attached, no power supplies are installed, power supply failure has occurred, or the power button cable is disconnected.

UID button functionality

The UID button can be used to display the HPE ProLiant Pre-boot Health Summary when the server will not power on. For more information, see the latest *HPE iLO User Guide* on the [Hewlett Packard Enterprise website](#).

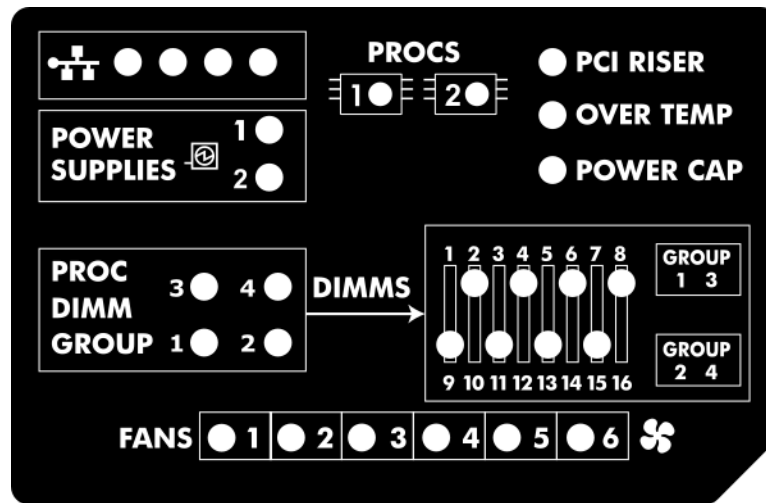
Power fault LEDs

The following table provides a list of power fault LEDs, 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
Removable HPE Flexible Smart Array controller/Smart SAS HBA controller	6 flashes
System board PCIe slots	7 flashes
Power backplane or storage backplane	8 flashes
Power supply	9 flashes

Systems Insight Display LEDs

The Systems Insight Display LEDs represent the system board layout. The display enables diagnosis with the access panel installed.



Description	Status
Processor LEDs	Off = Normal Amber = Failed processor
DIMM LEDs	Off = Normal Amber = Failed DIMM or configuration issue
Fan LEDs	Off = Normal Amber = Failed fan or missing fan
NIC LEDs	Off = No link to network Solid green = Network link Flashing green = Network link with activity If power is off, the front panel LED is not active. For status, see Rear panel LEDs .
Power supply LEDs	Off = Normal Solid amber = Power subsystem degraded, power supply failure, or input power lost.
PCI riser LED	Off = Normal Amber = Incorrectly installed PCI riser cage
Over temp LED	Off = Normal Amber = High system temperature detected

Table Continued

Description	Status
Amp Status LED	Off = AMP modes disabled Solid green = AMP mode enabled Solid amber = Failover Flashing amber = Invalid configuration
Power cap LED	Off = System is in standby, or no cap is set. Solid green = Power cap applied

When the health LED on the front panel illuminates either amber or red, the server is experiencing a health event. For more information on the combination of these LEDs, see [sSystem Insight Display combined LED description](#).

Systems Insight Display combined LED descriptions

The combined illumination of the following LEDs indicates a system condition:

- Systems Insight Display LEDs
- System power LED
- Health LED

Systems Insight Display LED and color	Health LED	System power LED	Status
Processor (amber)	Red	Amber	One or more of the following conditions may exist: <ul style="list-style-type: none"> • Processor in socket X has failed. • Processor X is not installed in the socket. • Processor X is unsupported. • ROM detects a failed processor during POST.
Processor (amber)	Amber	Green	Processor in socket X is in a pre-failure condition.
DIMM (amber)	Red	Green	One or more DIMMs have failed.
DIMM (amber)	Amber	Green	DIMM in slot X is in a pre-failure condition.
Over temp (amber)	Amber	Green	The Health Driver has detected a cautionary temperature level.
Over temp (amber)	Red	Amber	The server has detected a hardware critical temperature level.

Table Continued

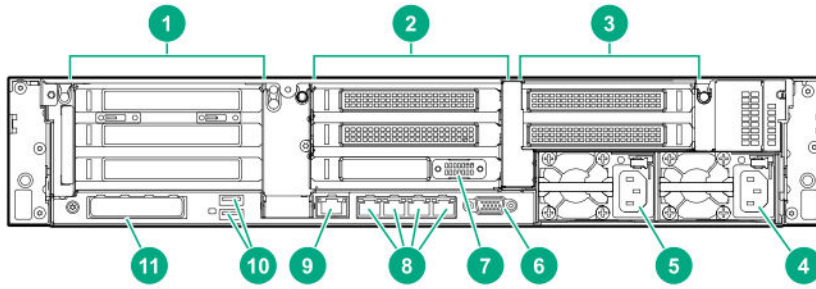
Systems Insight Display LED and color	Health LED	System power LED	Status
PCI riser (amber)	Red	Green	The PCI riser cage is not seated properly.
Fan (amber)	Amber	Green	One fan has failed or has been removed.
Fan (amber)	Red	Green	Two or more fans have failed or been removed.
Power supply (amber)	Red	Amber	One or more of the following conditions may exist: <ul style="list-style-type: none"> • Only one power supply is installed and that power supply is in standby. • Power supply fault • System board fault
Power supply (amber)	Amber	Green	One or more of the following conditions may exist: <ul style="list-style-type: none"> • Redundant power supply is installed and only one power supply is functional. • AC power cord is not plugged into redundant power supply. • Redundant power supply fault • Power supply mismatch at POST or power supply mismatch through hot-plug addition
Power cap (off)	—	Amber	Standby
Power cap (green)	—	Flashing green	Waiting for power
Power cap (green)	—	Green	Power is available.
Power cap (flashing amber)	—	Amber	Power is not available.



IMPORTANT:

If more than one DIMM slot LED is illuminated, further troubleshooting is required. Test each bank of DIMMs by removing all other DIMMs. Isolate the failed DIMM by replacing each DIMM in a bank with a known working DIMM.

