HPE ProLiant DL20 Gen10 Plus Server Maintenance and Service Guide

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Abstract

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

Notices

Acknowledgments

Table of contents

Illustrated parts catalog

This chapter lists the hardware spare parts supported by the server.

- [Mechanical components](#)
- [System components](#)
- [Server options](#)

Mechanical components

Hewlett Packard Enterprise continually improves and changes product parts. For complete and current supported spare parts information, see the Hewlett Packard Enterprise PartSurfer website:

https://www.hpe.com/info/partssurfer
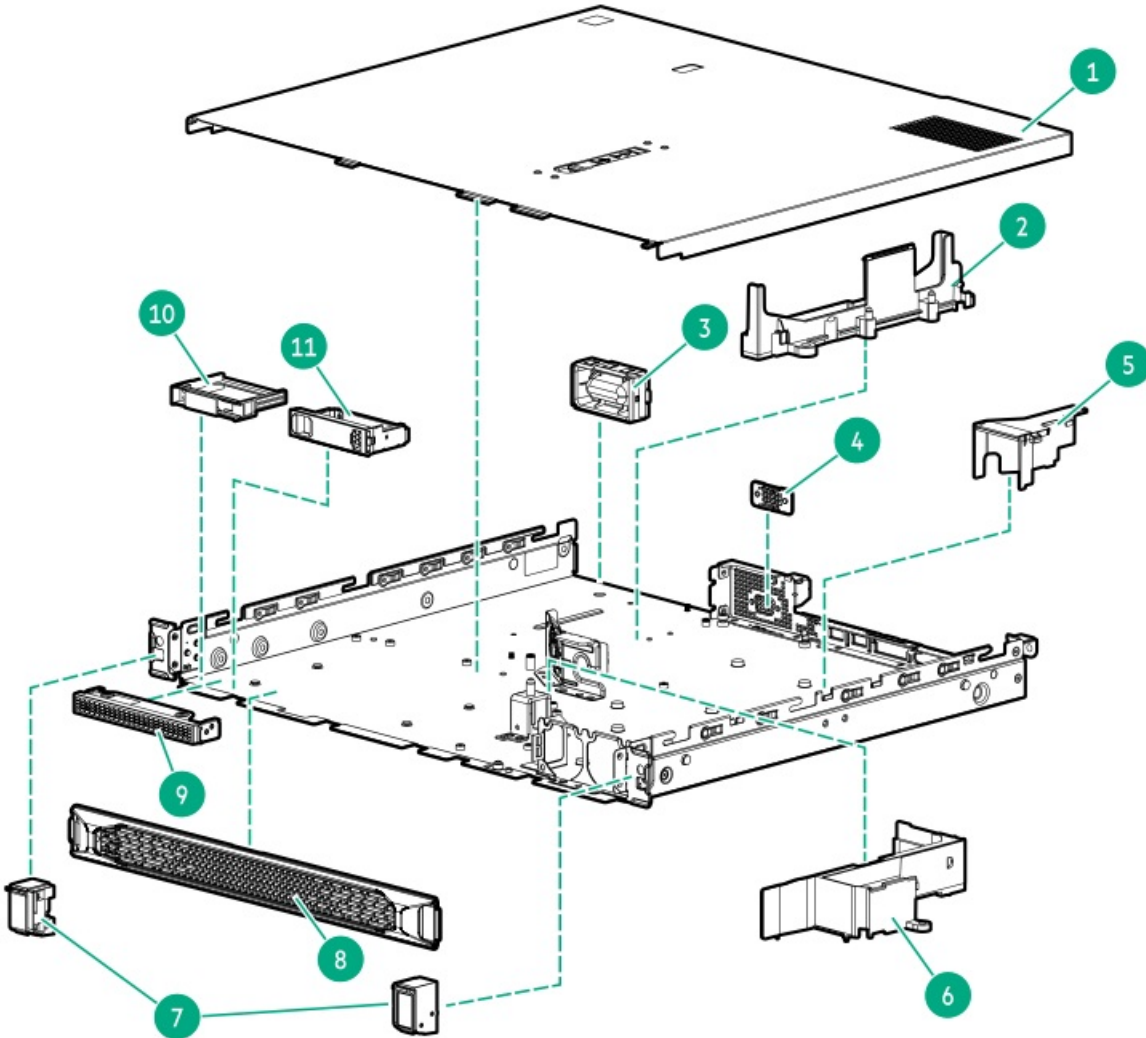
Item	Description
1	Access panel spare part
2	Energy pack holder spare part
3	Power supply blank spare part
4	Serial port blank spare part
5	M.2 air baffle spare part
6	DIMM guard spare part
7	Quick-release chassis ear spare part
8	Front bezel spare part
9	Media bay blank spare part
10	SFF drive blank spare part
11	LFF drive blank spare part

Access panel spare part

<u>Customer self repair</u>: **Mandatory**

Description	Spare part number
Access panel	P48438-001

For more information on the removal and replacement procedures, see <u>Removing and replacing the access panel</u> .

DIMM guard and M.2 air baffle spare kit

<u>Customer self repair</u>: **Mandatory**

Description	Spare part number
This spare kit includes two components: ● DIMM guard ● M.2 air baffle	P07880-001

For more information on the removal and replacement procedure, see:

● <u>Removing and replacing the DIMM guard</u>

● <u>Removing and replacing the M.2 air baffle</u>

Quick-release chassis ear spare part

<u>Customer self repair</u>: **Mandatory**

Description	Spare part number
Quick-release chassis ears	P48437-001

For more information on the removal and replacement procedures, see <u>Removing and replacing the quick-release chassis ears</u>.

Drive blank spare parts

Customer self repair: **Mandatory**

Description	Spare part number
LFF drive blank	827363-001
SFF drive blank	670033-001

For more information on the removal and replacement procedures, see Removing and replacing a drive blank.

Front bezel spare part

Customer self repair: **Mandatory**

Description	Spare part number
Front bezel	875561-001

For more information on the removal and replacement procedures, see Removing and replacing the front bezel .

Energy pack holder spare part

<u>Customer self repair</u>: **Mandatory**

Description	Spare part number
Energy pack holder	P07881-001

For more information on the removal and replacement procedures, see <u>Removing and replacing the energy pack holder</u> .

Miscellaneous blank spare parts

<u>Customer self repair</u>: **Mandatory**

Description	Spare part number
Media bay blank	P07883-001 [1]
Serial port blank	878510-001 [1]
Power supply blank	775423-001 [1]

[1]   This is a miscellaneous blank spare kit; only the component blanks listed in this table are used in this server.

For more information on the removal and replacement procedures, see:

- <u>Removing and replacing the media bay blank</u>
- <u>Removing and replacing the serial port blank</u>
- <u>Removing and replacing a power supply blank</u>

System components

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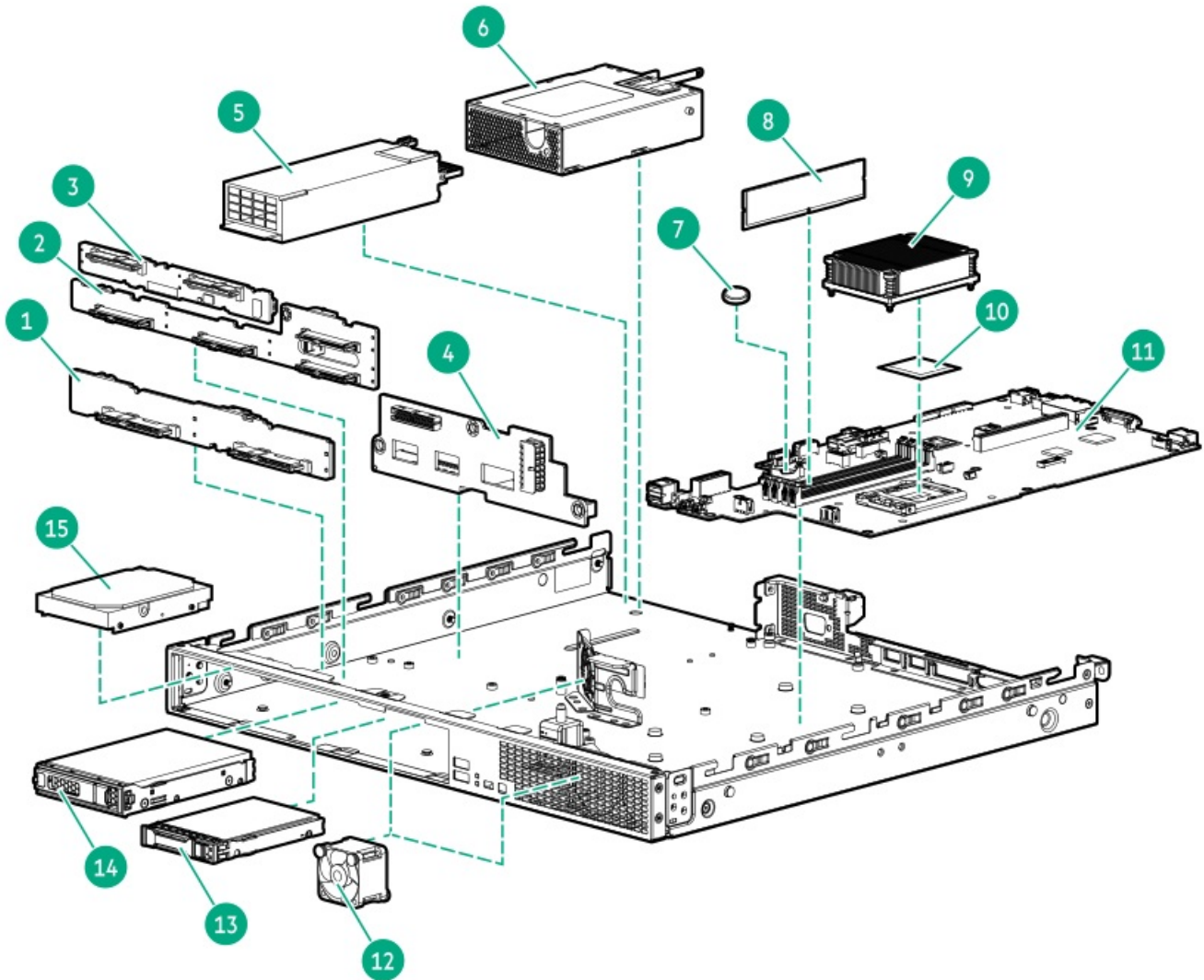
Item	Description
1	2 LFF drive backplane spare part
2	4 SFF drive backplane spare part
3	2 SFF drive backplane spare part
4	Power distribution board spare part
5	Flexible Slot power supply spare part
6	Non-hot-plug power supply spare part
7	System battery spare part
8	DIMM spare parts
9	Heatsink spare part
10	Processor spare parts
11	System board spare part
12	Fan spare part

Item	Description
13	SFF hot-plug drive spare part
	For more information on the removal and replacement procedures, see:
	Removing and replacing a hot-plug SAS, SATA or NVMe drive .
14	LFF hot-plug drive spare part
	For more information on the removal and replacement procedures, see:
	Removing and replacing a hot-plug SAS, SATA or NVMe drive .
15	LFF non-hot-plug drive spare part
	For more information on the removal and replacement procedures, see:
	Removing and replacing a LFF non-hot-plug drive .
16	Drive cable spare parts [1]

[1] Not shown

Drive backplane spare parts

Customer self repair: **Optional**

Description	Spare part number
2 LFF SAS/SATA drive backplane	P48430-001
2 SFF SAS/SATA/U.3 NVMe drive backplane	P39783-001
4 SFF SAS/SATA drive backplane	P48431-001

For more information on the removal and replacement procedures, see following:

- Removing and replacing the 2 LFF drive backplane
- Removing and replacing the 2 SFF drive backplane
- Removing and replacing the 4 SFF drive backplane

Power distribution board and cable spare parts

Customer self repair: **Mandatory**

Description	Spare part number
Power distribution board	P48435-001
Power distribution board cable spare kit, includes:	P07890-001
• Flexible Slot power supply sideband Y-cable	
• 14-pin power supply cable	

For more information on the removal and replacement procedures, see Removing and replacing the power distribution board .

Power supply spare parts

<u>Customer self repair</u>: **Mandatory**

Description	Spare part number
Non-hot-plug power supply	—
ATX 290 W Non-hot-plug Power Supply (92% efficiency)	P21834-001
ATX 290 W Platinum Non-hot-plug Power Supply (94% efficiency)	P48436-001
Flexible slot power supply	—
HPE 500 W Flexible Slot Platinum Hot-plug Low Halogen Power Supply (94% efficiency)	866729-001
HPE 800 W Flexible Slot -48 VDC Hot-plug Low Halogen Power Supply	866728-001

For more information on the removal and replacement procedures, see <u>Power supply replacement</u>.

System battery spare part

Customer self repair: **Mandatory**

Description	Spare part number
3.3-V lithium battery coin (CR2032)	319603-001

For more information on the removal and replacement procedures, see Removing and replacing the system battery .

DIMM spare parts

Customer self repair: **Mandatory**

Description	Spare part number
8 GB, single-rank x8 PC4-3200AA-E	P44876-001
16 GB, double-rank x8 PC4-3200AA-E	P44877-001
32 GB, double-rank x8 PC4-3200AA-E	P44878-001

For more information on the removal and replacement procedures, see Removing and replacing a DIMM.

Heatsink spare part

Description	Spare part number
Heatsink	687242-001

For more information on the removal and replacement procedures, see Heatsink replacement.

Processor spare parts

Customer self repair: **Optional**

Description	Spare part number
Intel Xeon E-2314, 2.8 GHz, 4C, 65 W	P45373-001
Intel Xeon E-2324G, 3.1 GHz, 4C, 65 W	P45374-001
Intel Xeon E-2334, 3.4 GHz, 4C, 65 W	P45375-001
Intel Xeon E-2336, 2.9 GHz, 6C, 65 W	P45376-001
Intel Xeon E-2356G, 3.2 GHz, 6C, 80 W	P45377-001
Intel Xeon E-2374G, 3.7 GHz, 4C, 80 W	P45378-001
Intel Xeon E-2378, 2.6 GHz, 8C, 65 W	P45379-001
Intel Xeon E-2378G, 2.8 GHz, 8C, 80 W	P45380-001
Intel Xeon E-2386G, 3.5 GHz, 6C, 95 W	P45381-001 [1]
Intel Xeon E-2388G, 3.2 GHz, 8C, 95 W	P45382-001 [1]
Intel Pentium Gold 6405, 4.1 GHz, 2C, 58 W	P45399-001

[1] The processor air baffle (P48355-B21) is required when a processor that has a TDP ≥ 95 W is installed.

For more information on the removal and replacement procedures, see Processor replacement.

System board spare part

<u>Customer self repair</u>: **Optional**

Description	Spare part number
System board	P48429-001

For more information on the removal and replacement procedures, see <u>System board replacement</u>.

Fan spare part

<u>Customer self repair</u>: **Mandatory**

Description	Spare part number
High performance fan	P48439-001

For more information on the removal and replacement procedures, see <u>Removing and replacing a fan</u>.

Drive cable spare part

<u>Customer self repair</u>: **Mandatory**

Description	Spare part number
2 LFF and 4 SFF drive cable spare kit, includes:	P48440-001
• 2 LFF drive power cable	
• 4 SFF drive power Y-cable	
• 2 LFF non-hot-plug drive cable [1]	
2 SFF drive cable spare kit, includes:	P48441-001
• 2 SFF sideband-SATA fan-out cable	
• 2 SFF drive Mini-SAS cable	
2 LFF drive Mini-SAS cable	P07891-001 [2]
2 SFF drive power cable	P07892-001 [3]
M.2 SSD SATA cable spare kit, includes:	P07895-001
• M.2 SATA SSD 1 cable	
• M.2 SATA SSD 2 cable	
• Mini-SAS cable	

[1] This is a single multiconnector spare cable for drive power and Mini-SAS connections.
[2] This is a miscellaneous drive cable spare kit; only the Mini-SAS cable is used in this server.
[3] This is a miscellaneous drive cable spare kit; only the drive power cable is used in this server.

Server options

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https://www.hpe.com/info/partssurfer
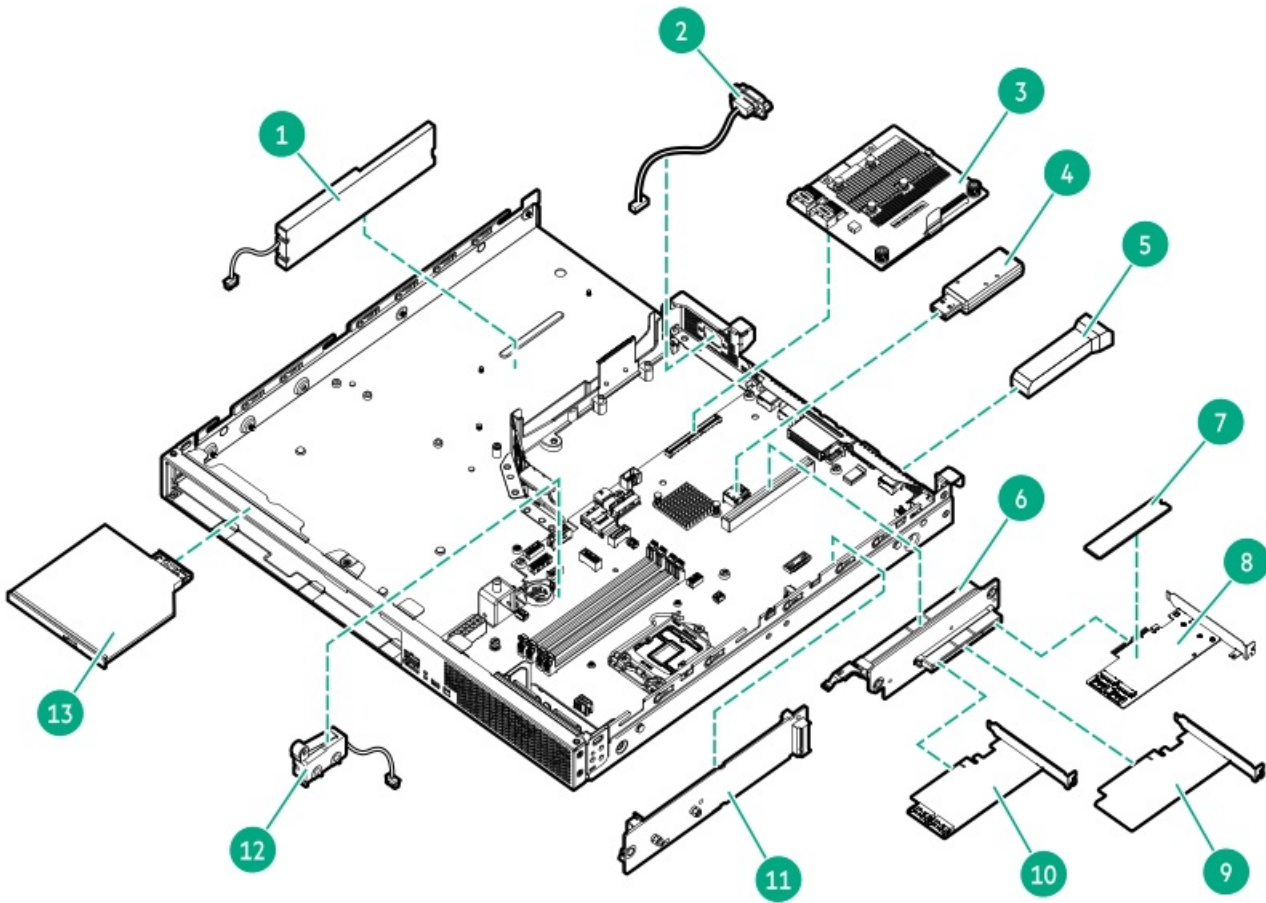
Item	Description
1	Energy pack spare part
2	Serial port cable spare part
3	Type-a modular storage controller spare parts (AROC)
	For more information on the removal and replacement procedures, see:
	Removing and replacing a type-a storage controller .
4	Internal USB device spare part
	For more information on the removal and replacement procedures, see:
	Removing and replacing an internal USB device.
5	Transceiver spare part
	For more information on the removal and replacement procedures, see:
	Removing and replacing a transceiver.
6	Riser board spare parts

Item	Description
7	M.2 SSD spare part For more information on the removal and replacement procedures, see: • Removing and replacing the M.2 SSD from the pass-through card • Removing and replacing the M.2 SATA SSD from the add-in card • Removing and replacing the boot device
8	M.2 SATA SSD add-in card spare part For more information on the removal and replacement procedures, see: Removing and replacing the M.2 SATA SSD add-in card .
9	Type-p PCIe plug-in storage controller spare parts For more information on the removal and replacement procedures, see: Removing and replacing an expansion card .
10	HPE NS204i-p NVMe OS Boot Device spare parts For more information on the removal and replacement procedures, see: Removing and replacing a boot device drive.
11	M.2 SSD pass-through card and cable spare parts
12	Chassis intrusion detection switch spare part
13	Optical drive spare part For more information on the removal and replacement procedures, see: • Removing and replacing the optical drive from the LFF chassis • Removing and replacing the optical drive from the SFF chassis

Energy pack spare part

Description	Spare part number
HPE Smart Storage Battery 12 W, 230 mm cable	878641-001

For more information on the removal and replacement procedures, see Removing and replacing the energy pack .

Serial port cable spare part

<u>Customer self repair</u>: **Mandatory**

Description	Spare part number
Serial port cable	P07896-001

For more information on the removal and replacement procedures, see <u>Removing and replacing the serial port</u> .

Riser board spare parts

Description	Spare part number
x16/x4 riser board	P48432-001
x8/x8 riser board	P48433-001

For more information on the removal and replacement procedures, see Removing and replacing a riser board.

M.2 SATA SSD add-in card spare part

Customer self repair: **Mandatory**

Description	Spare part number
M.2 SATA SSD add-in card	882359-001

For more information on the removal and replacement procedures, see Removing and replacing the M.2 SATA SSD add-in card .

HPE NS204i-p NVMe OS Boot Device spare parts

Customer self repair: **Mandatory**

Description	Spare part number
HPE NS204i-p NVMe OS Boot Device	P14379-001
480 GB NVMe x4 RI M.2 22110 DS SSD	P24886-001

For more information on the removal and replacement procedures, see:

- Removing and replacing a boot device drive

- Removing and replacing the boot device

M.2 SSD pass-through card and cable spare parts

Customer self repair: **Mandatory**

Description	Spare part number
M.2 SSD pass-through card	P48434-001
M.2 SSD pass-through card cable spare kit, includes: • M.2 SSD SlimSAS cable • M.2 SSD power-sideband cable	P48442-001

For more information on the removal and replacement procedures, see Removing and replacing the M.2 pass-through card .

Chassis intrusion detection switch spare part

Customer self repair: **Mandatory**

Description	Spare part number
Chassis intrusion detection switch cable	875570-001

For more information on the removal and replacement procedures, see Removing and replacing the chassis intrusion detection switch .

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.

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 Agrée local.

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 spedirà 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 component. 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.

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.

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.

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 garantieservice 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.

Garantieservice "Parts Only"

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

Voor de Parts Only garantieservice 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.

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費を全額負担し、使用する宅配便会社や運送会社を指定します。

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になります。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。

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。

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.

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.

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Removal and replacement procedures

This chapter provides detailed instructions on how to remove and replace component spare parts.

Safety considerations

Before performing service procedures, review all the safety information.

- [Electrostatic discharge](#)
- [Symbols on equipment](#)
- [Rack warnings and cautions](#)
- [Server warnings and cautions](#)

Electrostatic discharge

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

To prevent electrostatic damage:

- Avoid hand contact by transporting and storing products in static-safe containers.

- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.

- Place parts on a grounded surface before removing them from their containers.

- Avoid touching pins, leads, or circuitry.

- Always be properly grounded when touching a static-sensitive component or assembly. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:
  - Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm ±10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.

  - Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.

  - Use conductive field service tools.

  - Use a portable field service kit with a folding static-dissipating work mat.

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

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

Symbols on equipment

The following symbols may be placed on equipment to indicate the presence of potentially hazardous conditions:

This symbol in conjunction with any of the following symbols indicates the presence of a potential hazard. The potential for injury exists if warnings are not observed. Consult your documentation for specific details.

該符號與以下任意符號組合使用，指示存在潛在的危險。如果不遵守警告，可能會造成人身傷害。詳細信息請參閱相關文檔。

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.

此符號表明存在危險電路或觸電的危險。所有維修工作應由具有相關資格的人員來完成。
警告：為了減少觸電造成人身傷害的危險，請不要打開此外殼。所有維護、升級和維修工作都應由具有相關資格的人員來完成。

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 risk of injury from electric shock hazards, do not open this enclosure.

此符號表明存在觸電的危險。在這一區域內沒有用戶可以現場維修的部件。一定不要打開。警告：為了減少觸電造成人身傷害的危險，請不要打開此外殼。

This symbol on an RJ-45 receptacle indicates a Network Interface Connection.

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

RJ-45 插孔上的該符號指示網絡接口連接。
警告：為了減少觸電、火災或設備損壞的危險，不要將電話或電信連接設備插入此插孔。

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.

此符號表明表面或組件過熱。如果觸摸此表面，可能會造成人身傷害。警告：為了減少因組件過熱而造成人身傷害的危險，應等到表面降溫後再觸摸。

This symbol indicates the presence of a moving fan blade. If the spinning blades are contacted, the potential for injury exists.

⚠ WARNING:

Hazardous moving parts. Keep away from moving fan blades. To reduce the risk of injury from a hot component, allow the surface to cool before touching.

此符號表明存在運動風扇葉片的危險。如果觸摸旋轉葉片，可能會造成人身傷害。警告：危險的運動部件。請遠離運動風扇刀片。為減少被高溫組件燙傷的危險，應在表面冷卻之後再接觸。

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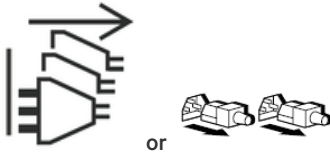
These symbols on power supplies or systems indicate that the equipment is supplied by multiple sources of power.

⚠ WARNING:

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

電源或系統上的這些符號表明設備由多個電源供電。
警告：為了減少觸電造成人身傷害的危險，應拔下所有電源線插頭，完全斷開系統的電源。

Weight in kg.
Weight in lb.

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

⚠ WARNING:

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

此符號表明組件的重量超出了建議值，一個人無法安全取放。
警告：為了減少人身傷害或設備損壞的危險，應遵守當地有關人工取放物品的職業保健與安全規定及準則。

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

手指或其它導體所釋放的靜電可能損壞主板或其它對靜電敏感的設備。為防止發生損壞，請遵守防靜電預防措施。

This symbol indicates the presence of a laser device in the product that may exceed Class 1 limits. Refer to the product documentation for more information.

此符號表明在可能會超出 1 類限制的產品中存在激光設備。有關詳細信息，請參閱產品文檔。

This symbol indicates the presence of moving parts inside the product that may present a pinch point if improperly contacted.

⚠ **WARNING:**

Hazardous moving parts. Do not insert any tools or any part of your body into the product while it is operating or in any openings.

Rack warnings and cautions

> ⚠ **WARNING:**
>
> When all components are removed, the server weighs 6.00 kg (13.23 lb). When all components are installed, the server can weigh up to 10.00 kg (22.05 lb).
>
> Before configuring your rack solution, be sure to check the rack manufacturer weight limits and specifications. Failure to do so can result in physical injury or damage to the equipment and the facility.

> ⚠ **WARNING:**
>
> The server is heavy. To reduce the risk of personal injury or damage to the equipment, do the following:
>
> - Observe local occupational health and safety requirements and guidelines for manual material handling.
>
> - Get help to lift and stabilize the product during installation or removal, especially when the product is not fastened to the rails. The server weighs more than 6.00 kg (13.23 lb), so at least two people must lift the server into the rack together. An additional person may be required to help align the server if the server is installed higher than chest level.
>
> - Use caution when installing the server in or removing the server from the rack.
>
> - Adequately stabilized the rack before extending a component outside the rack. Extend only one component at a time. A rack may become unstable if more than one component is extended.
>
> - Do not stack anything on top of rail-mounted component or use it as a work surface when extended from the rack.

> ⚠ **WARNING:**
>
> To reduce the risk of personal injury or damage to the equipment, be sure that:
>
> - The rack has anti-tip measures in place. Such measures include floor-bolting, anti-tip feet, ballast, or a combination as specified by the rack manufacturer and applicable codes.
>
> - The leveling jacks (feet) are extended to the floor.
>
> - The full weight of the rack rests on the leveling jacks (feet).
>
> - The stabilizing feet are attached to the rack if it is a single-rack installation.
>
> - The racks are coupled together in multiple rack installations.

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

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

> ⚠ **CAUTION:**
>
> Before installing the server in a rack, be sure to properly scope the limitations of the rack. Before proceeding with the installation, consider the following:
>
> - You must fully understand the static and dynamic load carrying capacity of the   rack and be sure that it can accommodate the weight of the server.

- Be sure sufficient clearance exists for cabling, installation and removal of the   server, and movement of the rack doors.

Server warnings and cautions

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

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

> **⚠ WARNING:**
>
> To reduce the risk of fire or burns after removing the energy pack:
>
> - Do not disassemble, crush, or puncture the energy pack.
>
> - Do not short external contacts.
>
> - Do not dispose of the energy pack in fire or water.
>
> - Do not expose the energy pack to low air pressure as it might lead to explosion or leakage of flammable liquid or gas.
>
> - Do not expose the energy pack to temperatures higher than 60°C (140°F).
>
> After power is disconnected, battery voltage might still be present for 1s to 160s.

> **⚠ CAUTION:**
>
> Protect the server from power fluctuations and temporary interruptions with a regulating UPS. This device protects the hardware from damage caused by power surges and voltage spikes and keeps the server in operation during a power failure.

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

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

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

Preparation procedures

To access components and perform certain upgrade, maintenance, or service procedure, you must perform one or more of the procedures described in this section.

Prerequisites

Before powering down the server for an upgrade, maintenance, or service procedure, perform a backup of critical server data and programs.
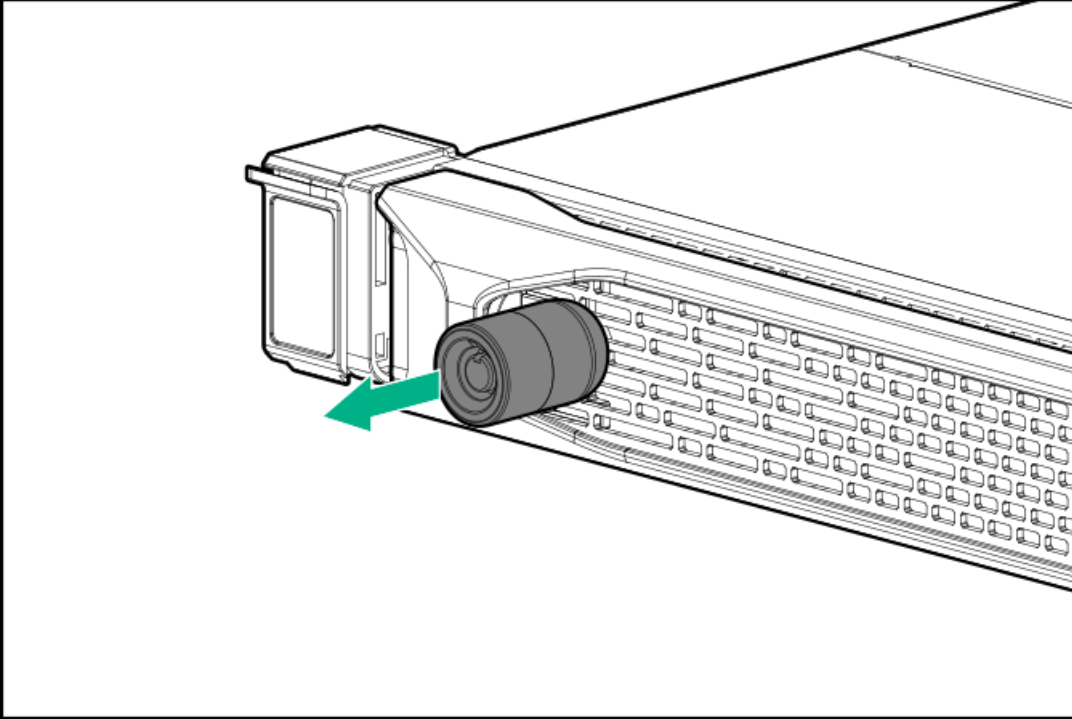
Remove the front bezel

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

Procedure

1. If installed, remove the Kensington security lock.

   For more information, see the lock documentation.

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

3. Release the right side of the bezel from the front panel.
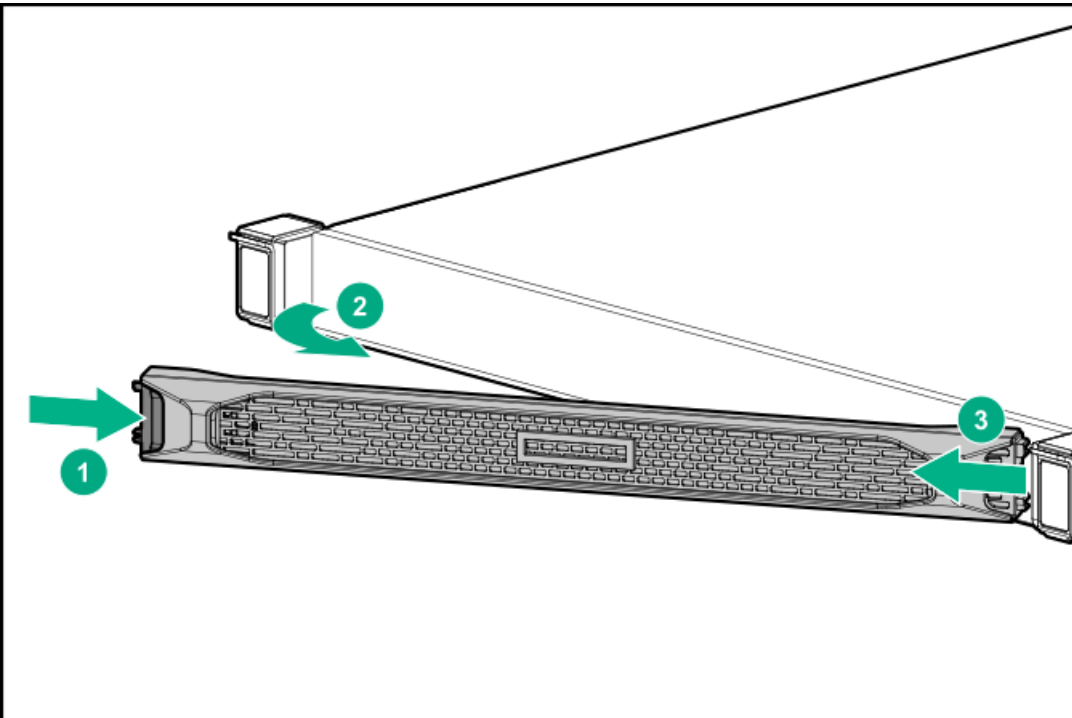
Power up the server

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

- Press the Power On/Standby button.

- Use the virtual power button through iLO 5.

Power down the server

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

> (i) **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 5.

  This method initiates a controlled remote shutdown of applications and the OS before the server enters standby mode.

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

Remove the server from the rack

Prerequisites

- Get help to lift and stabilize the server during removal from the rack. **If the server is installed higher than chest level, an additional person might be required to help remove the server:** one person to support the server weight, and the other to slide the server out of the rack.

- Before you perform this procedure, review the:

  - Rack warnings and cautions

  - Server warnings and cautions

- A fully populated server is heavy. Hewlett Packard Enterprise recommends removing the external server components before removing the server from the rack.

- Before you perform this procedure, make sure that you have a T-25 Torx screwdriver available.

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Extend the server from the rack, do one of the following:

    > ⚠ **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.

    - For a server that has thumbscrew ears, do the following:

      a. Loosen the captive thumbscrews (callout 1).

      b. Slide the server out of the rack until the rail-release latches are engaged (callout 2).
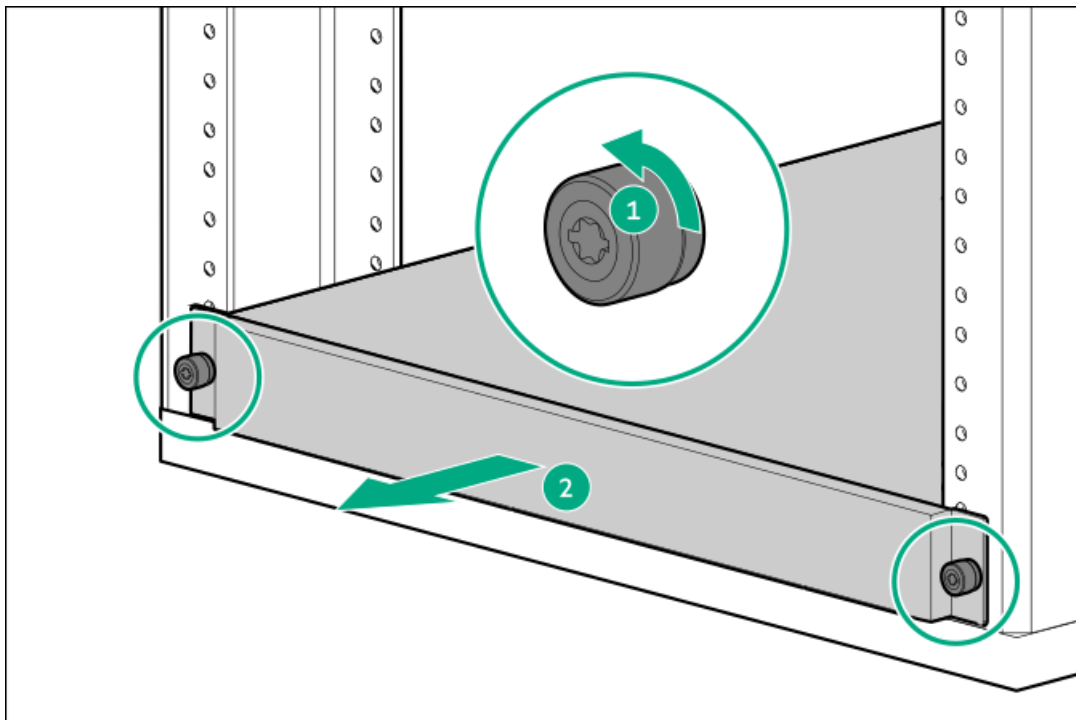
    - For a server that has quick-release chassis ears, do the following:

      a. Open the chassis ear latch (callout 1).

b. Loosen the shipping screws (callout 2).

c. Slide the server out of the rack until the rail-release latches are engaged (callout 3).
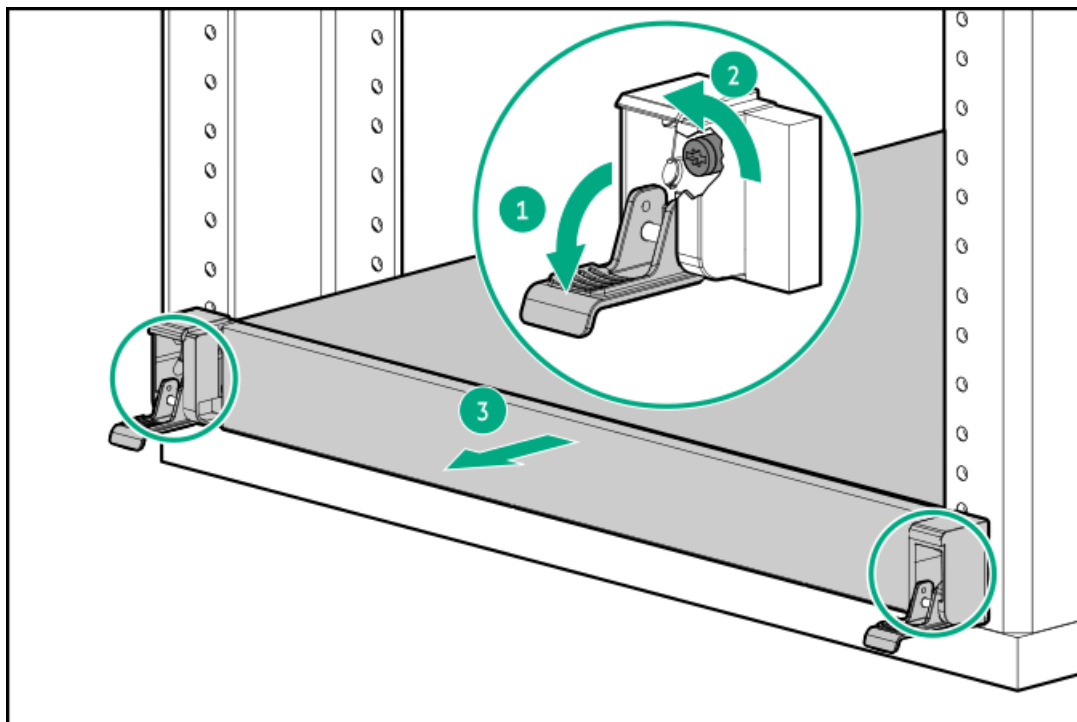
6. Remove the server from the rack:

   a. Press and hold the protruding surface of the server rail-release latches (callout 1).

   b. Pull the server from the rack (callout 2).
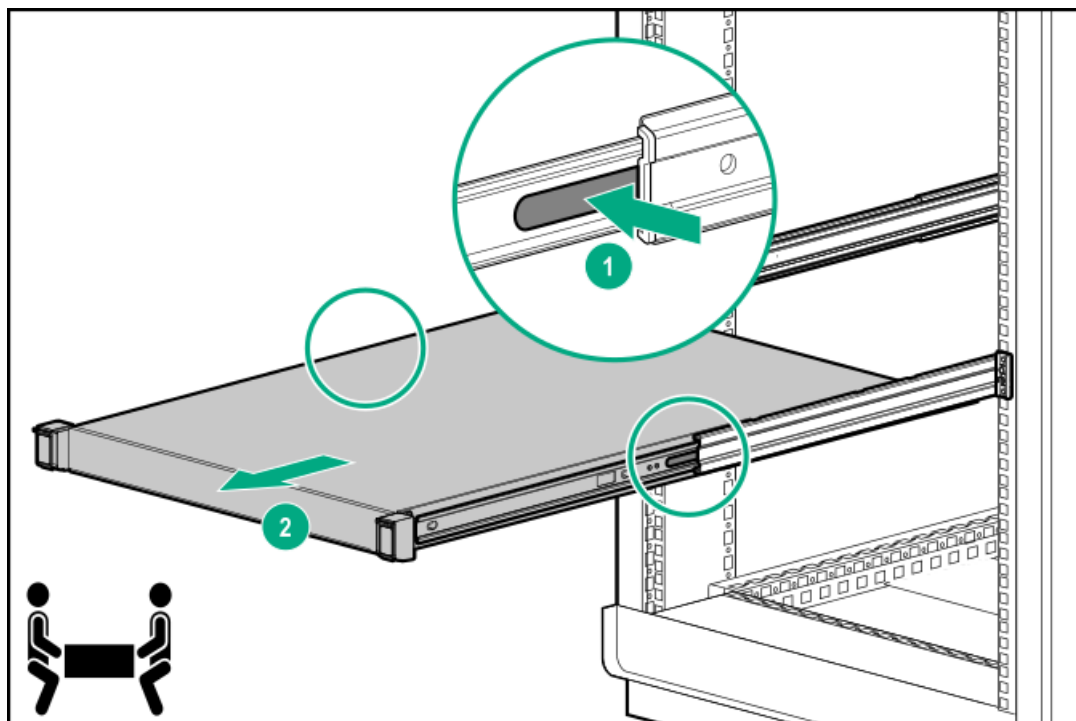
7. Place the server on a flat, level work surface.
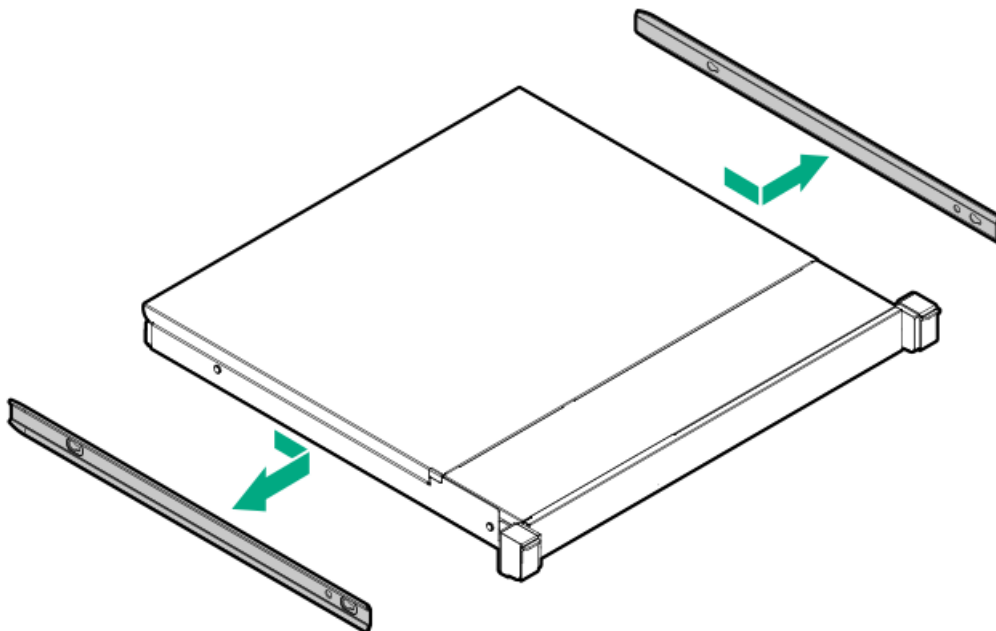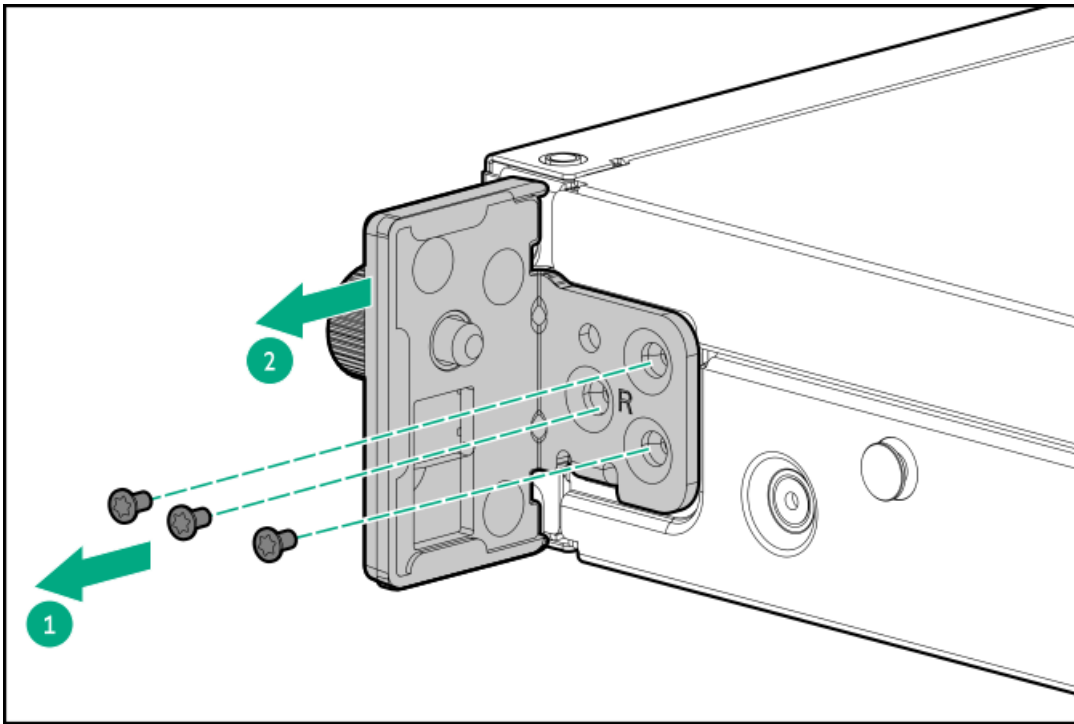
Remove the chassis ear

Prerequisites

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

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove all inner rails from the chassis.

   Retain all rails for future use.

8. Remove the chassis ears:

   a. Remove all screws (callout 1).

      Retain all screws for future use.

   b. Disengage the right ear from the chassis (callout 2).