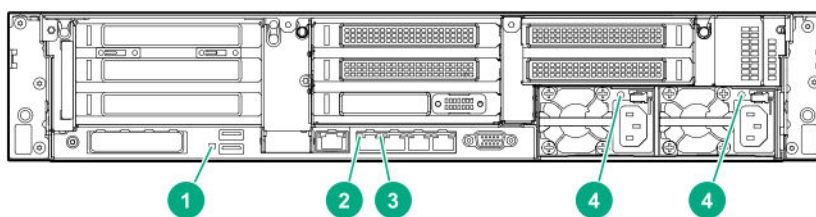
Rear panel components



Item	Description
1	Primary riser slots 1 to 3 (Optional drive cage)
2	Optional riser slots 4 to 6 (Optional drive cage)
3	Optional riser slots 7 to 8 (Optional drive cage)
4	Power supply 1
5	Power supply 2
6	Video port
7	Serial port (optional) ¹
8	1Gb RJ-45 ports 1 to 4
9	iLO management port
10	USB 3.0 ports
11	FlexibleLOM slot

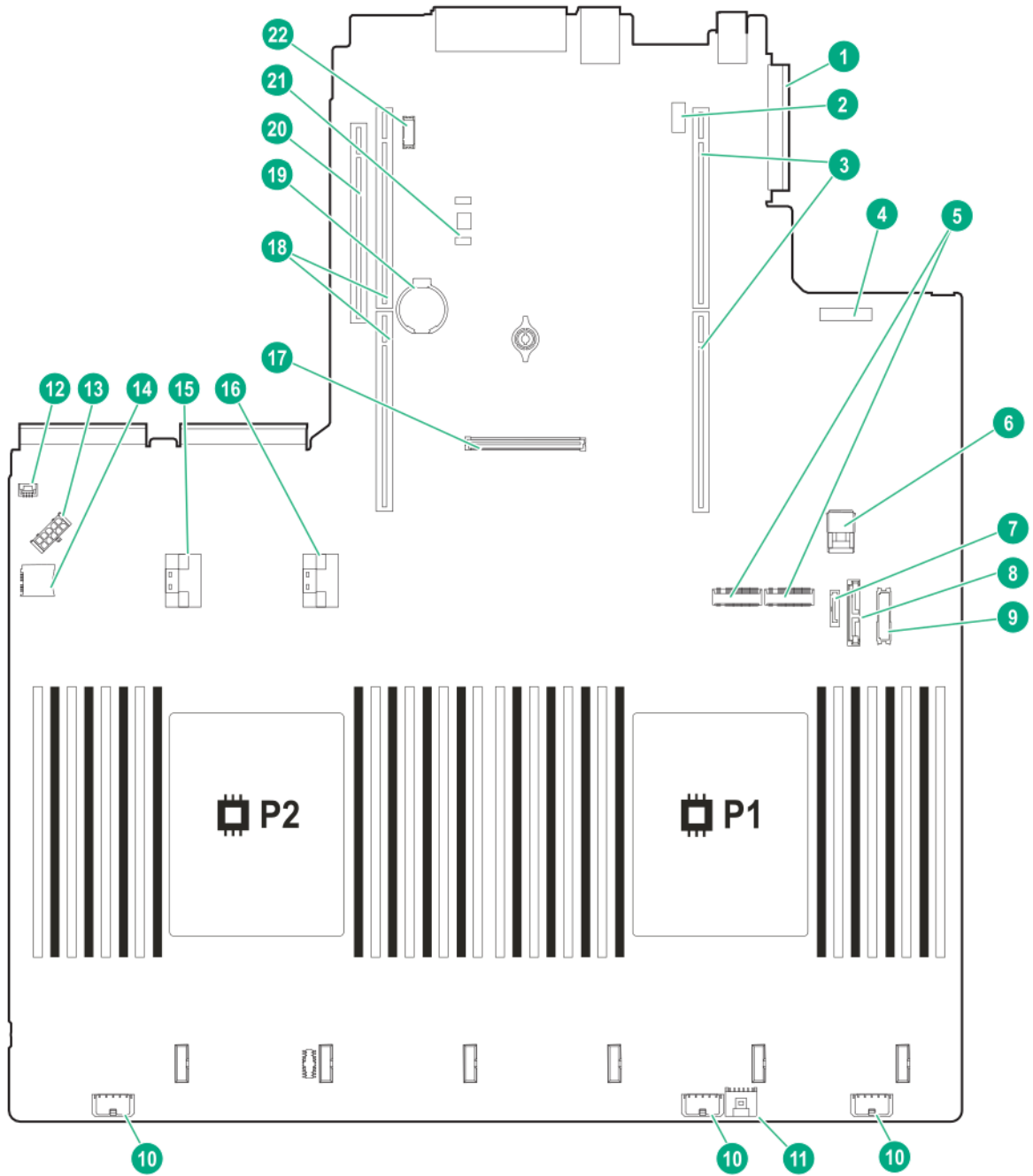
¹ When a tertiary riser cage is installed as shown, the serial port can be installed in riser slot 6.

Rear panel LEDs



Item	Description	Status
1	UID LED	<ul style="list-style-type: none">• Off = Deactivated• Solid blue = Activated• Flashing blue = System being managed remotely
2	Link LED	<ul style="list-style-type: none">• Off = No network link• Green = Network link
3	Activity LED	<ul style="list-style-type: none">• Off = No network activity• Solid green = Link to network• Flashing green = Network activity
4	Power supply LEDs	<ul style="list-style-type: none">• Off = System is off or power supply has failed.• Solid green = Normal

System board components



Item	Description
1	FlexibleLOM connector
2	System maintenance switch
3	Primary (processor 1) PCIe riser connector
4	Front display port/USB 2.0 connector

Table Continued

Item	Description
5	M.2 connectors (x2)
6	Dual USB port
7	x1 SATA port 4
8	Optical/SATA port 5
9	Front power/USB 3.0 connector
10	Drive backplane power connectors
11	Smart Storage Battery connector
12	Chassis Intrusion Detection connector
13	Drive backplane power connector
14	microSD card slot
15	NVMe connector (port 7b)
16	NVMe connector (port 8b)
17	Flexible Smart Array connector
18	Secondary (processor 2) PCIe riser connector ¹
19	System battery
20	Tertiary (processor 2) PCI riser connector ¹
21	TPM connector
22	Serial port connector

¹ Requires a second processor.