      - Thumbscrew ears

- quick-release chassis ears
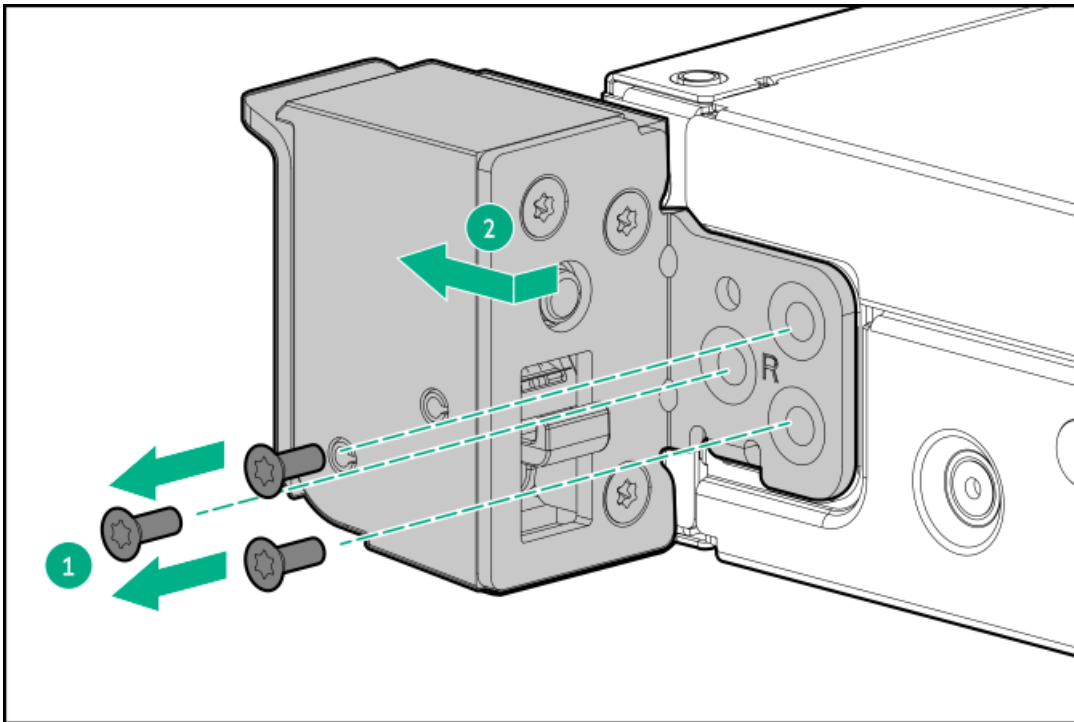
c. Repeat step a and b to remove the left ear.

Remove the front panel cover

⚠ **CAUTION:**

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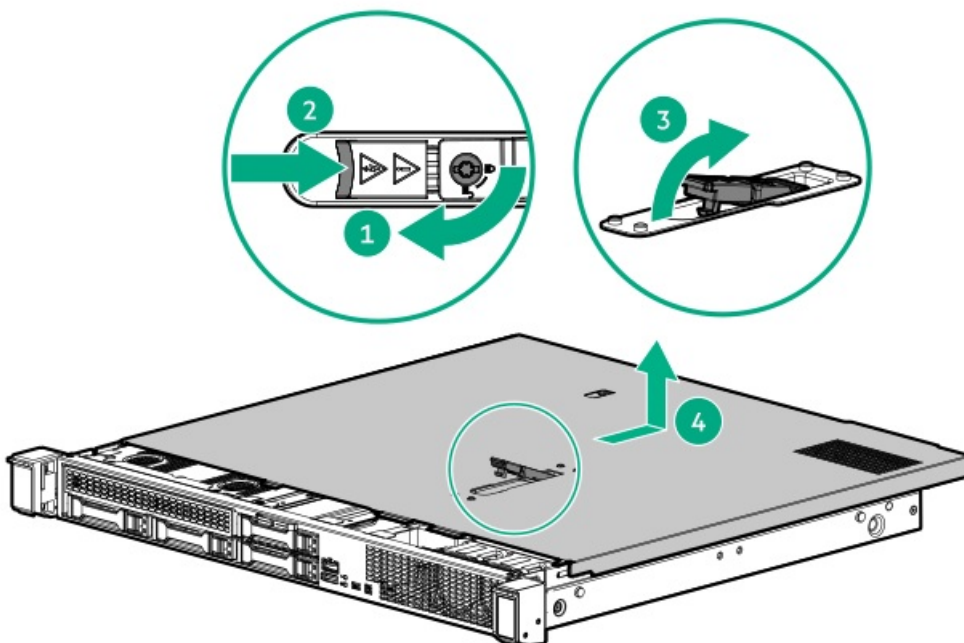
Prerequisites

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

Procedure

1. If installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove all inner rails from the chassis.

    Retain all rails for future use.
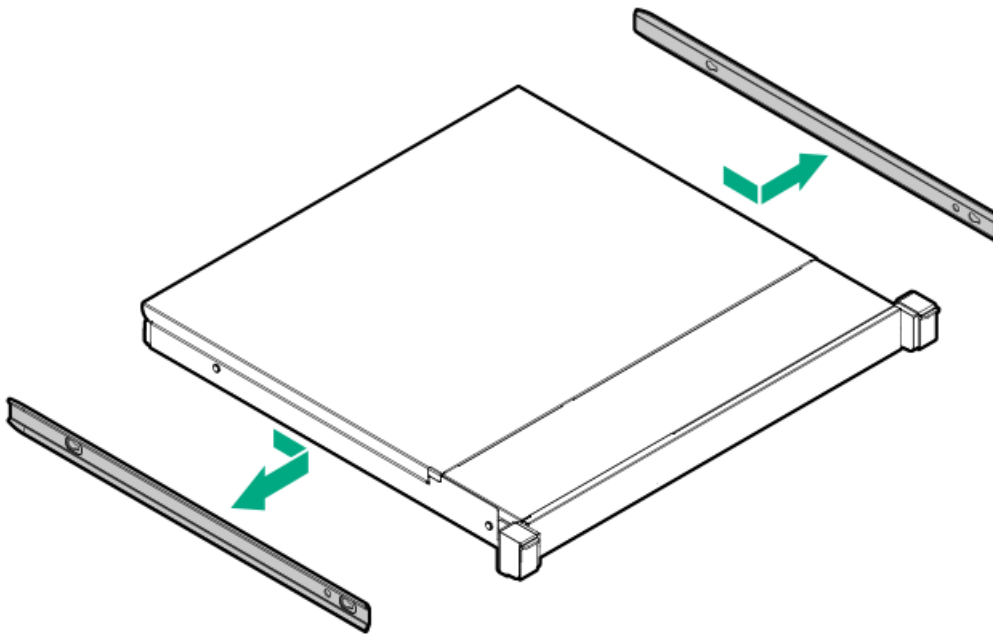
8. Remove the access panel.

9. Remove the chassis ear.

10. Remove the front panel cover.

    - LFF non-hot-plug drive chassis

      Retain the cover and all screws for future use.
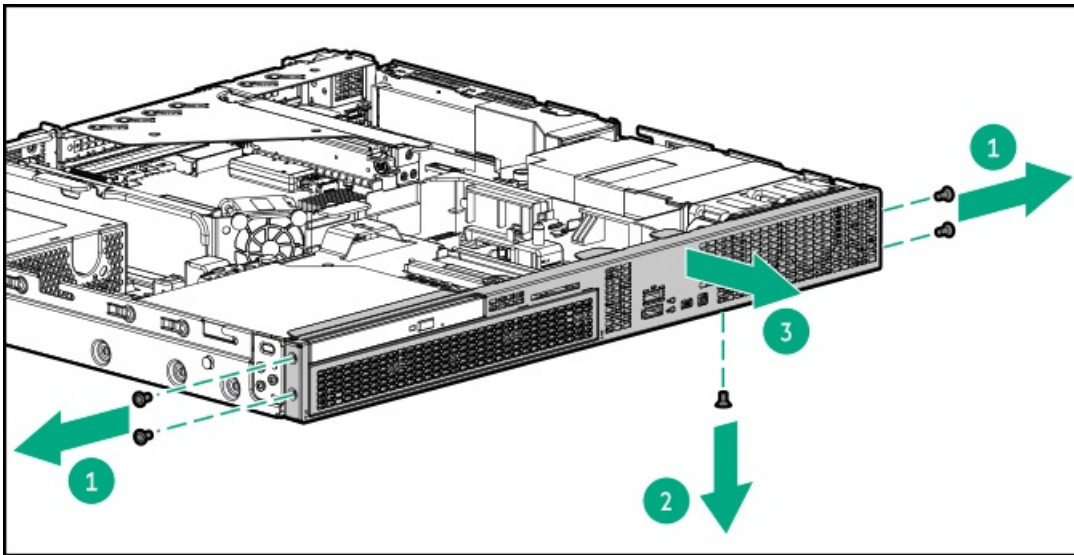
- LFF hot-plug drive chassis

  Retain the cover and all screws for future use.
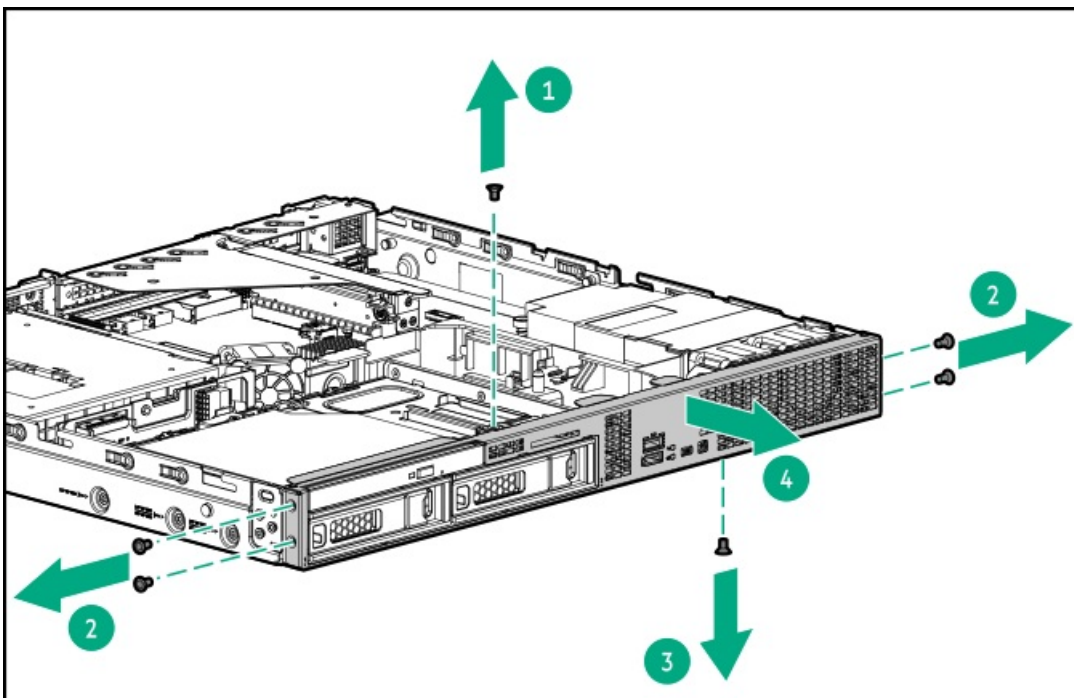
- SFF hot-plug drive chassis

  Retain the cover and all screws for future use.

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

> **⚠ 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.

Prerequisites

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

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel .

2. Power down the server .

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack .

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

7. Remove the access panel:

   a. If necessary, unlock the access panel latch (callout 1).

   b. To disengage the access panel from the chassis, press the release button and pull up the latch (callouts 2 and 3).
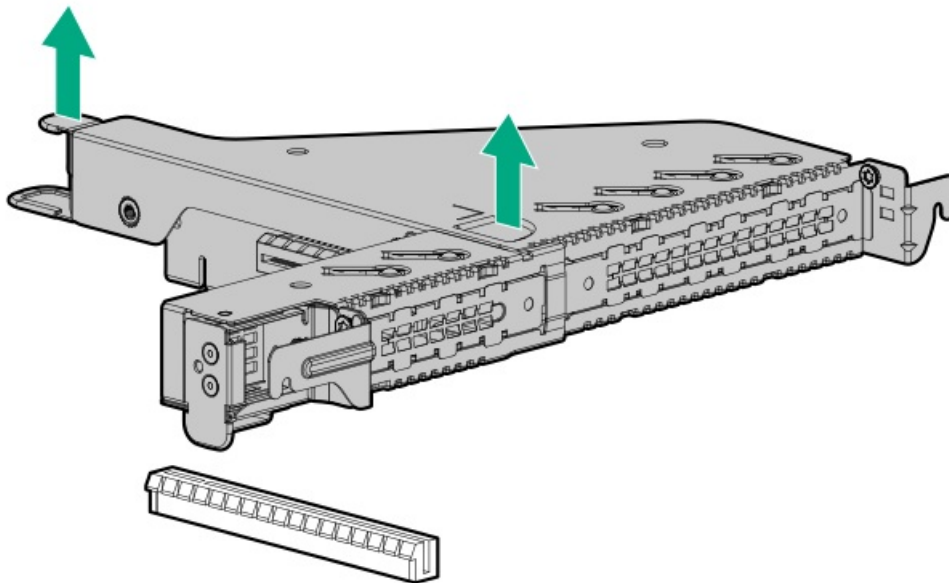
   c. Lift the access panel (callout 4).

Remove the riser cage

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

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the access panel.

8. If an expansion card with internal cables is installed on the riser, disconnect the cables from the card.

9. Lift the riser cage off the system board.

Removing and replacing the front bezel

Procedure

1. If installed, remove the Kensington security lock.

   For more information, see the lock documentation.
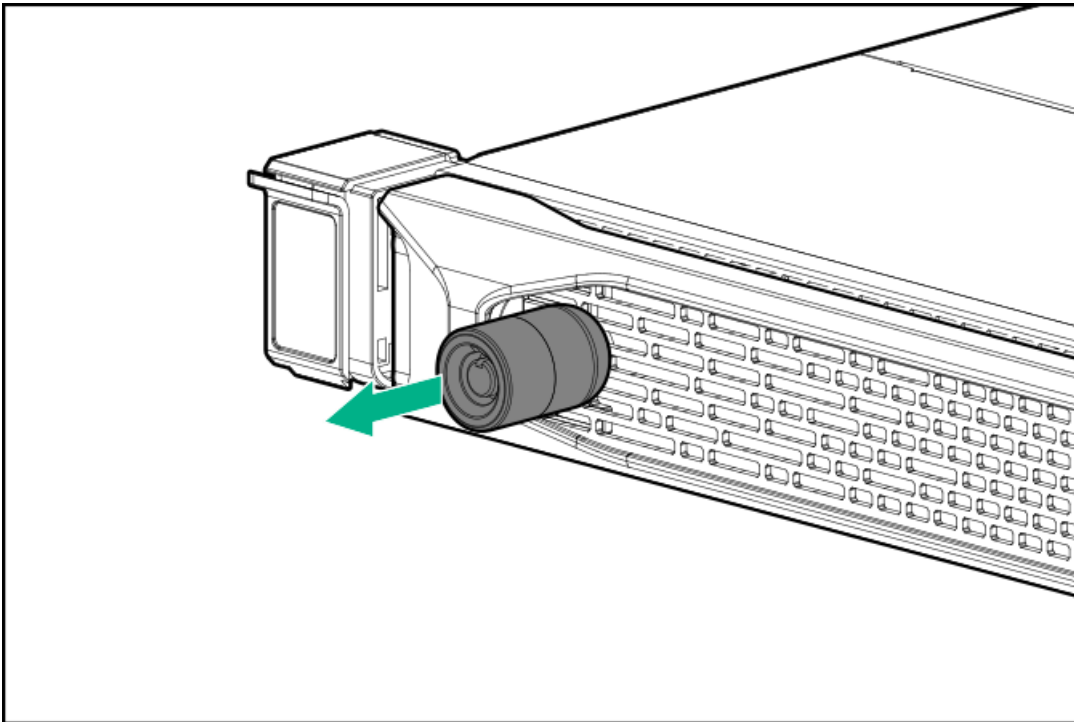
2. Press the bezel release latch (callout 1), and then pivot the bezel open (callout 2).

3. Release the right side of the bezel from the front panel.

To replace the component, reverse the removal procedure.

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

> ⚠ **CAUTION:**
> 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.

Prerequisites

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

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the access panel:

   a. If necessary, unlock the access panel latch (callout 1).

   b. To disengage the access panel from the chassis, press the release button and pull up the latch (callouts 2 and 3).

   c. Lift the access panel (callout 4).


To replace the component, reverse the removal procedure.

Removing and replacing a power supply blank

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

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

Procedure

1. Remove the power supply blank.
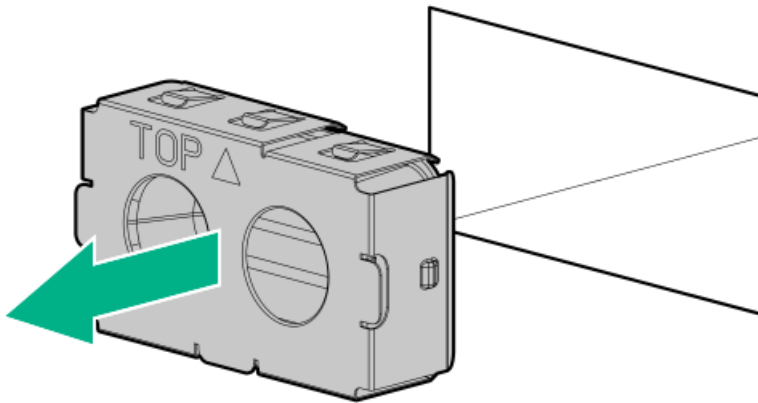
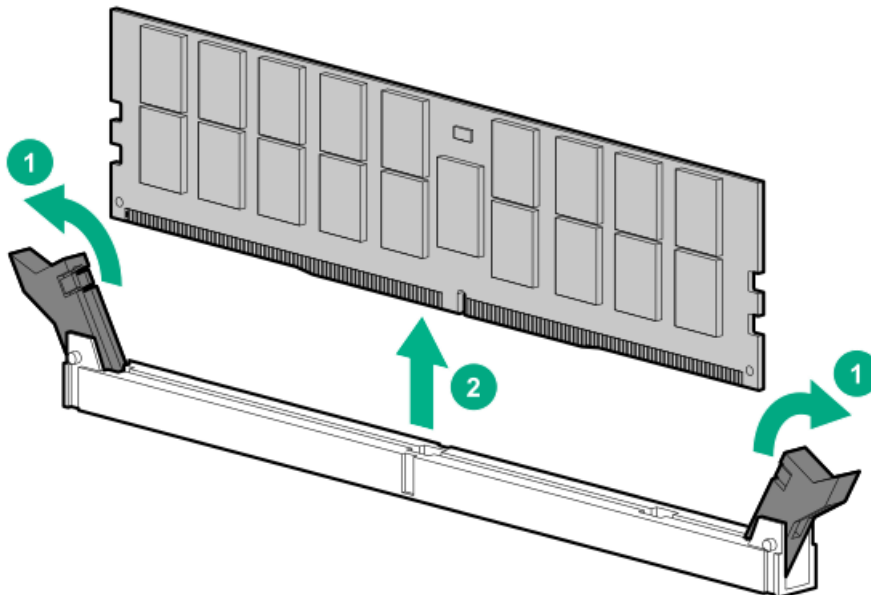2. Immediately install the new power supply blank.

Removing and replacing a DIMM

> **⚠ CAUTION:**
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.
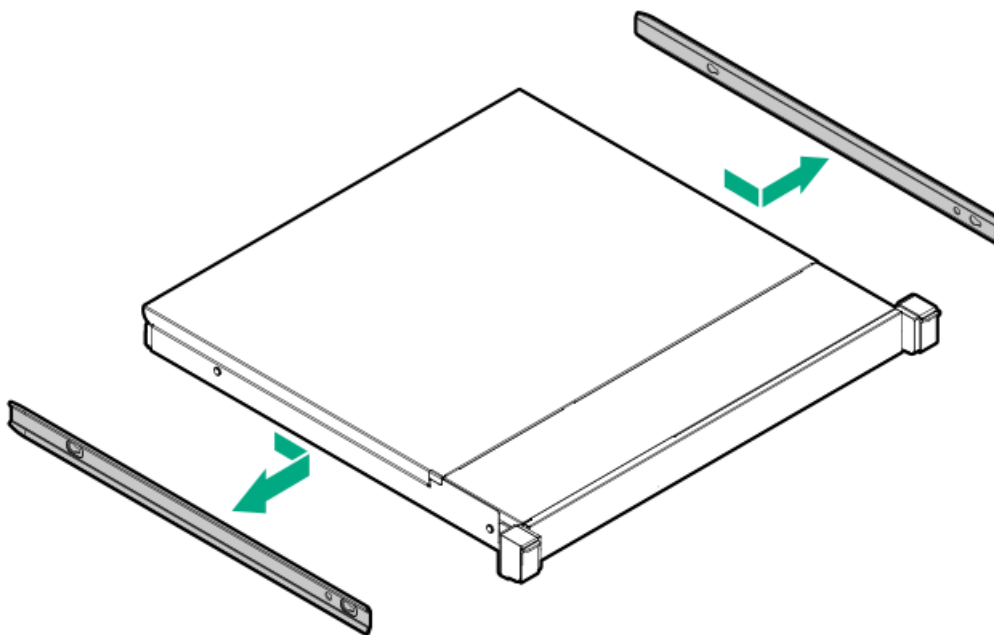
> **⚠ CAUTION:**
> Before replacing a DIMM, expansion card, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot. Do not bend or flex circuit boards when reseating components.

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the access panel.

8. Remove the DIMM.

To replace the component, reverse the removal procedure.

Removing and replacing the DIMM guard

△ CAUTION:

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

Prerequisites

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

Procedure

1. If installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove all inner rails from the chassis.

   Retain all rails for future use.

8. Remove the access panel.

9. Remove the chassis ear.

10. Remove the front panel cover.

11. If installed, remove the processor air baffle.
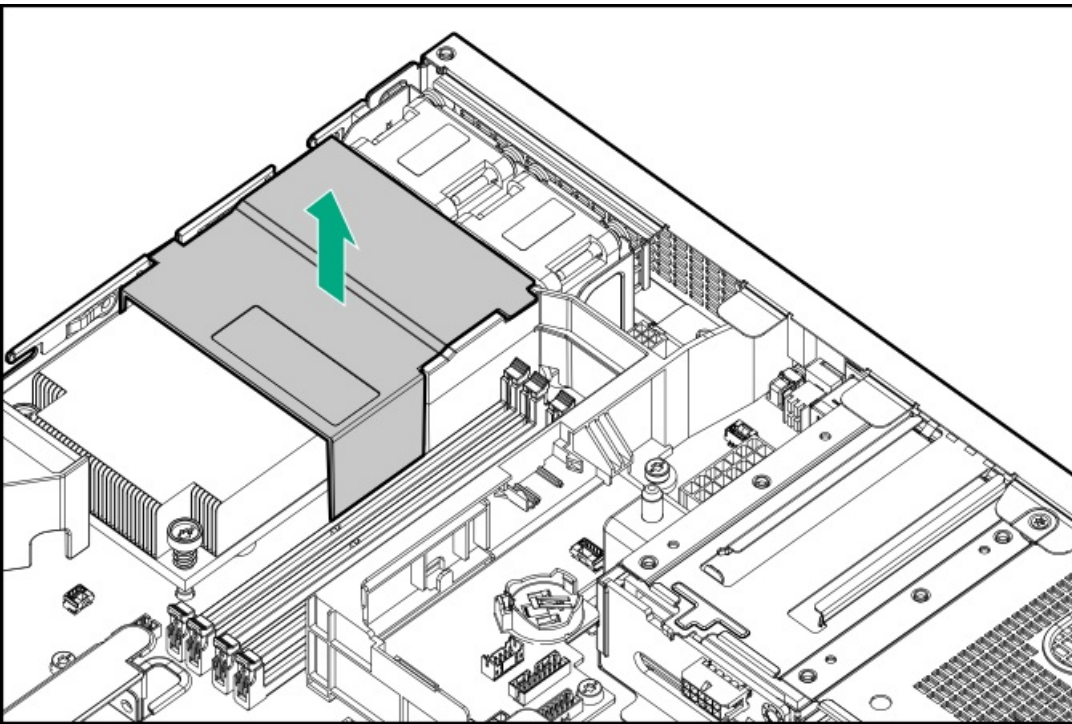
12. Removing the heatsink.

13. If installed, remove the chassis intrusion detection switch.

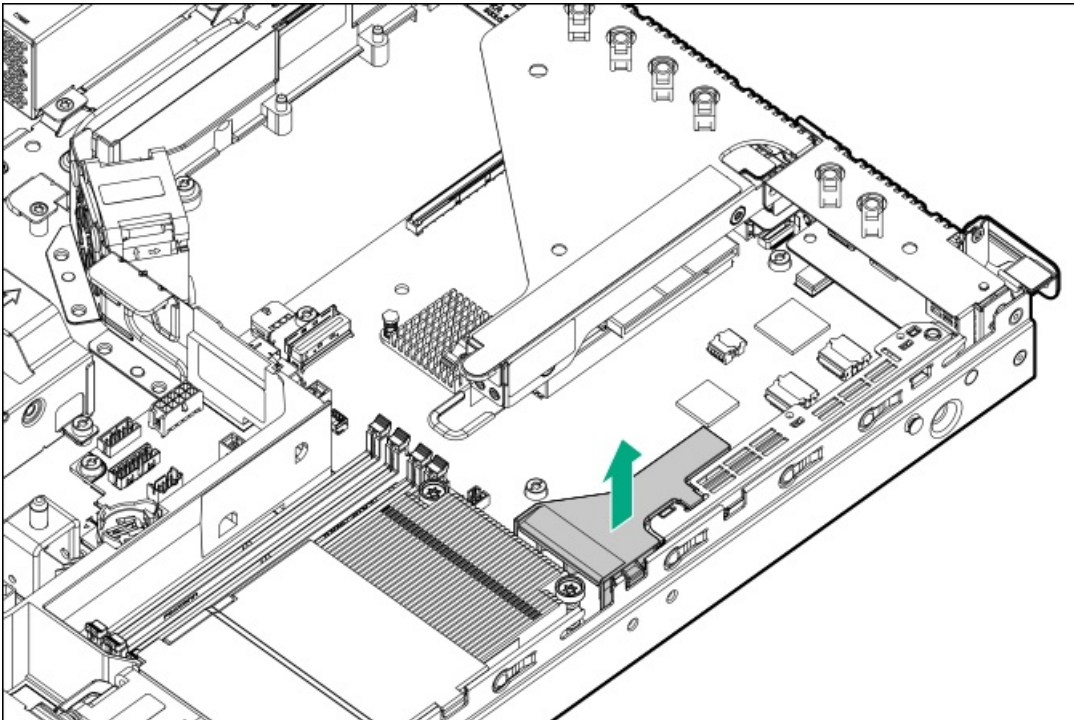14. Remove the DIMM guard.

    Retain the screw for future use.
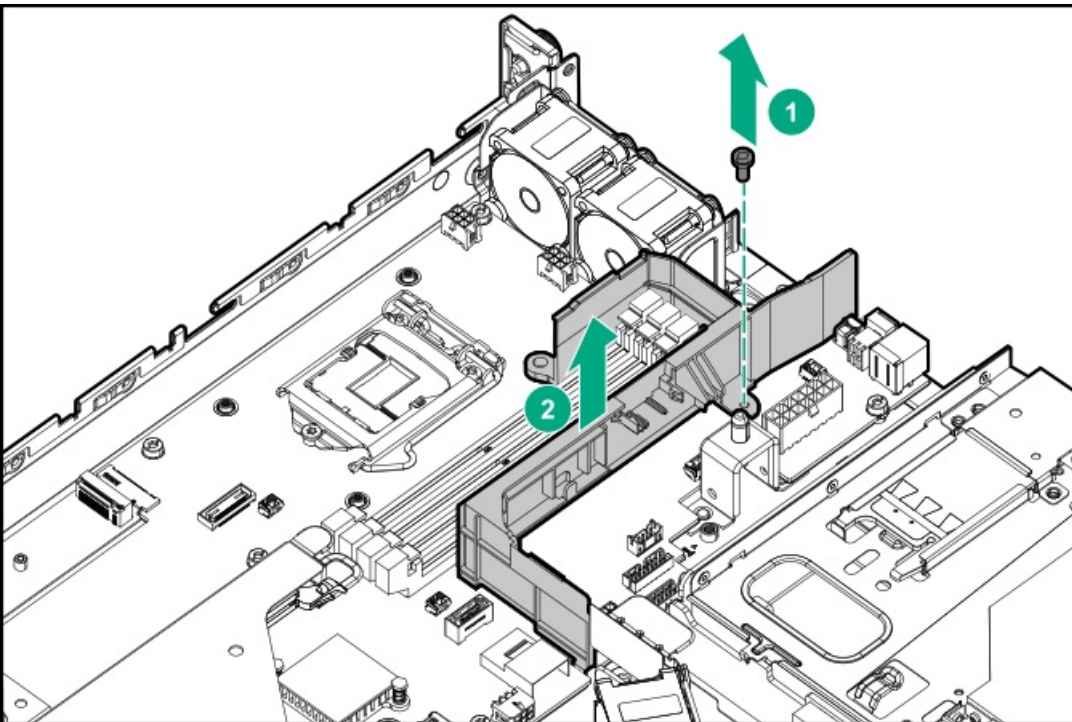
To replace the component, reverse the removal procedure.

Removing and replacing the M.2 air baffle

Procedure

1. If physically powering down a server with the front bezel installed, <u>remove the front bezel</u>.

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

3. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. <u>Remove the server from the rack</u>.

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

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

8. Remove the M.2 SSD air baffle.

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

1. If installed, remove the front bezel.

2. Remove the drive blank.

   - LFF drive blank
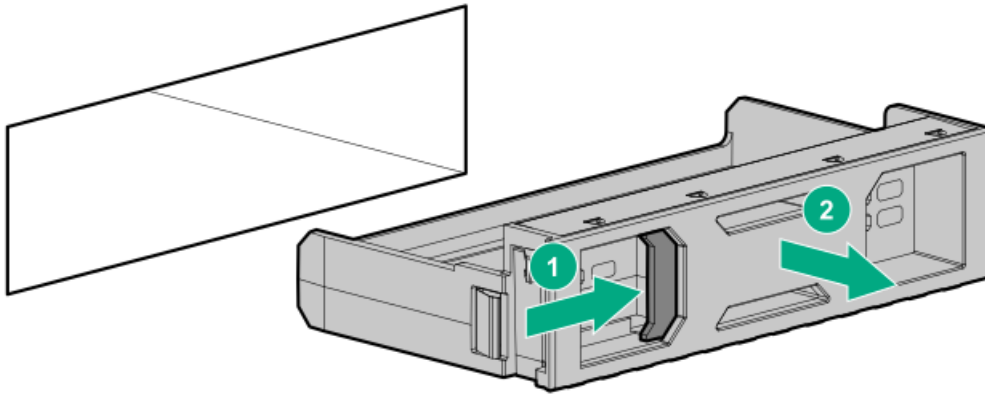
   - SFF drive blank
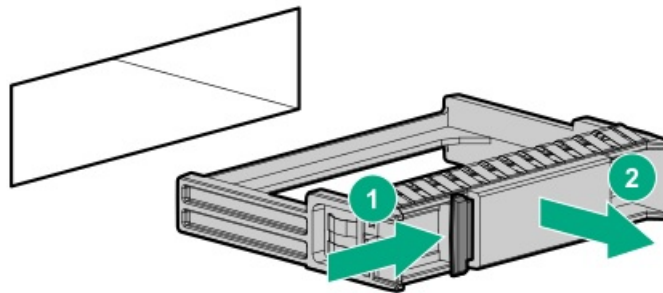
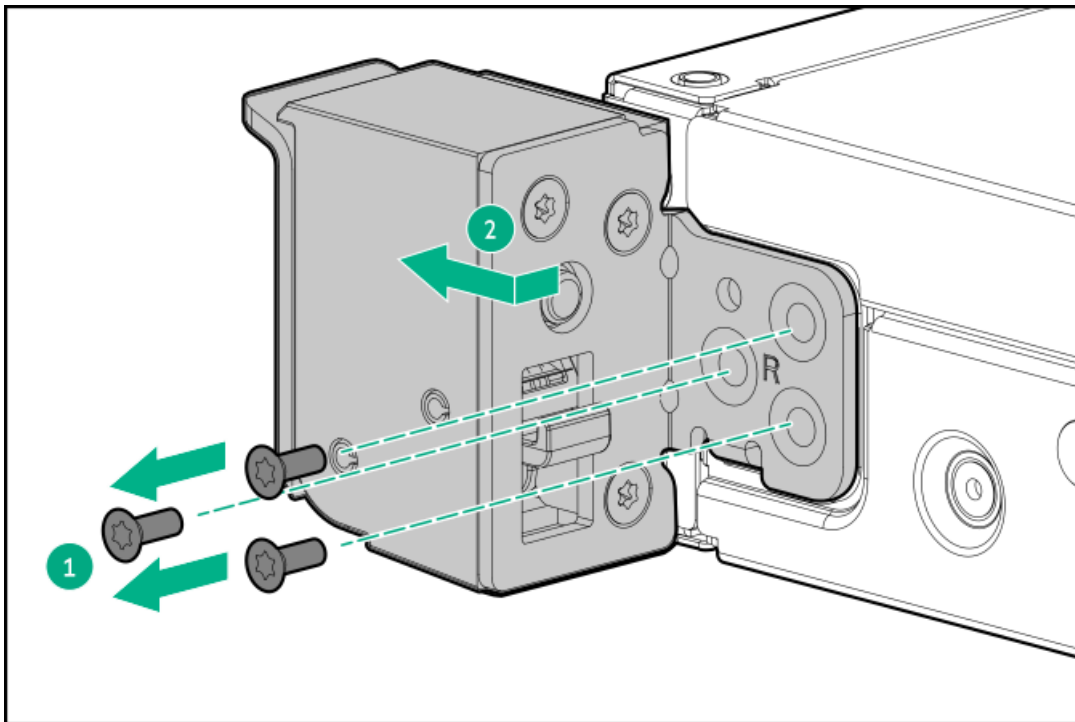To replace the component, reverse the removal procedure.

Removing and replacing the quick-release chassis ears

Prerequisites

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

Procedure

1. If installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the quick-release chassis ears:

    a. Remove all screws (callout 1).

       Retain all screws for future use.

    b. Disengage the right ear from the chassis (callout 2).

    c. Repeat step a and b to remove the left quick-release chassis ears.

To replace the component, reverse the removal procedure.

Removing and replacing the media bay blank

This procedure is only applicable in the SFF drive chassis.

> ⚠ **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.

Prerequisites

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

Procedure

1. If installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the access panel.

8. Remove the media bay blank:

   a. Remove the media bay blank screws (callout 1).

   Retain all screws for future use.

   b. Disengage the media bay blank (callout 2).

   c. Remove the media bay blank (callout 3).
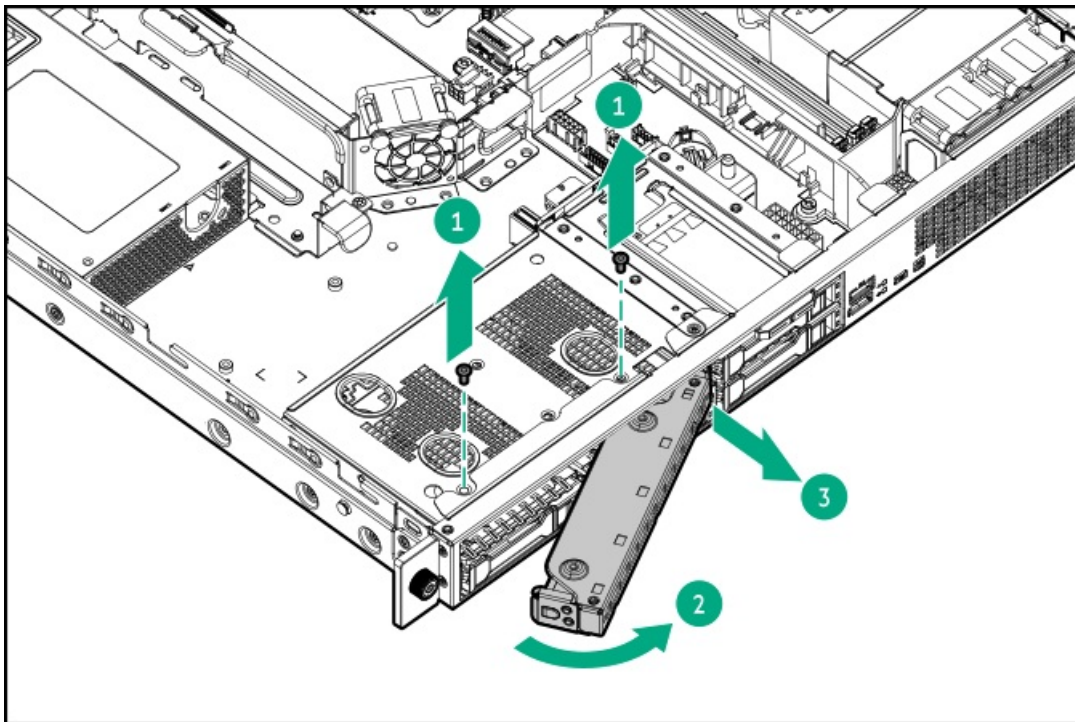
To replace the component, reverse the removal procedure.

Removing and replacing an expansion card

⚠️ **CAUTION:**

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

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

⚠️ **CAUTION:**

Before replacing a DIMM, expansion card, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot. Do not bend or flex circuit boards when reseating components.

Prerequisites

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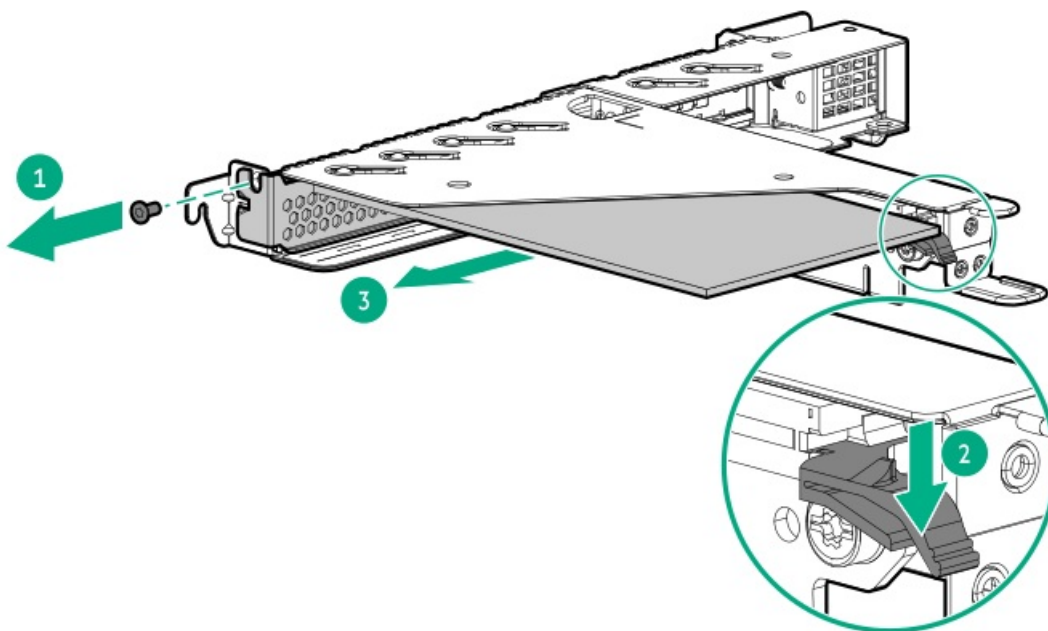
- T-10 Torx screwdriver
- T-15 Torx screwdriver

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the access panel.

8. Disconnect all cables connected to the expansion card.

9. Remove the riser cage.

10. To remove the expansion card from the riser slot 1:

    a. Remove the screw and slide the retainer bracket (callouts 1 and 2).

       Retain the screw for future use.

    b. Remove the expansion card from the slot 1 (callout 3).
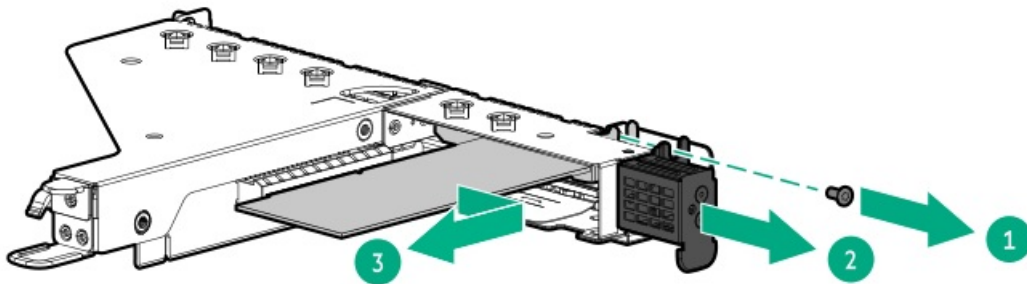
11. To remove the expansion card from the riser slot 2:

    a. Remove the screw (callout 1).

       Retain the screw for future use.

    b. Press and hold the release latch on the end of the slot 2 (callout 2).

c. Remove the expansion card from the slot 2 (callout 3).

To replace the component, reverse the removal procedure.

# Removing and replacing a type-a storage controller

⚠ CAUTION:

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

⚠ CAUTION:

Before replacing a DIMM, expansion card, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot. Do not bend or flex circuit boards when reseating components.

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the access panel.

8. Remove the riser cage.

9. Disconnect all cables from the type-a storage controller.

10. Remove the type-a storage controller:

    a. Loosen the controller board thumbscrews (callout 1).

    b. Use the pull-up tab to release the controller from the system board (callout 2).
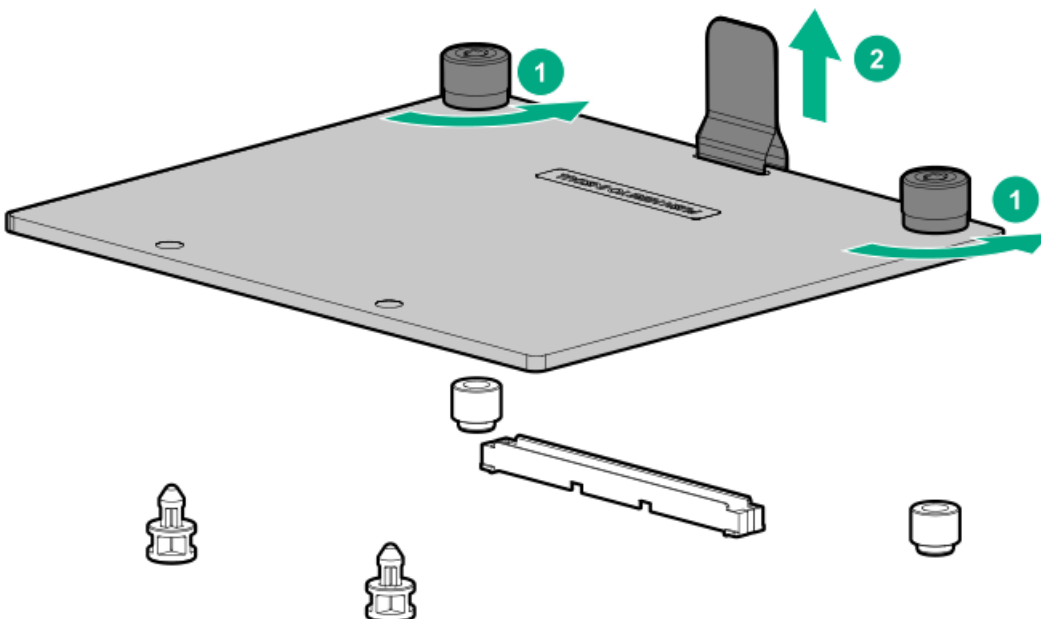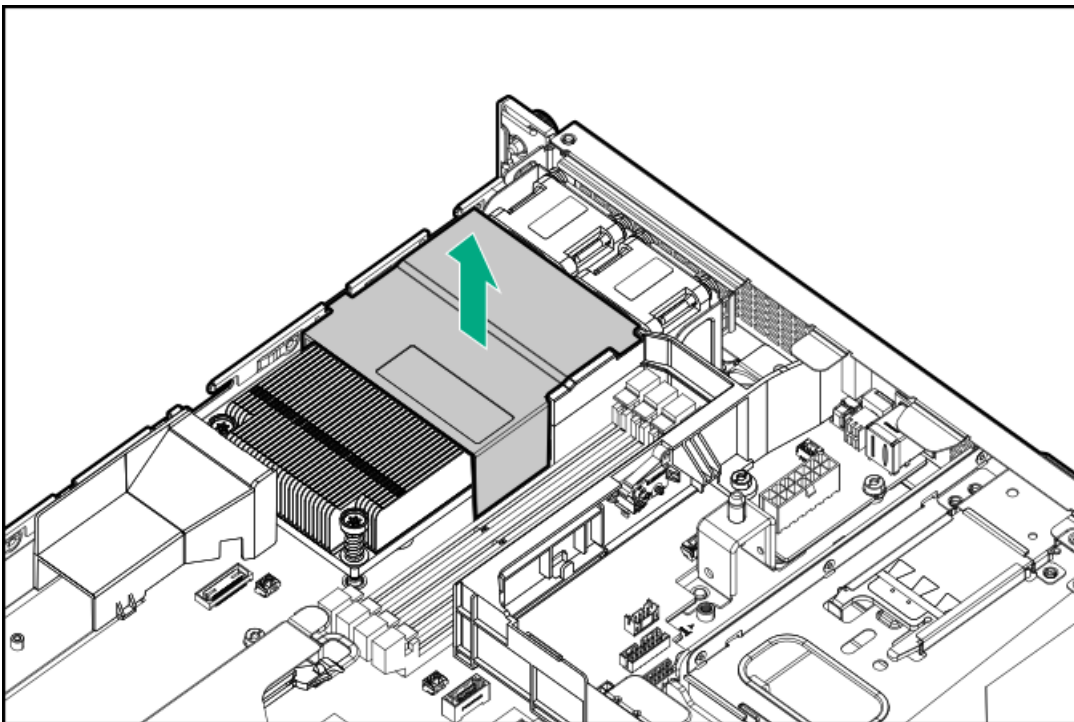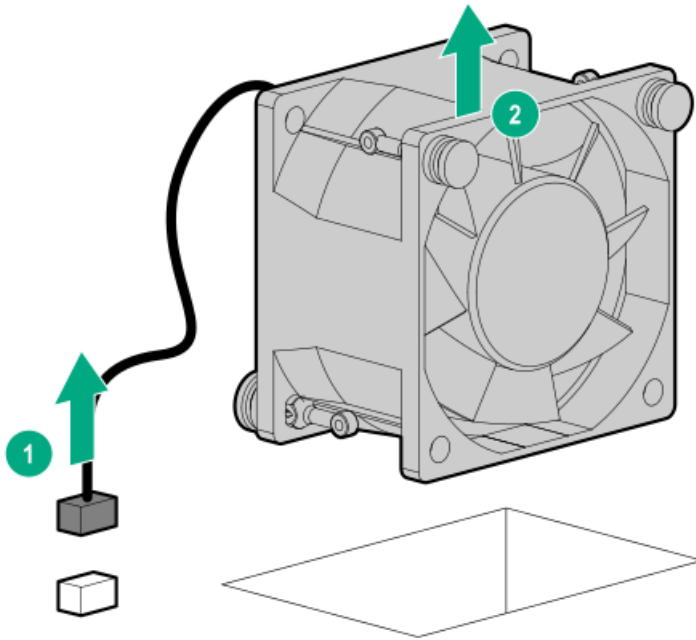

To replace the component, reverse the removal procedure.

Removing and replacing a fan

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the access panel.

8. If installed, remove the processor air baffle before removing fan from bay 1 or 2.

9. Remove the fan.

To replace the component, reverse the removal procedure.

Drive replacement

- [Removing and replacing a hot-plug SAS, SATA or NVMe drive](#)
- [Removing and replacing a LFF non-hot-plug drive](#)

Removing and replacing a hot-plug SAS, SATA or NVMe drive

> ⚠ **CAUTION:**
>
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe <u>antistatic precautions</u>.
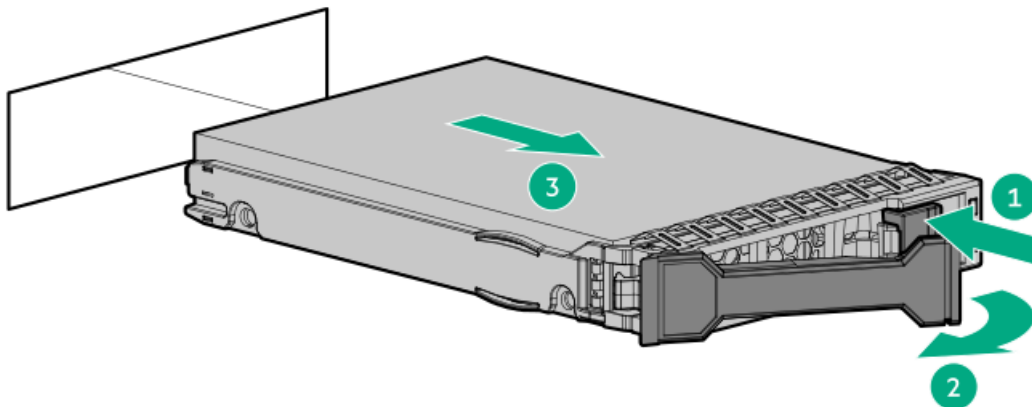
> ⚠ **CAUTION:** To prevent improper cooling and thermal damage, do not operate the server unless all bays are populated with either a component or a blank.

Procedure

1. Back up all server data on the drive.

2. If installed, <u>remove the front bezel</u>.

3. <u>Observe the drive LED status</u> and determine if the drive can be removed.

4. Remove the drive.

   - LFF drive
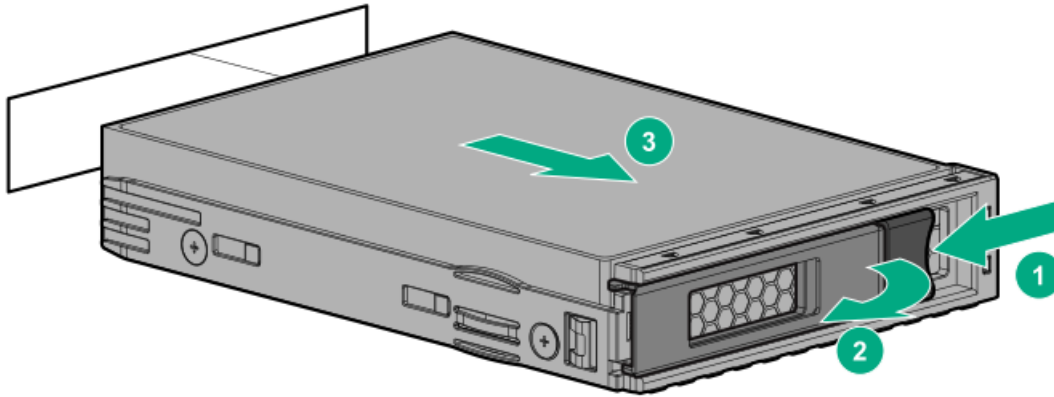
   - SFF drive

To replace the component, reverse the removal procedure.

Removing and replacing a LFF non-hot-plug drive

Prerequisites

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

- T-15 Torx screwdriver

- Phillips No. 1 screwdriver

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the access panel.

8. Disconnect all cables from the non-hot-plug drives.

9. Remove the non-hot-plug drive cage assembly.

   Retain all screws for future use.
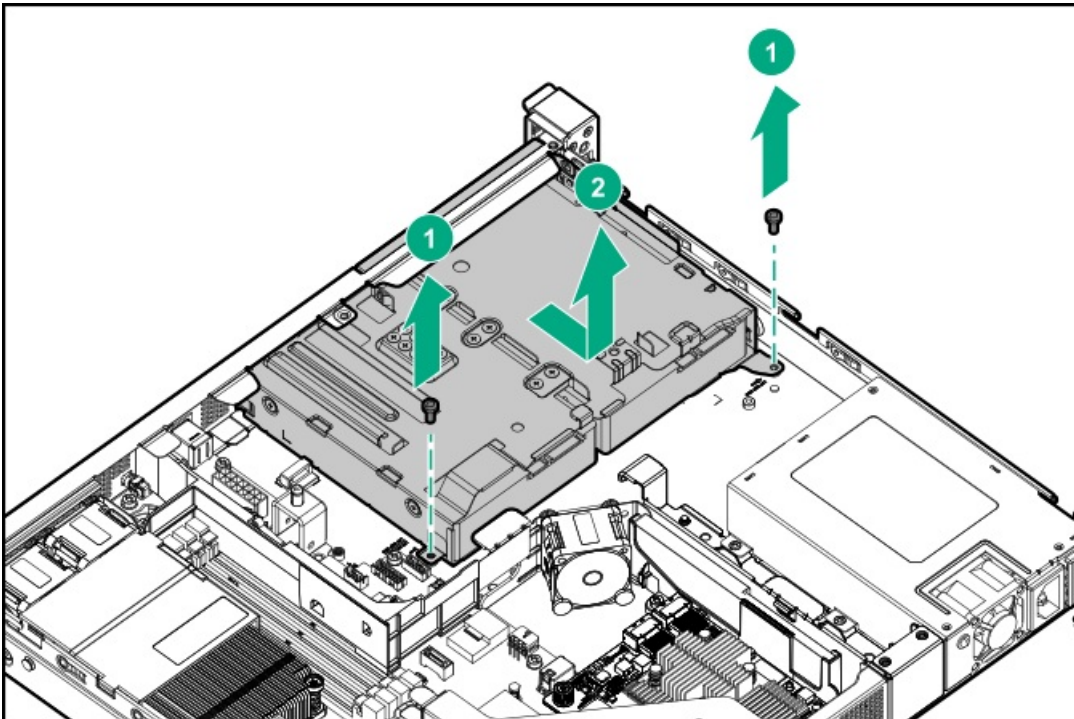
10. Remove the non-hot-plug drive from the drive cage.

    Retain all screws for future use.
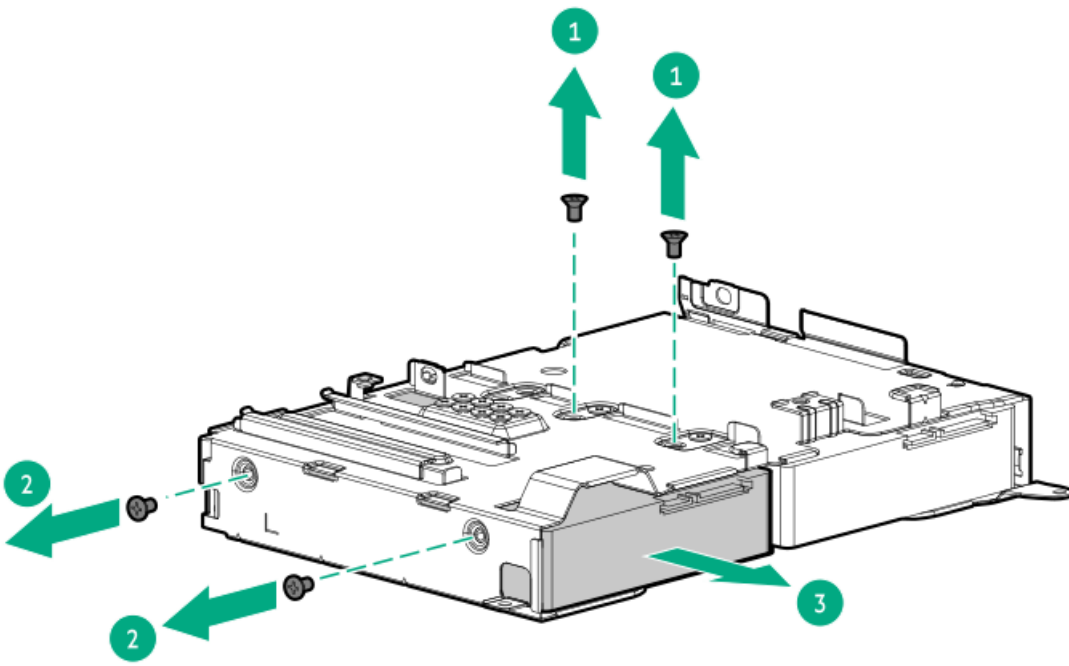
To replace the component, reverse the removal procedure.

Optical drive replacement

- <u>Removing and replacing the optical drive from the LFF chassis</u>
- <u>Removing and replacing the optical drive from the SFF chassis</u>

Removing and replacing the optical drive from the LFF chassis

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

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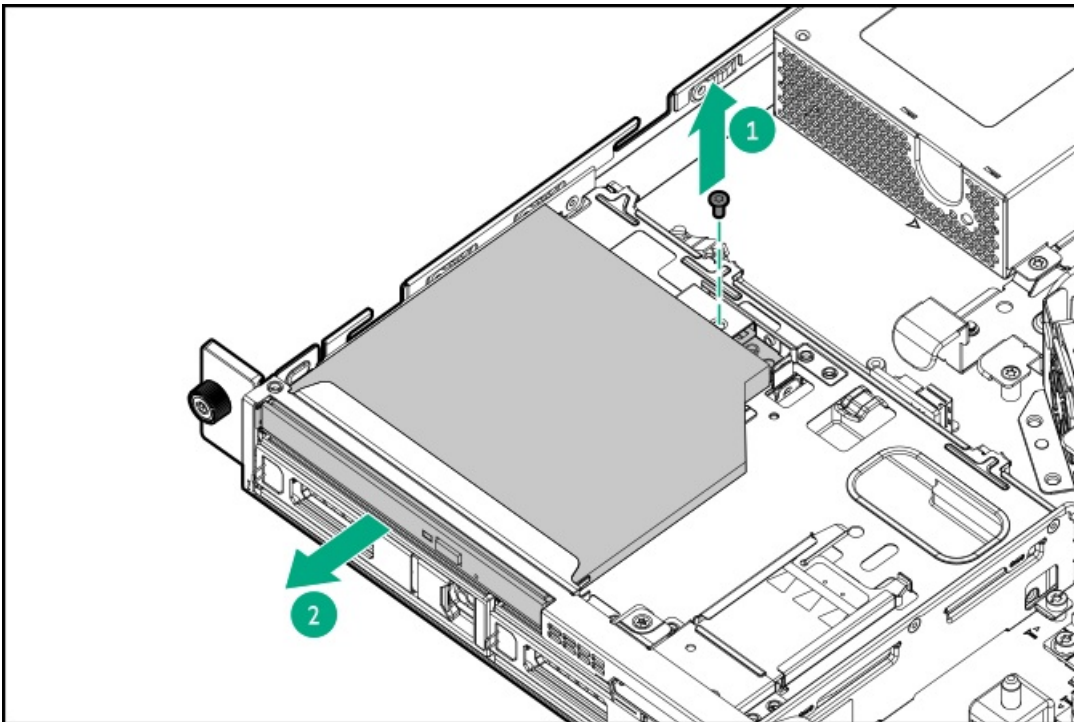
Prerequisites

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

Procedure

1. If installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the access panel.

8. Disconnect the SATA-power Y-cable from the optical drive.

9. Remove the optical drive from the bay.

    Retain the screw for future use.

To replace the component, reverse the removal procedure.

Removing and replacing the optical drive from the SFF chassis

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

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

Prerequisites

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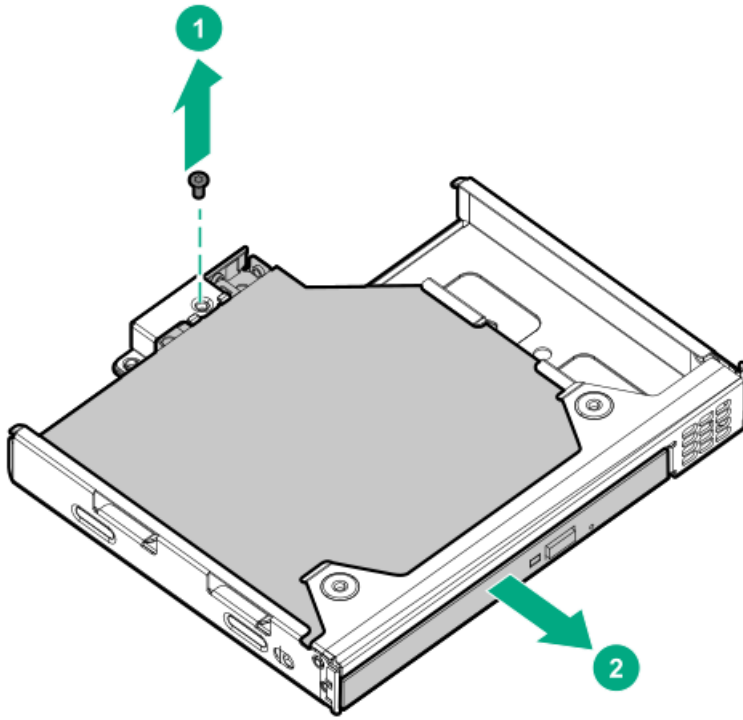
Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the access panel.

8. Disconnect the SATA-power Y-cable from the optical drive.

9. Remove the optical drive cage assembly from the media bay.

   Retain all screws for future use.
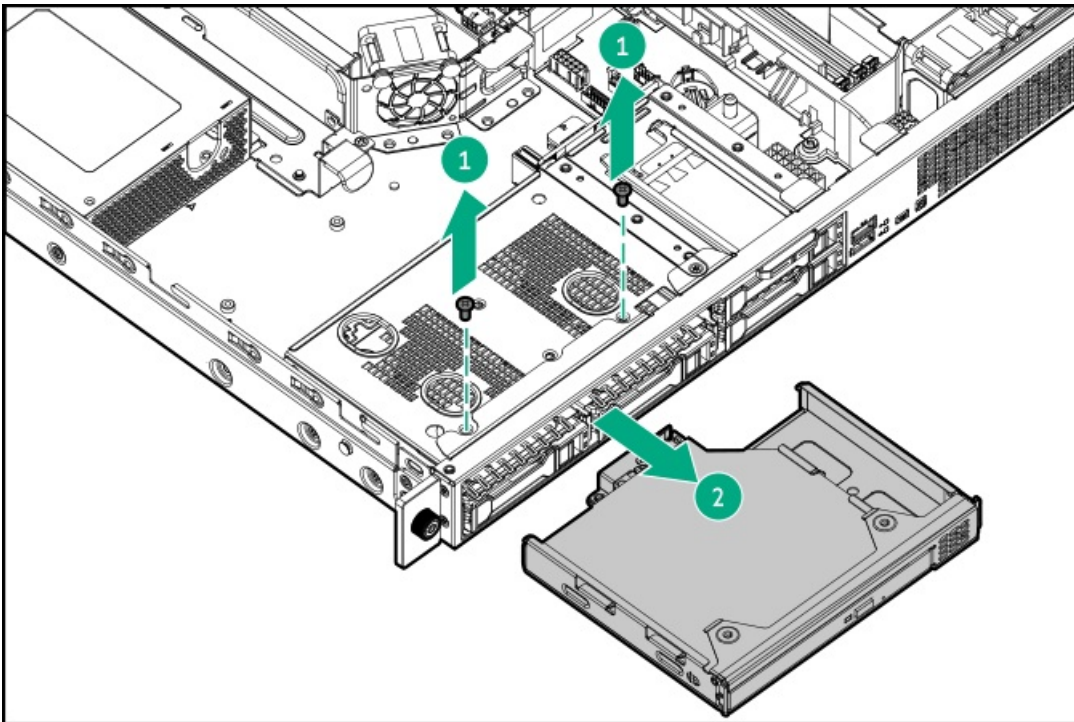
10. Remove the optical drive from the cage.

    Retain the screw for future use.

To replace the component, reverse the removal procedure.

Drive backplane replacement

- [Removing and replacing the 2 LFF drive backplane](#)

- [Removing and replacing the 2 SFF drive backplane](#)

- [Removing and replacing the 4 SFF drive backplane](#)

Removing and replacing the 2 LFF drive backplane

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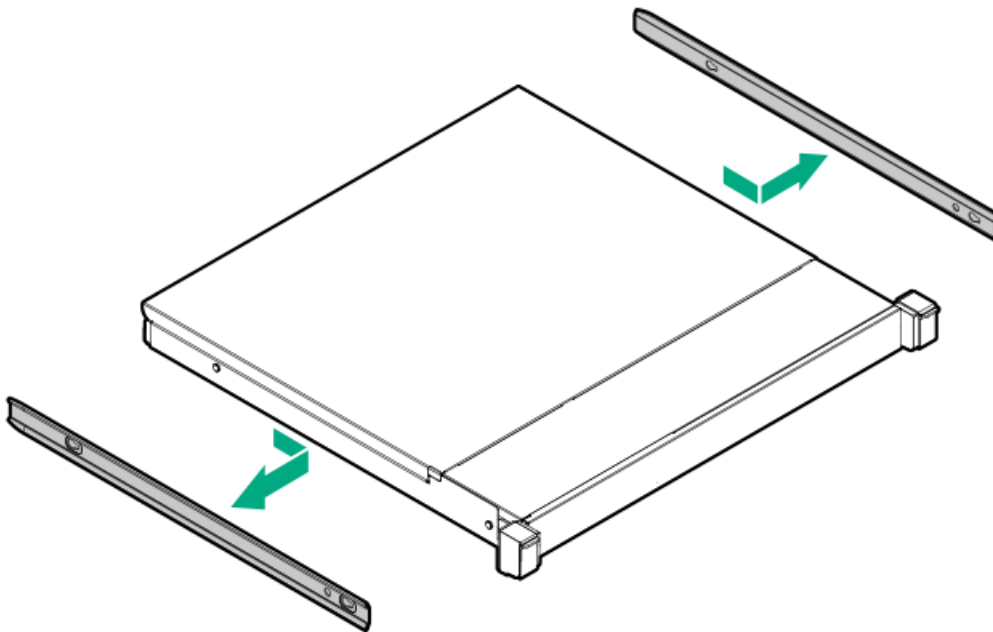
Prerequisites

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

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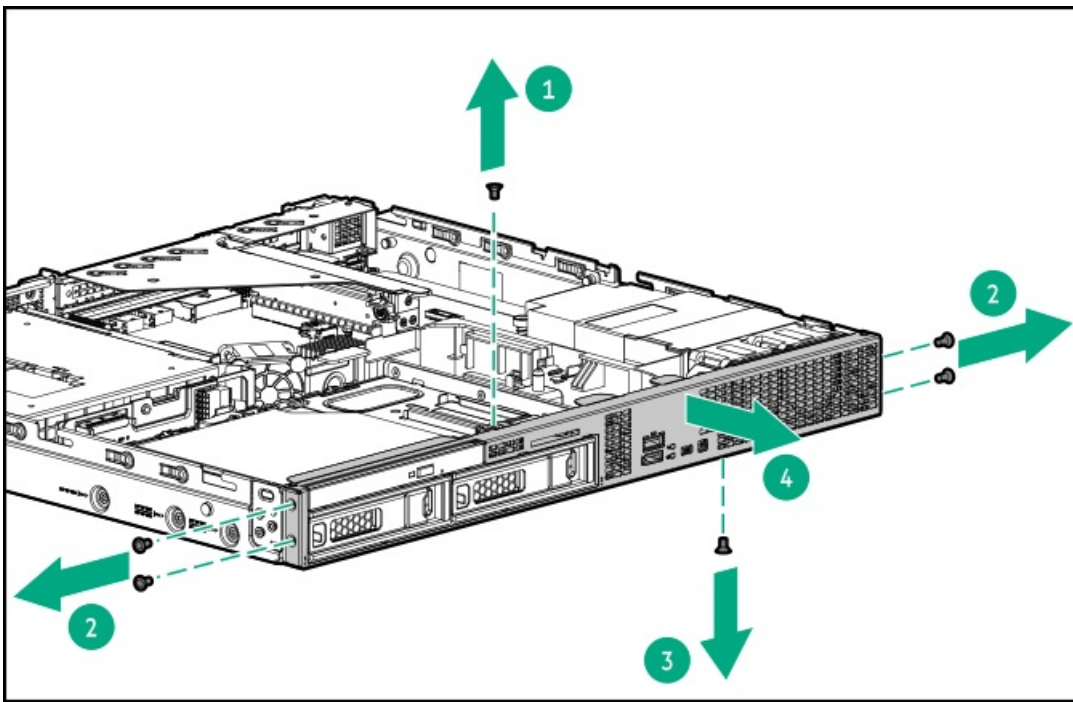- T-15 Torx screwdriver

Procedure

1. If installed, remove the front bezel.
2. Power down the server.
3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.
4. Disconnect all peripheral cables from the server.
5. Remove the server from the rack.
6. Place the server on a flat, level work surface.
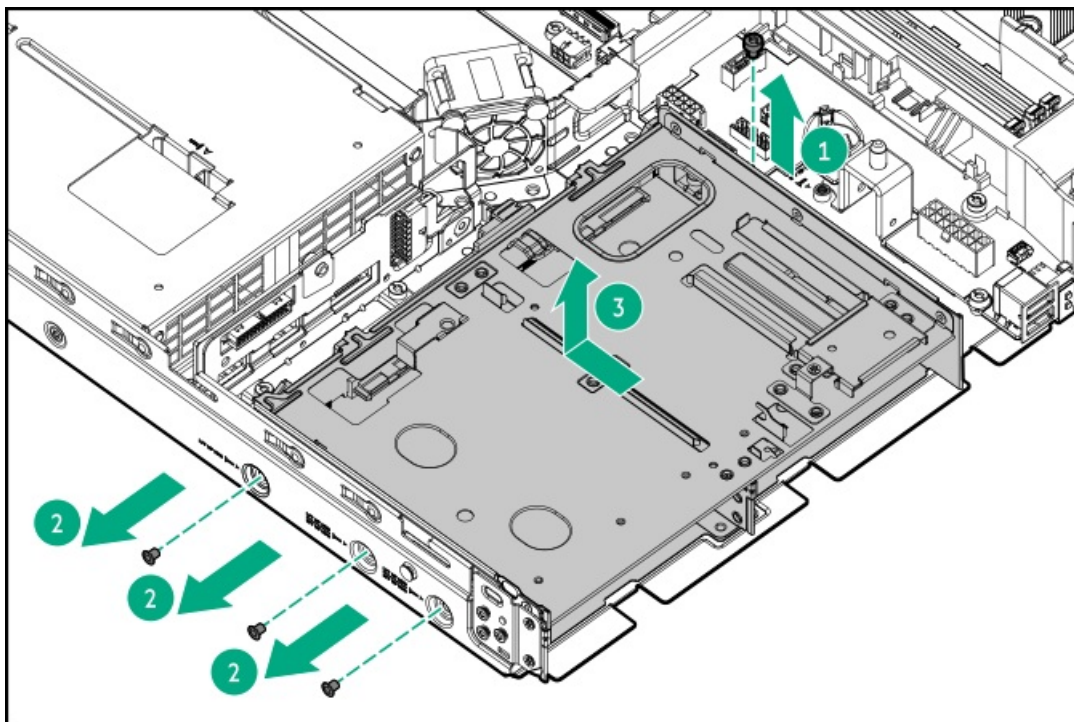7. Remove all inner rails from the chassis.

   Retain all rails for future use.

8. Remove the access panel.
9. Remove the chassis ear.
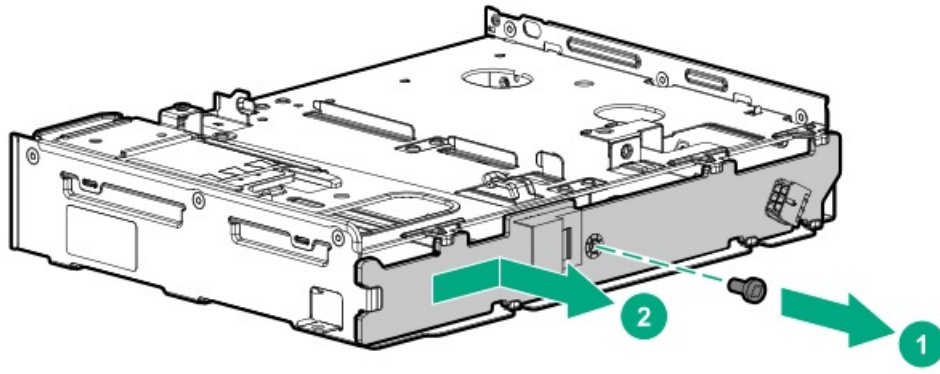10. Remove the front panel cover.

    Retain the cover and all screws for future use.

11. Disconnect all cables from the drive backplane .

12. Remove all drives .

13. Remove the 2 LFF drive cage assembly:

    a. Remove all screws (callouts 1 and 2).

       Retain all screws for future use.

    b. Remove the drive cage assembly from the front panel (callout 3).

14. Remove the 2 LFF drive backplane.

    Retain the screw for future use.

To replace the component, reverse the removal procedure.

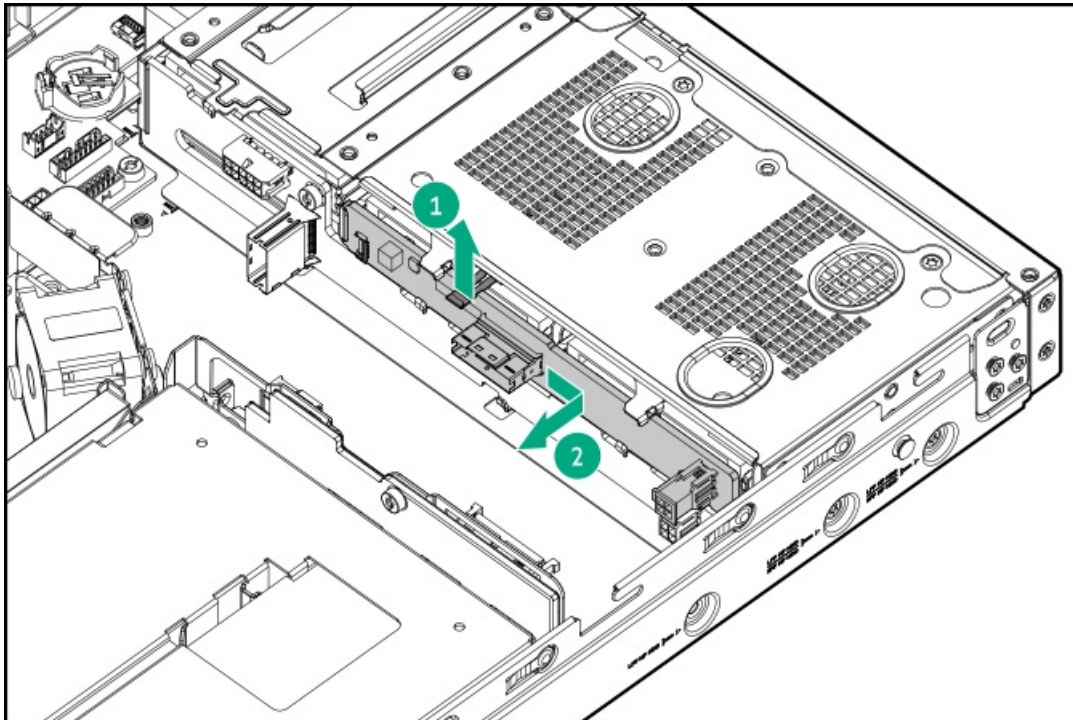# Removing and replacing the 2 SFF drive backplane

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

Prerequisites

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

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the access panel.

8. Disconnect all cables from the drive backplane.

9. Remove all drives.

10. Remove the 2 SFF drive backplane:

    a. Pull up and hold the release tab (callout 1).

    b. Slide the backplane from the drive cage (callout 2).

To replace the component, reverse the removal procedure.

Removing and replacing the 4 SFF drive backplane

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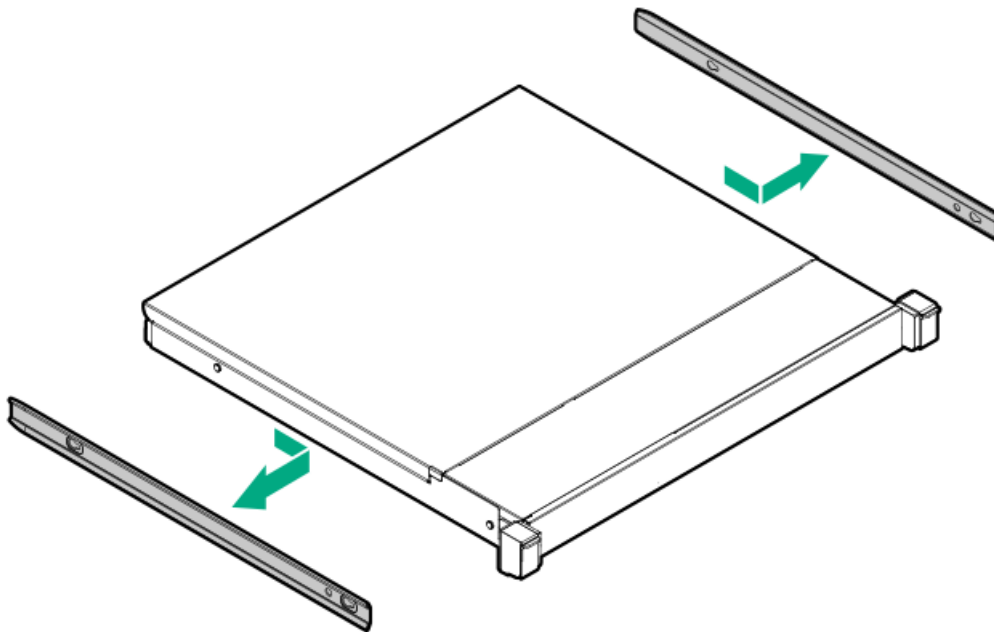
Prerequisites

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

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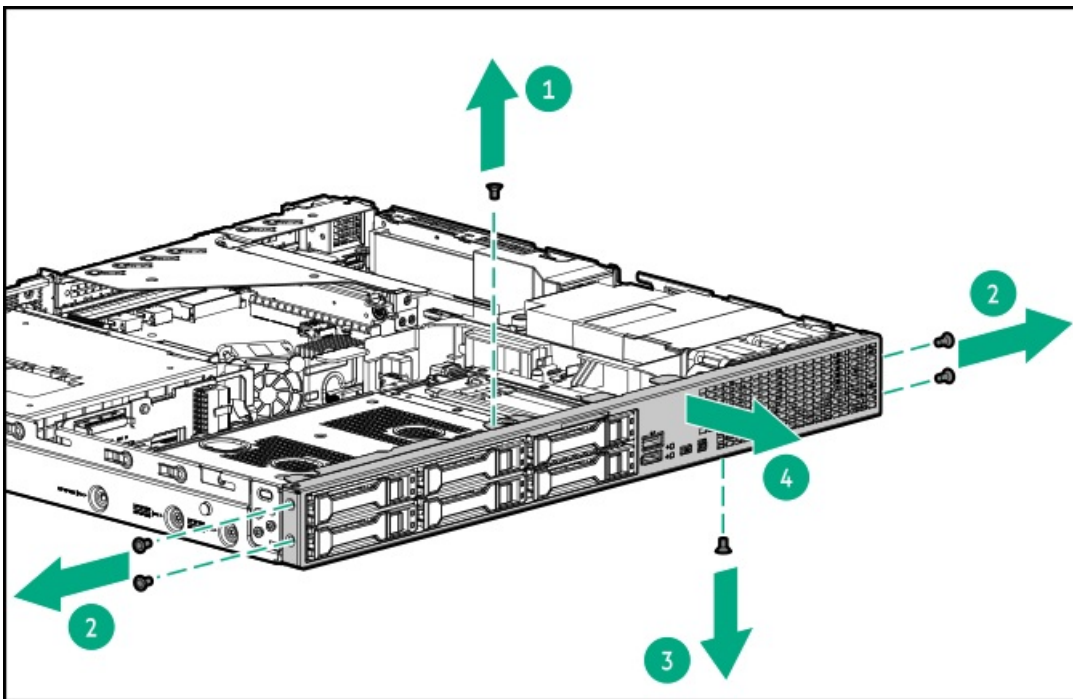- T-15 Torx screwdriver

Procedure

1. If installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove all inner rails from the chassis.

    Retain all rails for future use.

8. Remove the access panel.

9. Remove the chassis ear.

10. Remove the front panel cover.

    Retain the cover and all screws for future use.

11. Disconnect all cables from the drive backplane .

12. Remove all drives .

13. Remove the 4 SFF drive cage assembly:

    a. Remove all screws (callouts 1 and 2).

       Retain all screws for future use.

    b. Remove the drive cage assembly from the front panel (callout 3).
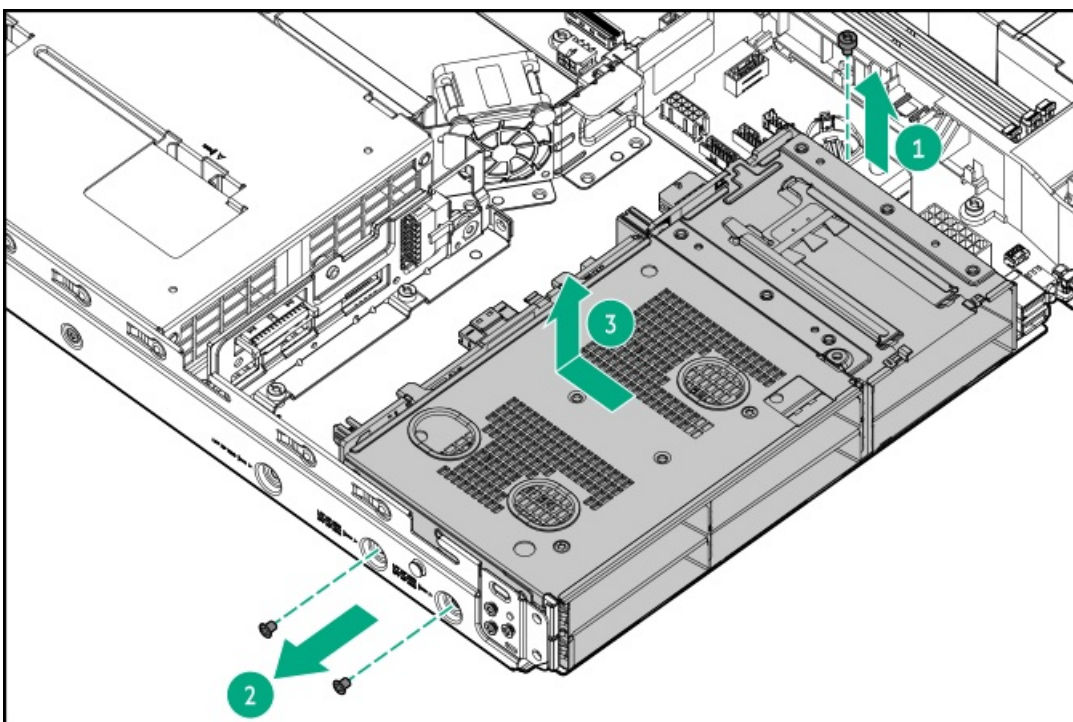
14. Remove the 4 SFF drive backplane.

    Retain the screw for future use.
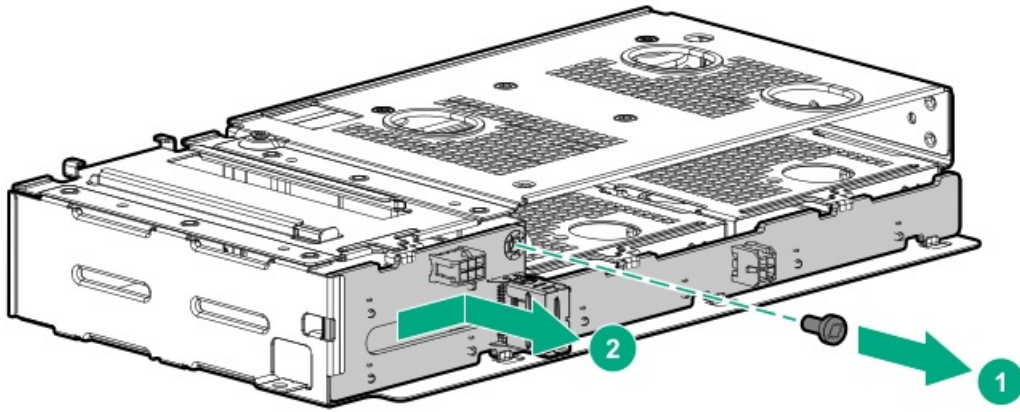
To replace the component, reverse the removal procedure.

Transceiver replacement

- <u>Transceiver warnings and cautions</u>

- <u>Removing and replacing a transceiver</u>

Transceiver warnings and cautions

⚠ WARNING:

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

⚠ CAUTION:

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

⚠ CAUTION:

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

⚠ CAUTION:

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

ⓘ IMPORTANT:

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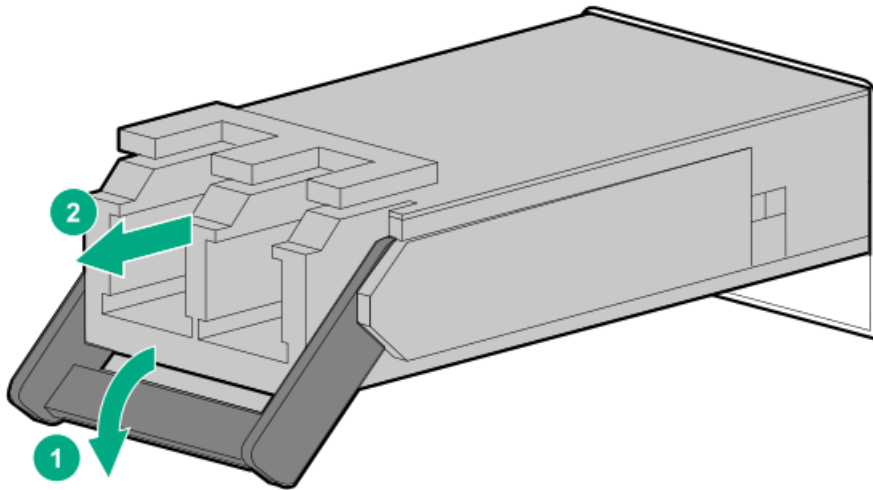
Removing and replacing a transceiver

Prerequisites

Before replacing a transceiver, review the following:

- Transceiver warnings and cautions

- Transceiver documentation for specific operational and cabling requirements

Procedure

1. Disconnect the network cable from the transceiver.

2. Slide the transceiver out of the network adapter port.

   See the transceiver documentation for model-specific release mechanism for removing the transceiver.

To replace the component, reverse the removal procedure.

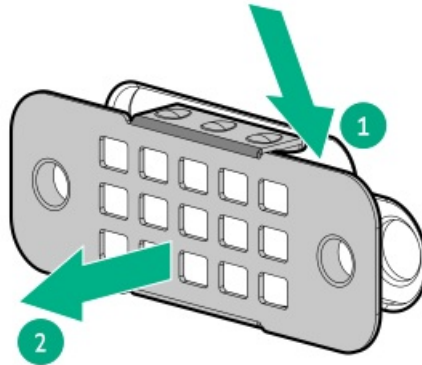# Removing and replacing the serial port blank

⚠ **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.

Prerequisites

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

Procedure

1. Remove the serial port blank:

    a. Detach the right side of the blank (callout 1).

    b. Repeat step a on the left side to remove the blank (callout 2).
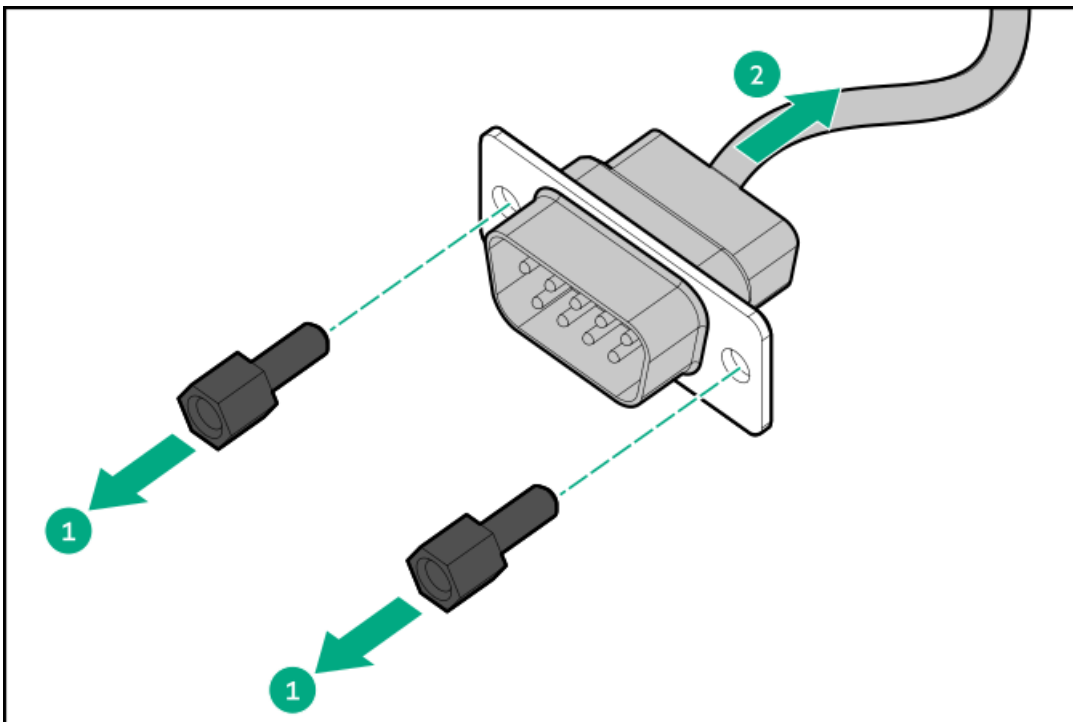

2. Immediately install the new serial port blank.

Removing and replacing the serial port

Prerequisites

Before you perform this procedure, make sure that you have a hex screwdriver available.

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the access panel.

8. Remove the riser cage.

9. Remove the serial port:

    a. Remove the hex screws (callout 1).

    b. Detach the serial port from the rear panel (callout 2).

To replace the component, reverse the removal procedure.

Removing and replacing a riser board

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

> **⚠ CAUTION:**
> Before replacing a DIMM, expansion card, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot. Do not bend or flex circuit boards when reseating components.

Prerequisites

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

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the access panel.

8. Remove the riser cage.

9. If installed, remove any expansion card from the riser.

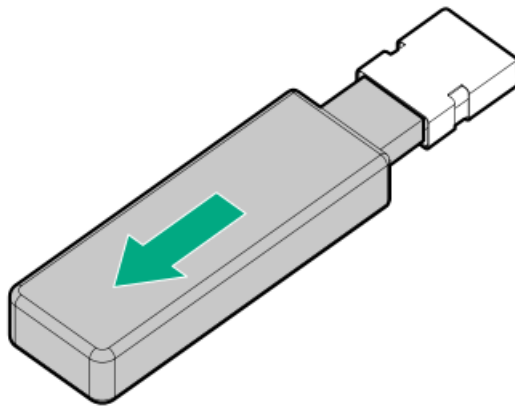10. Remove the riser board.

    Retain all screws for future use.
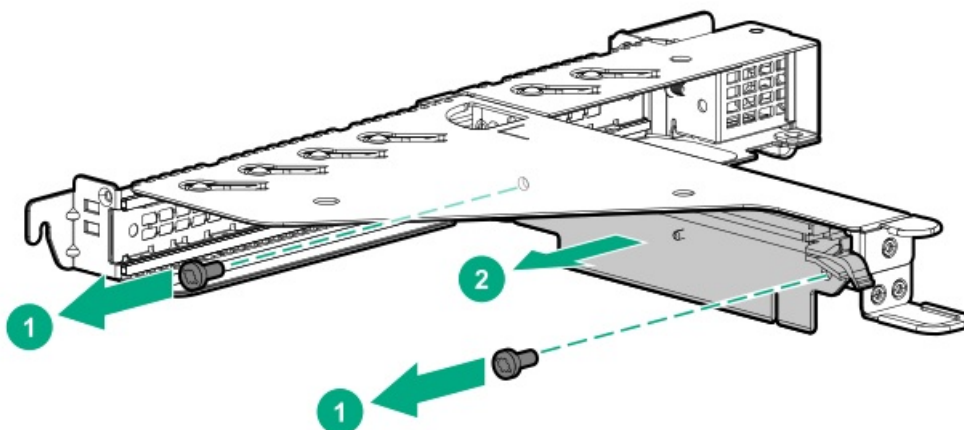
To replace the component, reverse the removal procedure.

Removing and replacing an internal USB device

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the access panel.

8. Remove the riser cage.

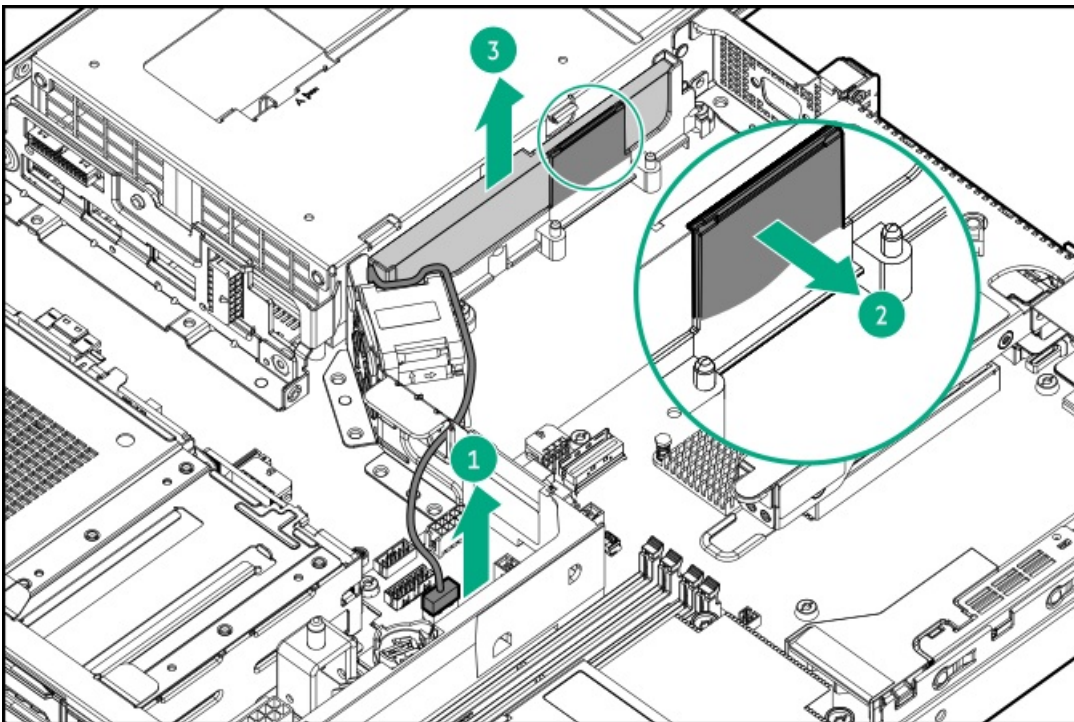9. Unplug the USB device from the USB port.

To replace the component, reverse the removal procedure.

Removing and replacing the energy pack

Procedure

1. If physically powering down a server with the front bezel installed, <u>remove the front bezel</u>.

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

3. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. <u>Remove the server from the rack</u>.

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

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

8. If installed, <u>remove the type-a storage controller</u>.

9. Remove the energy pack:

    a. Disconnect the energy pack cable (callout 1).

    b. Press and hold the release latch (callout 2).

    c. Pull up the energy pack (callout 3).

To replace the component, reverse the removal procedure.

Removing and replacing the energy pack holder

Prerequisites

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

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the access panel.

8. If installed, remove all following components:

    - Type-a storage controller

    - Energy pack

9. Remove the energy pack holder.

   Retain all screws for future use.
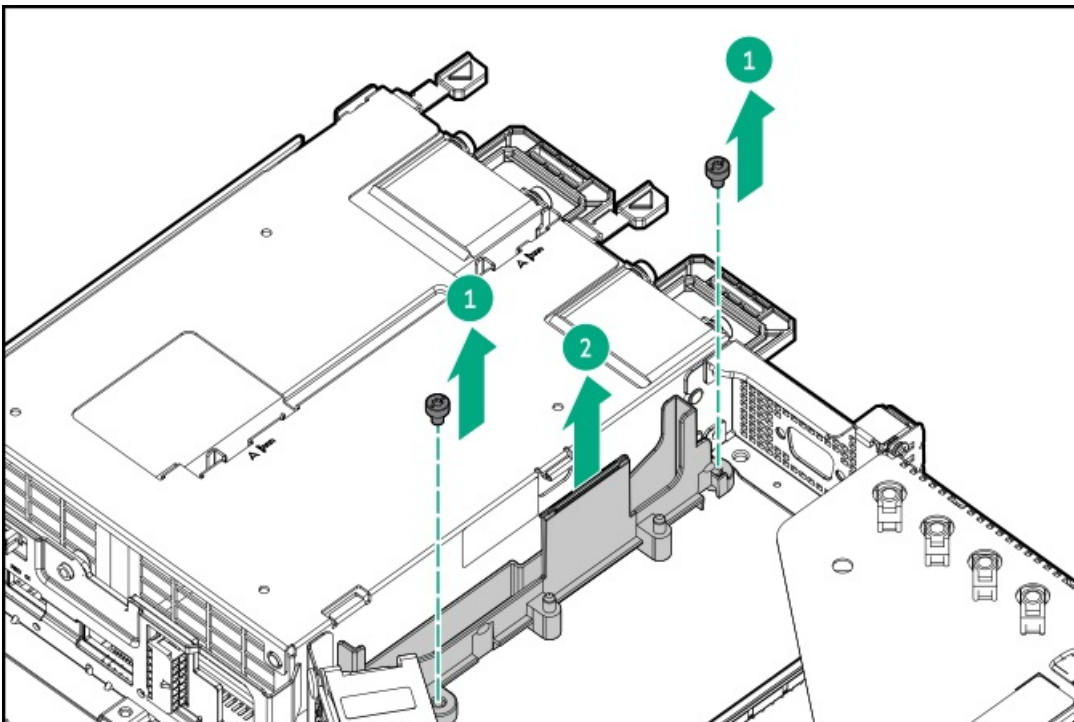
To replace the component, reverse the removal procedure.

Removing and replacing the chassis intrusion detection switch

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the access panel.