System maintenance switch descriptions

Position	Default	Function
S1 ¹	Off	<ul style="list-style-type: none"> Off = iLO security is enabled. On = iLO security is disabled.
S2	Off	<ul style="list-style-type: none"> Off = System configuration can be changed. On = System configuration is locked.
S3	Off	Reserved
S4	Off	Reserved
S5	Off	<ul style="list-style-type: none"> Off = Power-on password is enabled. On = Power-on password is disabled.

Table Continued

Position	Default	Function
S6 ^{2, 3}	Off	<ul style="list-style-type: none"> Off = No function On = Restore default manufacturing settings
S7	Off	<ul style="list-style-type: none"> Off = Set default boot mode to UEFI. On = Set default boot mode to legacy.
S8	—	Reserved
S9	—	Reserved
S10	—	Reserved
S11	—	Reserved
S12	—	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.

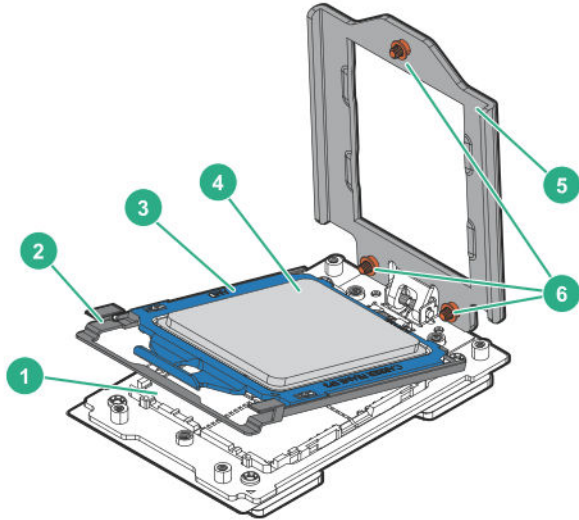
³ When the system maintenance switch position 6 is set to the On position and Secure Boot is enabled, some configurations cannot be restored. For more information, see [Secure Boot](#) on page 108.

DIMM slot locations

DIMM slots are numbered sequentially (1 through 16) for each processor. The supported AMP modes use the letter assignments for population guidelines.



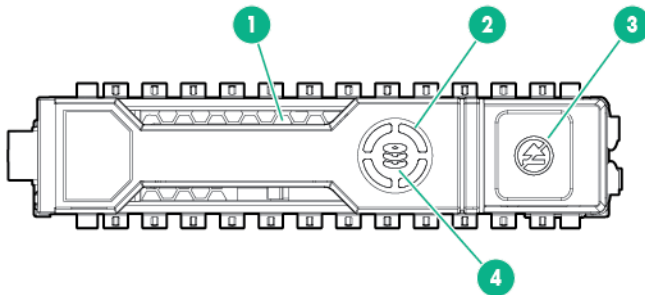
Processor and socket components



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

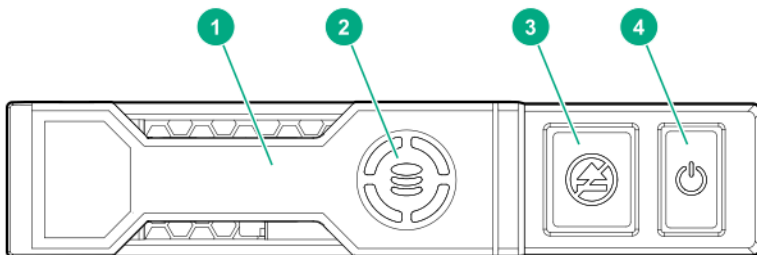
Drives

SAS/SATA drive components and LEDs



Item	Description	Status
1	Locate	<ul style="list-style-type: none"> • Solid blue = The drive is being identified by a host application. • Flashing blue = The drive carrier firmware is being updated or requires an update.
2	Activity ring LED	<ul style="list-style-type: none"> • Rotating green = Drive activity. • Off = No drive activity.
3	Do not remove LED	<ul style="list-style-type: none"> • Solid white = Do not remove the drive. Removing the drive causes one or more of the logical drives to fail. • Off = Removing the drive does not cause a logical drive to fail.
4	Drive status LED	<ul style="list-style-type: none"> • Solid green = The drive is a member of one or more logical drives. • Flashing green = The drive is rebuilding or performing a RAID migration, strip size migration, capacity expansion, or logical drive extension, or is erasing. • Flashing amber/green = The drive is a member of one or more logical drives and predicts the drive will fail. • Flashing amber = The drive is not configured and predicts the drive will fail. • Solid amber = The drive has failed. • Off = The drive is not configured by a RAID controller.