8. Disconnect following cables from the system board:

   - 14-pin power supply cable

   - Drive Mini-SAS cable, power Y-cable, and sideband-SATA fan-out cable

9. Remove the chassis intrusion detection switch:

   a. Disconnect the chassis intrusion detection switch cable from the system board (callout 1).

   b. Press and hold the latches on the DIMM guard (callout 2).

   c. While holding the latches, pull the switch from the DIMM guard (callout 3).

   d. Detach the cable from the DIMM guard.
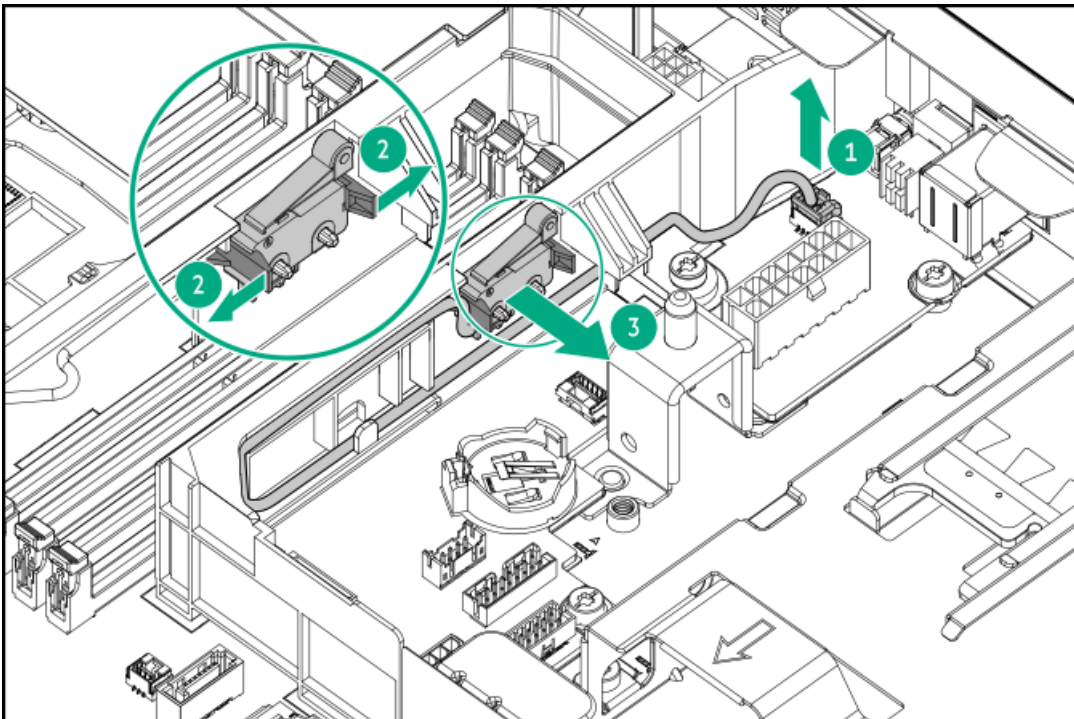
To replace the component, reverse the removal procedure.

M.2 pass-through card replacement

- [Removing and replacing the M.2 pass-through card](#)
- [Removing and replacing the M.2 SSD from the pass-through card](#)

Removing and replacing the M.2 pass-through card

⚠ **CAUTION:**

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

⚠ **CAUTION:**

Before replacing a DIMM, expansion card, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot. Do not bend or flex circuit boards when reseating components.

Prerequisites

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

● Phillips No. 1 screwdriver

● T-15 Torx screwdriver

● 1/4" slotted screwdriver

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the access panel.

8. If the expansion card installed in the riser slot 1, remove the riser cage.
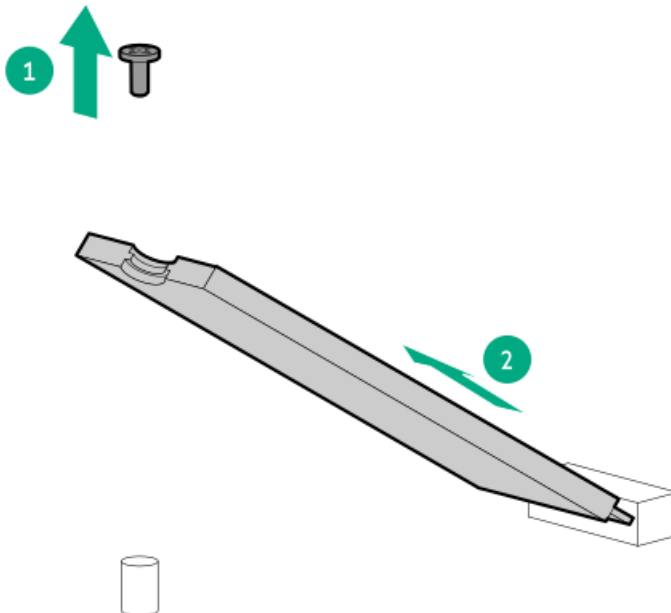
9. Remove the M.2 SSD air baffle.
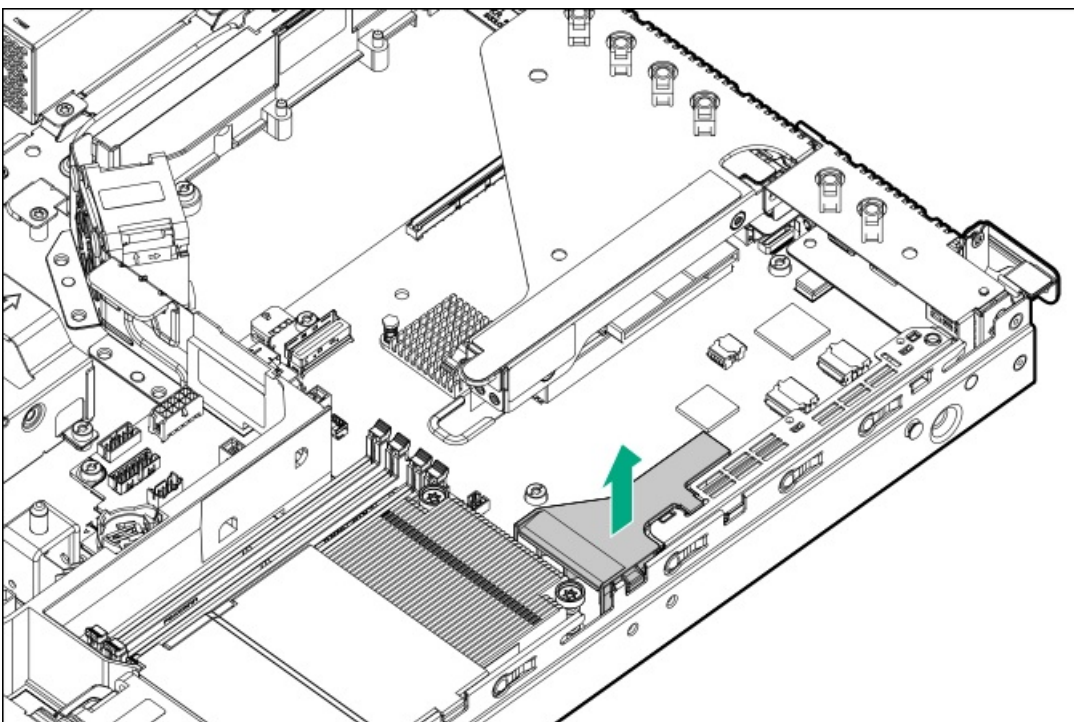
10. <u>Disconnect all cables from the M.2 pass-through card</u> .

11. Remove the M.2 pass-through card assembly:

    a. Rotate the locking pin to the open (vertical) position (callout 1).

    b. Detach the M.2 pass-through card assembly from the chassis (callout 2).
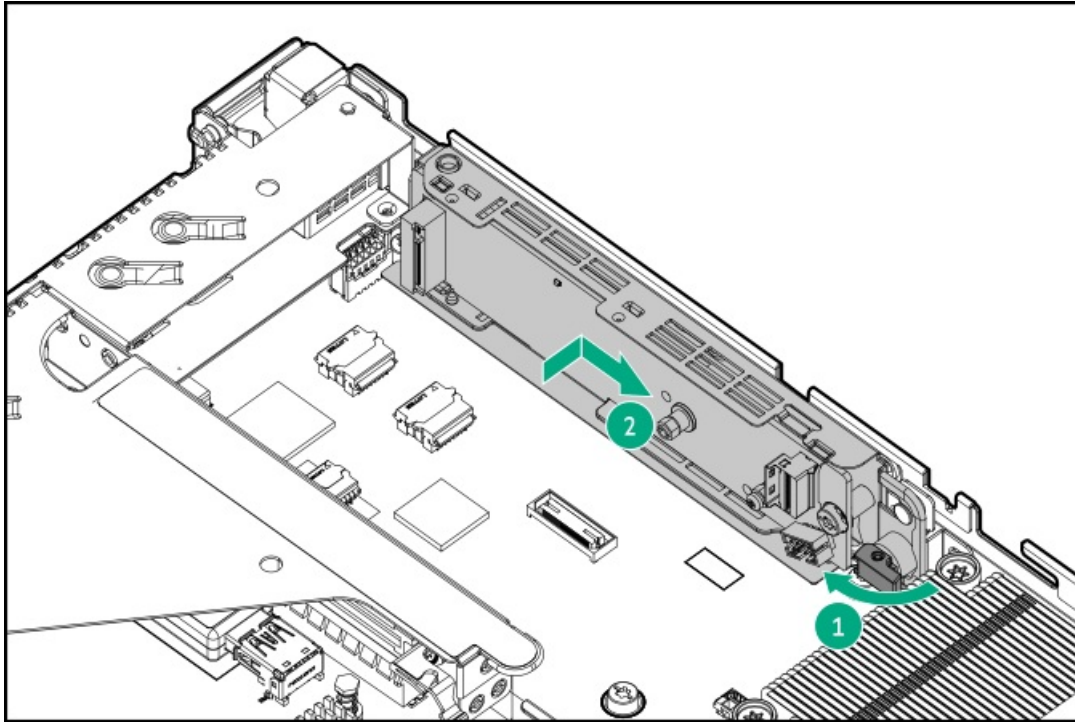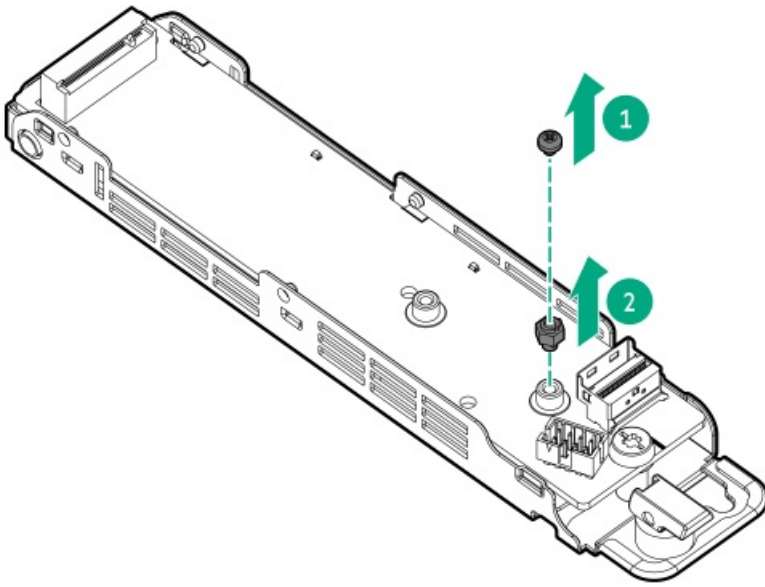

12. If installed, remove all M.2 SATA SSDs.

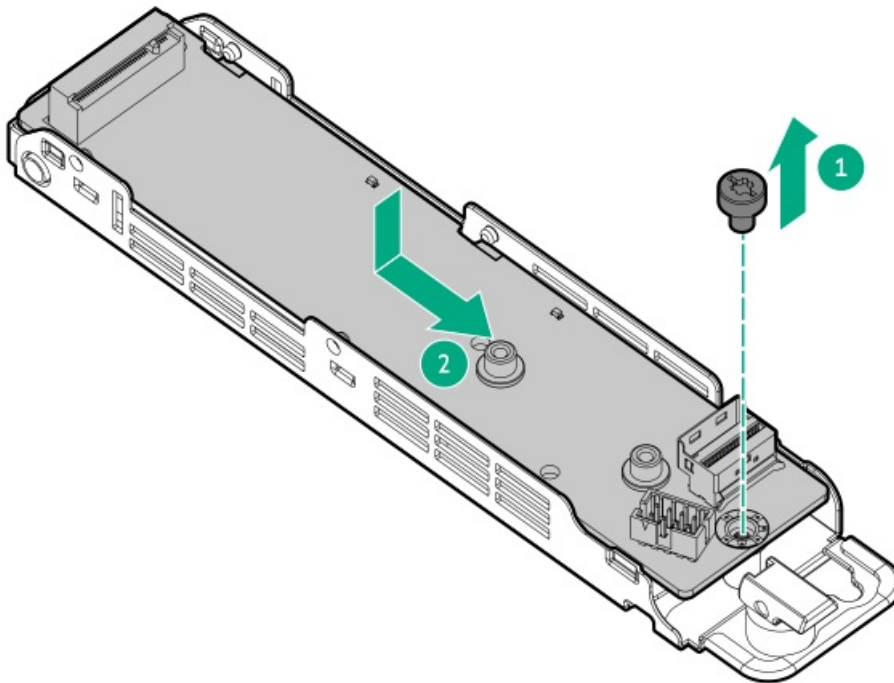   Retain all screws and M.2 SSDs for future use.

13. Remove all SSD mounting screws (callout 1) and the hex screws (callout 2) from 22110 standoff on both sides of pass-through card.

    Retain all screws for future use.

14. Remove the pass-through card from the cage.

    Retain the screw for future use.

To replace the component, reverse the removal procedure.

Removing and replacing the M.2 SSD from the pass-through card

⚠ **CAUTION:**

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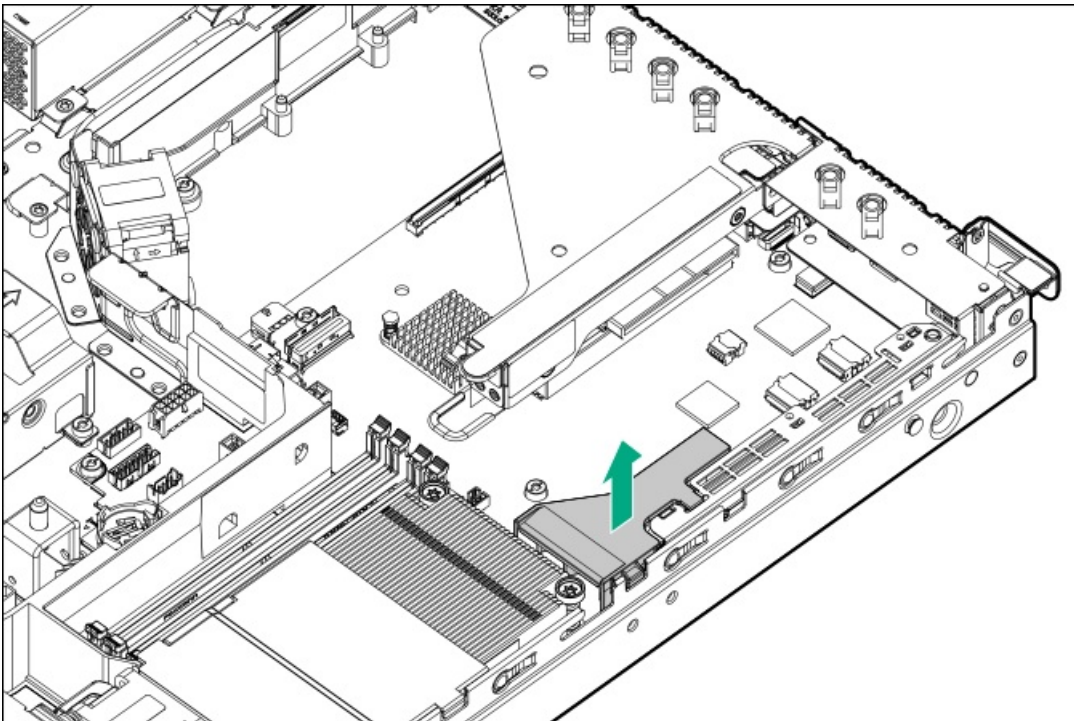
⚠ **CAUTION:**

Before replacing a DIMM, expansion card, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot. Do not bend or flex circuit boards when reseating components.

Prerequisites

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

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the access panel.

8. Remove the M.2 SSD air baffle.

9. If the expansion card installed in the riser slot 1, remove the riser cage.

10. Remove the M.2 pass-through card assembly:

    a. Rotate the locking pin to the open (vertical) position (callout 1).

    b. Detach the M.2 pass-through card assembly from the chassis (callout 2).
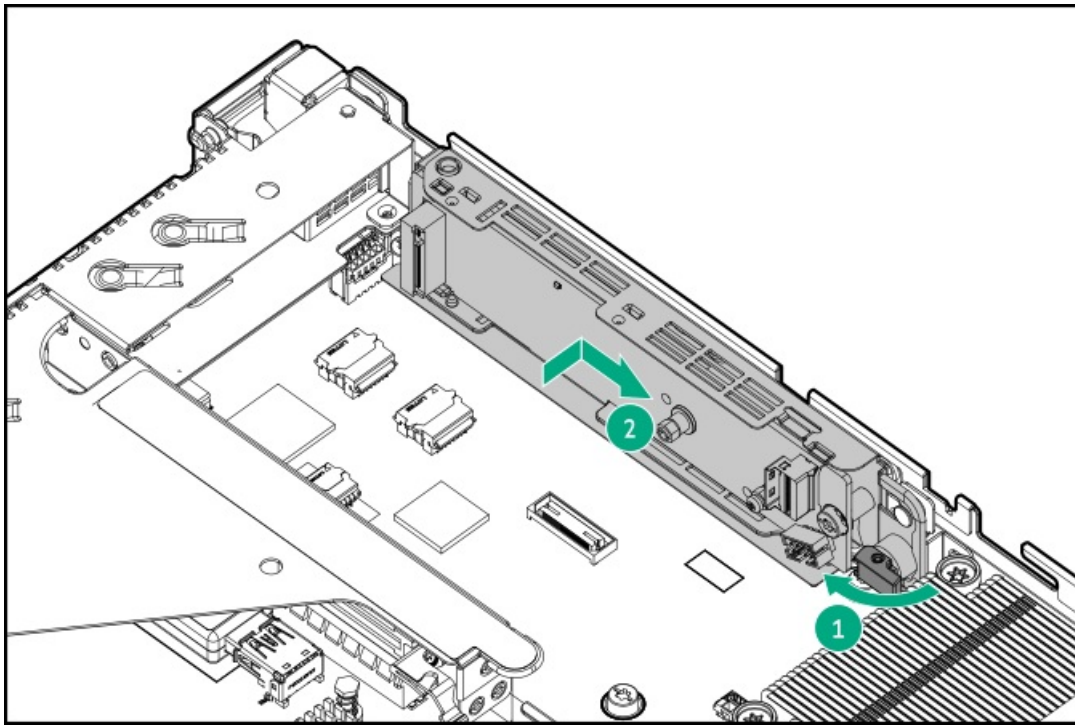
11. Remove all M.2 SATA SSDs.

    Retain all screws future use.
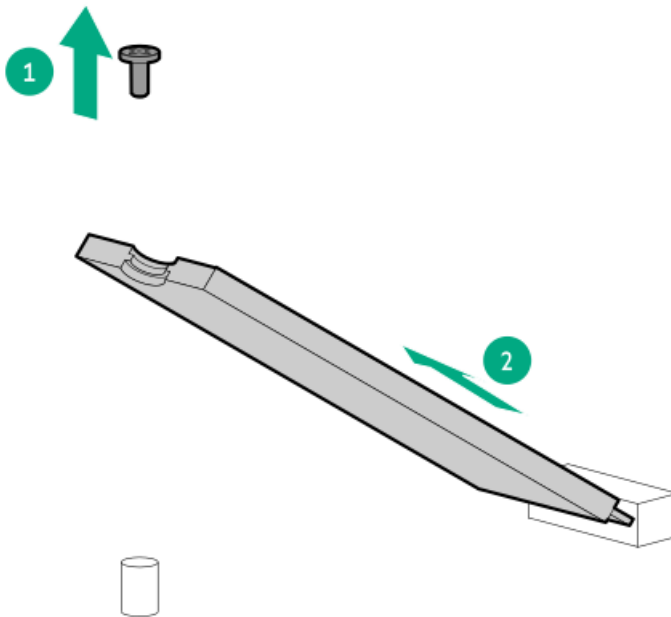
To replace the component, reverse the removal procedure.

M.2 SATA SSD option replacement

- [Removing and replacing the M.2 SATA SSD add-in card](#)

- [Removing and replacing the M.2 SATA SSD from the add-in card](#)

Removing and replacing the M.2 SATA SSD add-in card

⚠ **CAUTION:**

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

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

⚠ **CAUTION:**

Before replacing a DIMM, expansion card, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot. Do not bend or flex circuit boards when reseating components.

Prerequisites

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

- T-10 Torx screwdriver
- Phillips No. 1 screwdriver

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

6. Place the server on a flat, level work surface.
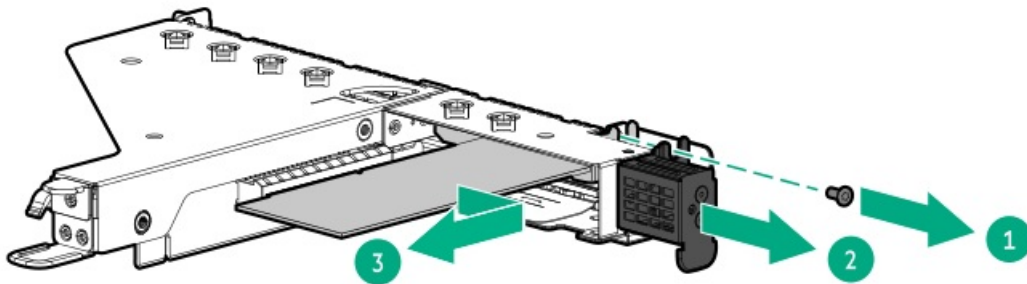
7. Remove the access panel.

8. Disconnect all SATA cables from the add-in card .

9. Remove the riser cage.

10. To remove the add-in card from the riser slot 1:

    a. Remove the screw and slide the retainer bracket (callouts 1 and 2).

       Retain the screw for future use.

    b. Remove the add-in card from the slot 1 (callout 3).

11. To remove the add-in card from the riser slot 2:

    a. Remove the screw (callout 1).

       Retain the screw for future use.

    b. Press and hold the release latch on the end of the slot 2 (callout 2).

c. Remove the add-in card from the slot 2 (callout 3).
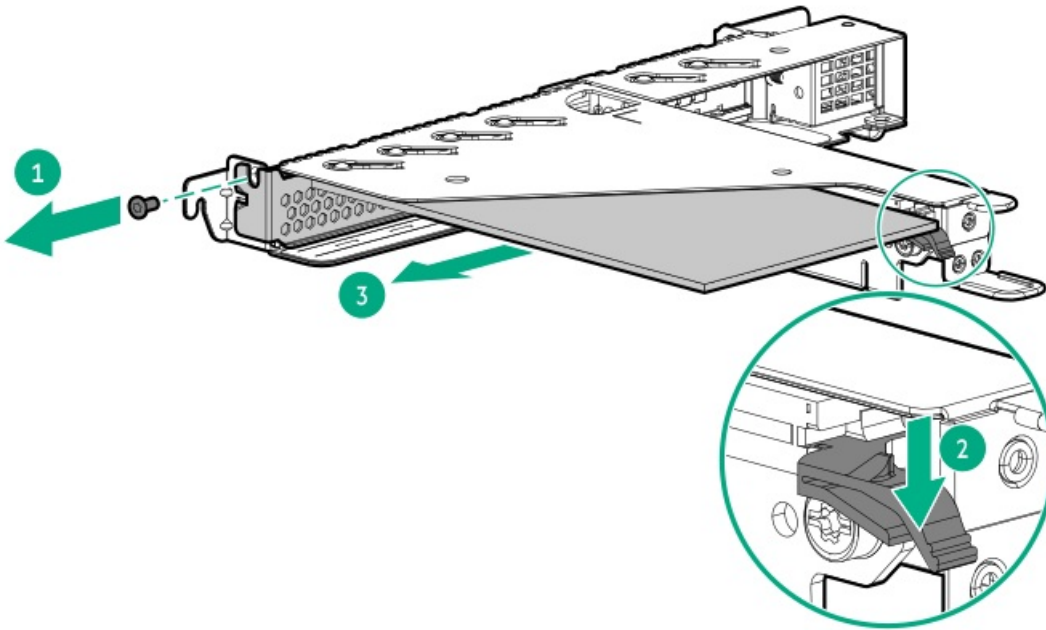
12. If installed, remove all M.2 SATA SSDs from the add-in card.

   Retain all screws and M.2 SSDs for future use.
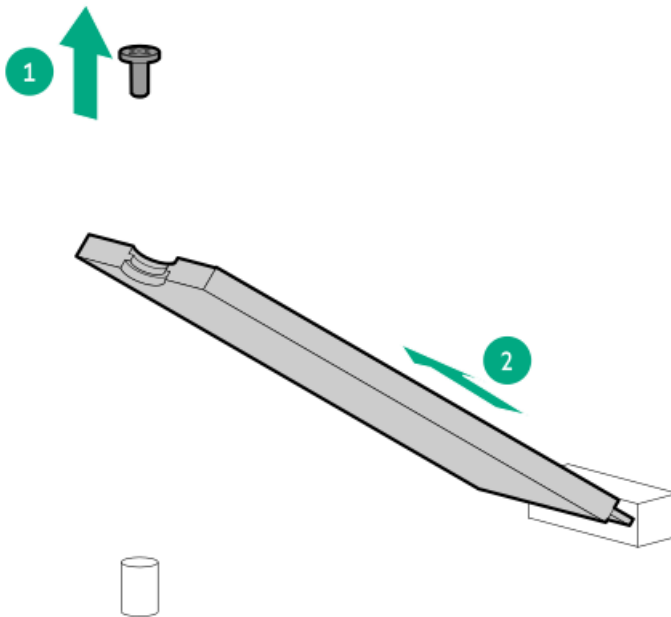
To replace the component, reverse the removal procedure.

Removing and replacing the M.2 SATA SSD from the add-in card

⚠ **CAUTION:**

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

⚠ **CAUTION:**

Before replacing a DIMM, expansion card, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot. Do not bend or flex circuit boards when reseating components.

Prerequisites

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

- T-10 Torx screwdriver
- Phillips No. 1 screwdriver

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel .
2. Power down the server.
3. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.
4. Disconnect all peripheral cables from the server.
5. Remove the server from the rack .
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the riser cage.
9. Remove the M.2 SSD add-in card .
10. Remove all M.2 SATA SSDs from the add-in card.

    Retain all screws for future use.
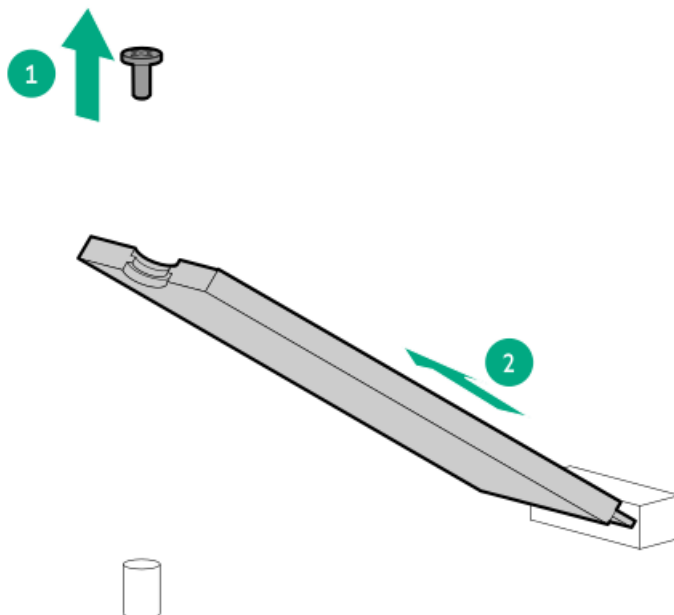
To replace the component, reverse the removal procedure.

HPE NS204i-p NVMe OS Boot Device replacement

- [Removing and replacing a boot device drive](#)

- [Removing and replacing the boot device](#)

- [Relocating the M.2 drive retaining latches](#)

Removing and replacing the boot device

⚠ **CAUTION:**

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

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

⚠ **CAUTION:**

Before replacing a DIMM, expansion card, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot. Do not bend or flex circuit boards when reseating components.

Prerequisites

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

Procedure

1. Back up all server data.

2. If physically powering down a server with the front bezel installed, remove the front bezel.

3. Power down the server.

4. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

5. Disconnect all peripheral cables from the server.

6. Remove the server from the rack.

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

8. Remove the access panel.

9. Remove the riser cage.

10. To remove the boot device from the riser slot 1:

    a. Remove the screw and slide the retainer bracket (callouts 1 and 2).

       Retain the screw for future use.

    b. Remove the boot device from the slot 1 (callout 3).

       Retain the screw for future use.
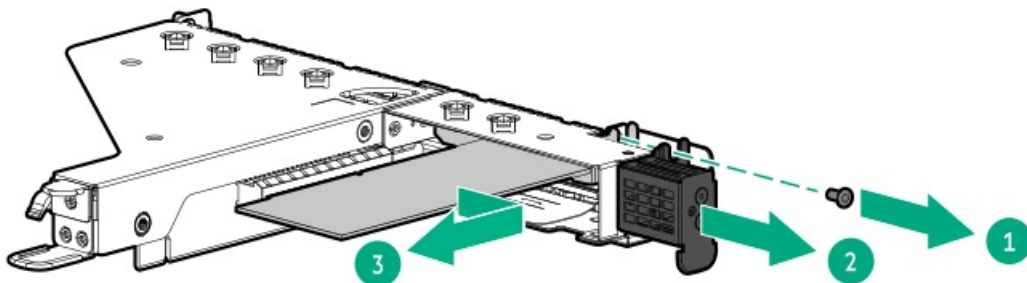
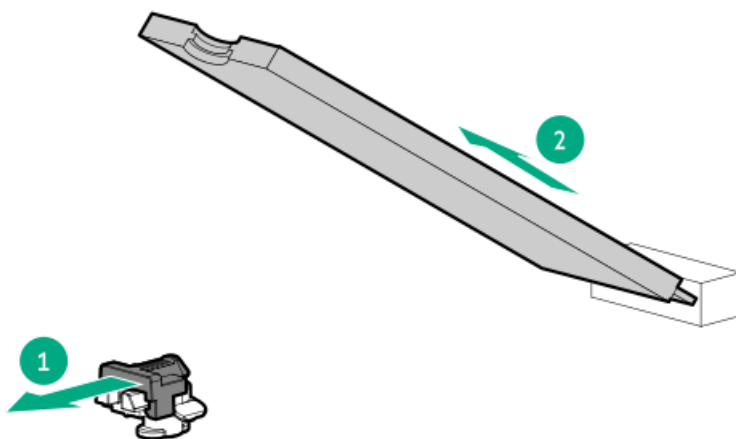11. To remove the boot device from the riser slot 2:

    a. Remove the screw (callout 1).

       Retain the screw for future use.

    b. Press and hold the release latch on end of slot 2 (callout 2).

    c. Remove the boot device from the slot 2 (callout 3).
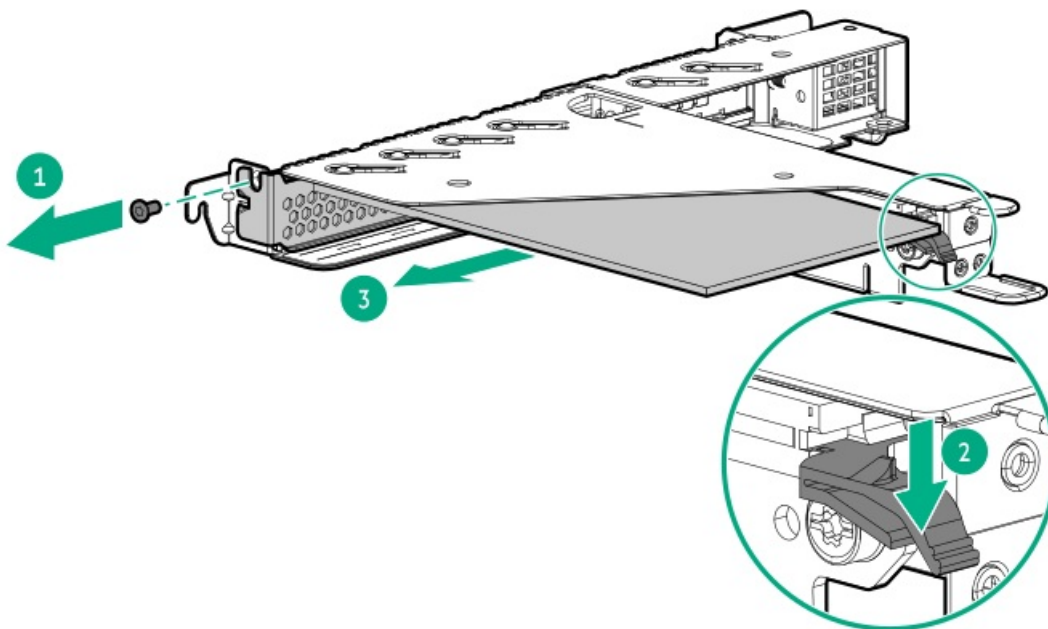
12. If installed, remove all drives from the boot device.

    Retain all drives for future use.

To replace the component, reverse the removal procedure.

Removing and replacing a boot device drive

The boot device supports two physical drive sizes:

- 22110 (110 mm)

- 2280 (80 mm)

Two drives of the same physical size, or one of each size, can be installed at the same time. Depending on the replacement drive size, you might need to relocate the M.2 drive retaining latches on the boot device.

> △ **CAUTION:**
>
> The boot device and the drives installed on the boot device are not hot-pluggable. To remove the boot device, or a drive from the boot device, you must first power down the server.

> △ **CAUTION:**
>
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.
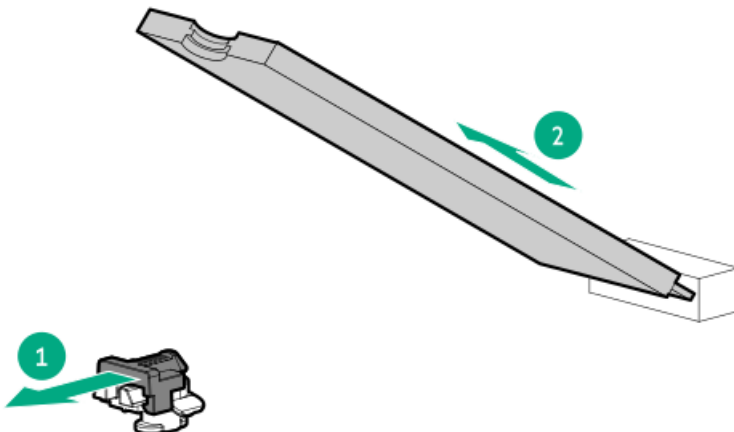
> △ **CAUTION:**
>
> Before replacing a DIMM, expansion card, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot. Do not bend or flex circuit boards when reseating components.

Prerequisites

Review the boot device drive bay LEDs to identify the failed drive.

Procedure

1. Back up all server data.

2. If physically powering down a server with the front bezel installed, remove the front bezel.

3. Power down the server.

4. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

5. Disconnect all peripheral cables from the server.

6. Remove the server from the rack.

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

8. Remove the access panel.

9. Remove the riser cage.

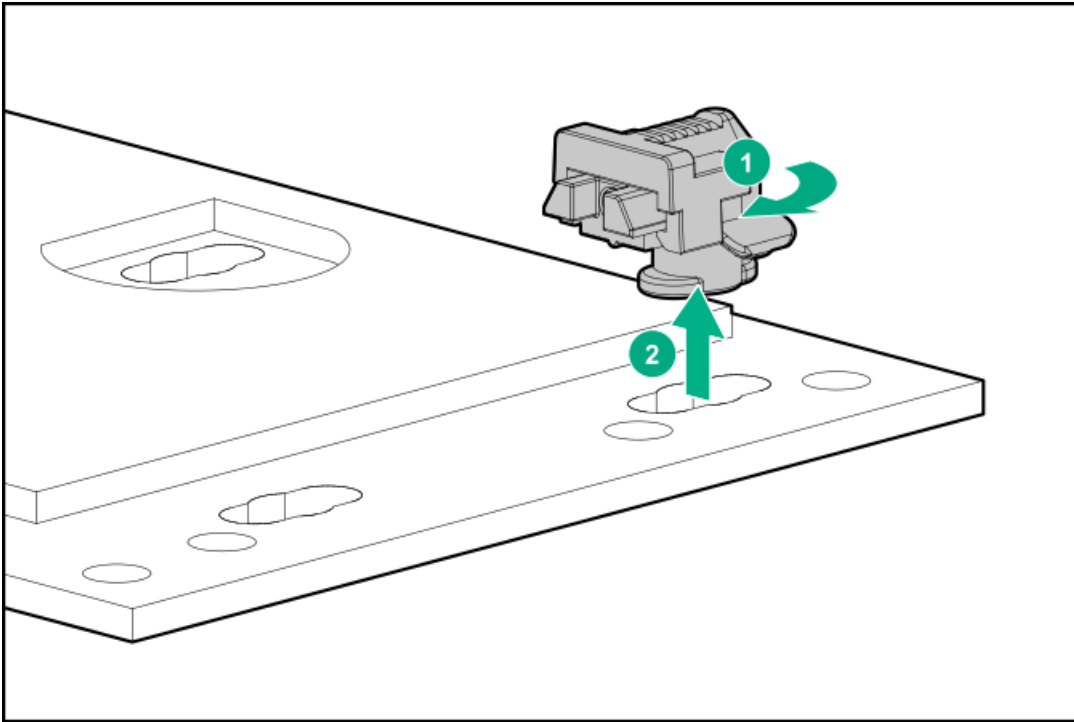10. Remove all drives from the boot device.

To replace the component, reverse the removal procedure.
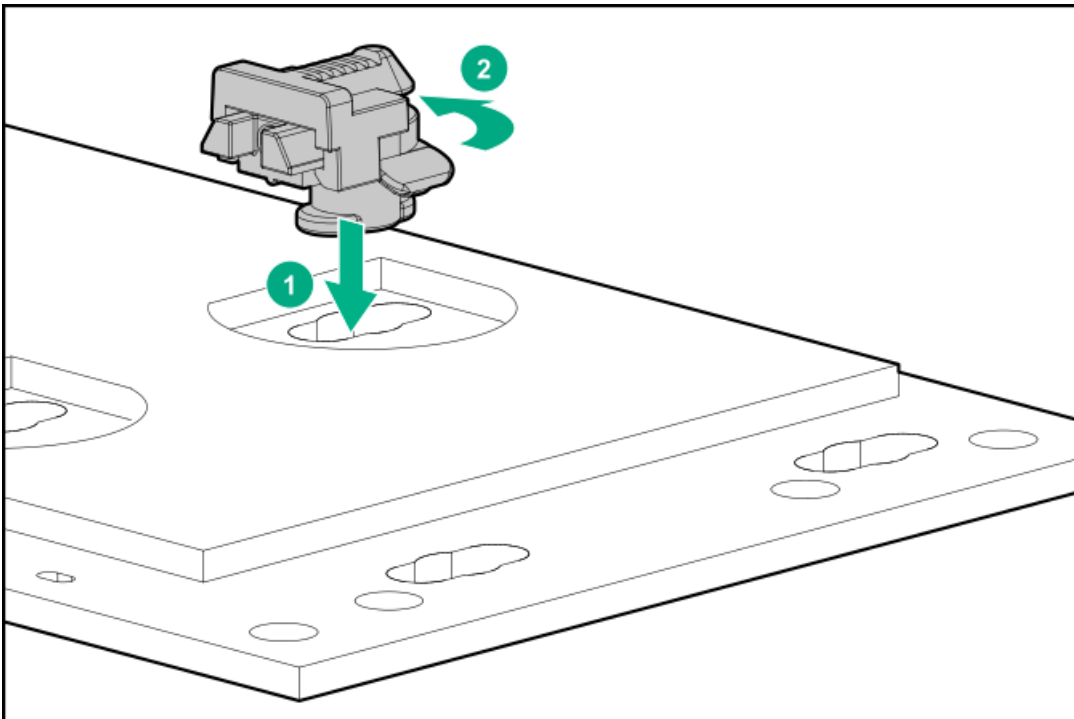
Relocating the M.2 drive retaining latches

Procedure

1. If your spare kit includes an 80 mm replacement drive, remove the retaining latch from its current location.

2. Install the retaining latch at the 80 mm drive location.

Relocating the M.2 drive retaining latches

Removing and replacing the power distribution board

⚠ **CAUTION:**

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

⚠ **CAUTION:**

Before replacing a DIMM, expansion card, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot. Do not bend or flex circuit boards when reseating components.

Prerequisites

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

- T-10 Torx screwdriver

- T-15 Torx screwdriver

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel .

2. Power down the server .

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack .

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

7. Disconnect all cables from the power distribution board .

8. Remove all Flexible Slot power supplies .

9. Remove the power distribution board assembly.

   Retain all screws for future use.
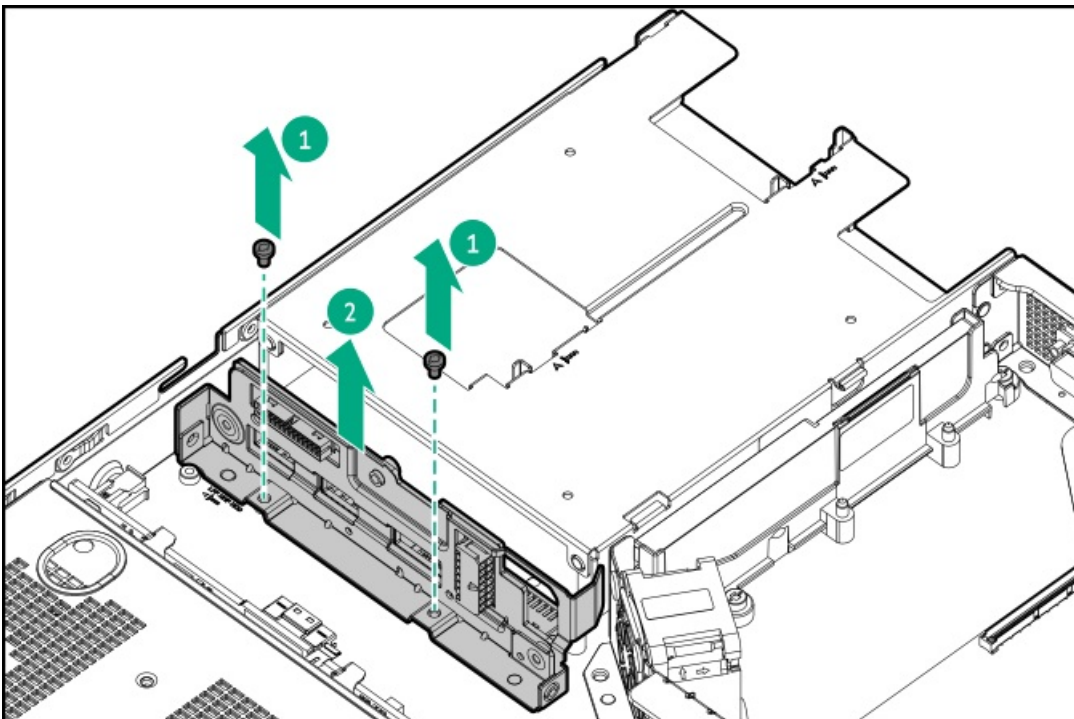
10. Remove the power distribution board from the bracket.

    Retain all screws for future use.
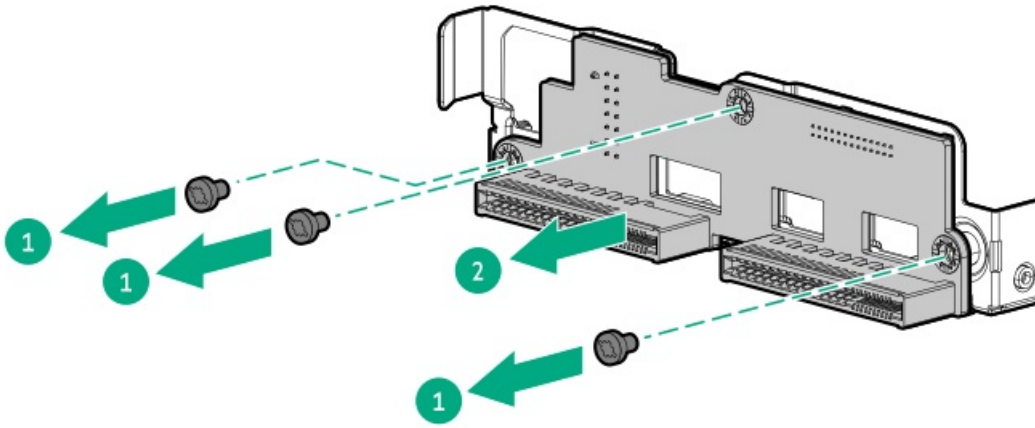
To replace the component, reverse the removal procedure.

Power supply replacement

- [Removing and replacing the non-hot-plug power supply](#)

- [Removing and replacing a Flexible Slot power supply](#)

Power supply warnings and cautions

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

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

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

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

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

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

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

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

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

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

DC power supply warnings and cautions

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

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

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

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

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

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

Removing and replacing a Flexible Slot 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.

> ⚠ **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.

Prerequisites

- Before replacing a power supply, review the following:

  - Power supply warnings and cautions

  - DC power supply warnings and cautions

- If you are replacing a DC power supply, make sure that you have a Phillips No.1 screwdriver available.

Procedure

1. If the server is using a single power supply, remove all power from the server:

   a. Back up all server data.

   b. If physically powering down a server with the front bezel installed, remove the front bezel.

   c. Power down the server.

   d. Disconnect all peripheral cables from the server.