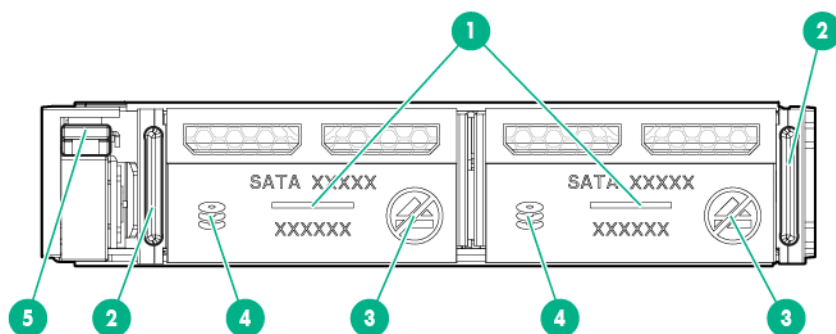
NVMe drive components and LEDs



Item	Description
1	Release lever
2	Activity ring
3	Do Not Remove LED ¹
4	Request to Remove NVMe Drive button

¹ Do not remove an NVMe SSD from the drive bay while the Do Not Remove button LED is flashing. The Do Not Remove button LED flashes to indicate that the device is still in use. Removing the NVMe SSD before the device has completed and ceased signal/traffic flow can cause loss of data.

uFF drive components and LEDs

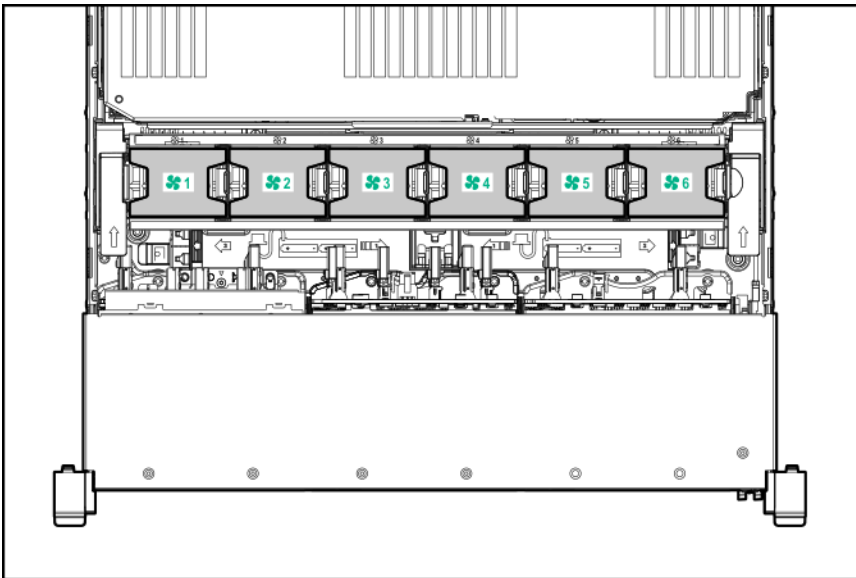


Item	Description	Status
1	Locate	<ul style="list-style-type: none"> Off—Normal Solid blue—The drive is being identified by a host application Flashing blue—The drive firmware is being updated or requires an update
2	uFF drive ejection latch	Removes the uFF drive when released
3	Do not remove LED	<ul style="list-style-type: none"> Off—OK to remove the drive. Removing the drive does not cause a logical drive to fail. Solid white—Do not remove the drive. Removing the drive causes one or more of the logical drives to fail.

Table Continued

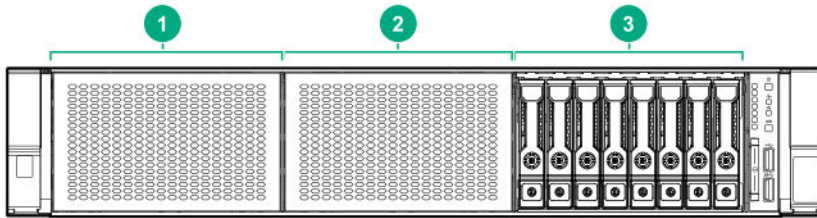
Item	Description	Status
4	Drive status LED	<ul style="list-style-type: none"> • Off—The drive is not configured by a RAID controller • Solid green—The drive is a member of one or more logical drives • Flashing green (4 Hz)—The drive is operating normally and has activity • Flashing green (1 Hz)—The drive is rebuilding or performing a RAID migration, stripe size migration, capacity expansion, logical drive extension, or is erasing • Flashing amber/green (1 Hz)—The drive is a member of one or more logical drives that predicts the drive will fail • Solid amber—The drive has failed • Flashing amber (1 Hz)—The drive is not configured and predicts the drive will fail
5	Adapter ejection release latch and handle	Removes the SFF flash adapter when released

Fan bay numbering

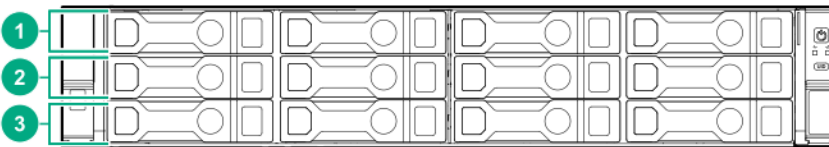


Drive box identification

Front boxes

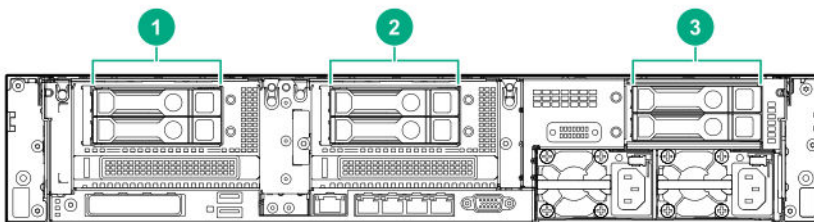


Item	Description
1	Box 1
2	Box 2
3	Box 3

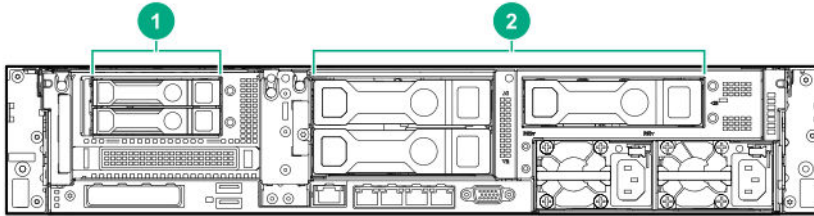


Item	Description
1	Box 1
2	Box 2
3	Box 3

Rear boxes

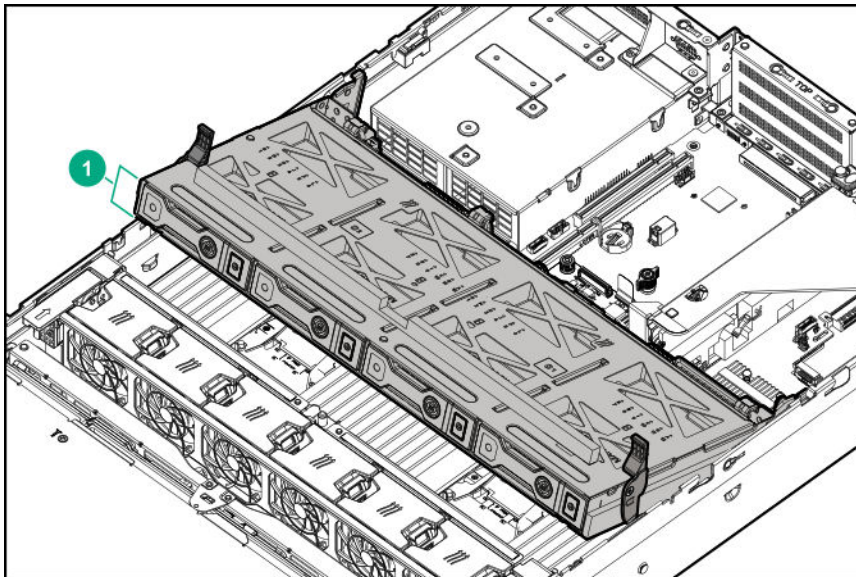


Item	Description
1	Box 4
2	Box 5
3	Box 6



Item	Description
1	Box 4
2	Box 6

Midplane box (LFF only)



Item	Description
1	Box 7

Drive bay numbering

Drive bay numbering depends on how the drive backplanes are connected:

- To a controller:
 - Embedded controllers use the onboard SATA ports.
 - Type-a controllers install to the type-a smart array connector.
 - Type-p controllers install to a PCIe riser.
- To a SAS expander:
 - Installs in the primary or secondary PCIe riser

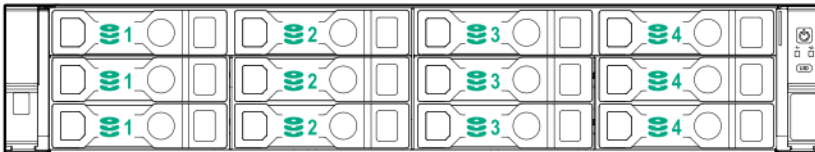
Drive bay numbering: Smart Array controller

When the drive backplane is connected directly to a storage controller, then each drive box starts at 1. The following images are examples of common configurations.