2. Release the power cords, wires, and cables from the strain relief strap.

   - AC power supply
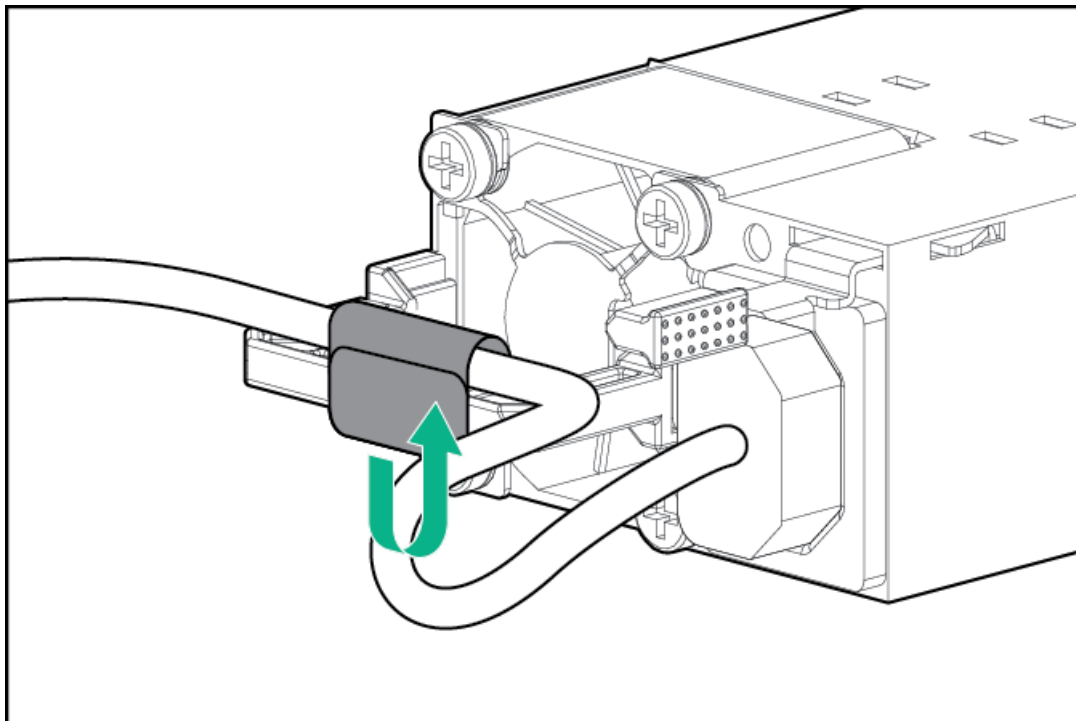
   - DC power supply
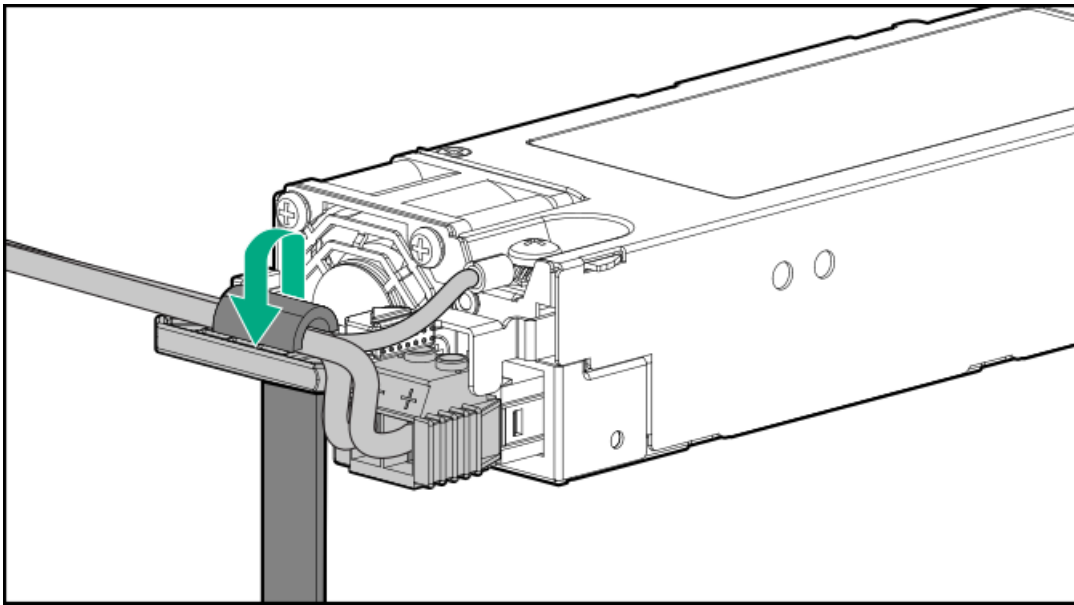
3. For an AC power supply, do the following:

   a. Disconnect the power cord from the power supply.
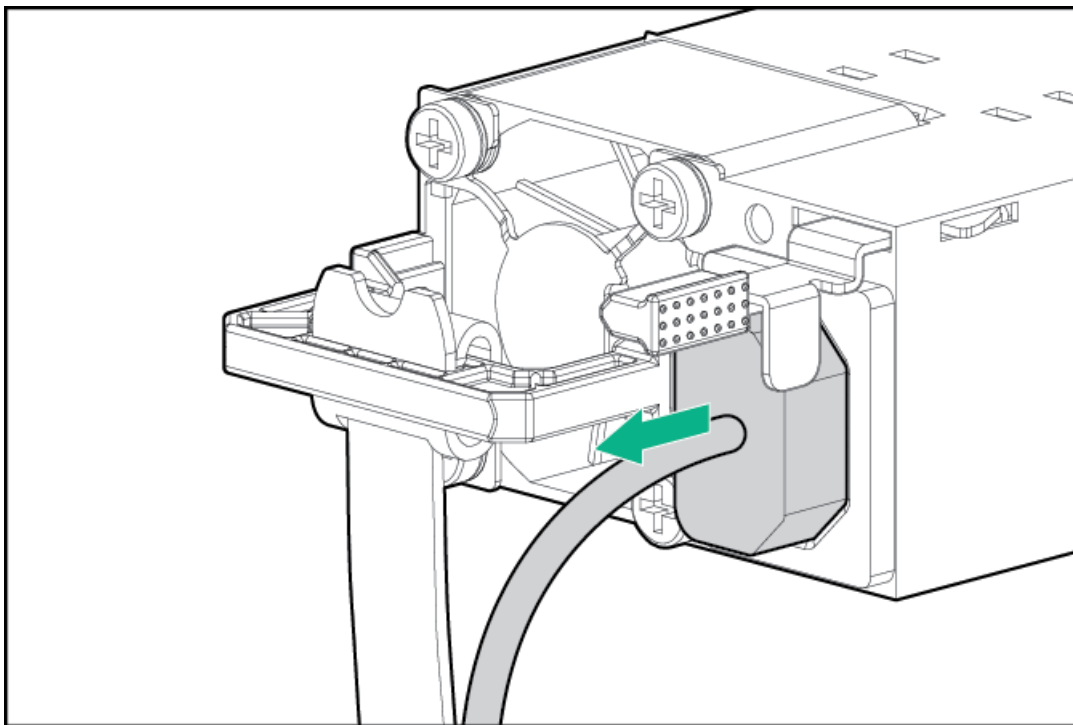
   b. Remove the power supply.
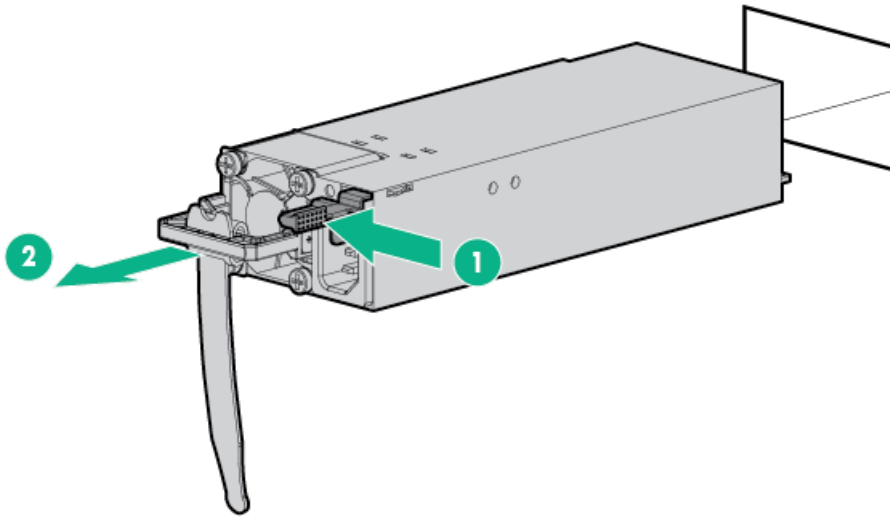
4. For a DC power supply, do the following:

   a. Slide the power supply out of the bay to access the ground cable screw.
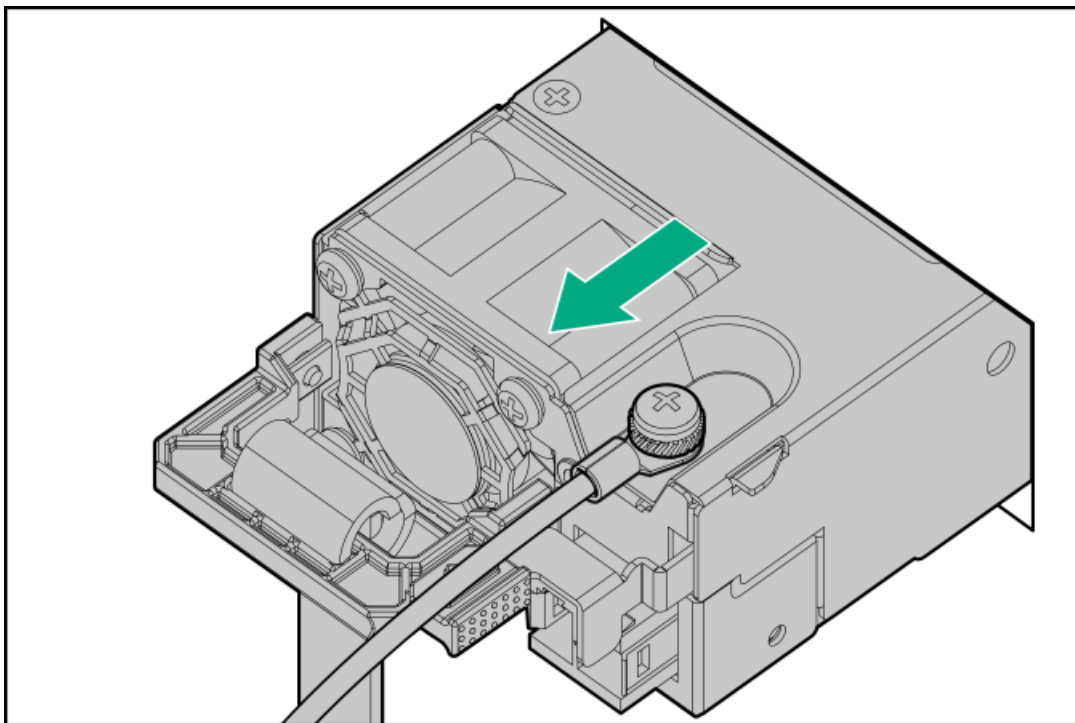
   b. Remove the ground (earthed) cable from the power supply.
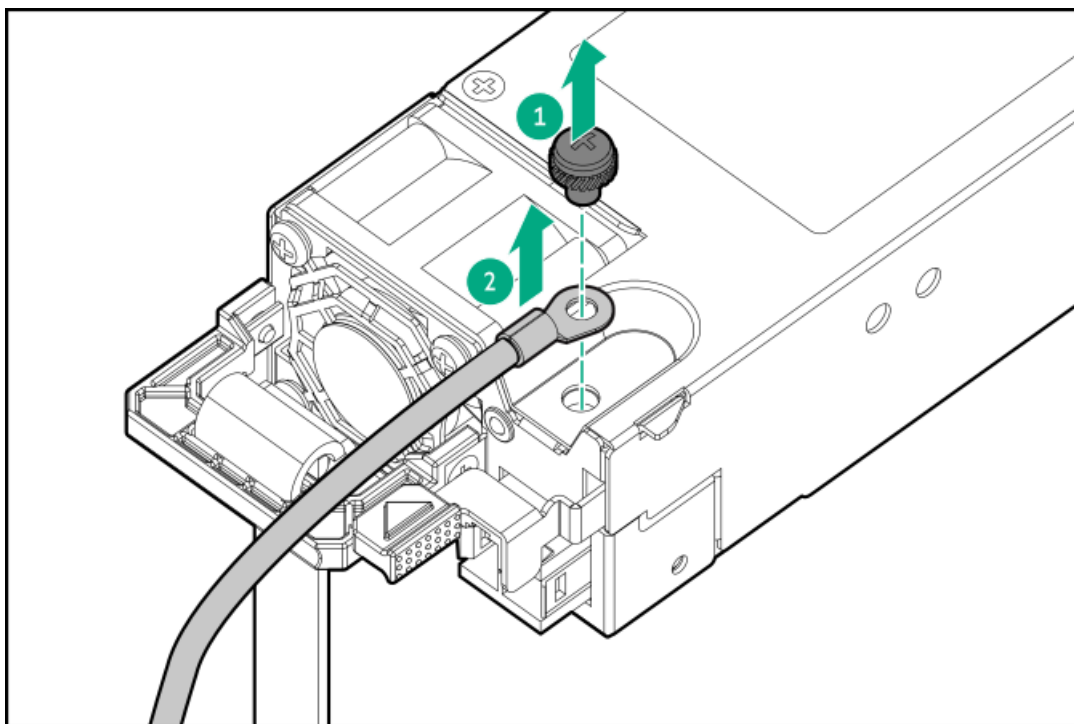
c. Remove the terminal block connector from the power supply.
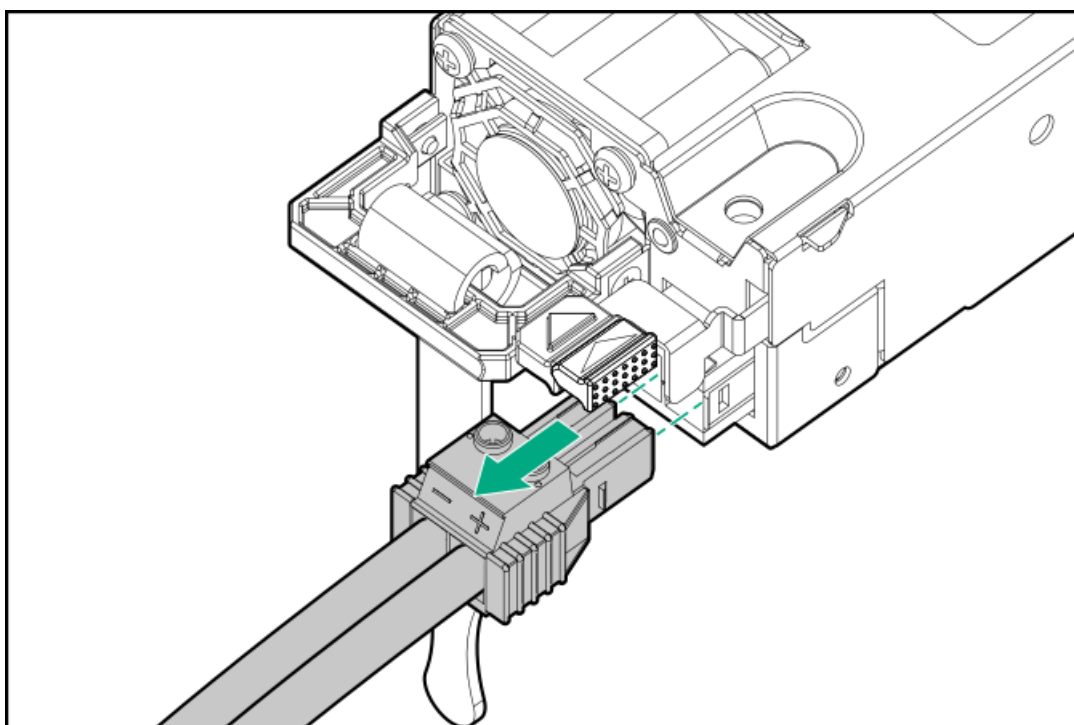
d. Remove the power supply.
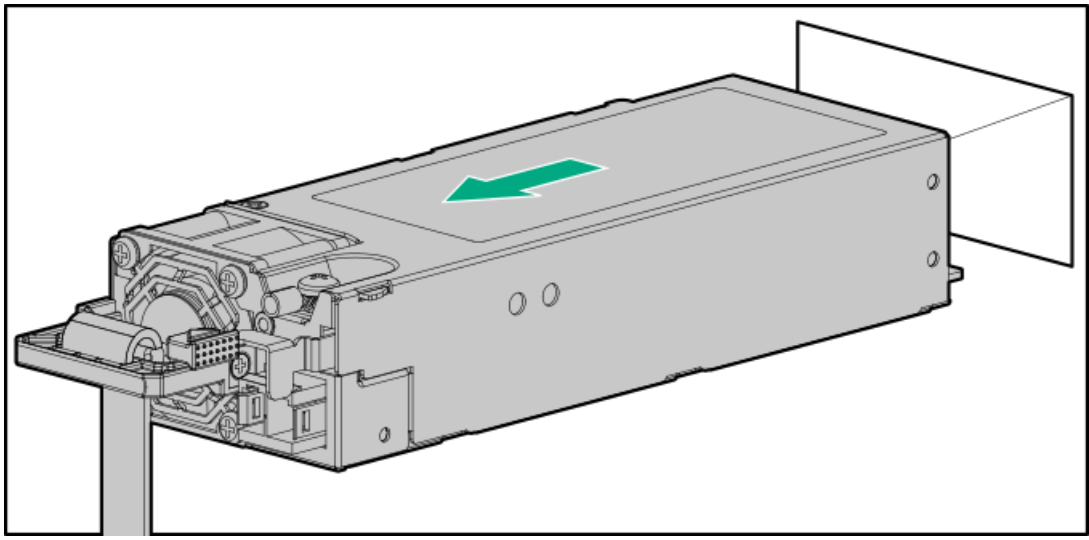
To replace the component, reverse the removal procedure.

Removing and replacing the non-hot-plug power supply

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

Prerequisites

- Before replacing a power supply, review the Power supply warnings and cautions.

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

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove left inner rail from the chassis.

   Retain the rail for future use.
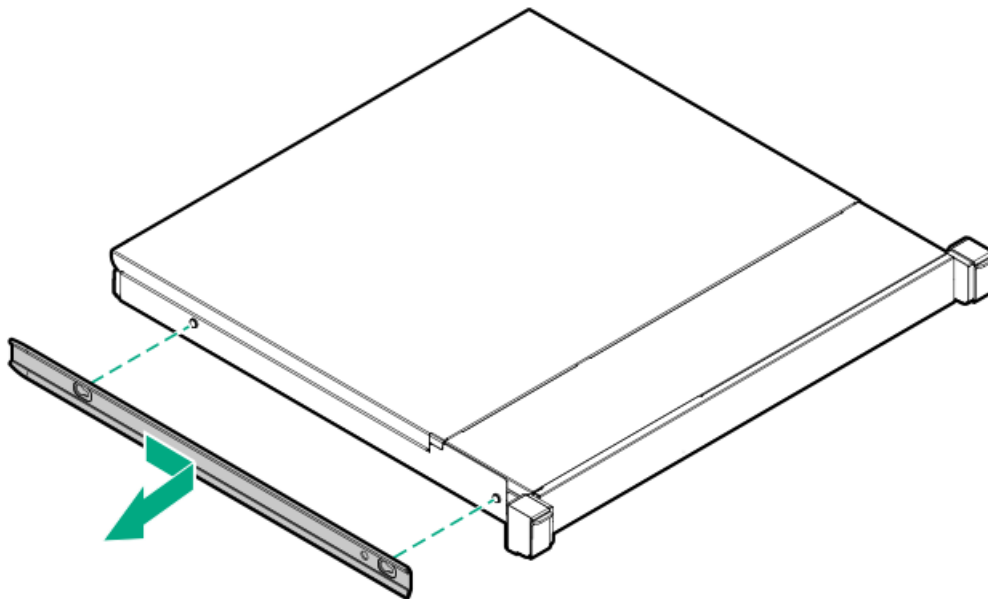
8. Remove the access panel.

9. Disconnect the power supply cables from the system board.

10. Release the power cord from the strain relief clip.
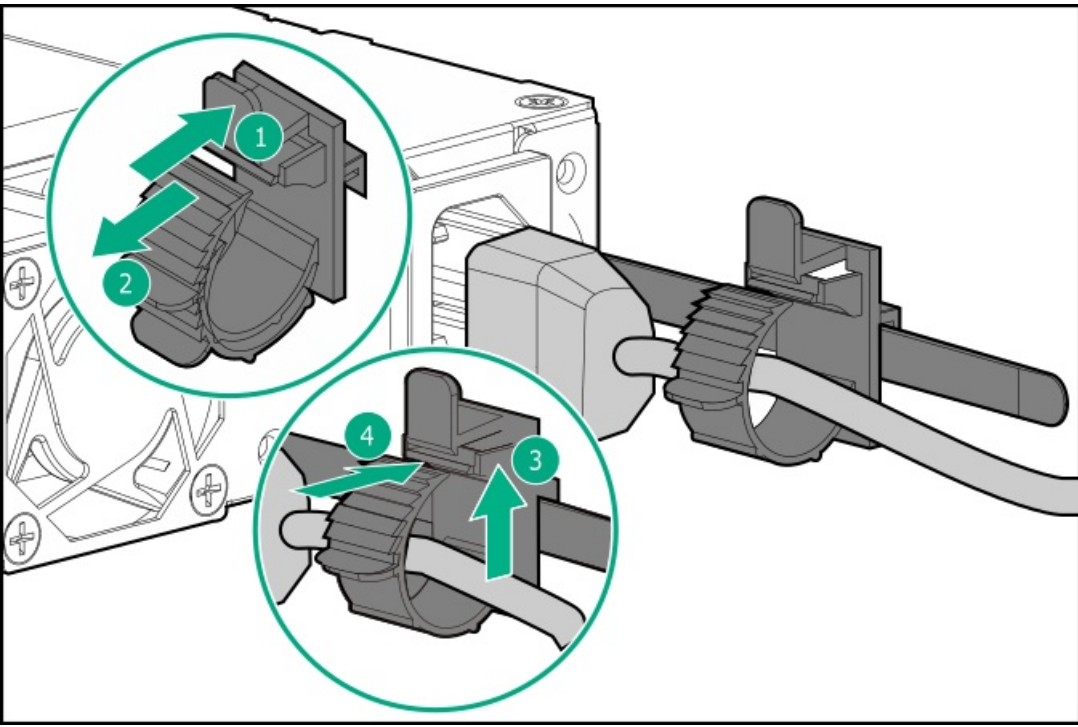
11. Remove the power supply.

    Retain all screws for future use.
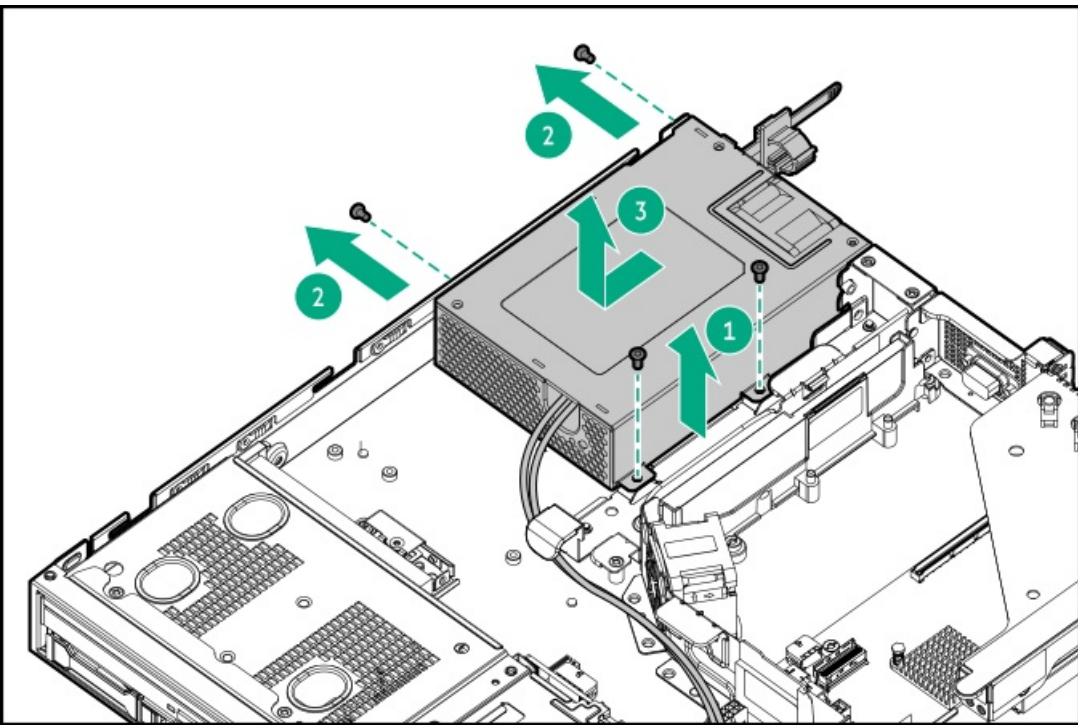
To replace the component, reverse the removal procedure.

System battery replacement

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

System battery information

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

> ⚠ **WARNING:**
> If this battery is not properly handled, a risk of the fire and burns exists. To reduce the risk of personal injury:
>
> - Do not attempt to recharge the battery.
>
> - Do not expose the battery to temperatures higher than 60°C (140°F).
>
> - Do not expose the battery to extremely low air pressure as it might lead to explosion or leakage of flammable liquid or gas.
>
> - Do not disassemble, crush, puncture, short external contacts, or dispose the battery in fire or water.

Removing and replacing the system battery

Prerequisites

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

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the access panel.

8. Locate the battery on the system board .

9. Remove the system battery:

    a. Use a small flat-bladed, nonconductive tool to press the battery latch (callout 1).

    b. Remove the system battery from the socket (callout 2).
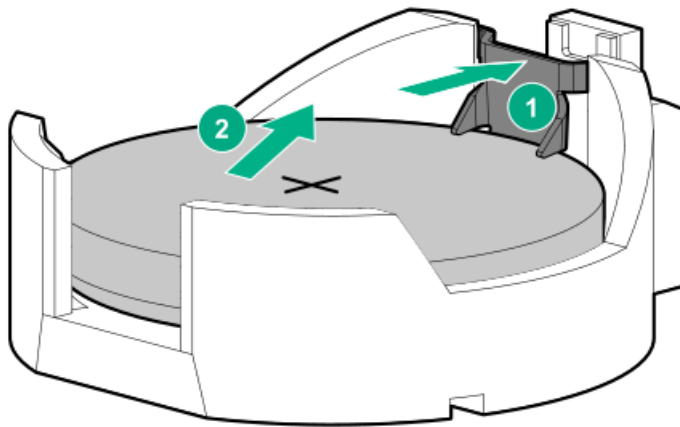
10. Install the system battery:

    a. With the side of the battery showing the "+" sign facing up, insert the battery into the socket (callout 1).

    b. Press the system battery down until it clicks into place (callout 2).
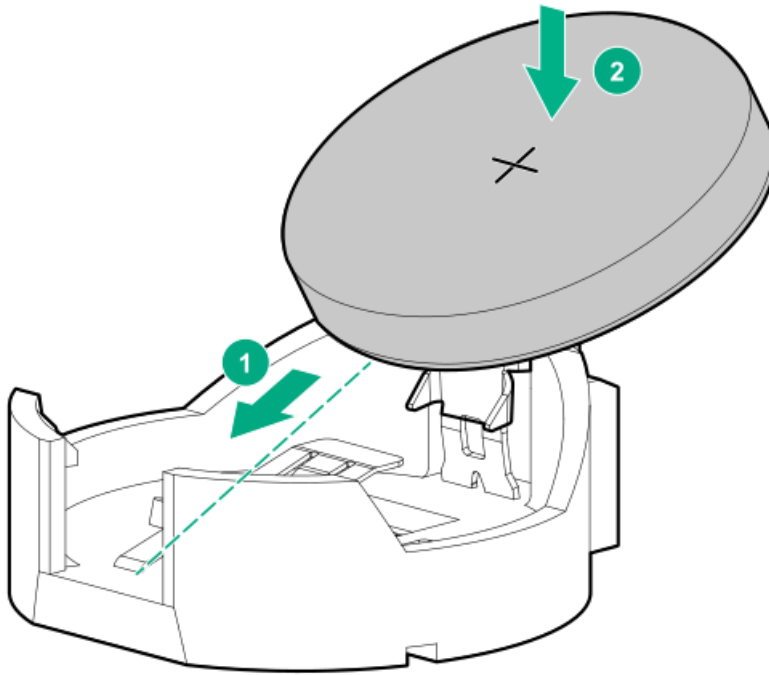
11. Install the access panel.

12. Install the server into the rack.

13. Connect all peripheral cables to the server.

14. Connect the power cords:

    a. Connect each power cord to the server.

    b. Connect each power cord to the power source.

15. Power up the server.

16. If removed, install the front bezel.

17. Properly dispose of the old battery.

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

Heatsink replacement

- <u>Removing the heatsink</u>
- <u>Installing the heatsink</u>

Removing the heatsink

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

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

Prerequisites

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

- T-15 Torx screwdriver
- Alcohol wipe

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the access panel.

8. If installed, remove the M.2 air baffle.

9. If installed, remove the processor air baffle.

10. Allow the heatsink to cool.

11. Remove the heatsink:

    a. Loosen one pair of diagonally opposite screws halfway, then loosen the other pair of screws (callouts 1 and 2).

    b. Completely loosen all screws in the same sequence.

    c. Remove the heatsink from the processor backplate (callout 3).

12. Using a cleaning solvent, such as alcohol wipes, remove the existing thermal grease from the processor.

    Allow the alcohol to evaporate before continuing.

Installing the heatsink

> **⚠ CAUTION:**
>
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe <u>antistatic precautions</u>.
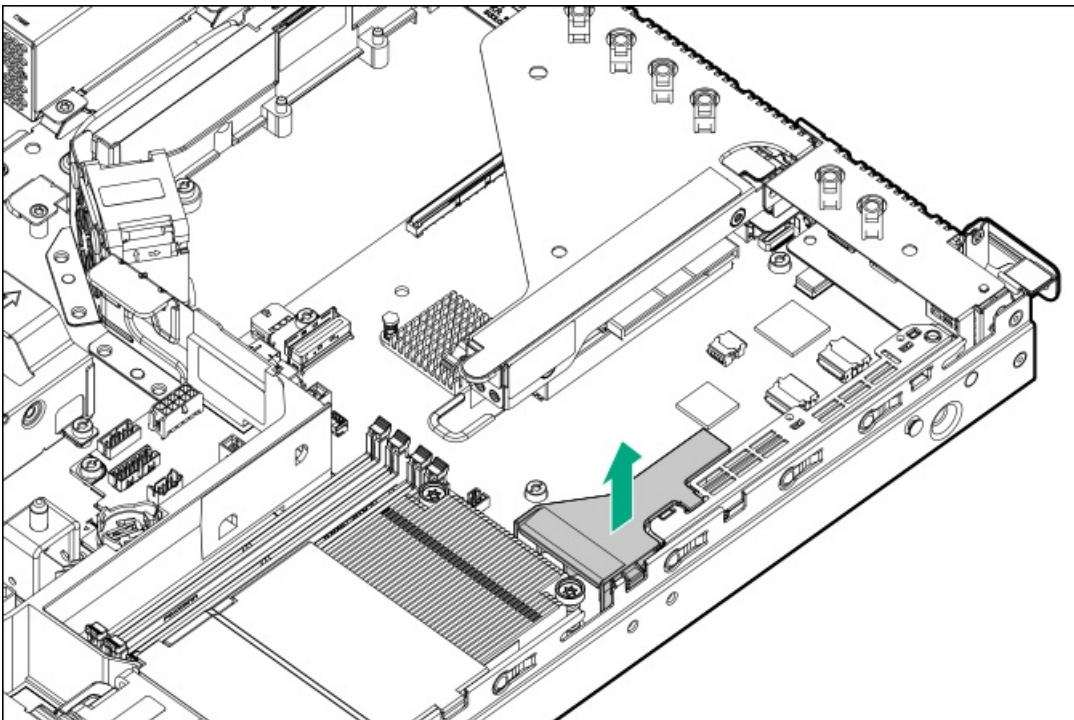
Prerequisites

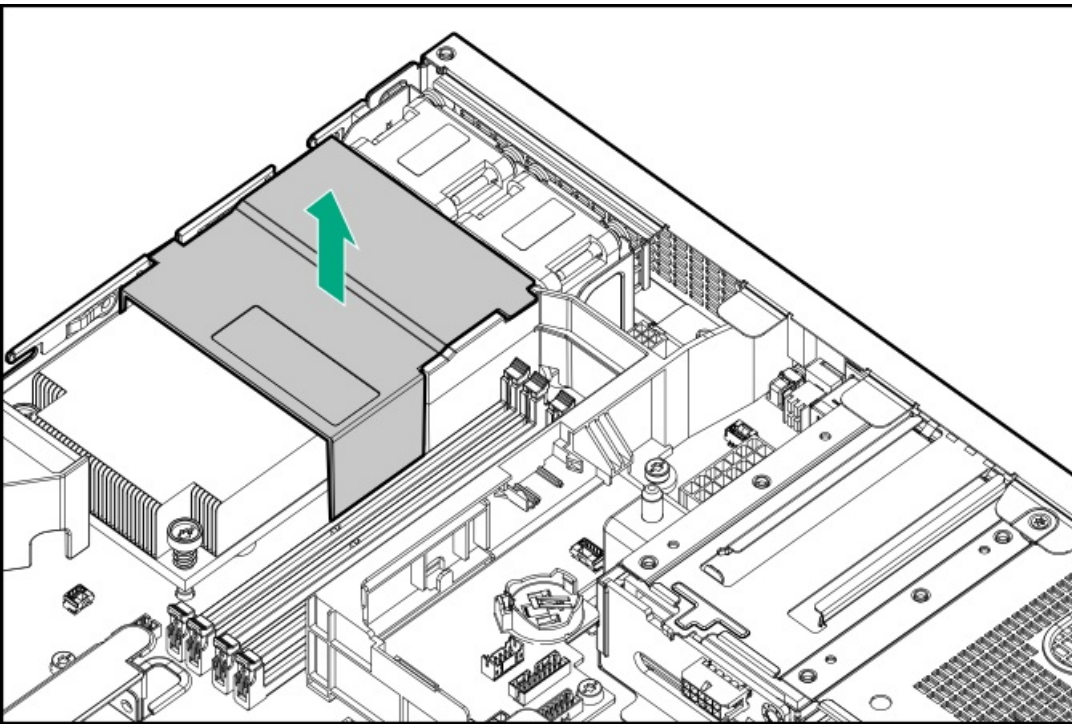Before you perform this procedure, make sure that you have the following items available:
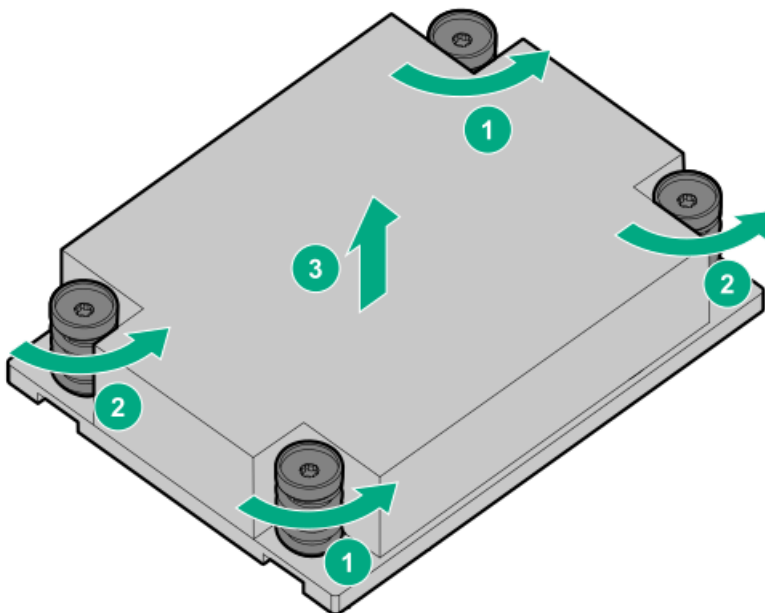
- T-15 Trox screwdriver − with preset to 3 in-lb of torque or an adjustable torque screwdriver set to 3 in-lb of torque.
- Alcohol wipe

Procedure

1. Clean the old thermal grease from the processor with the alcohol wipe.

   Allow the alcohol to evaporate before continuing.

2. Remove the thermal interface protective cover from the heatsink.
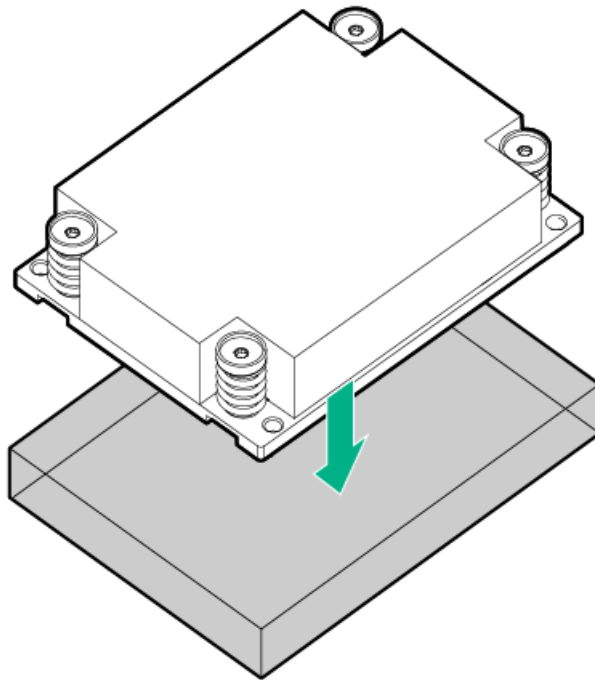
3. Install the heatsink:

   > **⚠ CAUTION:**
   >
   > Do not overtighten the captive screws on the heatsink. Use a T-15 Torx screwdriver that is preset to 3 in-lb of torque or an adjustable torque screwdriver set to 3 in-lb of torque.

   a. Position the heatsink on the processor backplate (callout 1).

   b. Tighten one pair of diagonally opposite screws halfway, then tighten the other pair of screws (callouts 2 and 3).

   c. Finish the installation by completely tightening the screws in the same sequence.
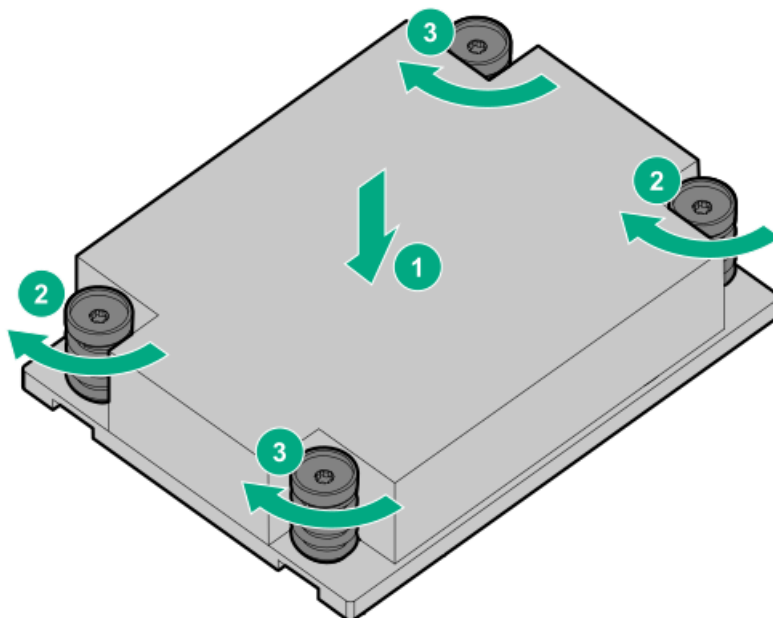
4. Install the processor air baffle.
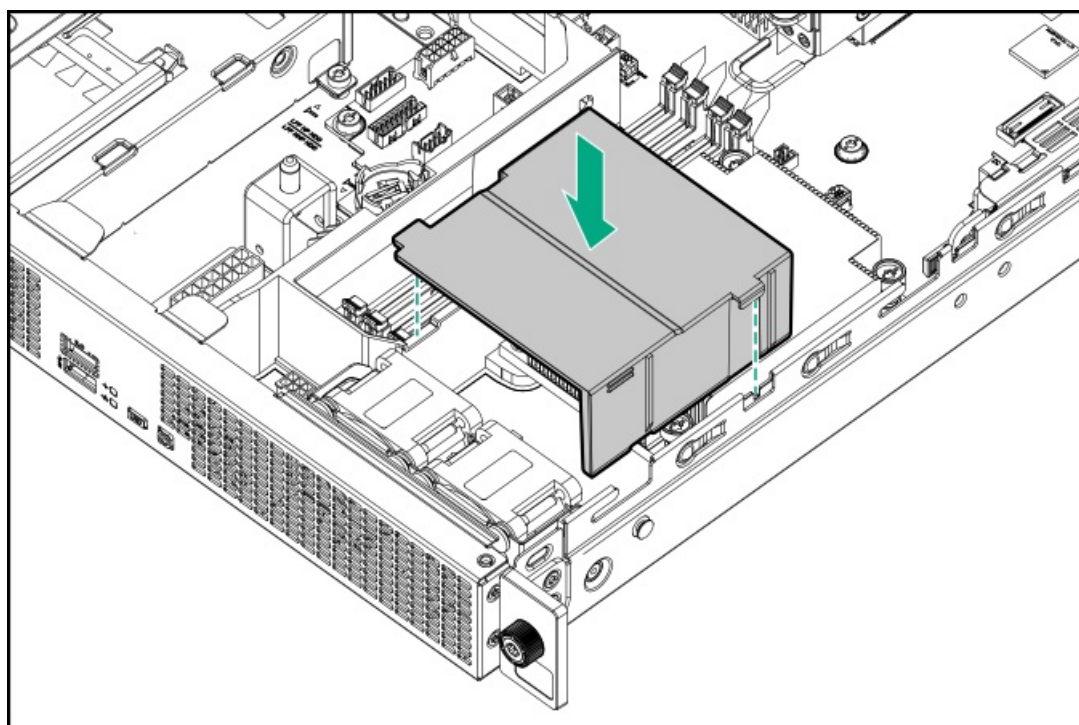
5. Install the M.2 air baffle.
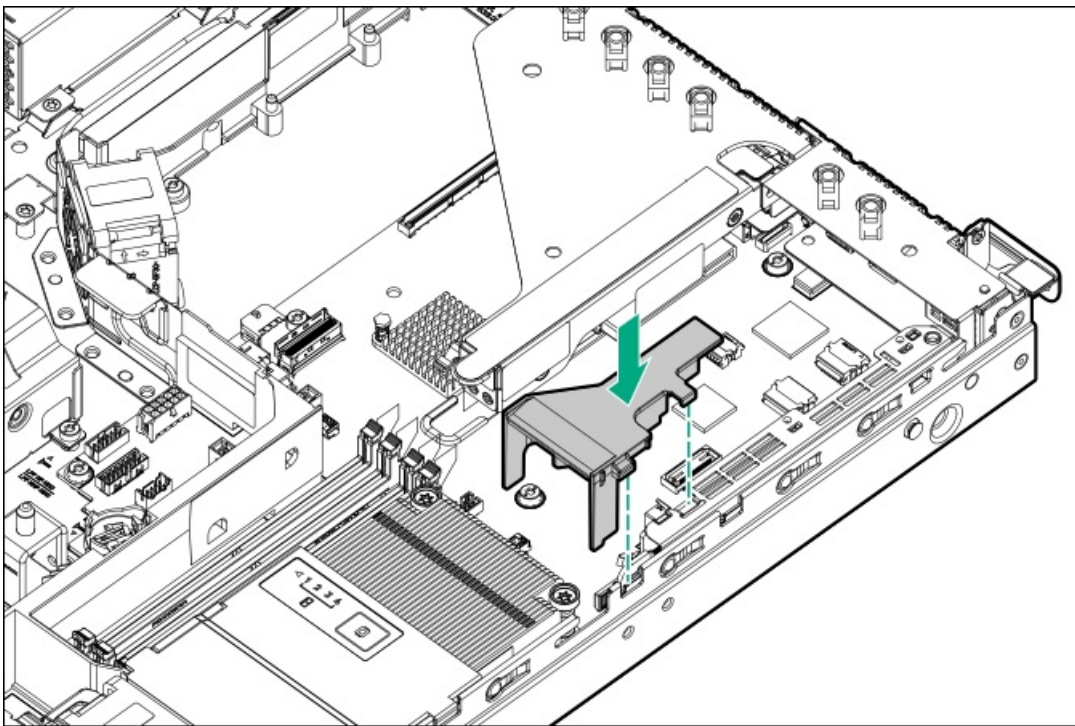
6. Install the access panel.

7. Install the server into the rack.

8. Connect all peripheral cables to the server.

9. Connect the power cords:

    a. Connect each power cord to the server.

    b. Connect each power cord to the power source.

10. Power up the server.

11. If removed, install the front bezel.

Processor replacement

- [Removing the processor](#)
- [Installing the processor](#)

Processor cautions

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

⚠ **CAUTION:** 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 <u>Hewlett Packard Enterprise Support Center website</u>.

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

Removing the processor

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

Prerequisites

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

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove the access panel.

8. If installed, remove the M.2 air baffle.

9. If installed, remove the processor air baffle.

10. Allow the heatsink to cool.

11. Remove the heatsink:

    a. Loosen one pair of diagonally opposite screws halfway, then loosen the other pair of screws (callouts 1 and 2).

    b. Completely loosen all screws in the same sequence.

    c. Remove the heatsink from the processor backplate (callout 3).

12. Open the processor load plate:

    a. Push the processor locking lever down to unclip it, and then pivot it to the vertical position (callout 1).

    b. Open the processor load plate (callout 2).
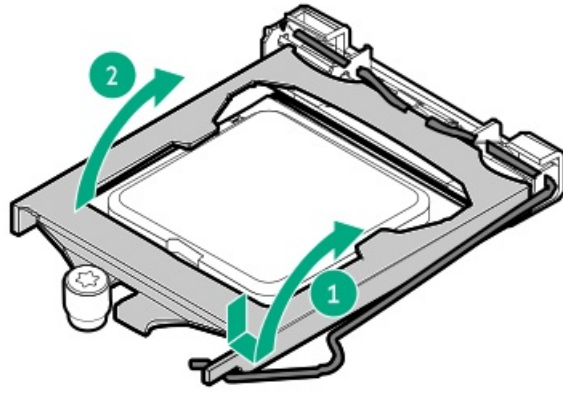
⚠ **CAUTION:**

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

13. Do not touch the socket contacts or the bottom of the processor.
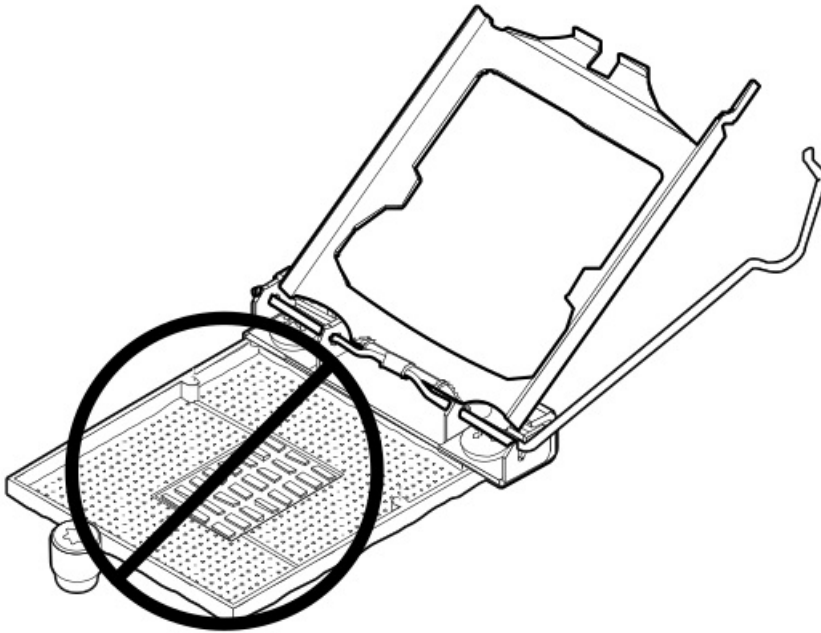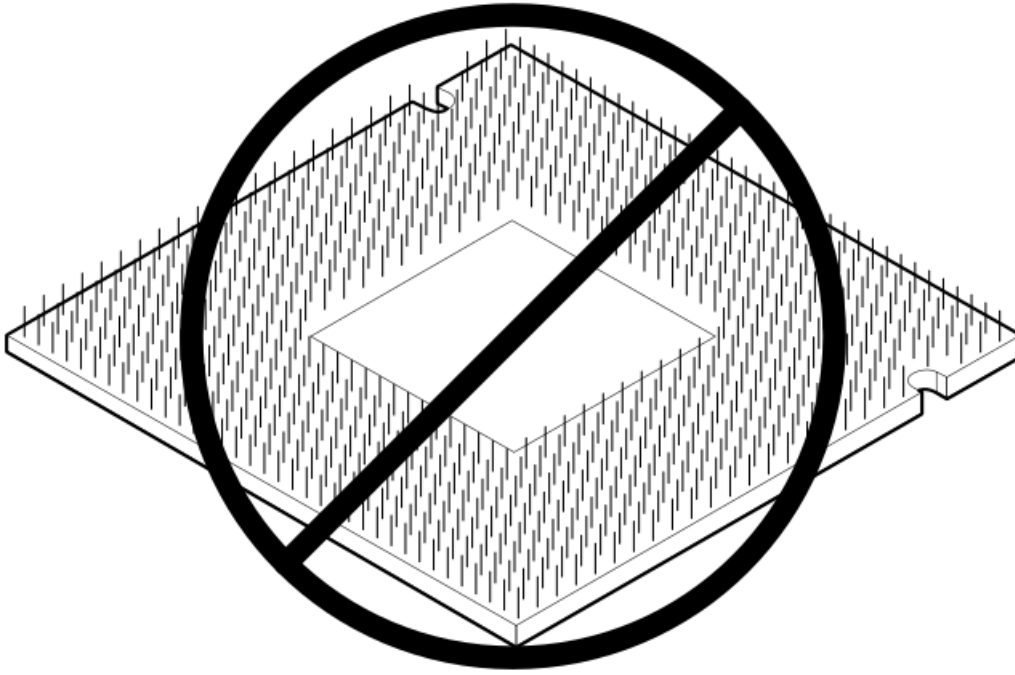
14. Hold the processor by the edges, and then lift it out of the socket.
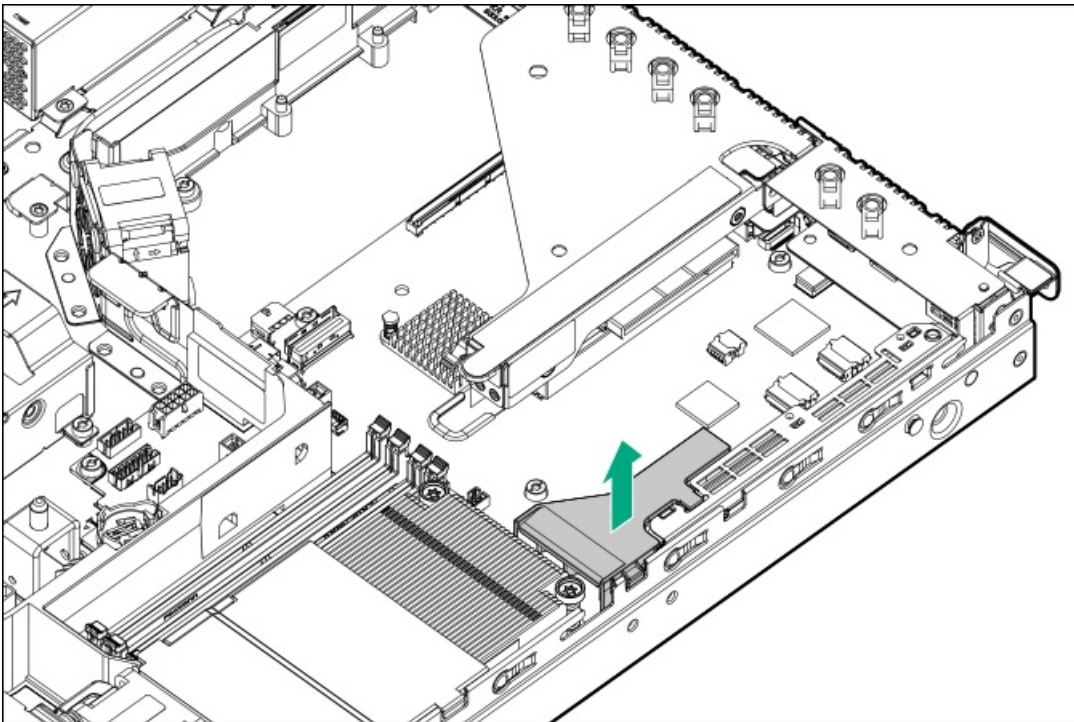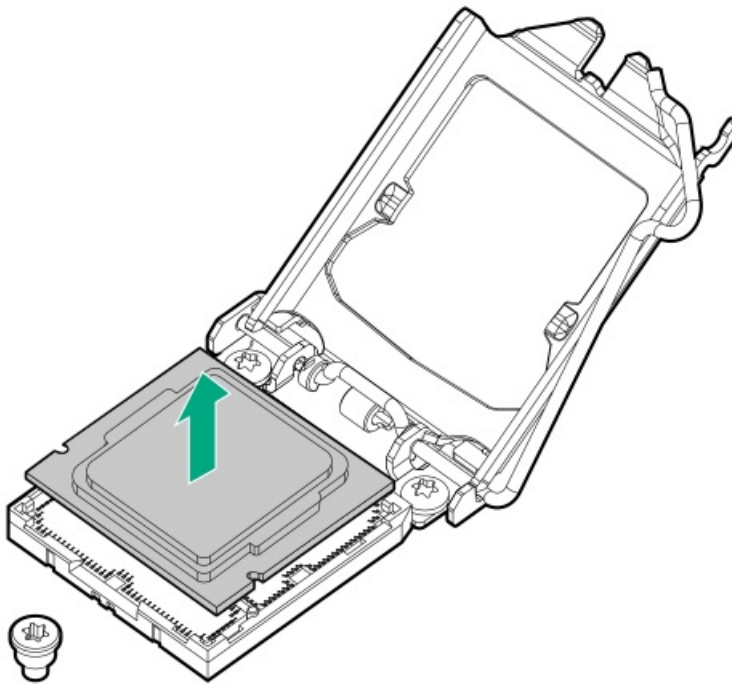
Installing the processor

> **⚠ CAUTION:**
>
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe <u>antistatic precautions</u>.
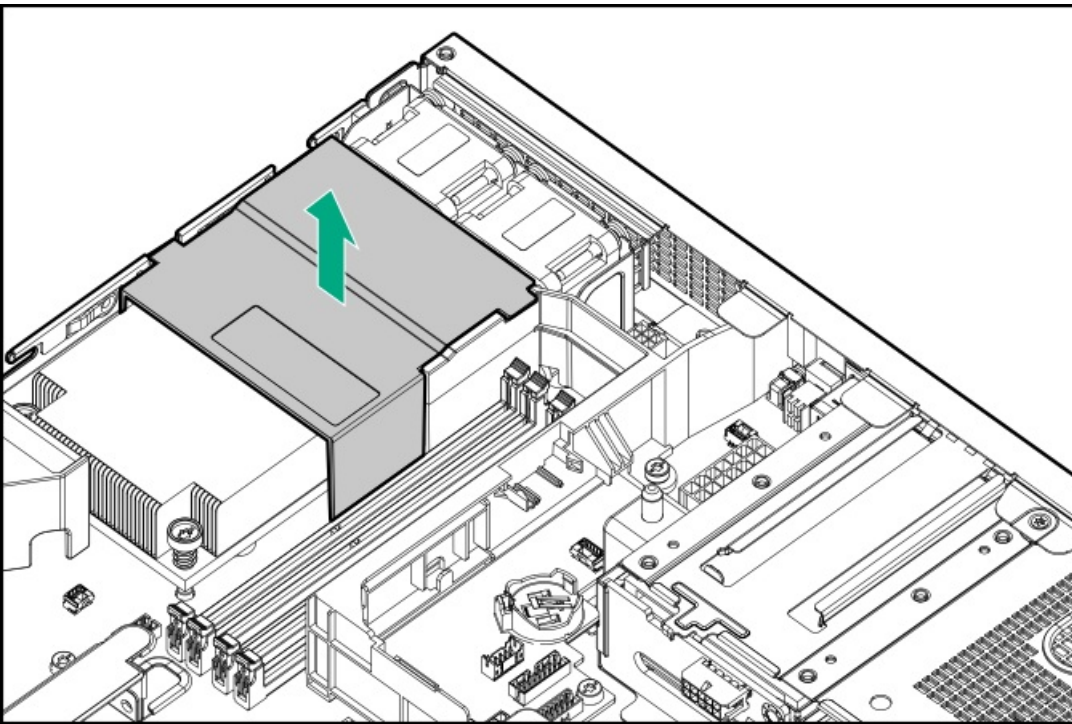
> **⚠ CAUTION:**
>
> **THE PINS ON THE PROCESSOR SOCKET AND ON THE PROCESSOR ARE VERY FRAGILE AND EASILY DAMAGED.** Any damage to them might require replacing the system board.

Prerequisites

The processor air baffle (P48355-B21) is required when a processor that has a TDP ≥ 95 W is installed.

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

- T-15 Trox screwdriver

  For heatsink installation, prepare the T-15 Trox screwdriver with preset to 3 in-lb of torque or an adjustable torque screwdriver set to 3 in-lb of torque.

- Alcohol wipe

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

Procedure

1. Do not touch the socket contacts or the bottom of the processor.
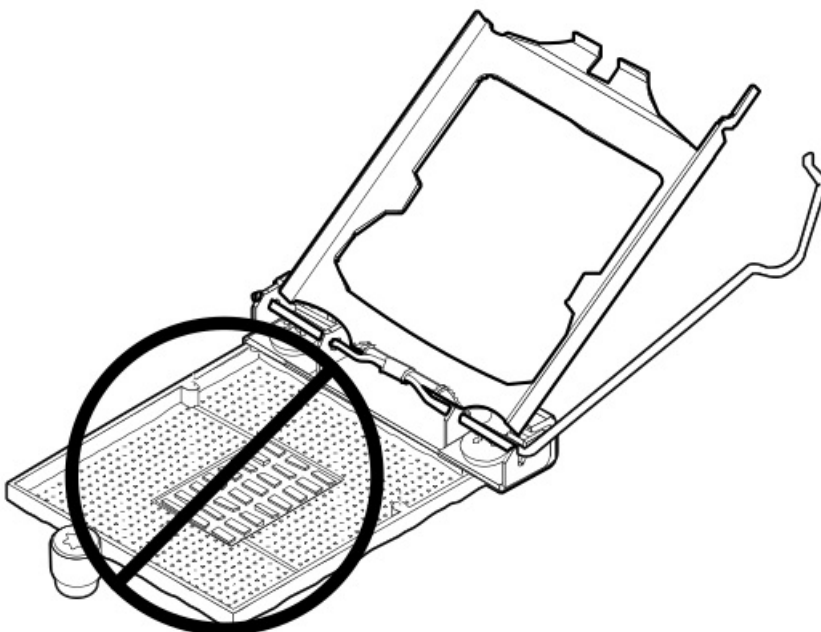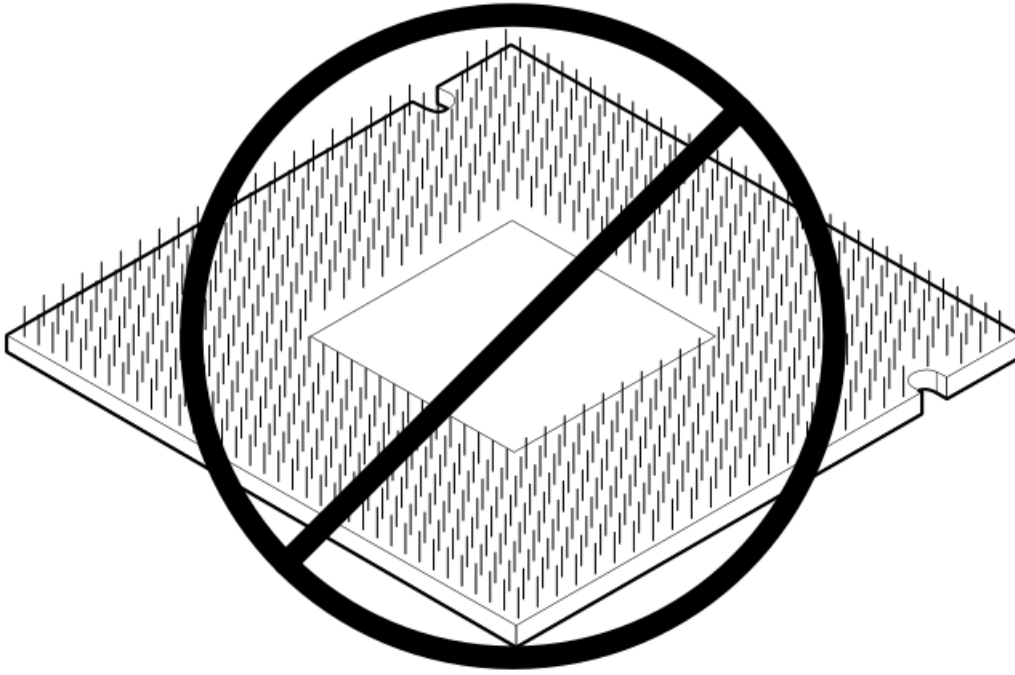
2. Install the processor:

   a. Hold the processor by the edges and align the:

      - Socket notches with the processor notches

      - Pin 1 indicator on the processor and the socket

   b. Lower the processor straight down, without tilting or sliding the processor in the socket.

      Make sure that the processor is properly seated in the socket.

3. Close the processor load plate (callout 1), and then engage the processor locking lever (callout 2).

4. Using a cleaning solvent, such as alcohol wipes, remove the existing thermal grease from the processor.

   Allow the alcohol to evaporate before continuing.

5. Apply new thermal grease to the processor in the pattern shown in the following image to ensure even distribution. Use the full contents of the thermal grease syringe.
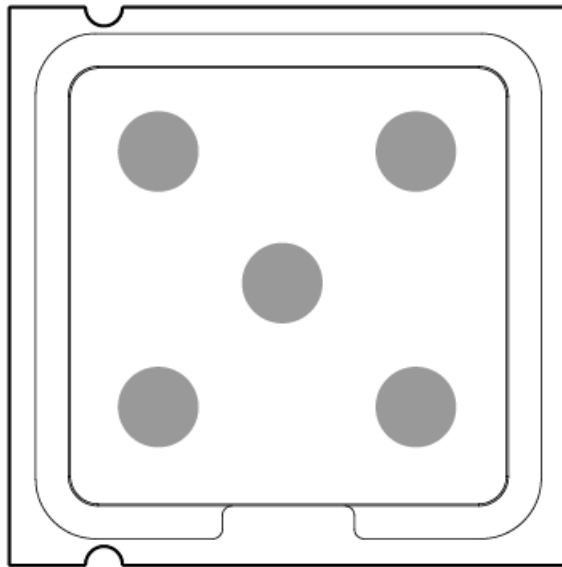
6. Install the heatsink:

   > **⚠ CAUTION:**
   >
   > Do not overtighten the captive screws on the heatsink. Use a T-15 Torx screwdriver that is preset to 3 in-lb of torque or an adjustable torque screwdriver set to 3 in-lb of torque.

   a. Position the heatsink on the processor backplate (callout 1).

   b. Tighten one pair of diagonally opposite screws halfway, then tighten the other pair of screws (callouts 2 and 3).

   c. Finish the installation by completely tightening the screws in the same sequence.

7. Install the processor air baffle.
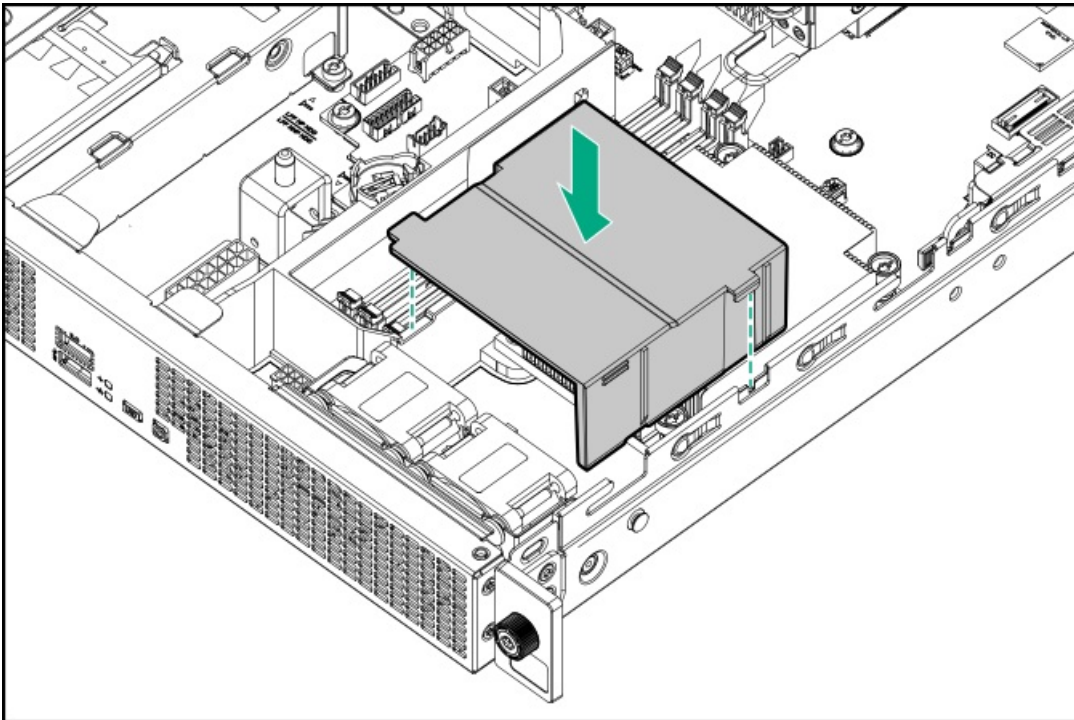
8. Install the M.2 air baffle.
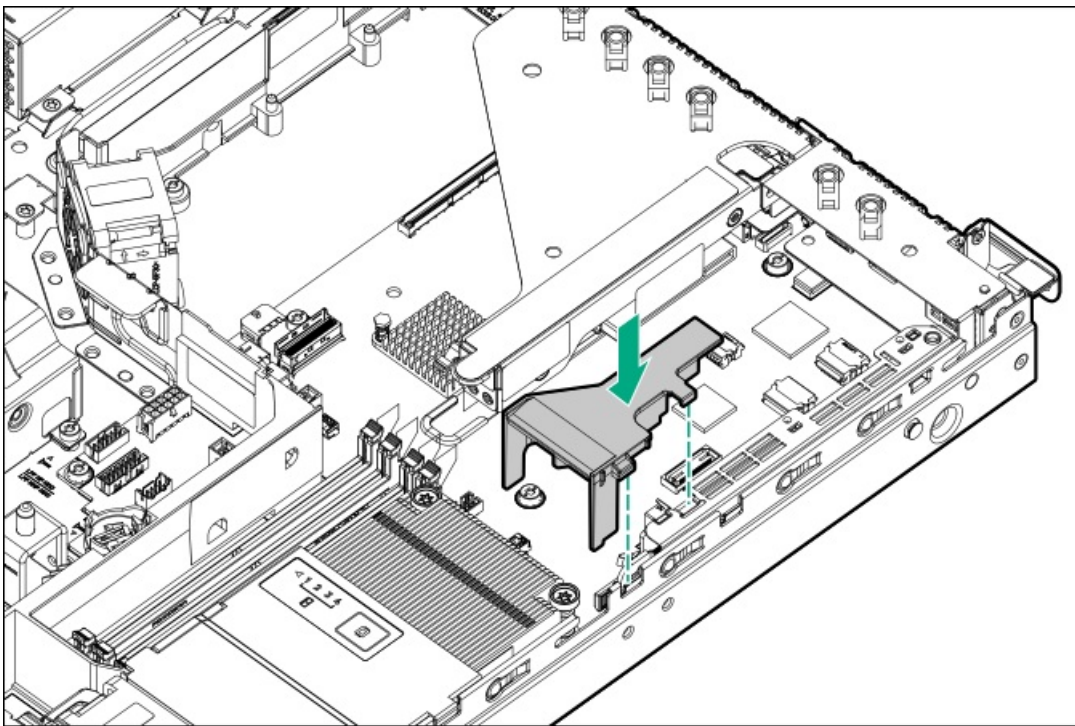
9. Install the access panel.

10. Install the server into the rack.

11. Connect all peripheral cables to the server.

12. Connect the power cords:

    a. Connect each power cord to the server.

    b. Connect each power cord to the power source.

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

14. If removed, install the front bezel.

System board replacement

- Removing the system board
- Installing the system board
- Re-entering the server serial number and product ID

Removing the system board

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

Prerequisites

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

- T-15 Torx screwdriver
- Hex screwdriver—This tool is required only if the serial port cable is installed.

Procedure

1. If physically powering down a server with the front bezel installed, remove the front bezel.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Remove the server from the rack.

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

7. Remove all inner rails from the chassis.

   Retain all rails for future use.
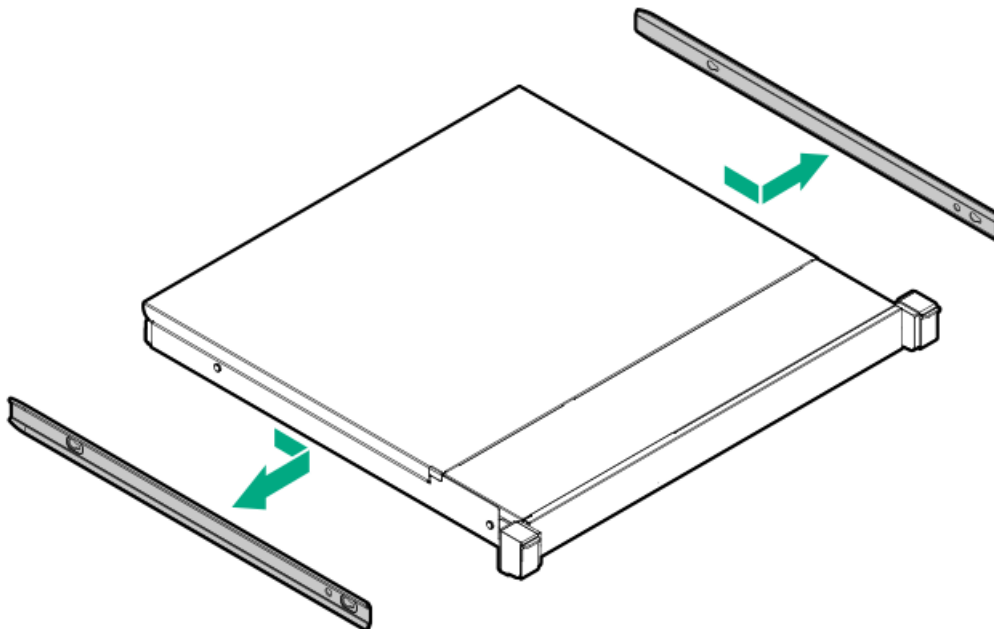
8. Remove the access panel.

9. Remove the chassis ear.

10. Remove the front panel cover.

11. Disconnect all cables from the expansion cards, M.2 SSD enablement board and the system board.

12. Remove following components:

    - Riser cage

- DIMMs

- Fan 1 and fan 2

13. If installed, remove following components:

- Processor air baffle
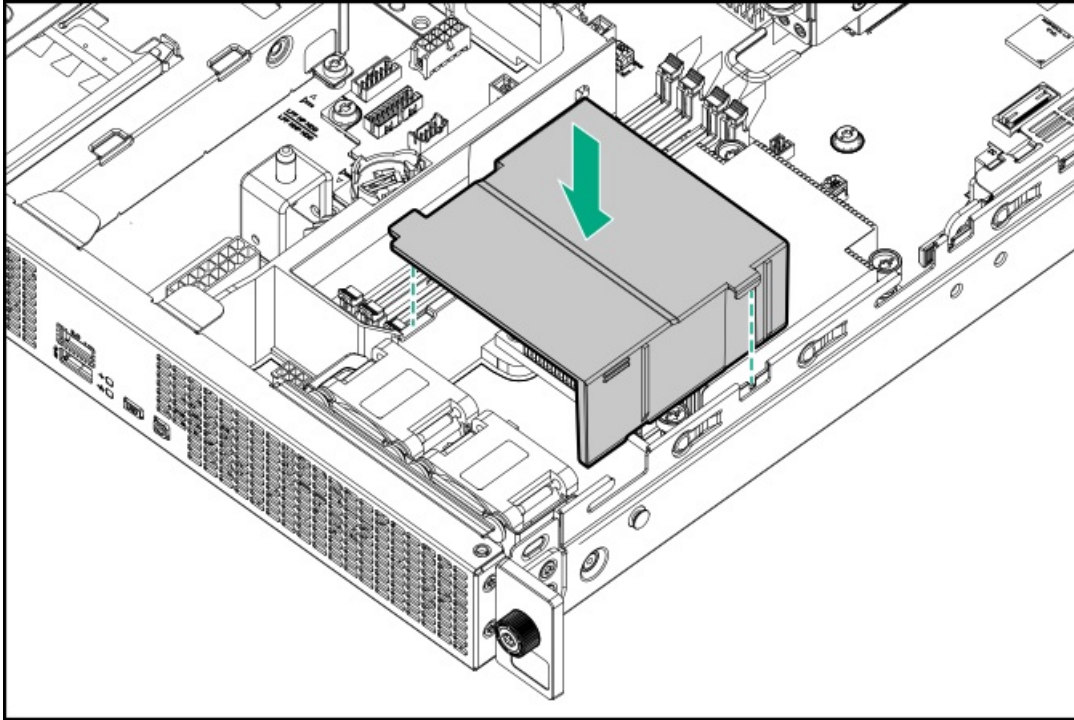
- M.2 air baffle
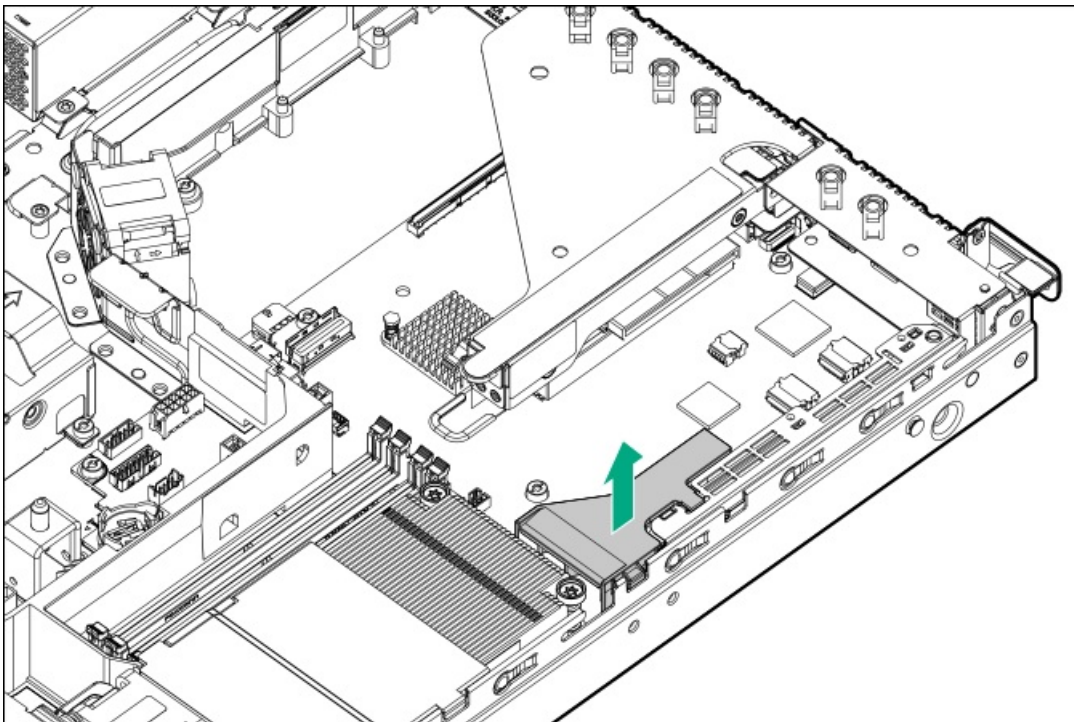
- M.2 SSD pass-through card

- Type-a storage controller

- Serial port cable

- Internal USB device

14. Allow the heatsink to cool.

15. Remove the heatsink:

a. Loosen one pair of diagonally opposite screws halfway, then loosen the other pair of screws (callouts 1 and 2).

b. Completely loosen all screws in the same sequence.

c. Remove the heatsink from the processor backplate (callout 3).
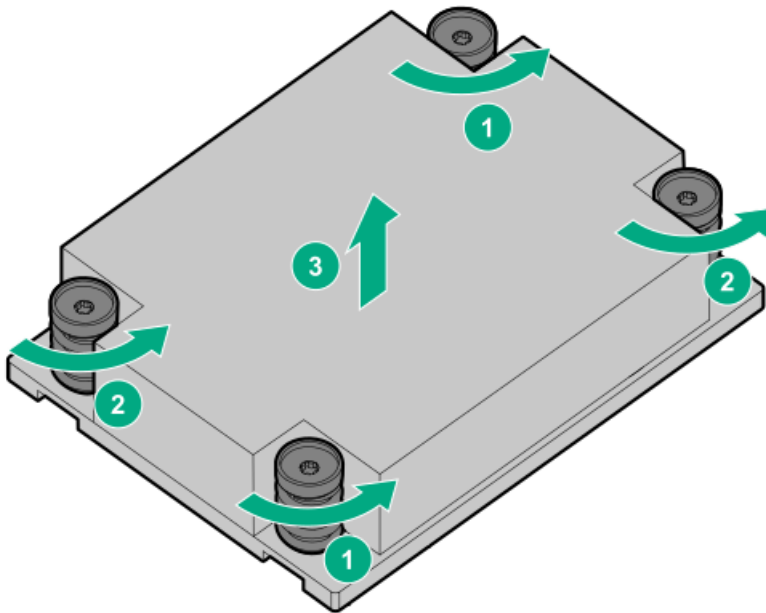
16. Remove the DIMM guard.

17. Open the processor load plate:

a. Push the processor locking lever down to unclip it, and then pivot it to the vertical position (callout 1).

b. Open the processor load plate (callout 2).
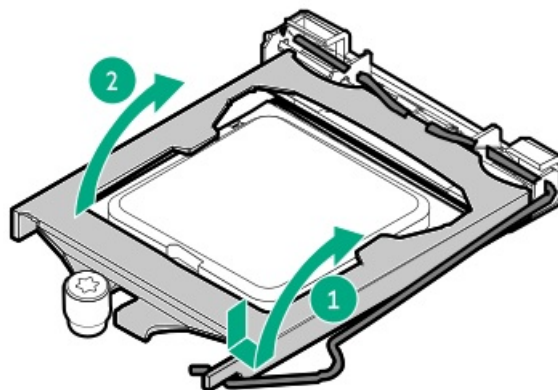
⚠ **CAUTION:**

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

18. Do not touch the socket contacts or the bottom of the processor.
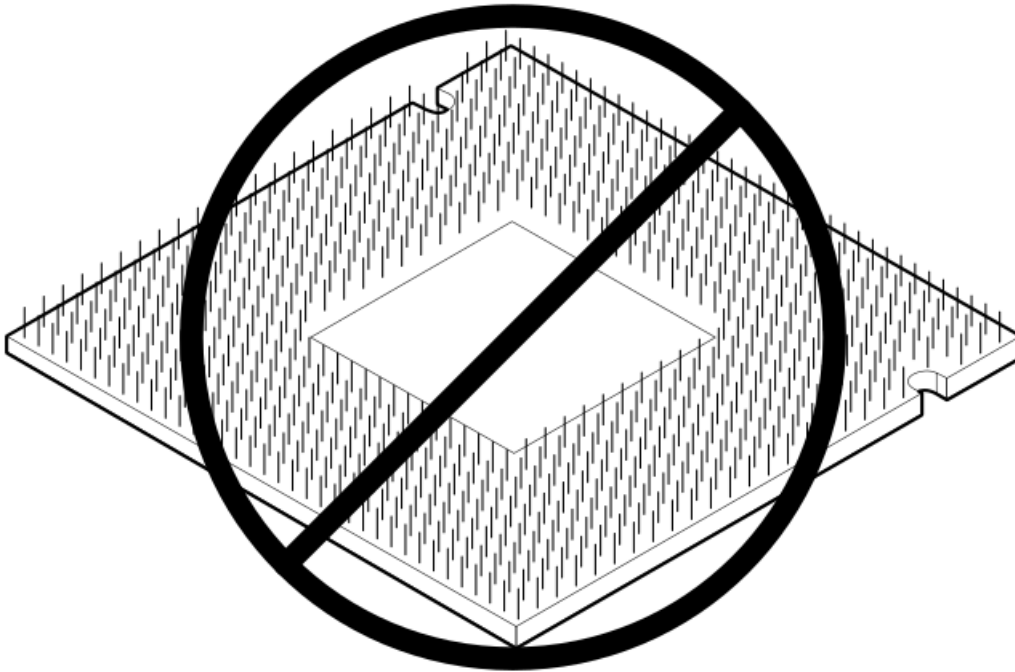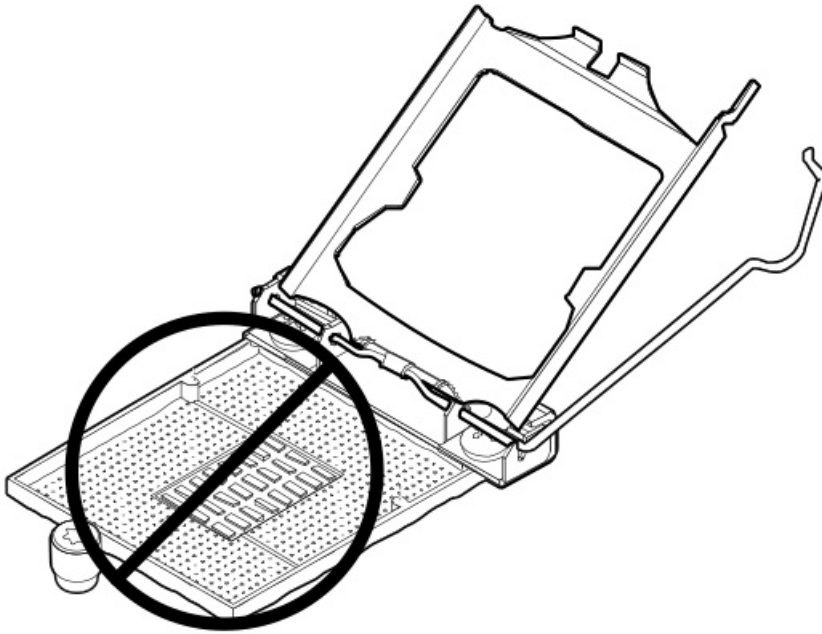
19. Hold the processor by the edges, and then lift it out of the socket.
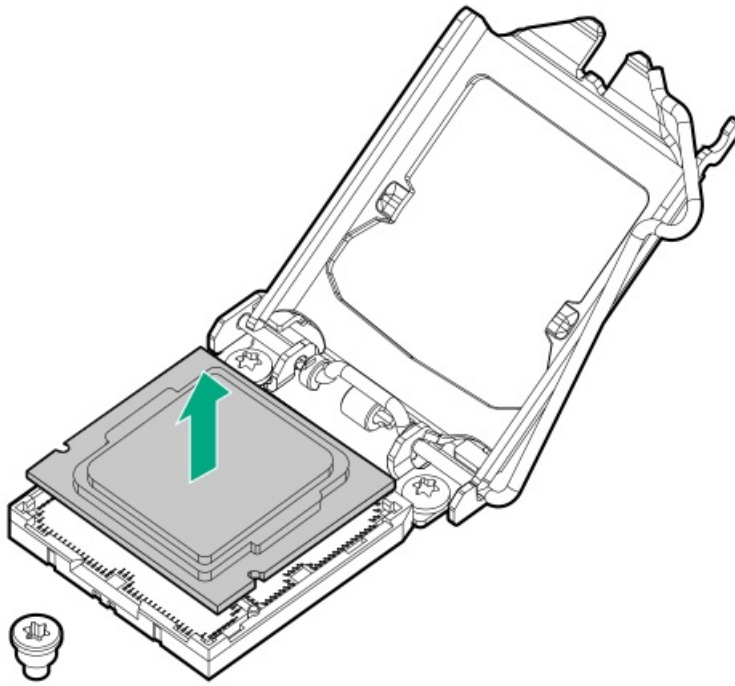
20. Remove all system board screws.

    Retain all screws for future use.
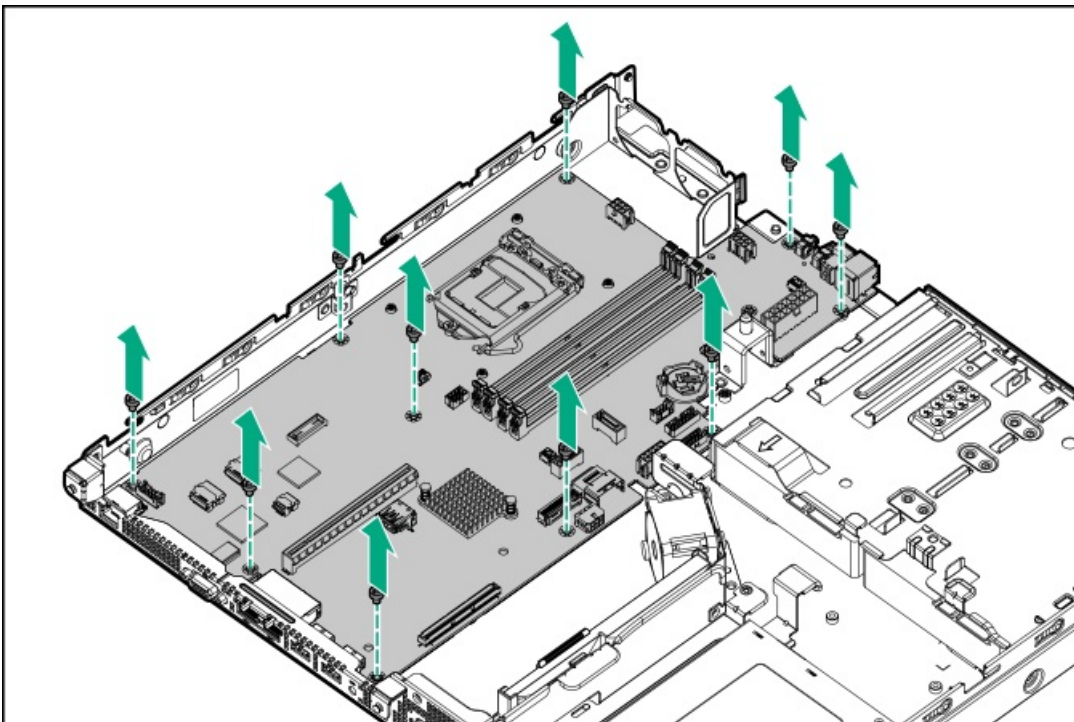
21. Remove the system board:

    a. Lift the system board in upward direction from the front side (callout 1).

    b. Slide the system board away from the real panel (callout 2).
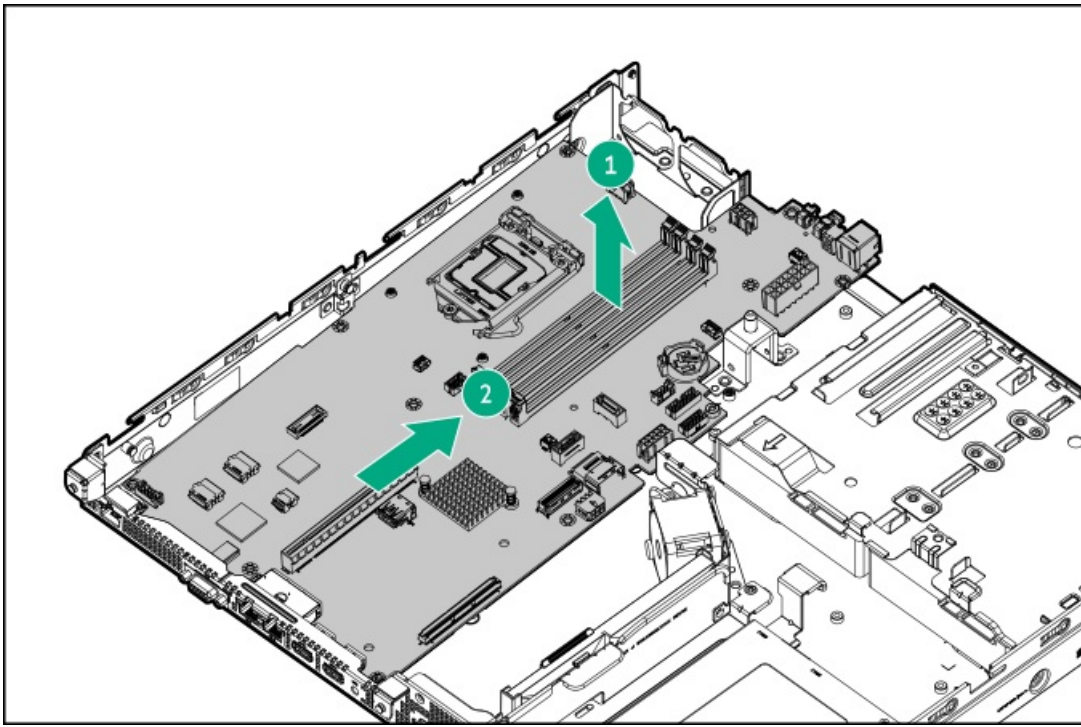
Installing the system board

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

Prerequisites

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

- T-15 Trox screwdriver
  For heatsink installation, prepare the T-15 Trox screwdriver with preset to 3 in-lb of torque or an adjustable torque screwdriver set to 3 in-lb of torque.

- Alcohol wipe

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

- Hex screwdriver—This tool is required only if the serial port cable is installed.

Procedure

1. Install system board:

   a. Slide the system board towards the real panel to attach it to the real panel (callout 1).

   b. Press down the system board on the chassis (callout 2).
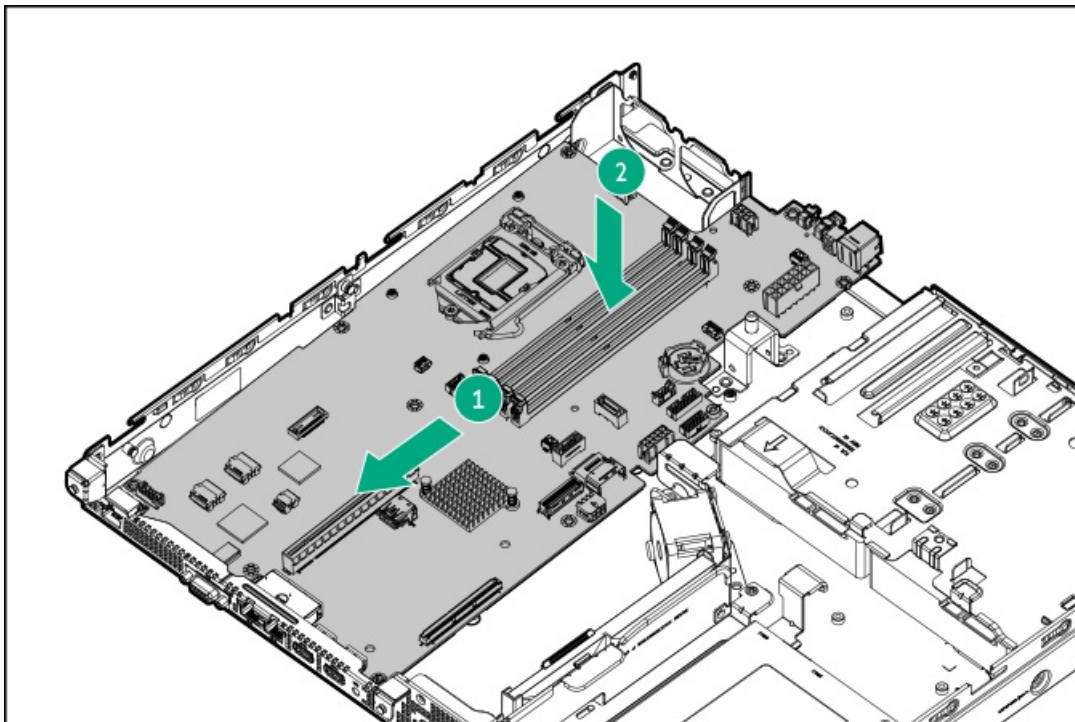
   c. Install all system board screws.
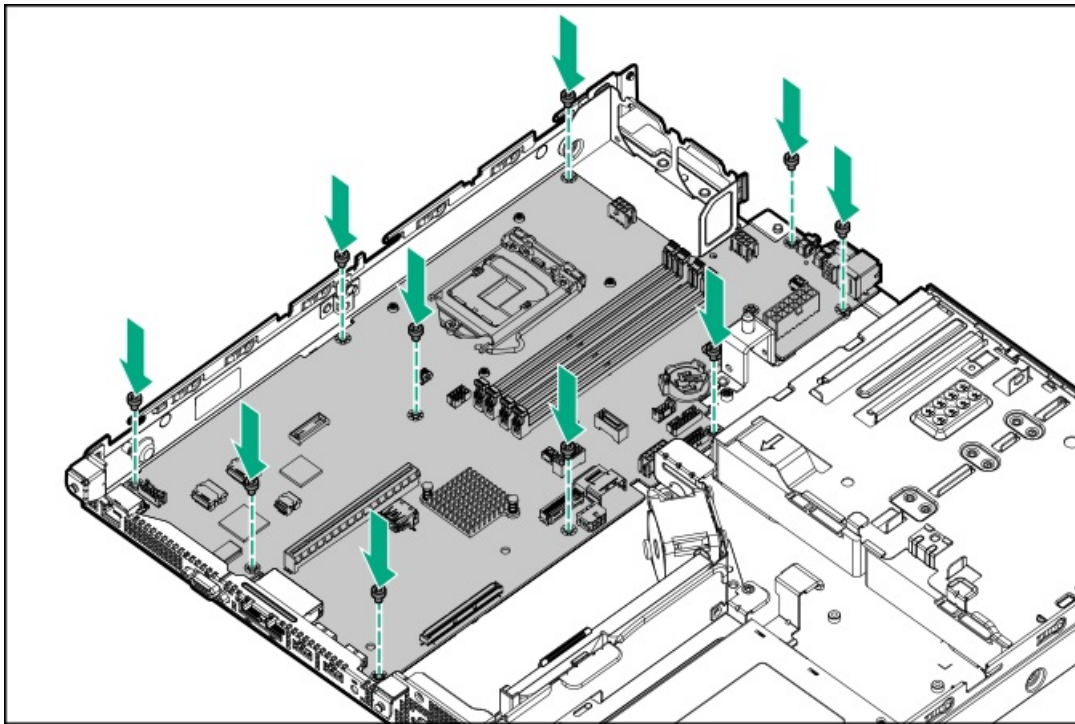
2. Install the processor:

   a. Hold the processor by the edges and align the:

      - Socket notches with the processor notches

      - Pin 1 indicator on the processor and the socket

   b. Lower the processor straight down, without tilting or sliding the processor in the socket.

      Make sure that the processor is properly seated in the socket.
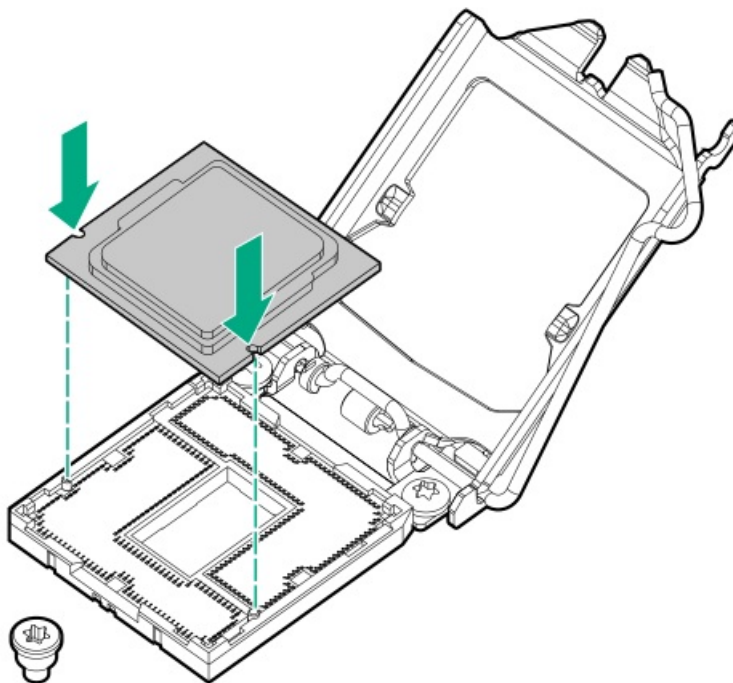
⚠ **CAUTION:**

   The processor load plate and locking lever should close without resistance. Forcing to close these parts can damage the processor and the socket. This damage might require replacing the system board.

3. Close the processor load plate (callout 1), and then engage the processor locking lever (callout 2).
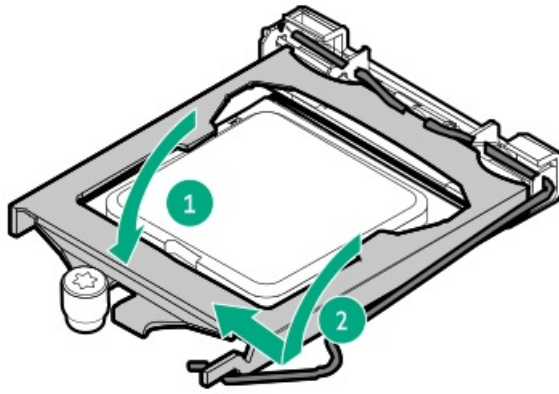
4. Using a cleaning solvent, such as alcohol wipes, remove the existing thermal grease from the processor.

   Allow the alcohol to evaporate before continuing.

5. Apply new thermal grease to the processor in the pattern shown in the following image to ensure even distribution. Use the full contents of the thermal grease syringe.
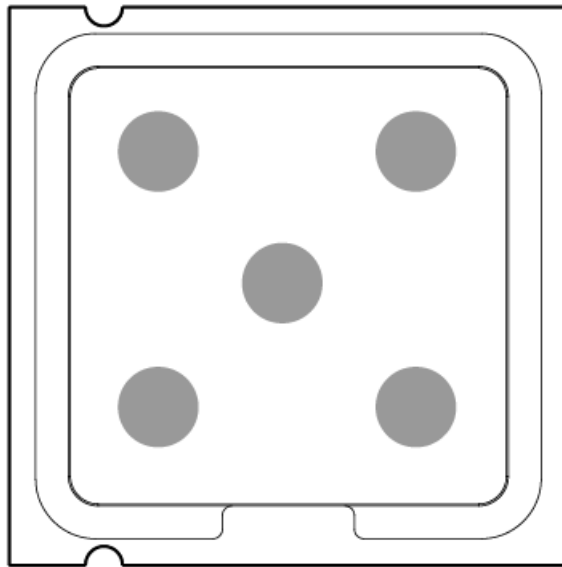
6. Install the DIMM guard.

7. Install the heatsink:

   ⚠ **CAUTION:**

   Do not overtighten the captive screws on the heatsink. Use a T-15 Torx screwdriver that is preset to 3 in-lb of torque or an adjustable torque screwdriver set to 3 in-lb of torque.

   a. Position the heatsink on the processor backplate (callout 1).

   b. Tighten one pair of diagonally opposite screws halfway, then tighten the other pair of screws (callouts 2 and 3).

   c. Finish the installation by completely tightening the screws in the same sequence.
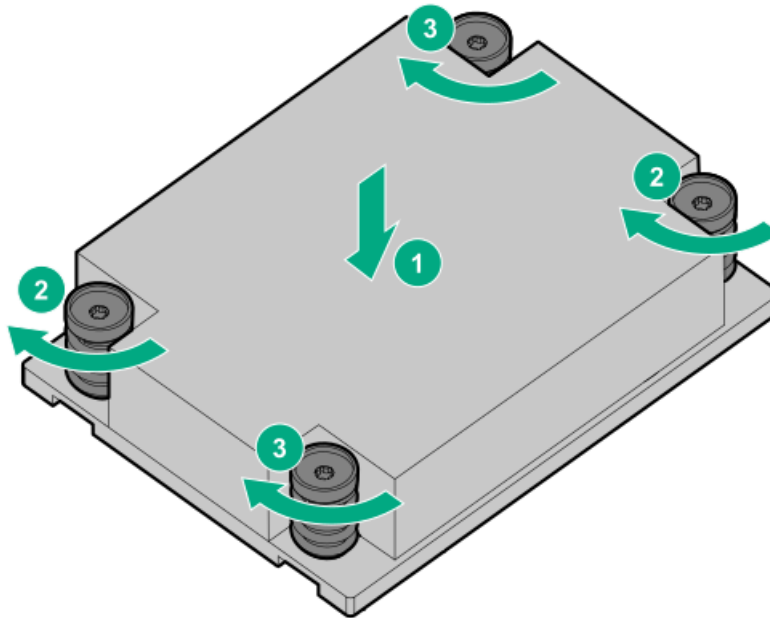
8. Install all the components removed from the failed system board.

9. Install the M.2 air baffle.

10. Install the processor air baffle.

11. Install the access panel.

12. Install the inner rails.

13. Install the server into the rack.

14. Connect all peripheral cables to the server.

15. Connect the power cords:

    a. Connect each power cord to the server.

    b. Connect each power cord to the power source.

16. Power up the server.

17. If removed, install the front bezel.

18. Ensure all firmware, including option cards and embedded devices, is updated to the same versions to ensure that the latest drivers are being used.

19. Re-enter any Secure Boot Keys that were previously added in the Secure Boot configuration.

20. Re-entering the server serial number and product ID.

Re-entering the server serial number and product ID

After replacing the system board, re-enter the system serial number and product ID, and configure the date and time settings.

Procedure

1. Access the UEFI System Utilities. During POST, press **F9**.

2. From the System Utilities screen, select System Configuration > BIOS/Platform Configuration (RBSU) > Advanced Options > Advanced Service Options.