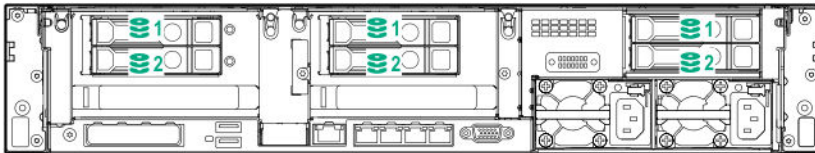
24SFF



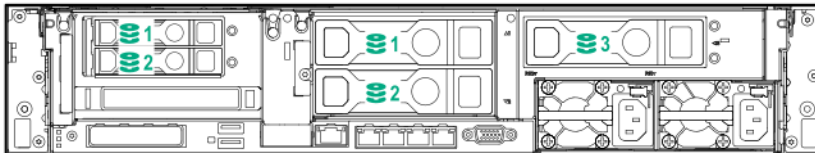
12LFF



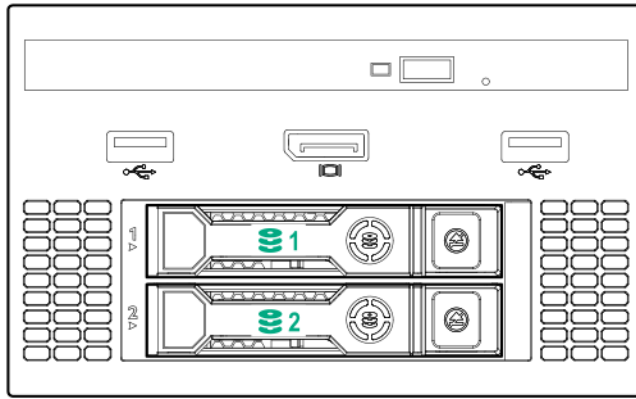
6SFF rear panel



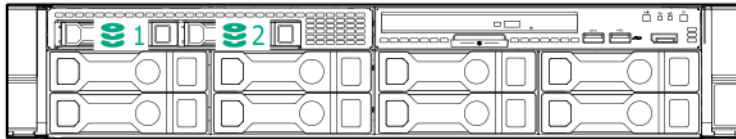
2SFF + 3LFF rear panel



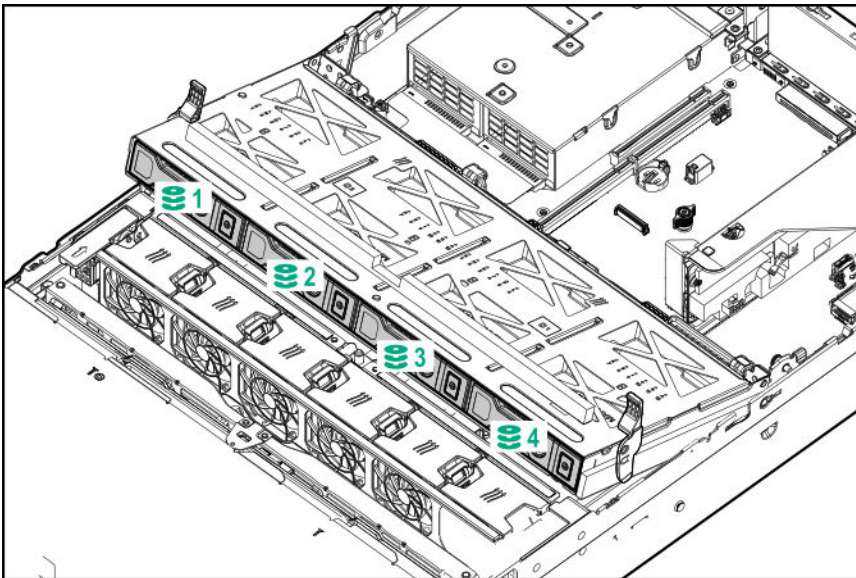
Universal media bay



8LFF + Universal media bay, optional 2SFF, and optical drive



Midplane box



Drive bay numbering: SAS expander

Drive numbering through a SAS Expander is continuous:

- SAS expander port 1 always connects to port 1 of the controller.
- SAS expander port 2 always connects to port 2 of the controller.
- SAS expander port 3 = drive numbers 1 to 4.

- SAS expander port 4 = drive numbers 5 to 8.
- SAS expander port 5 = drive numbers 9 to 12.
- SAS expander port 6 = drive numbers 13 to 16.
- SAS expander port 7 = drive numbers 17 to 20.
- SAS expander port 8 = drive numbers 21 to 24.
- SAS expander port 9 = drive numbers 25 to 28.

Common configuration examples:

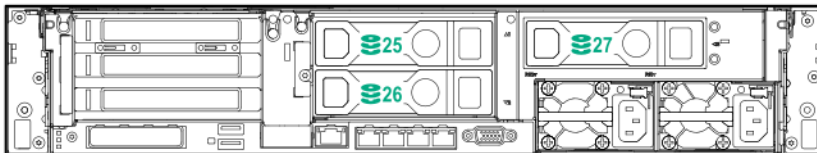
NVMe drives



When any stacked 2SFF drive cage is connected to the SAS expander, the drive numbering skips the second number to allow **uFF drive bay numbering** on page 138. For example, when a rear 2SFF drive cage is connected to SAS expander port 9, then the drive numbers are 25 and 27.

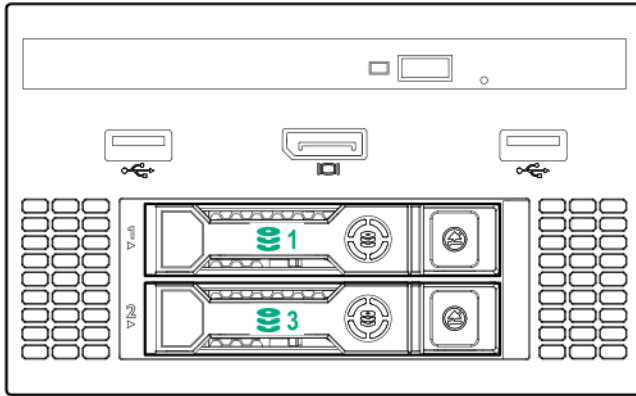


When the front 24SFF bays are populated, any installed rear 2SFF drives are always 25 and 27.

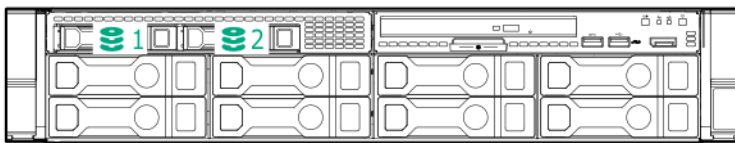


If a 2SFF drive cage is connected to SAS expander port 3, then the drive numbers are 1 and 3.

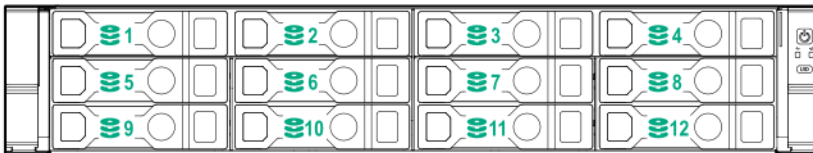
Universal media bay



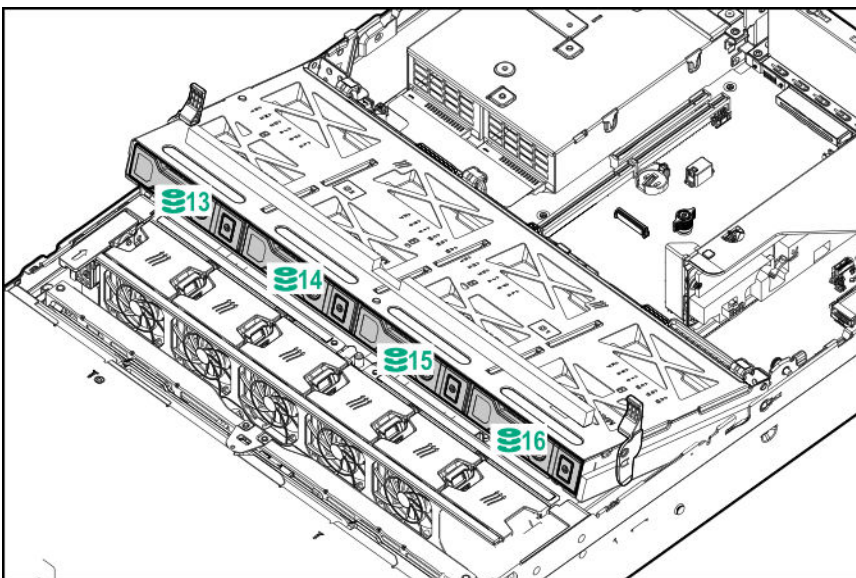
8LFF front panel



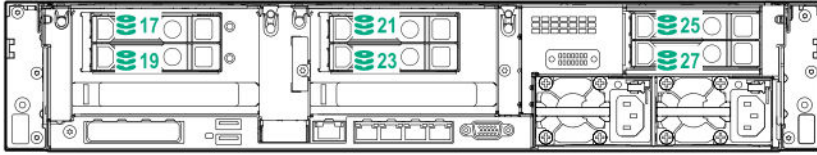
12LFF front panel



Midplane box (LFF only)