3. Select Serial Number, and then press **Enter**.

    The following warning appears:

    `The serial number is modified by qualified service personnel and must match the serial number located on the chassis.`

4. Click OK.

5. Type the serial number, and then press **Enter**.

6. Select Product ID, and then press **Enter**.

    The following warning appears:

    `Product ID is modified only by qualified service personnel. This value must match the product ID located on the chassis.`

7. Type the product ID, and then press **Enter**.

8. From the System Utilities screen, select System Configuration > BIOS/Platform Configuration (RBSU) > Date and Time.

9. Configure the date and time settings:

    *   Date (mm-dd-yyyy)—Enter the date in a month-day-year (mm-dd-yyyy) format.

    *   Time (hh:mm:ss)—Enter the time in a 24-hour format (hh:mm:ss) format.

    *   Hour Format—Select either a 12- or 24-hours format. (This menu is supported in Gen10 Plus and later servers.)

    *   Time Format

        *   Coordinated Universal Time (UTC)—Calculates the time stored in the hardware real-time clock (RTC) from the associated Time Zone setting.

        *   Local Time—Removes the use of the Time Zone setting. This option is useful for addressing interaction issues in Windows operating systems set in legacy BIOS boot mode.

        *   Time Zone—Select the time zone for the system.

        *   Daylight Savings Time—Select whether to enable DST in the system time setting.

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

    The server automatically reboots.

    The installation is complete.

Troubleshooting

- [NMI functionality](#)

- [Troubleshooting resources](#)

NMI functionality

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

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

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

Troubleshooting resources

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

- Troubleshooting Guide for HPE ProLiant Gen10 and Gen10 Plus 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.

- Error Message Guide for HPE ProLiant Gen10 Plus 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 Gen10 Plus servers and HPE Synergy provides IML messages and associated troubleshooting information to resolve critical and cautionary IML events.

To access troubleshooting resources for your product, see the **Hewlett Packard Enterprise website**.

Configuration and diagnostic utilities

This chapter provides information about common utilities that might not apply to your server. For information about server compatibility with the utilities listed in this chapter, see the product QuickSpecs at the Hewlett Packard Enterprise website (**https://www.hpe.com/info/qs**).

> **NOTE:** Servers ordered from HPE Factory Express might have already been configured with all or some of the steps provided in this chapter. Refer to your order from HPE Factory Express to determine if any additional steps are required for setup.

Installing an operating system

To install an operating system on a server, first use iLO Virtual Media to connect the OS installation media to the server. Information about iLO Virtual Media is in the iLO User Guide at **www.hpe.com/support/ilo-docs**. Then, use the Intelligent Provisioning Setup Wizard (**www.hpe.com/info/intelligentprovisioning/docs**) to install the operating system.

For a list of supported operating systems, see the HPE Servers Support & Certification Matrices at **www.hpe.com/support/Servers-Certification-Matrices**.

Configuring the initial setup of a server

To configure	Use
Single server (graphical user interface)	**Guided process:** Intelligent Provisioning (**www.hpe.com/info/intelligentprovisioning/docs**) **Manual process:** HPE iLO web interface accessed by iLO remote console. Refer to the iLO online help for more information about iLO remote console. **Menu-based process:** UEFI System Utilities (**https://www.hpe.com/info/UEFI-manual**)
Single server (scripting)	**Using CLI for Windows and Linux to configure Redfish settings on a Gen10 or later server:** RESTful Interface Tool (**www.hpe.com/support/restfulinterface/docs**) **Using Python:** Python iLO Redfish Library (python-ilorest-library) (**github.com/HewlettPackard/python-ilorest-library**) **Using PowerShell for Windows-based environments:** PowerShell cmdlets (**https://www.hpe.com/info/powershell/docs**) **Directly to the API using cURL or any other programming interface:** iLO RESTful API (**https://hewlettpackard.github.io/ilo-rest-api-docs/**)
Multiple servers (either UI or scripting)	HPE OneView (**https://www.hpe.com/support/oneview-docs**) [1]

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

Configuring storage controllers

To determine the storage controllers that are supported by your server, see the product QuickSpecs at the Hewlett Packard Enterprise website (**https://www.hpe.com/info/qs**).

Controller type	Documentation
SR hardware RAID	—
Gen10 Plus	HPE SR Gen10 Plus Controller User Guide at **https://www.hpe.com/info/SR-Gen10Plus-UG**

Controller type	Documentation
Gen10	HPE Smart Array SR Controller Gen10 User Guide at https://www.hpe.com/support/SSC-SRGen10-ug
MR hardware RAID	—
Gen10 Plus	HPE MR Gen10 Plus Controller User Guide at https://www.hpe.com/info/MR-Gen10Plus-UG
Gen10	HPE Smart Array P824i-p MR Gen10 User Guide at https://www.hpe.com/info/p824ip-mr-gen10-contr-UG
Software RAID	• HPE SR Gen10 Plus Software RAID User Guide at https://www.hpe.com/support/SSC-SRGen10Plus-ug • User guides for the Intel Virtual RAID on CPU for HPE Gen10 Plus at https://www.hpe.com/support/IntelVROC-Gen10Plus-docs

Configuring NVMe OS boot devices

NVMe OS boot devices are plug and play as of Gen10. Device installation instructions are included in the packaging, server user guides, or server maintenance and service guides.

Configuring network controllers

To determine the network controllers that are supported by your server, see the product QuickSpecs at the Hewlett Packard Enterprise website (https://www.hpe.com/info/qs).

Network controllers are plug and play. For installation instructions, see the server user guide, the documentation included with the controller, or on the Hewlett Packard Enterprise Support Center website (https://www.hpe.com/support/hpesc) see:

Controller	Type	Documentation
OPC NIC 3.0	Network adapter	HPE OCP NIC 3.0 Adapter Installation Instructions at www.hpe.com/support/OCP3-NIC-Installation
PCIe	Network adapter	HPE PCIe Network Adapter Installation Instructions at www.hpe.com/support/PCIe-Installation
Synergy Type C and D	Mezzanine adapter	HPE Synergy Type C and Type D Mezzanine Adapters Installation Instructions at https://www.hpe.com/support/Synergy-Mezz-Installation
FlexibleLOM for Blades	Mezzanine card	HPE FlexibleLOM for Blades Installation Instructions at https://www.hpe.com/support/BLOM-Installation
FlexibleLOM for Racks	Network adapter	HPE FlexibleLOM for Racks Installation Instructions at https://www.hpe.com/support/ALOM-Installation
BladeSystem Type A and B	Mezzanine card	HPE BladeSystem Type A and B Mezzanine Card Installation Instructions at https://www.hpe.com/support/Blade-Mezz-Installation

Monitoring servers

To monitor	Use	Supported notifications
Single server	HPE iLO (**www.hpe.com/support/ilo-docs**)	**SNMP** **Redfish events** **Email alerts** **syslog**
Multiple servers	HPE OneView (**www.hpe.com/support/oneview-docs**)	**SNMP** **Redfish change events for Gen10 or later servers**: An example of a change event is adding a disk to a server. **Email alerts**: HPE OneView provides email notifications based on alerts triggered from HPE iLO and other resources. **syslogs from iLO**: HPE OneView can configure the iLO servers to forward their syslogs. HPE Oneview does not monitor the content of the forwarded syslogs.

Updating the server

- **HPE ProLiant servers:** HPE provides a comprehensive system software and firmware update solution through Service Packs for ProLiant (SPP).

- **HPE Synergy:** HPE provides updated firmware and software images through HPE Synergy Service Packs (SSPs).

To	Use
View supported operating systems and access operating system updates.	HPE Servers Support & Certification Matrices at **www.hpe.com/support/Servers-Certification-Matrices**
Determine and deploy which SSPs or SPPs to a single server.	Smart Update Manager (SUM) (**www.hpe.com/info/sum-docs**)
Deploy SSPs and SPPs to multiple servers.	HPE OneView (**www.hpe.com/support/oneview-docs**)
Download the SSP.	HPE Synergy management combinations and HPE Synergy Service Packs (SSPs) (**www.hpe.com/info/synergy-sw-release-information**)
Download the SPP.	HPE Service Pack for ProLiant (SPP) (**www.hpe.com/servers/spp**)

Optimizing the server

To	Use
Optimize server performance through management and tuning features.	HPE Server Performance Management and Tuning Guide at **www.hpe.com/info/server-performance-management-tuning-en**
Obtain recommendations for resolving incorrect settings.	HPE InfoSight for Servers (**www.hpe.com/info/infosight-servers-docs**)

Configuring security

To	See

To	See
Implement server security best practices.	• HPE Gen10 and Gen10 Plus Security Reference Guide at **www.hpe.com/info/server-security-reference-en** • HPE iLO 5 Security Technology Brief at **www.hpe.com/support/ilo5-security-en**
Configure and use the Server Configuration Lock feature on HPE Trusted Supply Chain servers and other servers that have the Server Configuration Lock feature enabled.	Server Configuration Lock User Guide for HPE ProLiant Gen10 and Gen10 Plus servers and HPE Synergy at **www.hpe.com/info/server-config-lock-UG-en**

Managing Linux-based high performance compute clusters

To	Use
Provision, manage, and monitor clusters.	HPE Performance Cluster Manager (**www.hpe.com/support/hpcm_manuals**)
Optimize your applications.	HPE Performance Analysis Tools (**www.hpe.com/info/perftools**)
Optimize software library for low latency and high bandwidth, both on-node and off-node, for point-to-point and collective communications.	HPE Cray Message Passing Toolkit in the HPE Cray Programming Environment User Guide for your server OS at **www.hpe.com/info/cray-pe-user-guides**
Optimize software libraries, runtime tools, and a scalable development environment for tuning and accelerating compute-intensive applications.	HPE Message Passing Interface (**www.hpe.com/support/mpi-ug-038**)

Component identification

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

Front panel components

LFF non-hot-plug drive model
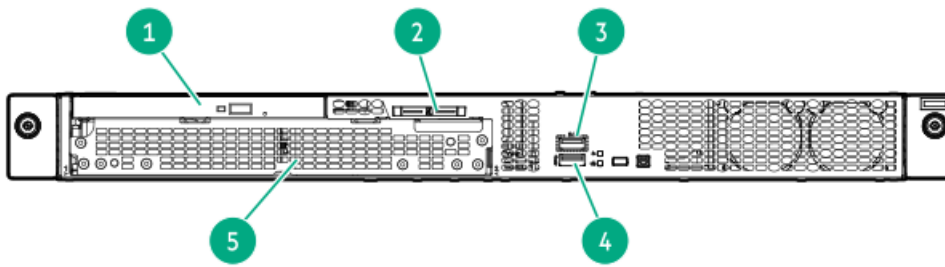
Item	Description
1	Optical drive (optional)
2	Serial number/iLO information pull tab [1]
3	iLO service port
4	USB 3.2 Gen1 port
5	2 LFF non-hot-plug drive cage [2]

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

[2] The 2 LFF non-hot-plug drive cage supports SATA drives.

LFF hot-plug drive model
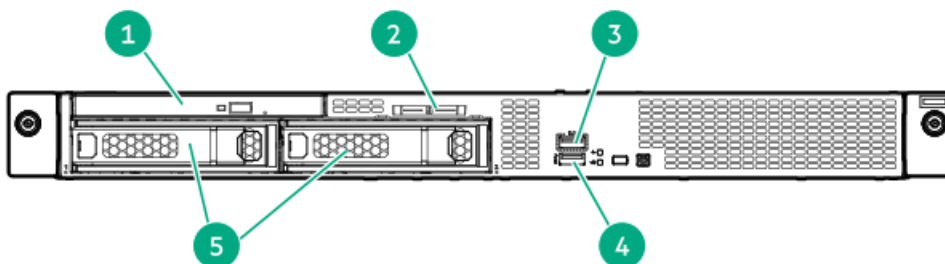
Item	Description
1	Optical drive (optional)
2	Serial number/iLO information pull tab [1]
3	iLO service port
4	USB 3.2 Gen1 port
5	2 LFF hot-plug drives [2]

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

[2] The 2 LFF drive bays support SAS or SATA hot-plug drives.

SFF hot-plug drive model
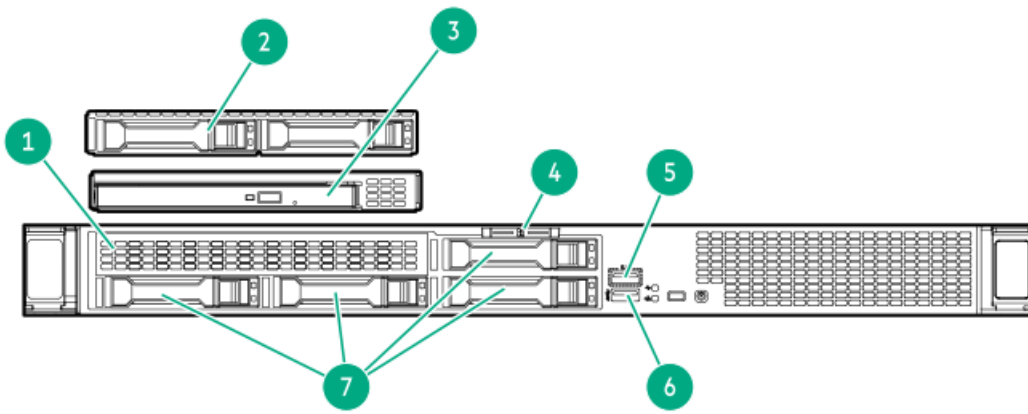
Item	Description
1	Media bay [1]
2	2 SFF hot-plug drive cage (optional) [2]
3	Optical drive (optional)
4	Serial number/iLO information pull tab [3]
5	iLO service port
6	USB 3.2 Gen1 port
7	4 SFF hot-plug drives [4]

[1] The media bay supports the optical drive cage or the 2 SFF drive cage option.
[2] The 2 SFF drive cage supports SAS, SATA, or U.3 NVMe drives.
[3] The serial number/iLO information pull tab is double-sided. One side shows the server serial number and the customer asset tag label. The other side shows the default iLO account information.
[4] The 4 SFF drive bays support SAS or SATA drives.

iLO Service Port

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

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

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

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

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

- Connect a client (such as a laptop) with a supported USB to Ethernet adapter to access the following:

  - iLO web interface

  - Remote console

  - iLO RESTful API

  - CLI

  Some servers, such as the XL170r, require an adapter to connect a USB to Ethernet adapter to the iLO Service Port.

  Hewlett Packard Enterprise recommends the **HPE Micro USB to USB Adapter (part number 789904-B21)**.

When you use the **iLO Service Port**:

- Actions are logged in the **iLO event log**.

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

  You can also retrieve the Service Port status by using a REST client and the **iLO RESTful API**.

- You cannot use the Service Port to boot any device within the server, or the server itself.

- You cannot access the server by connecting to the Service Port.

- You cannot access the connected device from the server.

Front panel LEDs and buttons
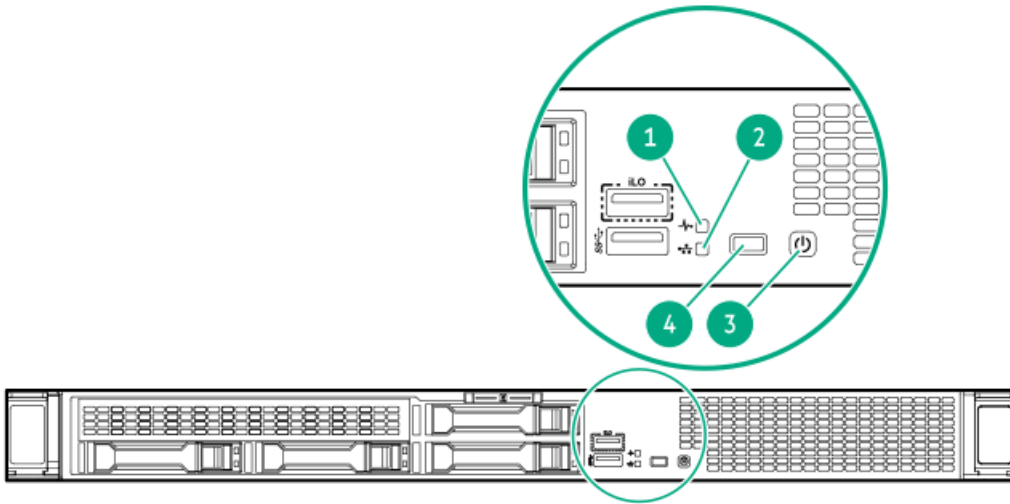
Item	Description	Status	Definition
1	Health LED [1]	Solid green	Normal
		Flashing green	iLO is rebooting
		Flashing amber	System degraded [2]
		Flashing red	System critical [2]
2	NIC status LED [1]	Solid green	Linked to network
		Flashing green	Network active
		Off	No network activity
3	Power On/Standby button and system power LED [1]	Solid green	System on
		Flashing green	Performing power-on sequence
		Solid amber	System in standby
		Off	No power present [3]
4	UID button/LED [1]	Solid blue	Activated
		Flashing blue	1 flash per second = Remote management or firmware upgrade in progress 4 flashes per second = iLO manual reboot sequence initiated 8 flashes per second = iLO manual reboot sequence in progress
		Off	Deactivated

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

Server UID LED

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

Using the UID button to view the Server Health Summary

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

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

Prerequisites

- An external monitor is connected.

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

Procedure

1. Press and release the UID button.

   The Server Health Summary screen is displayed on the external monitor. For more information, see the iLO troubleshooting guide on the Hewlett Packard Enterprise website (**https://www.hpe.com/support/ilo-docs**).

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

Front panel LED power fault codes

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

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

Rear panel components
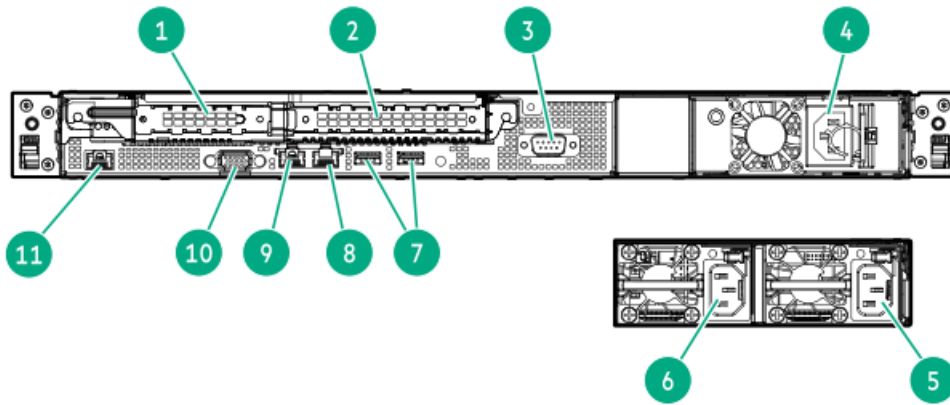
Item	Description
1	Slot 1 PCIe4 x8 (8, 4, 1) or Slot 1 PCIe4 x8 (4, 1)
2	Slot 2 PCIe4 x16 (8, 4, 1) or Slot 2 PCIe4 x16 (16, 8, 4, 1)
3	Serial port (optional)
4	Non-hot-plug power supply
5	Flexible Slot power supply 1 (hot-plug)
6	Flexible Slot power supply 2 (hot-plug, optional)
7	USB 3.2 Gen1 ports
8	NIC port 2 (1 GbE)
9	NIC port 1/iLO shared port (1 GbE)
10	Video port
11	iLO dedicated network port

Rear panel LEDs
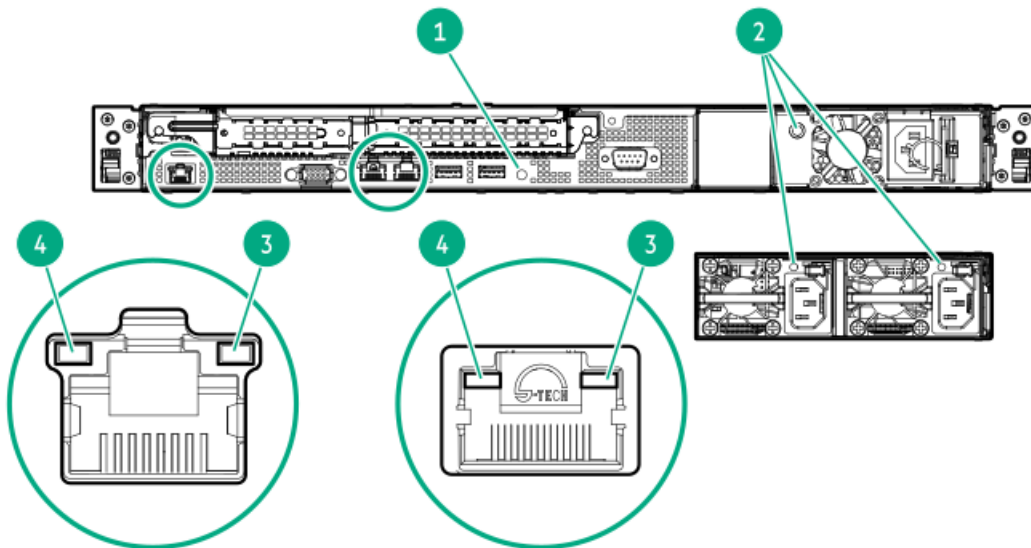
Item	LED	Status	Definition
1	UID	Solid blue	Activated
		Flashing blue	1 flash per sec = Remote management or firmware upgrade in progress 4 flashes per sec = iLO manual reboot sequence initiated 8 flashes per sec = iLO manual reboot sequence in progress
		Off	Deactivated
2	Power supply	Solid green	The power supply is operating normally
		Off	One or more of the following conditions exists: - Power is unavailable - Power supply failure - Power supply is in standby mode - Power supply error
3	NIC/iLO status	Solid green	Linked to network
		Flashing green	Network active
		Off	No network activity
4	NIC/iLO link	Solid green	Network link
		Off	No network link

System board components
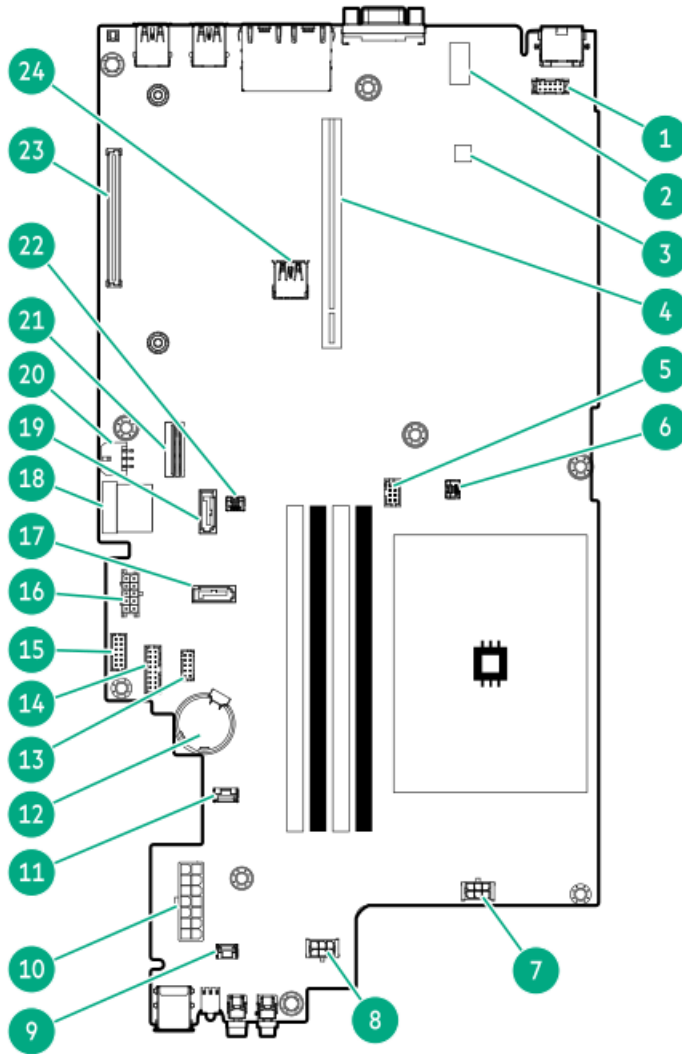
Item	Description
1	Serial port connector
2	System maintenance switch
3	HPE Trusted Platform Module 2.0 (embedded TPM)
4	PCIe4 riser connector
5	M.2 SSD power-sideband connector
6	Storage controller backup power connector for slot 1
7	Fan connector 2
8	Fan connector 1
9	Chassis intrusion detection switch connector
10	Power supply connector
11	2 SFF drive sideband connector
12	System battery
13	Energy pack connector
14	Power supply sideband connector
15	Flexible Slot power supply sideband connector
16	Drive and optical drive power connector
17	SATA port 2 [1]
18	Mini-SAS port

Item	Description
19	SATA port 1 [1]
20	Fan connector 3
21	M.2 SSD signal connector
22	Storage controller backup power connector for slot 2
23	Type-a modular storage controller slot (AROC)
24	Internal USB 3.2 Gen1 port

[1]   All SATA ports support 6Gb/s transfer rate.

System maintenance switch descriptions

Position	Default	Function
S1 [1]	Off	• Off = iLO 5 security is enabled. • On = iLO 5 security is disabled.
S2	Off	Reserved
S3	Off	Reserved
S4	Off	Reserved
S5 [1]	Off	• Off = Power-on password is enabled. • On = Power-on password is disabled.
S6 [1], [2], [3]	Off	• Off = No function • On = Restore default manufacturing settings
S7	Off	Reserved
S8	—	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 Configuring security.

DIMM slot location

The arrow points to the front of the server.
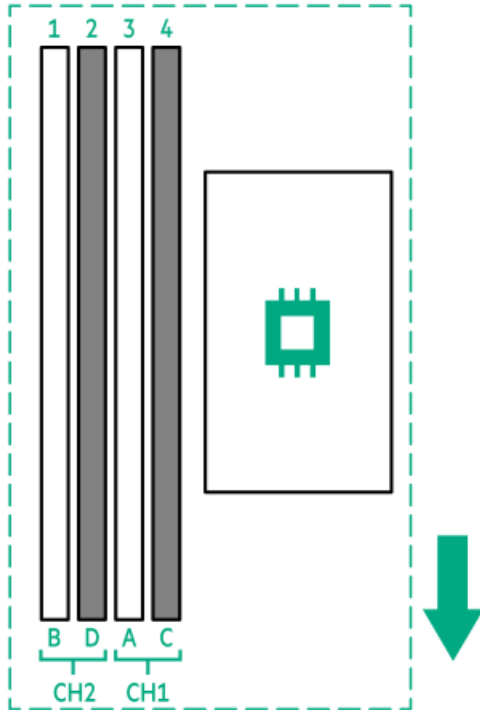
DIMM label identification

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

For more information about product features, specifications, options, configurations, and compatibility, see the HPE DDR4 SmartMemory QuickSpecs on the Hewlett Packard Enterprise website (https://www.hpe.com/support/DDR4SmartMemoryQS).
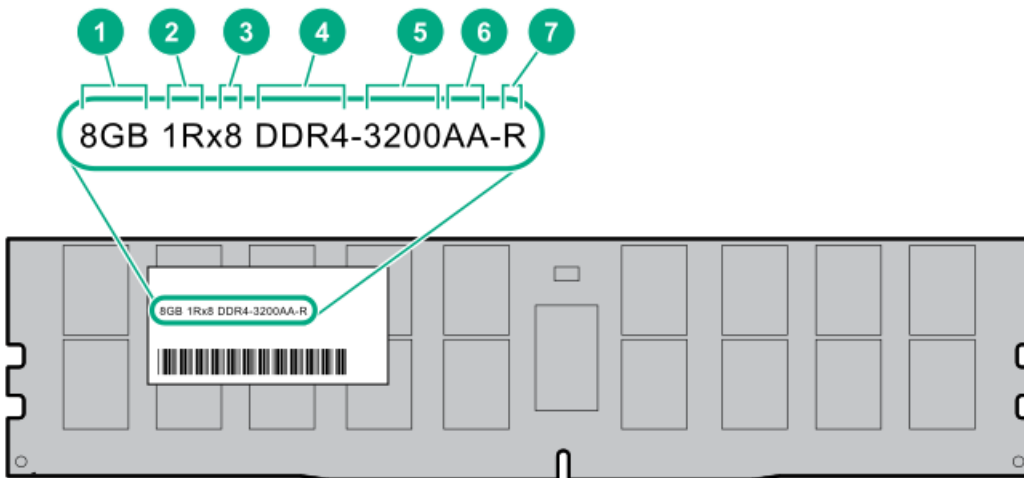
Item	Description	Example
1	Capacity	8 GB
		16 GB
		32 GB
		64 GB
		128 GB
		256 GB
2	Rank	1R = Single rank
		2R = Dual rank
		4R = Quad rank
		8R = Octal rank
3	Data width on DRAM	x4 = 4-bit
		x8 = 8-bit
4	Memory generation	PC4 = DDR4
5	Maximum memory speed	3200 MT/s
6	CAS latency	AA = CAS 22-22-22
		AA = CAS 26-22-22 (for 3DS LRDIMM)
7	DIMM type	E = Unbuffered ECC (UDIMM)
		R = RDIMM (registered)
		L = LRDIMM (load reduced)

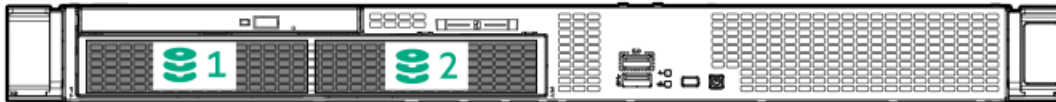# Drive bay numbering

⚠ **CAUTION:**

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

2 LFF non-hot-plug drive bay numbering

In the 2 LFF non-hot-plug drive configuration:

- All drives belong to the same box 1.

- SATA drives are supported.

- Onboard connection for the Intel VROC SATA RAID support is through the Mini-SAS port.

2 LFF hot-plug drive bay numbering

In the 2 LFF hot-plug drive configuration:

- All drives belong to the same box 1.

- SAS or SATA drives are supported.

- Onboard connection for the Intel VROC SATA RAID support is through the Mini-SAS port.
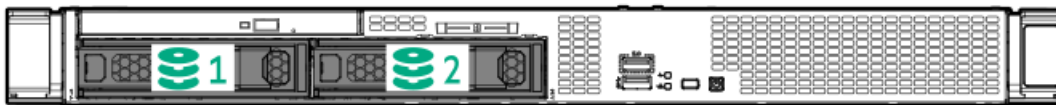
4 + 2 SFF hot-plug drive bay numbering

In the 4 + 2 SFF hot-plug drive configuration:

- Drives are assigned to optional box 1 (orange) and default box 2 (green).

- Box 1 supports SAS or SATA drives.

- Box 1 for the Intel VROC SATA RAID support is through SATA ports 1 and 2 on the system board.

- Box 2 supports SAS, SATA, or U.3 NVMe drives.

- Box 2 for the Intel VROC SATA RAID support is through the Mini-SAS port on the system board.

HPE Basic Drive LED definitions

LFF low-profile drive carrier

The LFF low-profile drive carrier supports hot-plug SAS or SATA.
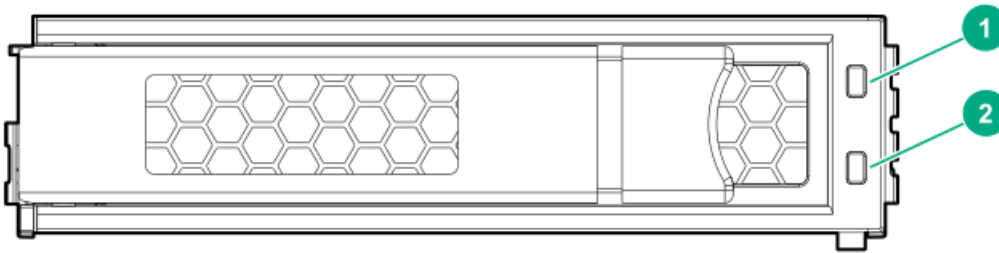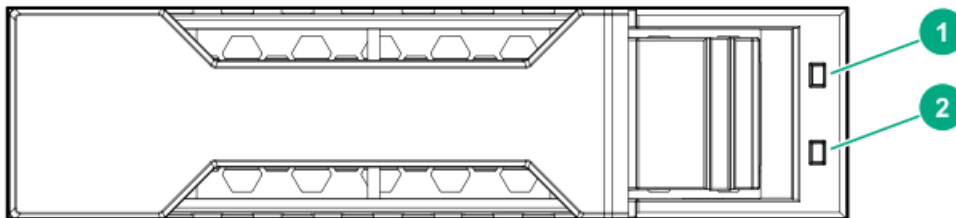
SFF basic drive carrier

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

Item	LED	Status	Definition
1	Fault/Locate	Solid amber	This drive has failed, is unsupported, or is invalid.
		Solid blue	The drive is operating normally and being identified by a management application.
		Flashing amber/blue	The drive has failed, or a predictive failure alert has been received for this drive. The drive has also been identified by a management application.
		Flashing amber	A predictive failure alert has been received for this drive. Replace the drive as soon as possible.
2	Online/Activity	Solid green	The drive is online and has no activity.
		Flashing green (1 flash per second)	The drive is doing one of the following: • Rebuilding or performing a RAID • Performing a stripe size migration • Performing a capacity expansion • Performing a logical drive extension • Erasing • Spare part activation
		Flashing green (4 flashes per second)	The drive is operation normally and has activity.

Item	LED	Status	Definition
		Off	The drive is not configured by a RAID controller or is a spare drive.

PCIe4 slot description
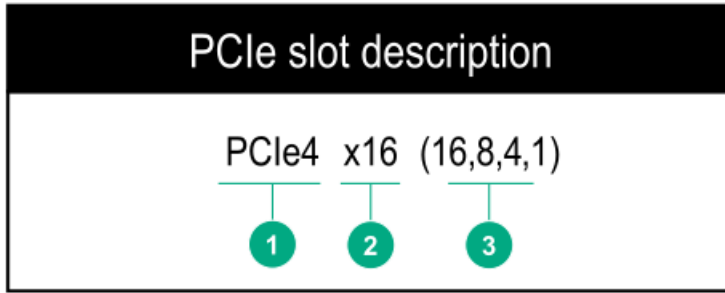
Item	Description	Definition
1	PCI Express version	Each PCIe version corresponds to a specific data transfer rate between the processor and peripheral devices. Generally, a version update corresponds to an increase in transfer rate. • PCIe 1.x • PCIe 2.x • PCIe 3.x • PCIe 4.x The PCIe technology is under constant development. For the latest information, see the **PCI-SIG website**.
2	Physical connector link width	PCIe devices communicate through a logical connection called an interconnect or link. At the physical level, a link is composed of one or more lanes. The number of lanes is written with an x prefix with x16 being the largest size in common use. • x1 • x2 • x4 • x8 • x16
3	Negotiable link width	These numbers correspond to the maximum link bandwidth supported by the slot.

Riser board components
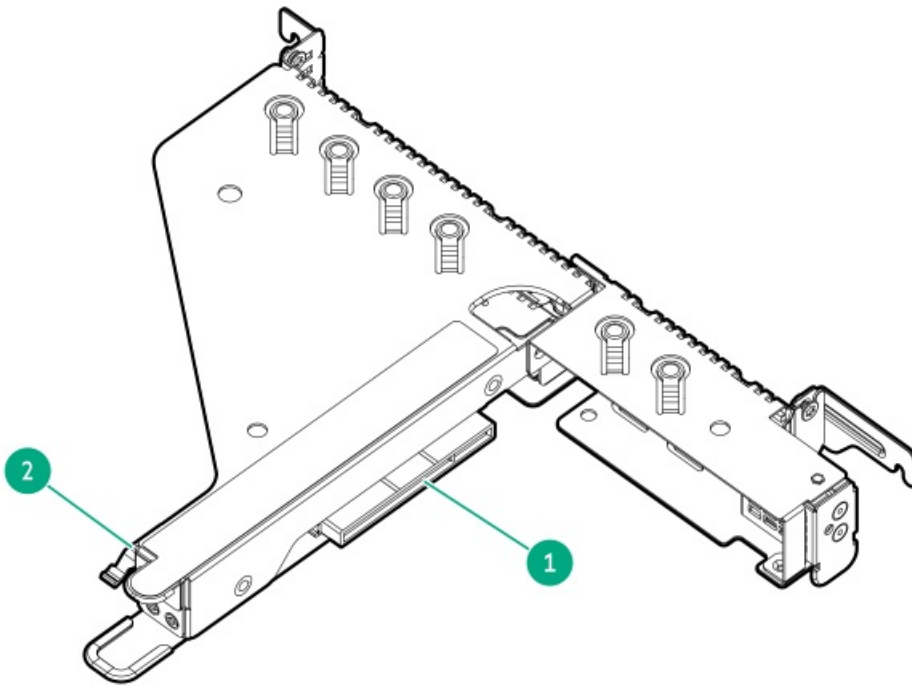
Two-slot PCIe4 x16/x4 riser

Slot number	Slot type	Slot power	Supported form factors
1	PCIe4 x8 (4, 1)	25 W	Half-height, half-length (low-profile)
2	PCIe4 x16 (16, 8, 4, 1)	75 W	Full-height, half-length

Two-slot PCIe4 x8/x8 riser

Slot number	Slot type	Slot power	Supported form factors
1	PCIe4 x8 (8, 4, 1)	25 W	Half-height, half-length (low-profile)
2	PCIe4 x16 (8, 4, 1)	75 W	Full-height, half-length

M.2 SSD pass-through card components

The dual-slot M.2 SSD pass-through card option supports both SATA and NVMe SSDs in 2280 and 22110 form factors.
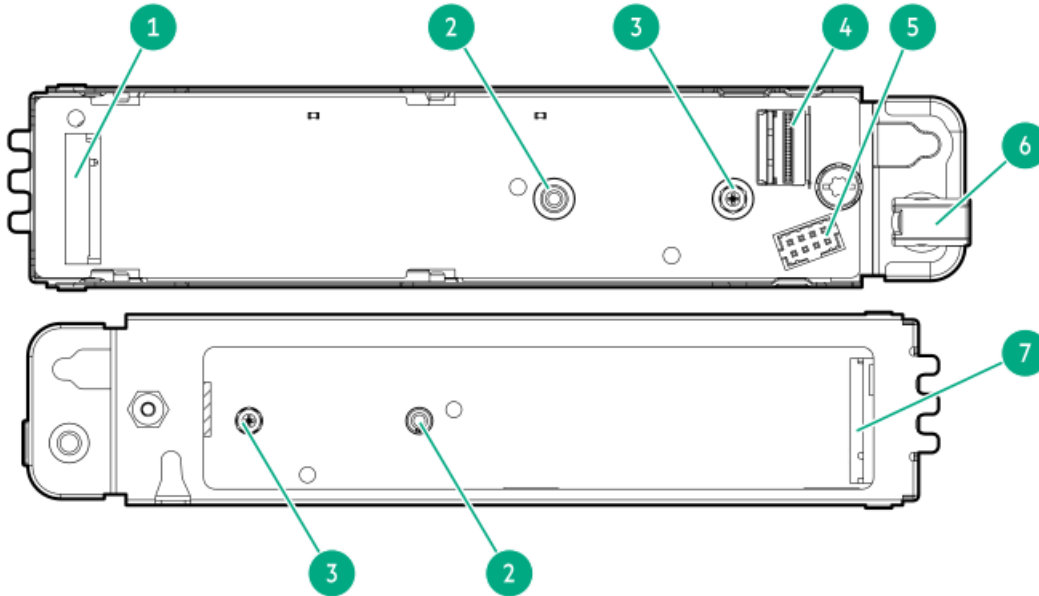
Item	Description
1	M.2 SSD slot 1
2	2280 standoff
3	22110 standoff
4	SlimSAS port
5	Power connector
6	Retaining latch
7	M.2 SSD slot 2

HPE NS204i-p NVMe OS Boot Device components
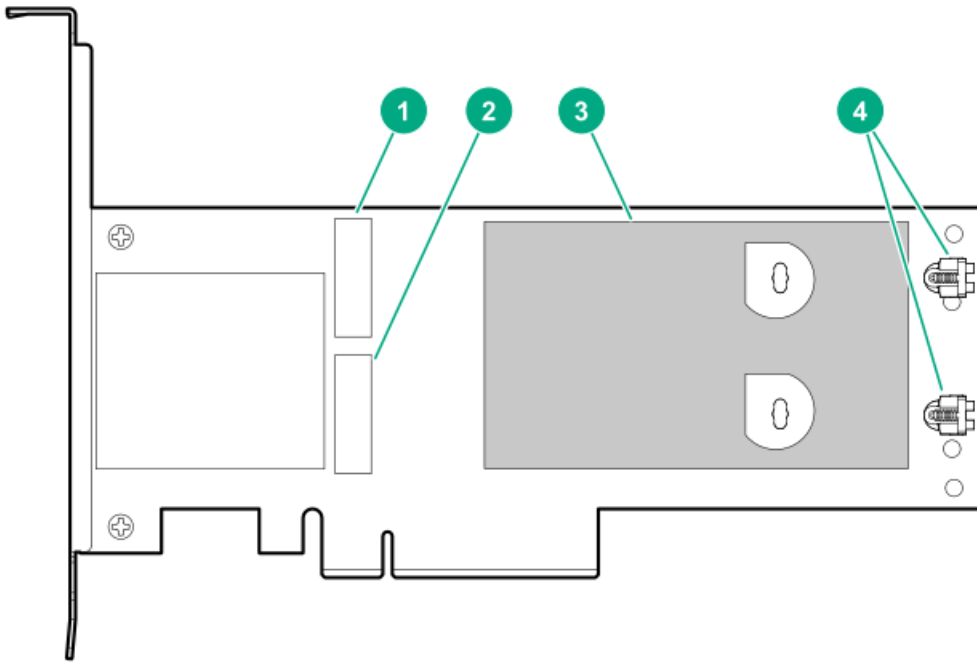
Item	Description
1	Drive bay 1
2	Drive bay 2
3	Thermal interface pad with removable liner
4	M.2 drive retaining latches

HPE NS204i-p NVMe OS Boot Device LED definitions
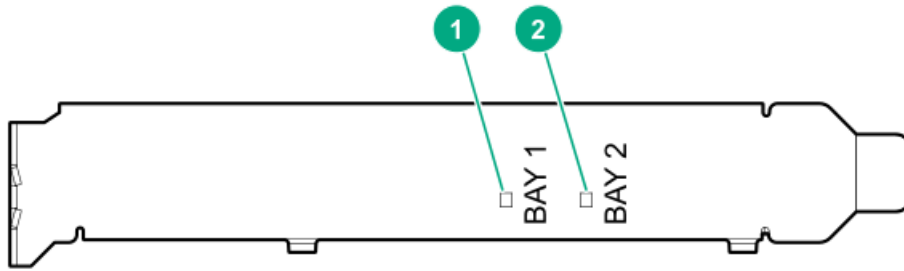
BAY 1   BAY 2

Item	Description	Fault LED status
1	Bay 1 LED	Off: Normal
2	Bay 2 LED	Flashing 1Hz: Drive predictive failure Amber: Drive failure

Fan numbering
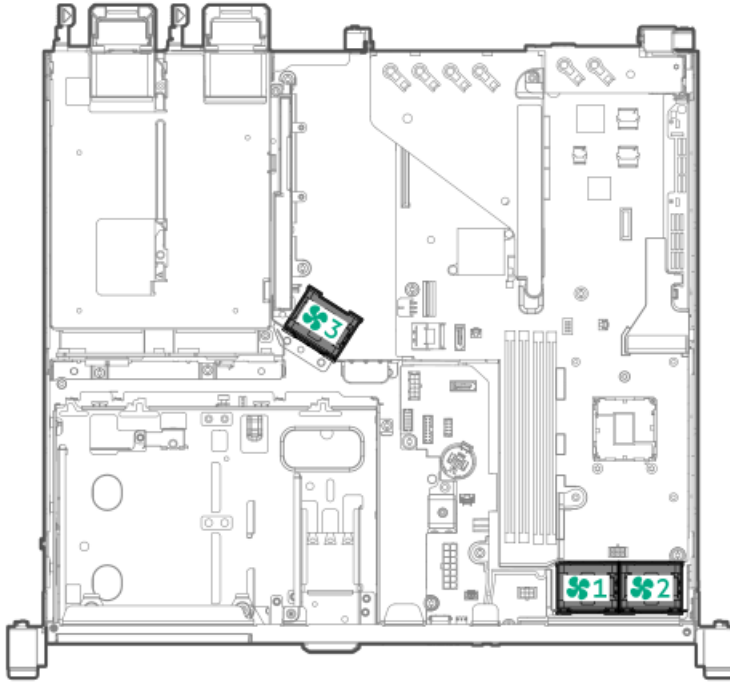
Fan mode behavior

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

- The health LED flashes red.

- The operating system performs a graceful shutdown.

HPE Trusted Platform Module 2.0

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

The TPM 2.0 is embedded on the server system board.

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

HPE Trusted Platform Module 2.0 guidelines

⚠ **CAUTION:**

- Always observe the TPM guidelines in this section. Failure to follow these guidelines can cause hardware damage or halt data access.

- If you do not follow procedures for modifying the server and suspending or disabling the TPM in the OS, an OS that is using TPM might lock all data access. This includes updating system or option firmware, replacing hardware such as the system board and drives, and modifying TPM OS settings.

- Changing the TPM mode after installing an OS might cause problems, including loss of data.

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

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

- When the embedded TPM is enabled:

  - In UEFI boot mode, the Trusted Platform Module operates in TPM 2.0 mode.

  - In legacy boot mode, the Trusted Platform Module operation is not supported.

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

  https://www.hpe.com/support/UEFIGen10-UG-en

- When using the Microsoft Windows BitLocker Drive Encryption feature, always retain the recovery key or password. The recovery key or password is required to enter Recovery Mode after BitLocker detects a possible compromise of system integrity.

- HPE is not liable for blocked data access caused by improper TPM use. For operating instructions, see the documentation for the encryption technology feature provided by the operating system.

BitLocker recovery key/password retention guidelines

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

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

- Always store the recovery key/password in multiple locations.

- Always store copies of the recovery key/password away from the server.

- Do not save the recovery key/password on an encrypted drive.

Cabling

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

Cabling guidelines

The cable colors in the cabling diagrams used in this chapter are for illustration purposes only. Most of the system cables are black.

Observe the following guidelines when working with system cables.

Before connecting cables

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

When connecting cables

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

When disconnecting cables

- Grip the body of the cable connector. Do not pull on the cable itself because this action can damage the internal wires of the cable or the pins on the port.
- If a cable does not disconnect easily, check for any release latch that must be pressed to disconnect the cable.
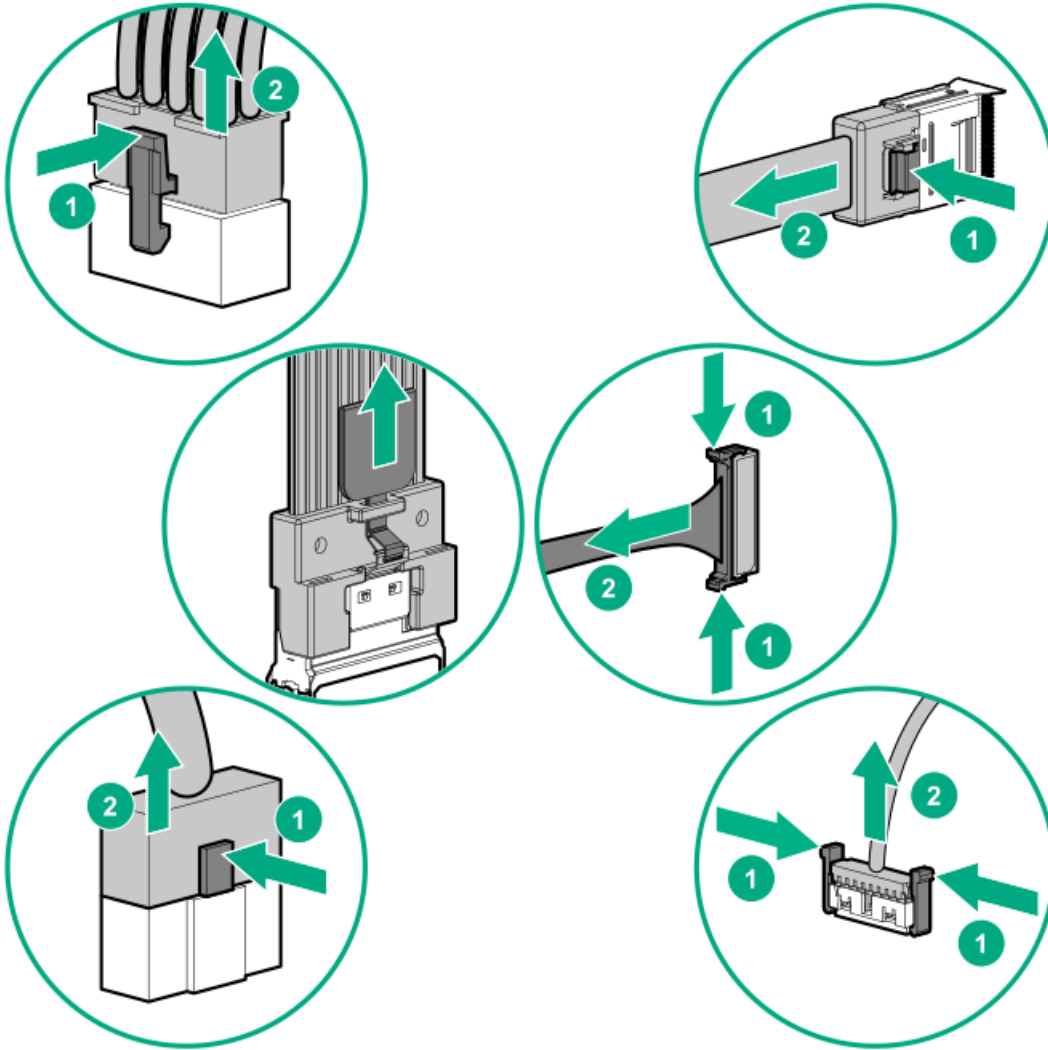
- Remove cables that are no longer being used. Retaining them inside the system can restrict airflow. If you intend to use the removed cables later, label and store them for future use.