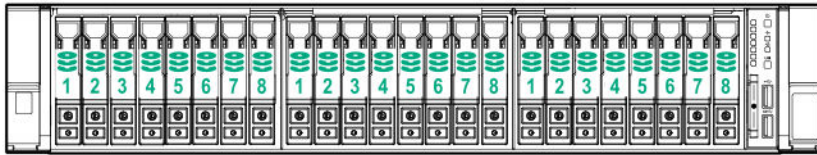


Front 12LFF + Midplane 4LFF + All rear 2SFF



Drive bay numbering: NVMe drives

Server populated with NVMe drives and NVMe risers

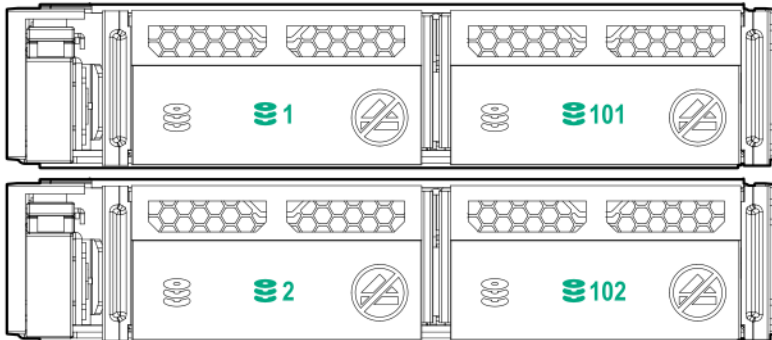


uFF drive bay numbering

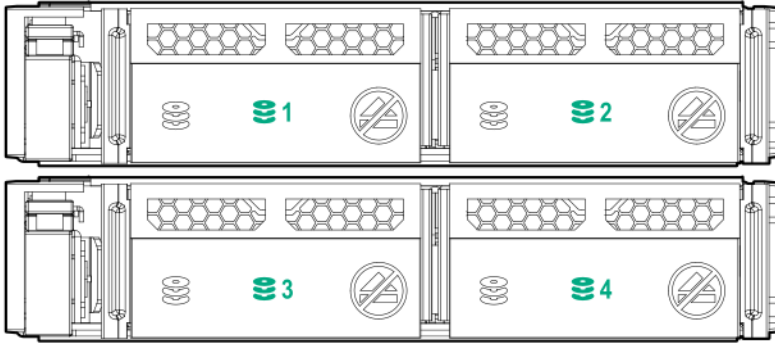
There are two uFF drives in each drive carrier.

Drives connected to a controller

- The left bay = The default bay number of the server
- The right bay = The default bay number of the server + 100



Drives connected to a SAS expander



For example:

- If the drives are connected to port 3 of the SAS expander, then the uFF drives are 1 to 4.
- If the drives are connected to port 9 of the SAS expander, then the uFF drives are 25 to 28.

Specifications

Environmental specifications

Specification	Value
Temperature range ¹	—
Operating	10°C to 35°C (50°F to 95°F)
Nonoperating	-30°C to 60°C (-22°F to 140°F)
Relative humidity (noncondensing)	—
Operating	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
Nonoperating	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
Height	8.73 cm (3.44 in)
Depth, SFF	67.94 cm (26.75 in)
Depth, LFF	73.02 cm (28.75 in)
Width	44.54 cm (17.54 in)
Weight, SFF minimum	14.9 kg (32.75 lbs)
Weight, SFF maximum	19.5kg (43.00 lbs)
Weight, LFF minimum	17.1 kg (37.75 lbs)
Weight, LFF maximum	24.5 kg (54 lbs)

The SFF configuration includes the following components:

- SFF drive (1)
- Drive blanks (7)
- Drive bay blanks for bays 1 and 2 (2)
- Fan assemblies (4)
- Fan blanks (2)
- Standard heatsink (1)
- 1P air baffle (1)
- X8 HPE Flexible Smart Array Controller (1)
- Primary riser cage (1)
- Secondary riser cage blank (1)
- Power supply (1)
- Power supply blank (1)
- Cables for the above components

The LFF configuration includes the following components:

- LFF drives (12)
- Fan assemblies (6)
- SE heatsinks (2)
- 2P air baffle (1)
- X8 HPE Flexible Smart Array Controller (1)
- Primary riser cage (1)
- Secondary riser cage (1)
- Power supplies (2)
- Cables for the above components

The 12 LFF configuration does not contain a rear three-bay LFF drive cage option.

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 500W Flex Slot Platinum Hot Plug Low Halogen Power Supply** on page 142
- **HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply** on page 143
- **HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply** on page 143
- **HPE 800W Flex Slot Universal Hot Plug Low Halogen Power Supply** on page 144

- [HPE 800W Flex Slot -48VDC Hot Plug Low Halogen Power Supply](#) on page 145
- [HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply](#) on page 146

For detailed power supply specifications, see the QuickSpecs on the [Hewlett Packard Enterprise website](#).

HPE 500W Flex Slot Platinum Hot Plug Low Halogen Power Supply

Specification	Value
Input requirements	
Rated input voltage	100 VAC to 127 VAC 100 VAC to 240 VAC 240 VDC for China only
Rated input frequency	50 Hz to 60 Hz Not applicable to 240 VDC
Rated input current	5.8 A at 100 VAC 2.8 A at 200 VAC 2.4 A at 240 VDC for China only
Maximum rated input power	557 W at 100 VAC 539 W at 200 VAC 537 W at 240 VDC for China only
BTUs per hour	1,902 at 100 VAC 1,840 at 200 VAC 1,832 at 240 VDC for China only
Power supply output	
Rated steady-state power	500 W at 100 VAC to 127 VAC input 500 W at 100 VAC to 240 VAC input 500 W at 240 VDC input for China only
Maximum peak power	500 W at 100 VAC to 127 VAC input 500 W at 100 VAC to 240 VAC input 500 W at 240 VDC input for China only

HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply

Specification	Value
Input requirements	
Rated input voltage	100 VAC to 127 VAC 100 VAC to 240 VAC 240 VDC for China only
Rated input frequency	50 Hz to 60 Hz Not applicable to 240 VDC
Rated input current	9.4 A at 100 VAC 4.5 A at 200 VAC 3.8 A at 240 VDC for China only
Maximum rated input power	899 W at 100 VAC 867 W at 200 VAC 864 W at 240 VDC for China only
BTUs per hour	3,067 at 100 VAC 2,958 at 200 VAC 2,949 at 240 VAC for China only
Power supply output	
Rated steady-state power	800 W at 100 VAC to 127 VAC input 800 W at 100 VAC to 240 VAC input 800 W at 240 VDC input for China only
Maximum peak power	800 W at 100 VAC to 127 VAC input 800 W at 100 VAC to 240 VAC input 800 W at 240 VDC input for China only

HPE 800W Flex Slot Titanium 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 Not applicable to 240 VDC

Table Continued

Specification	Value
Rated input current	4.35 A at 200 VAC 3.62 A at 240 VAC 3.62 A at 240 VDC for China only
Maximum rated input power	851 W at 200 VAC 848 W at 240 VAC 848 W at 240 VDC for China only
BTUs per hour	2,905 at 200 VAC 2,969 at 240 VAC 2,969 at 240 VDC for China only
Power supply output	
Rated steady-state power	800 W at 200 VAC to 240 VAC input 800 W at 240 VDC input for China only
Maximum peak power	800 W at 200 VAC to 240 VAC input 800 W at 240 VDC input for China only

HPE 800W Flex Slot Universal Hot Plug Low Halogen Power Supply

Specification	Value
Input requirements	
Rated input voltage	200 VAC to 277 VAC
Rated input frequency	50 Hz to 60 Hz
Rated input current	4.4 A at 200 VAC 3.8 A at 230 VAC 3.1 A at 277 VAC
Maximum rated input power	869 W at 200 VAC 865 W at 230 VAC 861 W at 277 VAC
BTUs per hour	2,964 at 200 VAC 2,951 at 230 VAC 2,936 at 277 VAC
Power supply output	
Rated steady-state power	800 W at 200 VAC to 277 VAC input
Maximum peak power	800 W at 200 VAC to 277 VAC input

HPE 800W Flex Slot -48VDC Hot Plug Low Halogen Power Supply

Specification	Value
Input requirements	
Rated input voltage	-40 VDC to -72 VDC -48 VDC nominal input
Rated input current	24 A at -40 VDC input 19 A at -48 VDC input, nominal input 12.4 A at -72 VDC input
Rated input power (W)	874 W at -40 VDC input 865 W at -48 VDC input, nominal input 854 W at -72 VDC input
Rated input power (BTUs per hour)	2,983 at -40 VDC input 2,951 at -48 VDC input, nominal input 2,912 at -72 VDC input
Power supply output	
Rated steady-state power (W)	800 W at -40 VDC to -72 VDC
Maximum peak power (W)	800 W at -40 VDC to -72 VDC
Maximum peak power	800 W at 200 VAC to 277 VAC input 800 W at 380 VDC input



WARNING:

To reduce the risk of electric shock or energy hazards:

- This equipment must be installed by trained service personnel, as defined by the NEC and IEC 60950-1, Second Edition, the standard for Safety of Information Technology Equipment.
- Connect the equipment to a reliably grounded secondary circuit source. A secondary circuit has no direct connection to a primary circuit and derives its power from a transformer, converter, or equivalent isolation device.
- The branch circuit overcurrent protection must be rated 27 A.

**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 of 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.

HPE 1600W 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	1,734 W at 200 VAC 1,725 W at 240 VAC
BTUs per hour	5,918 at 200 VAC 5,884 at 240 VAC
Power supply output	
Rated steady-state power	1,600 W at 200 VAC to 240 VAC input 1,600 W at 240 VDC input
Maximum peak power	2,200 W for 1 ms (turbo mode) at 200 VAC to 240 VAC input

Acronyms and abbreviations

AMP

Advanced Memory Protection

API

application program interface

ASHRAE

American Society of Heating, Refrigerating and Air-Conditioning Engineers

CSR

certificate signing request

FLR

FlexibleLOM for rack servers

FSBBU

Flex slot battery backup

GPU

graphics processing unit

HBA

host bus adapter

HPE SIM

HPE Systems Insight Manager

HPE SIM

HPE Systems Insight Manager

IEC

International Electrotechnical Commission

iLO

Integrated Lights-Out

IML

Integrated Management Log

LFF

large form factor

NMI

nonmaskable interrupt

NVDIMM

non-volatile dual in-line memory module

NVDIMM-N

non-volatile dual in-line memory module with byte-addressable interface to DRAM

NVMe

non-volatile memory express
NVRAM
nonvolatile memory
PCIe
Peripheral Component Interconnect Express
POST
Power-On Self-Test
RBSU
ROM-Based Setup Utility
REST
representational state transfer
RSOC
relative state of change
SAS
serial attached SCSI
SATA
serial ATA
SD
Secure Digital
SFF
small form factor
SPP
Service Pack for ProLiant
SSD
solid-state drive
SUV
serial, USB, video
TPM
Trusted Platform Module
UEFI
Unified Extensible Firmware Interface
UID
unit identification
USB
universal serial bus
VDC
voltage direct-current

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