Internal cabling management
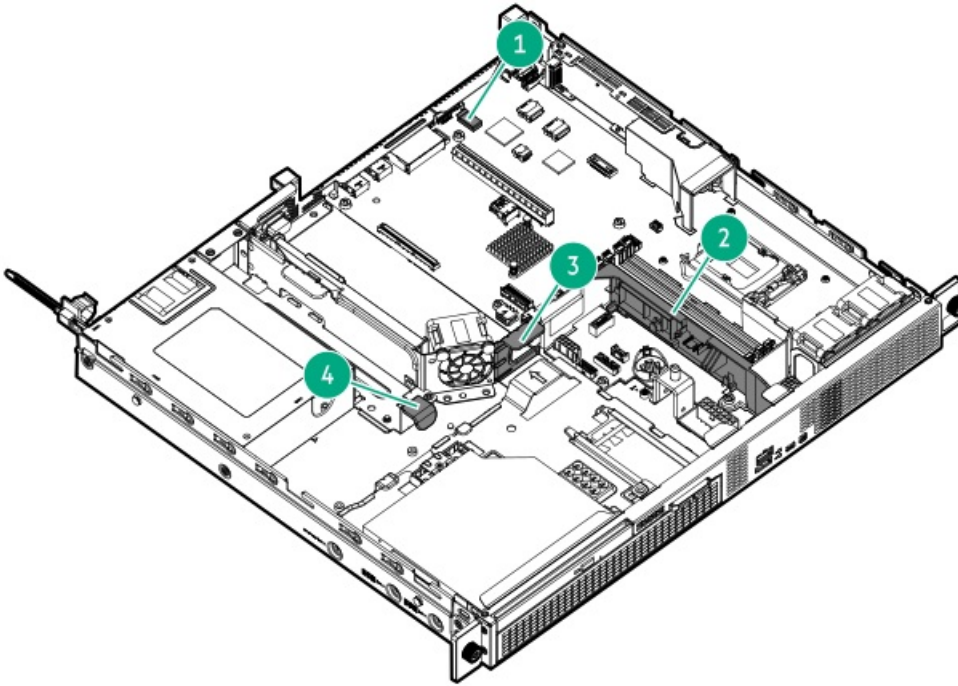
Item	Description
1	Serial port cable clip
2	DIMM guard [1]
3	Midwall cable channel
4	Metal tab [2]

[1] This DIMM guard is for securing:

- Chassis intrusion detection switch cable

- Power supply cable

[2] This tab is for securing the ATX non-hot-plug power supply cables.

Storage cabling

- 2 LFF non-hot-plug drive cabling

- 2 LFF hot-plug drive cabling

- 4 SFF hot-plug drive cabling

- 4 + 2 SFF hot-plug drive cabling

- Energy pack cabling

- Storage controller backup power cabling
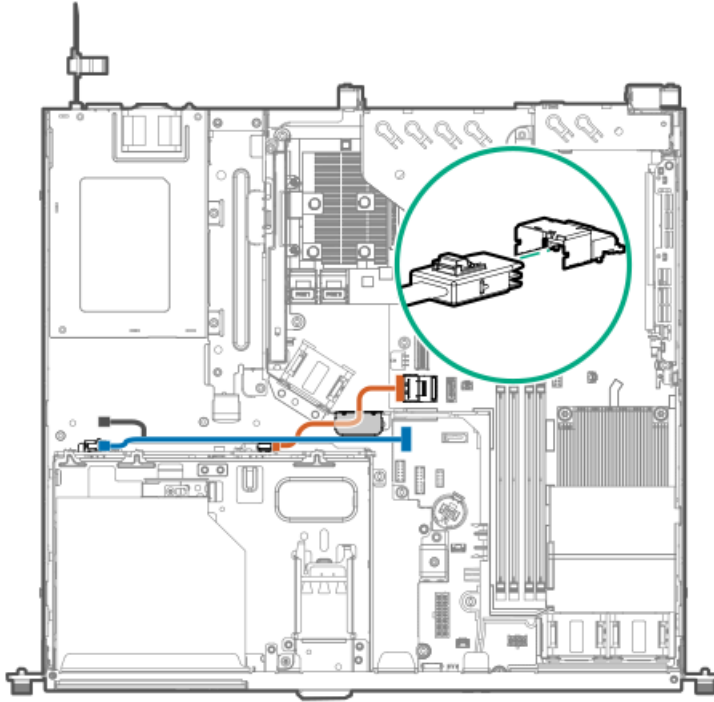
2 LFF non-hot-plug drive cabling

The 2 LFF non-hot-plug drive configuration uses a single multiconnector cable for the drive power and Mini-SAS connections. This cable also has an extension connector for optical drive power.
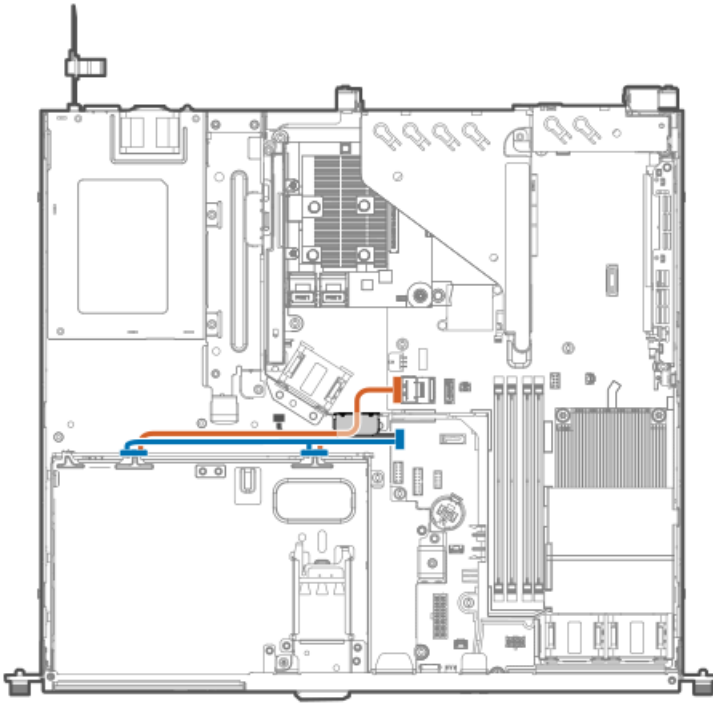
Color	Description
Orange	Mini-SAS cable
Blue	Drive power cable

2 LFF hot-plug drive cabling

2 LFF drive: Onboard SATA cabling

Color	Description
Orange	Mini-SAS cable
Blue	Drive power Y-cable [1]

[1] The P2 connector (gray in the illustration) of this cable connects to the optical drive power-SATA Y-cable.

2 LFF drive: Type-a controller cabling
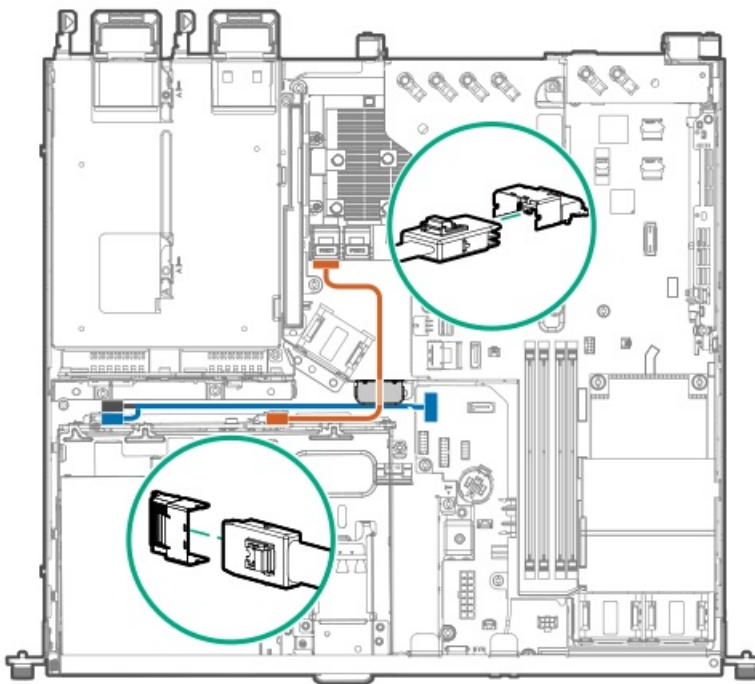
Color	Description
Orange	Mini-SAS cable

Color	Description
Blue	Drive power Y-cable [1]

[1] The P2 connector (gray in the illustration) of this cable connects to the optical drive power-SATA Y-cable.

2 LFF drive: Type-p controller cabling

Color	Description
Orange	Mini-SAS cable
Blue	Drive power Y-cable [2]

[2] The P2 connector (gray in the illustration) of this cable connects to the optical drive power-SATA Y-cable.

4 SFF hot-plug drive cabling

4 SFF drive: Onboard SATA cabling

Color	Description
Orange	Mini-SAS cable
Blue	Drive power Y-cable [1]

[1] The P2 connector (gray in the illustration) of this cable connects to the optical drive power-SATA Y-cable.

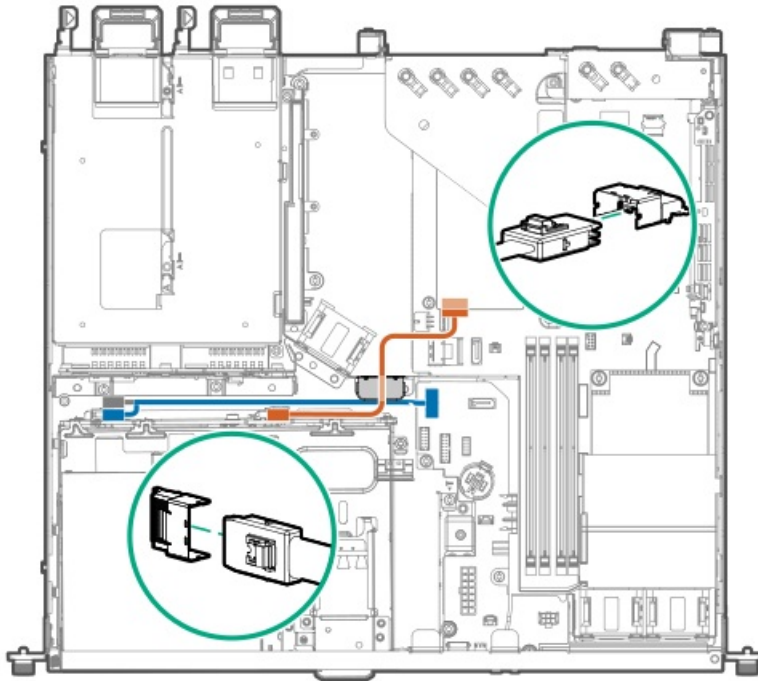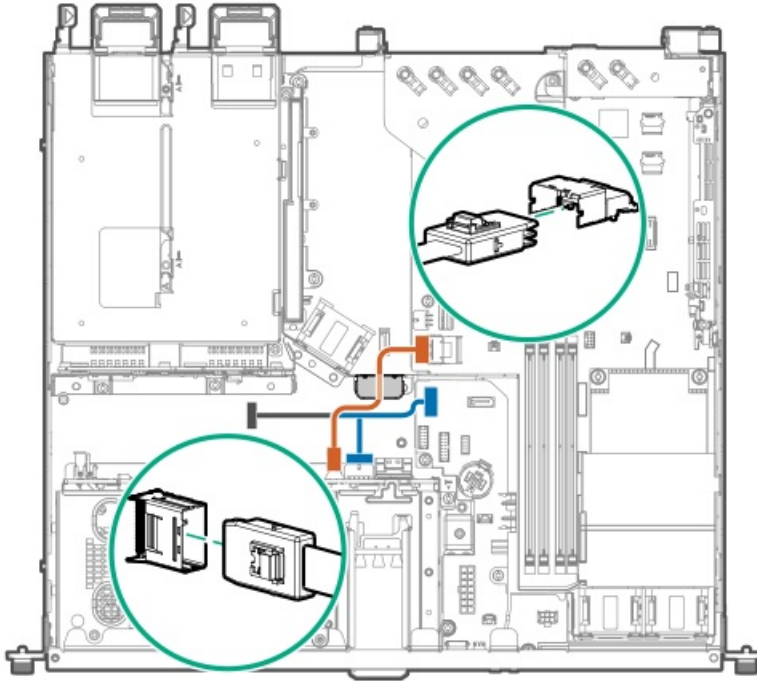## 4 SFF drive: Type-a controller cabling

Color	Description
Orange	Mini-SAS cable
Blue	Drive power Y-cable [1]

4 SFF drive: Type-p controller cabling

Color	Description
Orange	Mini-SAS cable
Blue	Drive power Y-cable [1]

1   The P2 connector (gray in the illustration) of this cable connects to the optical drive power-SATA Y-cable.
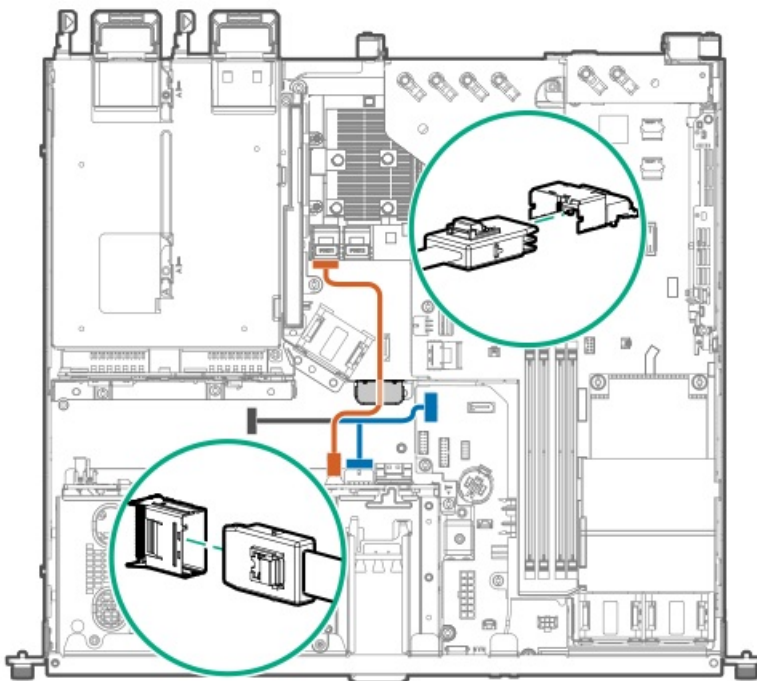
4 + 2 SFF hot-plug drive cabling

4 + 2 SFF drive: Onboard SATA cabling

Color	Description
Orange	4 SFF drive Mini-SAS cable
Blue	4 SFF drive power Y-cable [1]
Gold	2 SFF drive sideband-SATA fan-out cable
Pink	2 SFF drive power cable

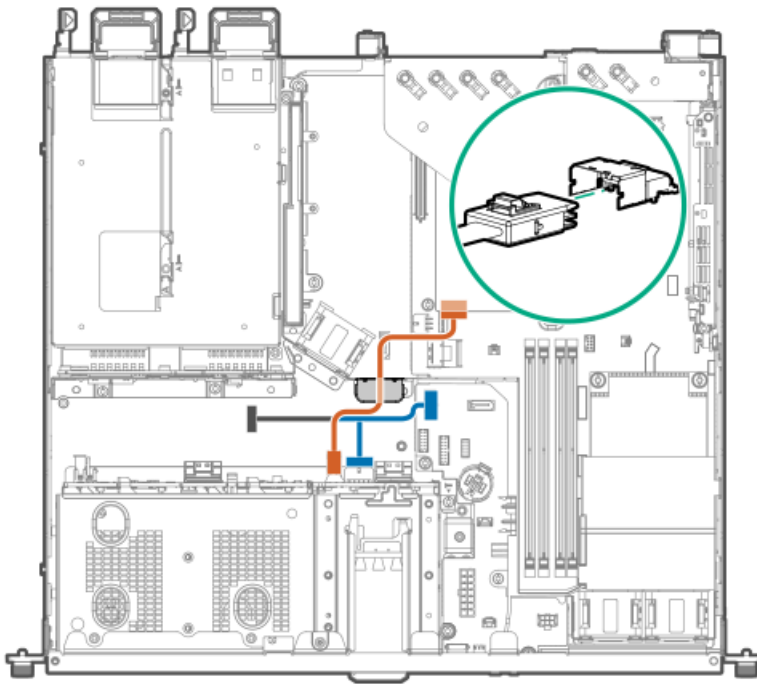[1]   The P2 connector (gray in the illustration) of this cable connects to the optical drive power-SATA Y-cable.

4 + 2 SFF drive: Type-a controller cabling

Color	Description

Color	Description
Orange	4 SFF drive Mini-SAS cable
Blue	4 SFF drive power Y-cable [1]
Gold	2 SFF drive Mini-SAS cable
Pink	2 SFF drive power cable

[1] The P2 connector (gray in the illustration) of this cable connects to the optical drive power-SATA Y-cable.
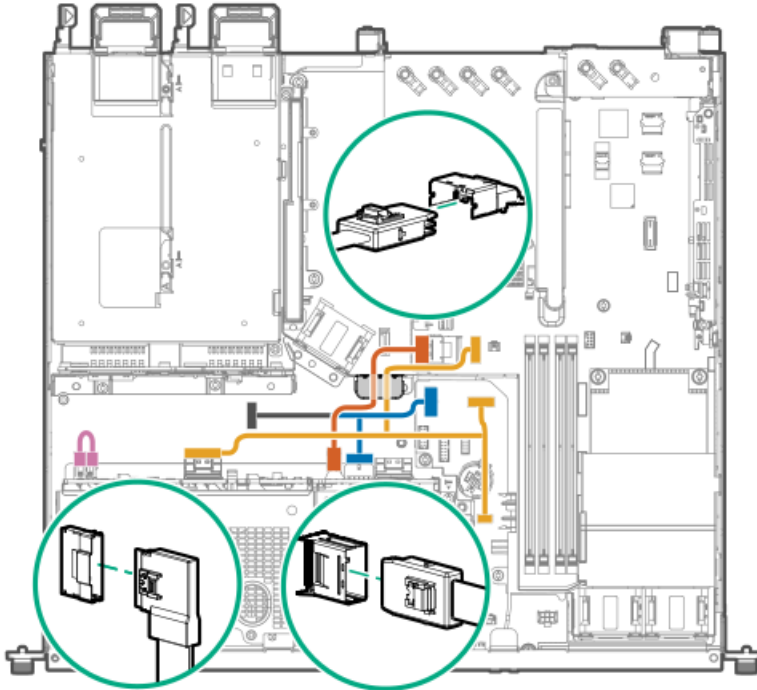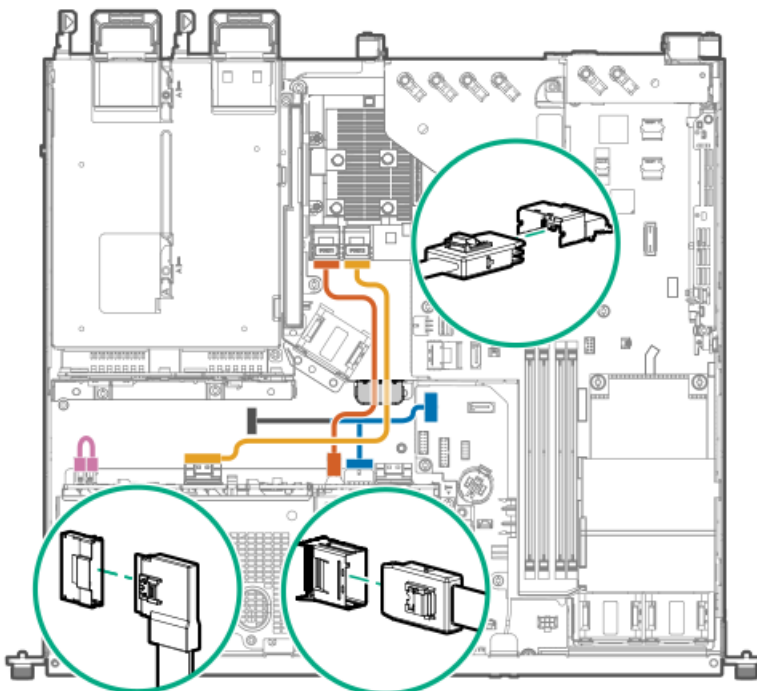
4 + 2 SFF drive: Type-p controller cabling

Color	Description
Orange	4 SFF drive Mini-SAS cable
Blue	4 SFF drive power Y-cable [2]
Gold	2 SFF drive Mini-SAS cable
Pink	2 SFF drive power cable

[2] The P2 connector (gray in the illustration) of this cable connects to the optical drive power-SATA Y-cable.

Energy pack cabling

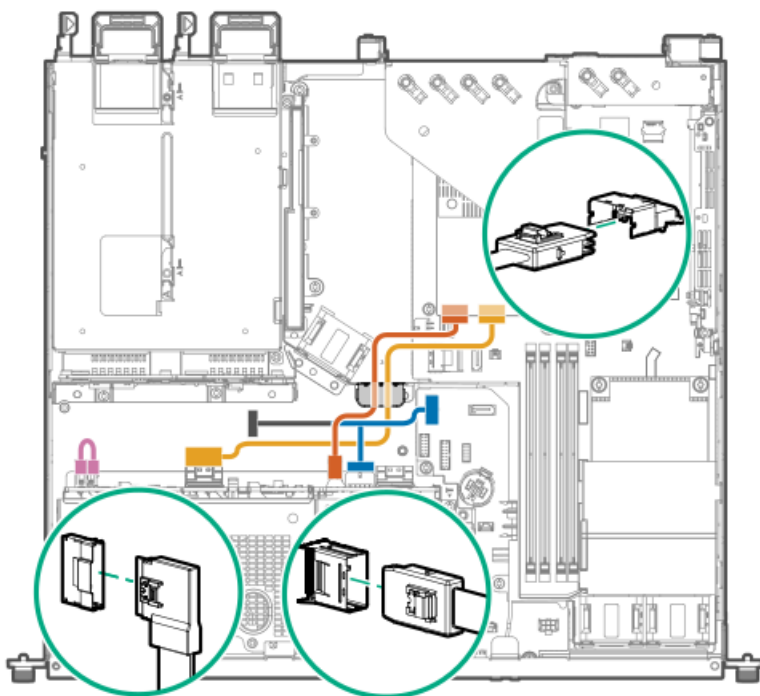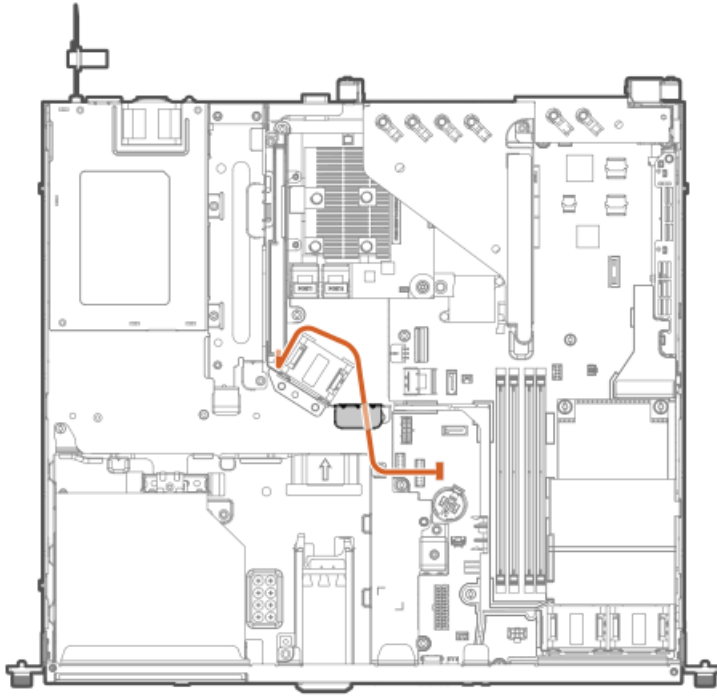# Storage controller backup power cabling

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

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

Use the following diagrams for reference only.

Storage controller backup power cabling from the riser slot 1
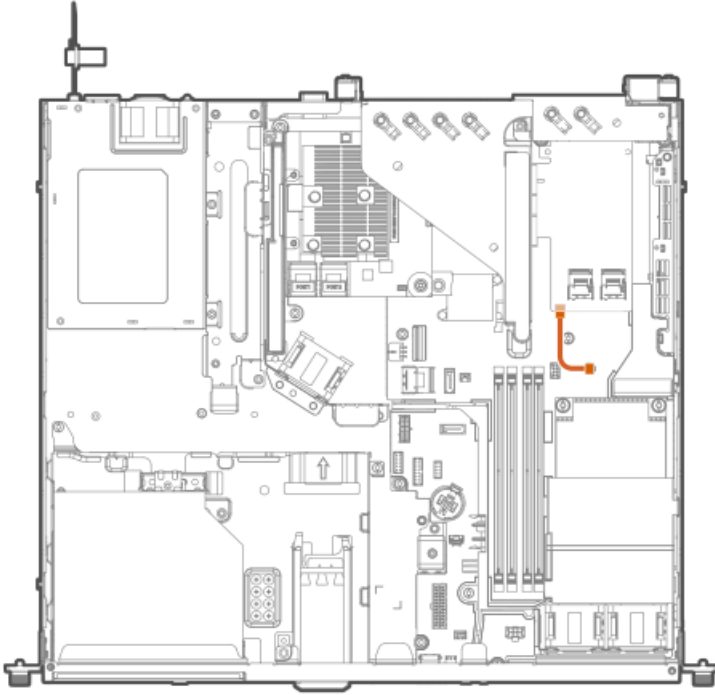
Storage controller backup power cabling from the riser slot 2
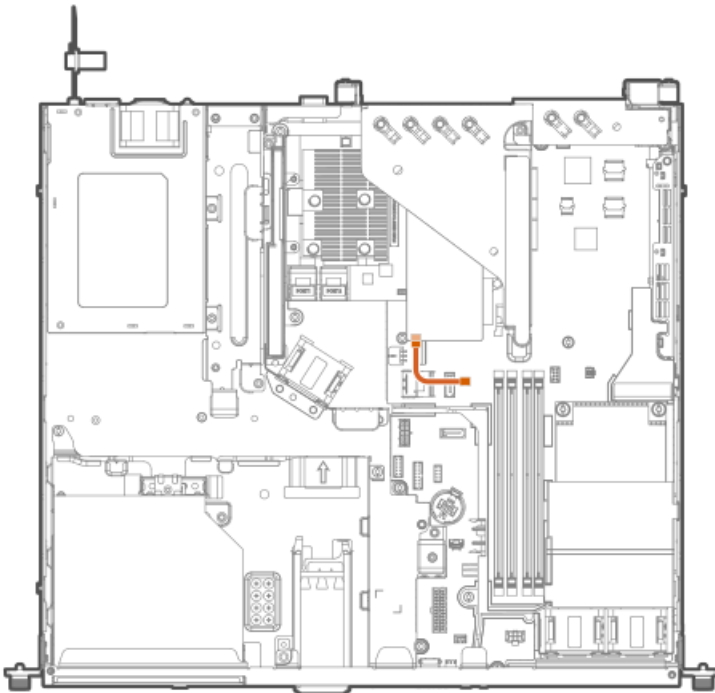
Optical drive cabling

Optical drive cabling in the LFF non-hot-plug drive configuration
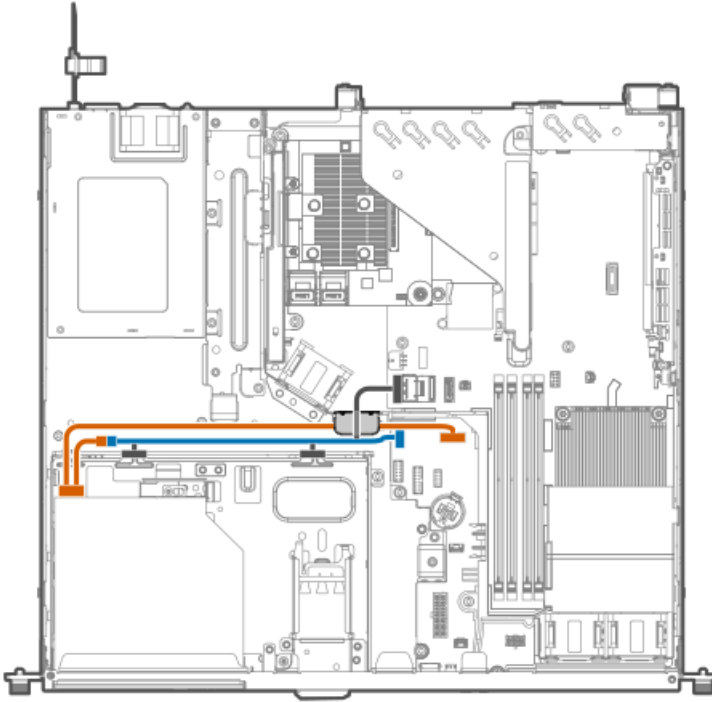
Color	Description
Orange	Optical drive SATA-power Y-cable
Blue	2 LFF non-hot plug drive power-Y cable

Optical drive cabling in the LFF hot-plug drive configuration
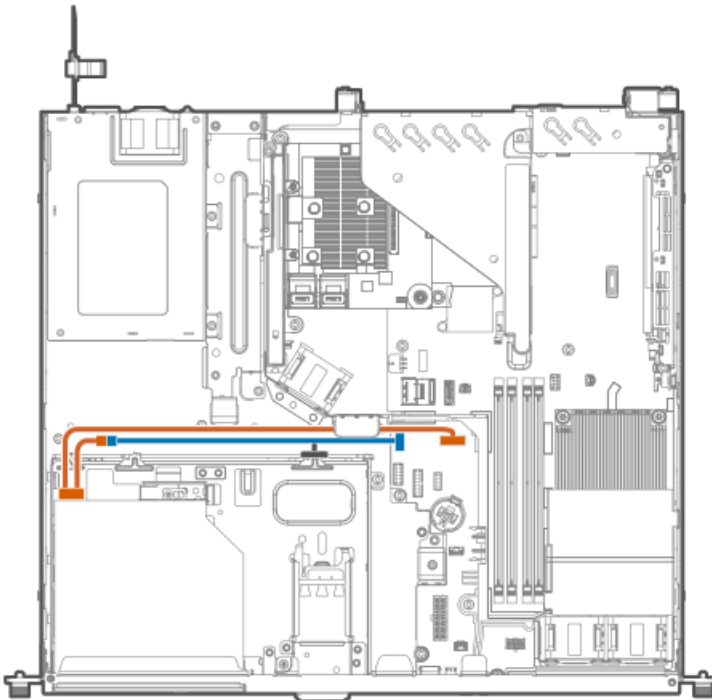
Color	Description
Orange	Optical drive SATA-power Y-cable
Blue	2 LFF hot-plug drive power-Y cable

Optical drive cabling in the SFF hot-plug drive configuration
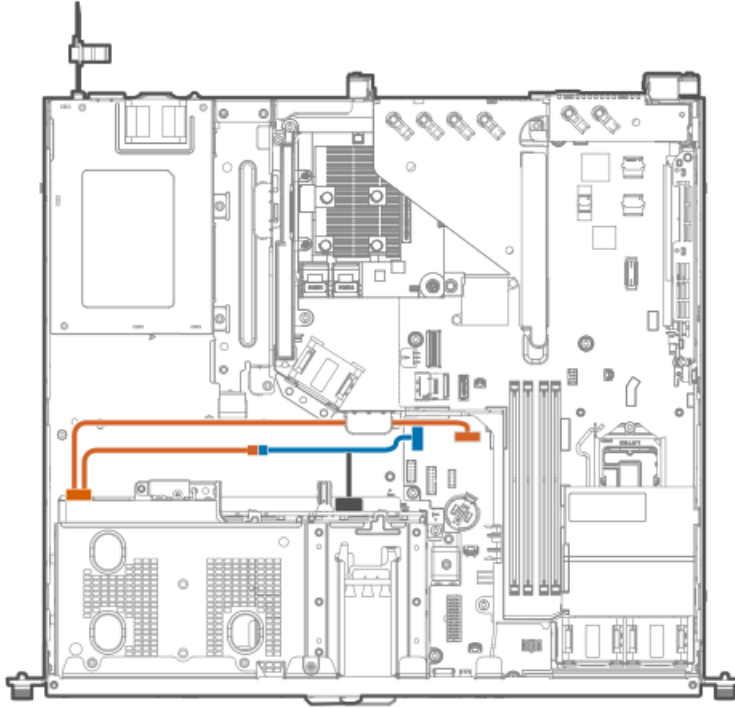
Color	Description
Orange	Optical drive SATA-power Y-cable
Blue	4 SFF drive power-Y cable

M.2 SATA SSD add-in card cabling

M.2 SATA SSD add-in card cabling from the riser slot 1
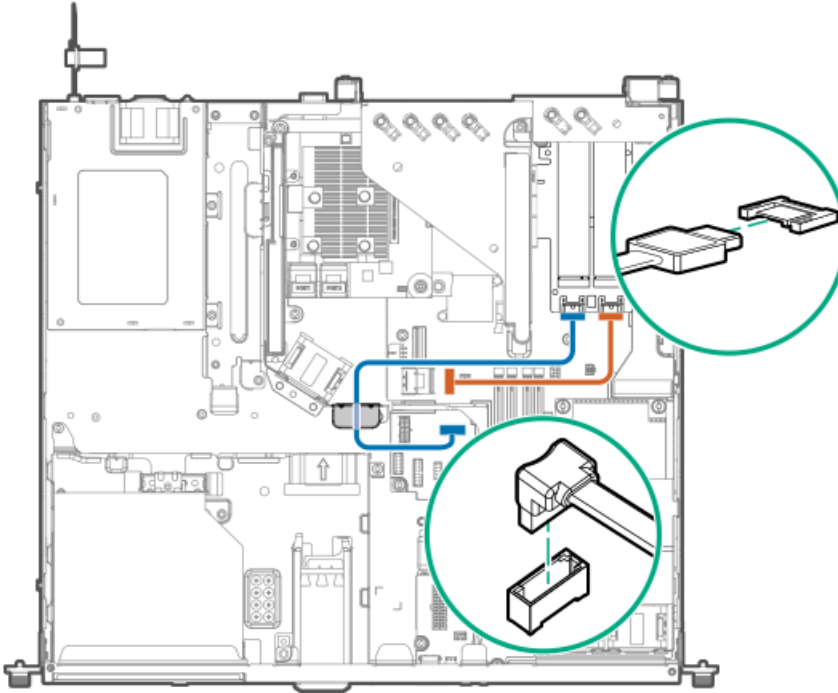
Color	Description
Orange	M.2 SATA SSD 1 cable
Blue	M.2 SATA SSD 2 cable

M.2 SATA SSD add-in card cabling from the riser slot 2
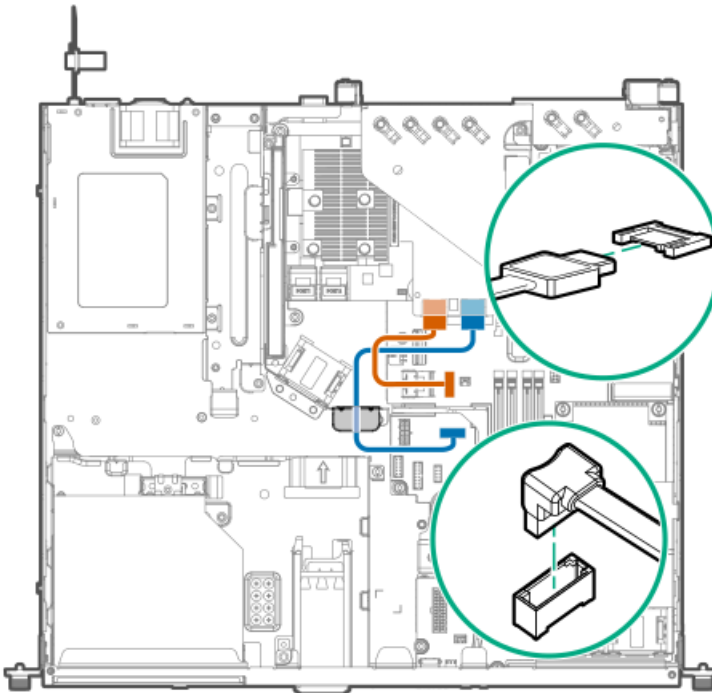
Color	Description
Orange	M.2 SATA SSD 1 cable
Blue	M.2 SATA SSD 2 cable

M.2 SSD pass-through card cabling
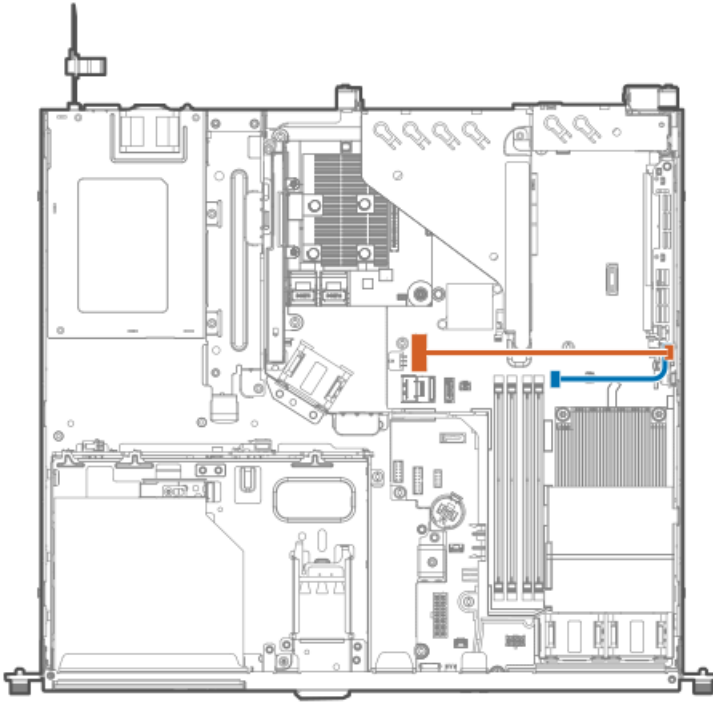
Color	Description
Orange	M.2 SSD SlimSAS cable
Blue	M.2 SSD power-sideband cable

Fan cabling
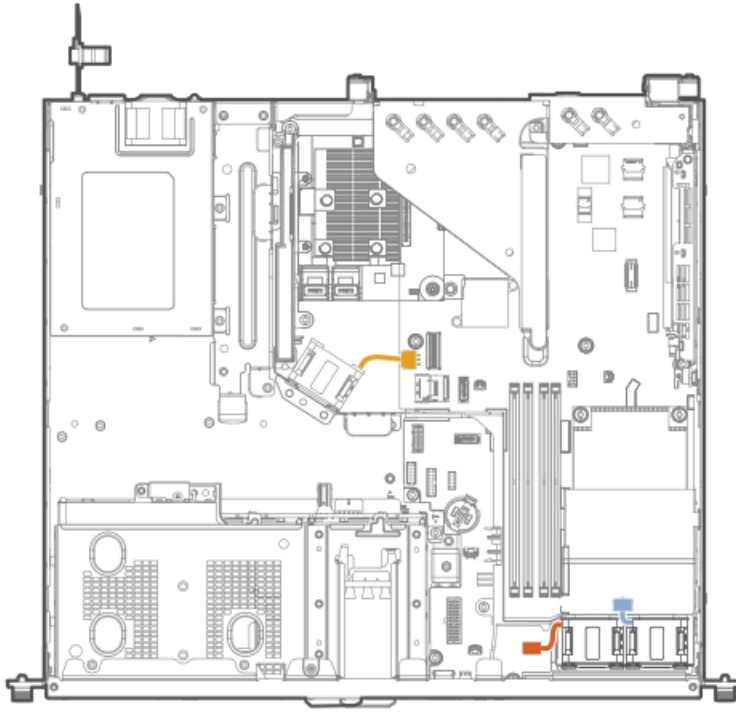
Color	Description
Orange	Fan 1 cable
Blue	Fan 2 cable
Gold	Fan 3 cable

Chassis intrusion detection switch cabling
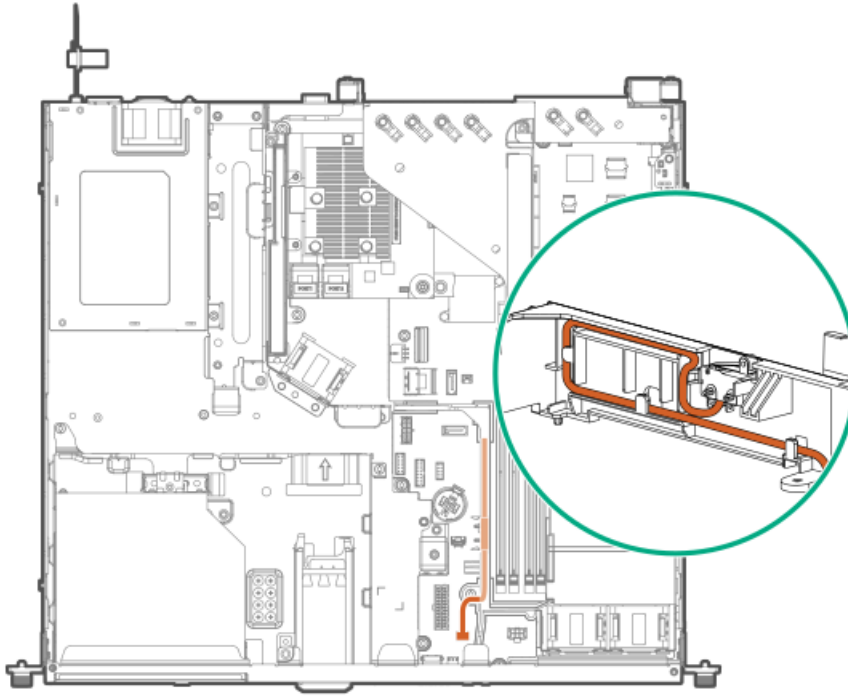
Serial port cabling
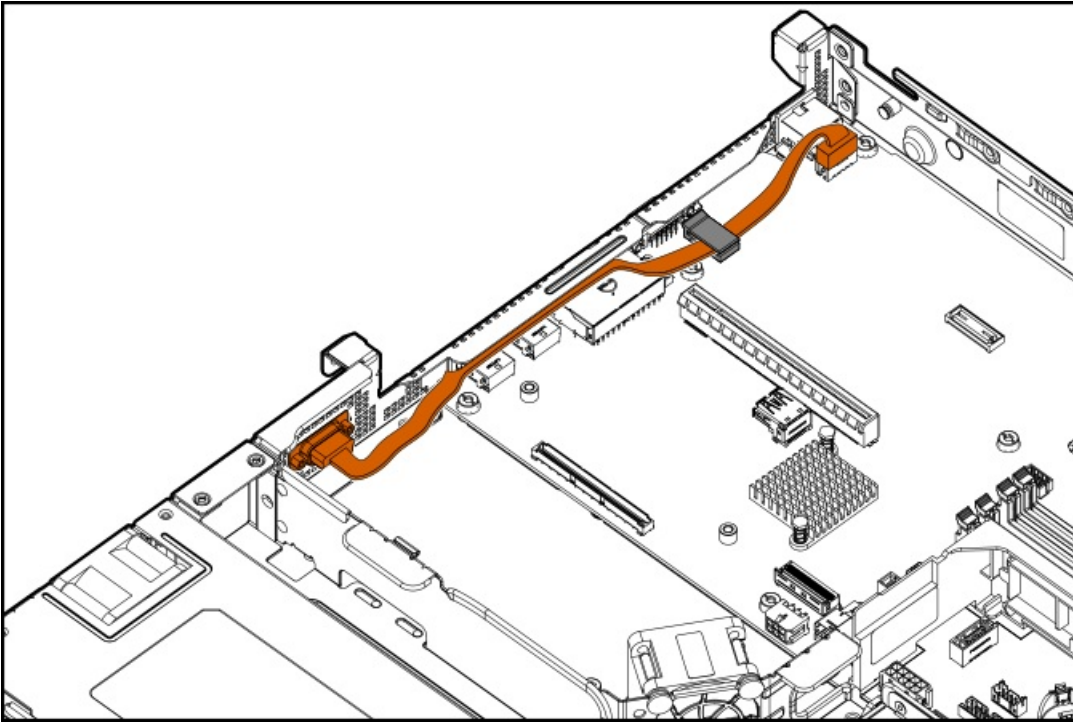
Power supply cabling

Non-hot-plug power supply cabling
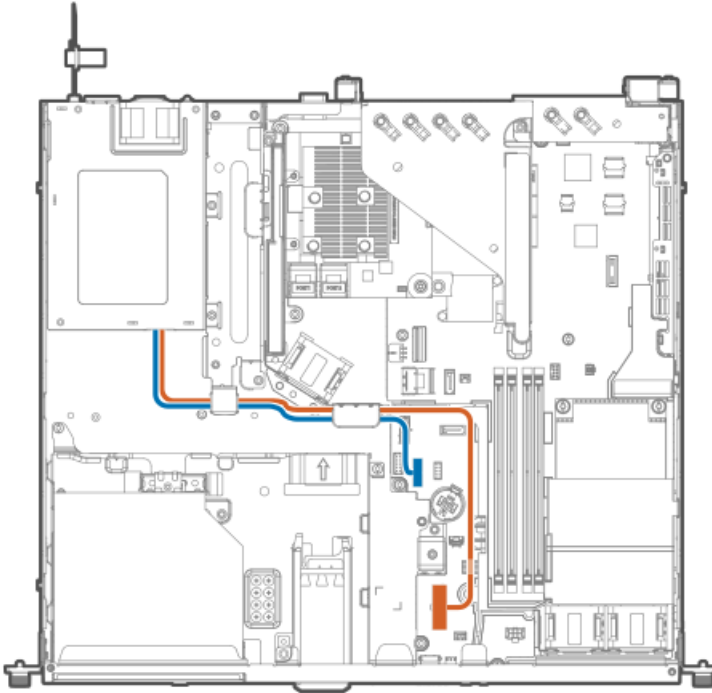
Color	Description
Orange	14-pin power supply cable
Blue	ATX power supply sideband cable

Flexible Slot power supply cabling
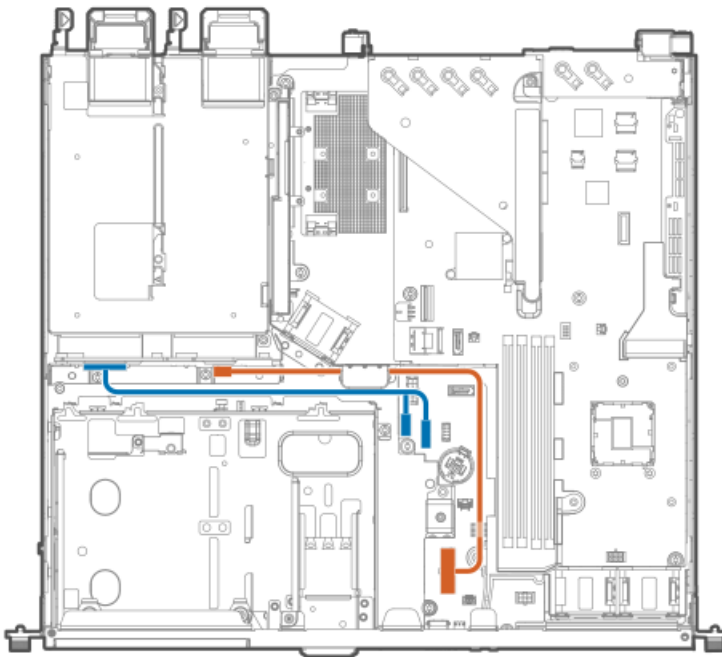
Color	Description
Orange	14-pin power supply cable
Blue	Flexible Slot power supply sideband Y-cable

Specifications

This chapter lists the technical specifications for the server, including:

- Environmental specifications
- Mechanical specifications
- Power supply specifications

Environmental specifications

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

Standard operating support

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

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

Extended ambient operating support

For approved hardware configurations, the supported system inlet range is extended to be: 5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2,953 ft) to a maximum of 3050 m (10,000 ft). The approved hardware configurations for this system are listed at the **Hewlett Packard Enterprise website**.

40°C to 45°C (104°F to 113°F) at sea level with an altitude derating of 1.0°C per every 125 m (1.8°F per every 410 ft) above 900 m (2953 ft) to a maximum of 3,050 m (10,000 ft). The approved hardware configurations for this system are listed on the **Hewlett Packard Enterprise website**.

Mechanical specifications

Specification	Value
Dimensions	—
Height	4.32 cm (1.70 in)
Depth	38.22 cm (15.05 in)
Width	43.46 cm (17.11 in)
Weight, approximate values	—
Minimum	6.00 kg (13.23 lb)
Maximum	10.00 kg (22.05 lb)

Power supply specifications

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

- ATX 290 W Non-hot-plug Power Supply (92% efficiency)

- ATX 290 W Platinum Non-hot-plug Power Supply (94% efficiency)

- HPE 500 W Flex Slot Platinum Hot-plug Low Halogen Power Supply (94% efficiency)

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

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

ATX 290 W Non-hot-plug Power Supply (92% efficiency)

Specification	Value
Input requirements	—
Rated input voltage	100 VAC to 240 VAC
Rated input frequency	50 Hz to 60 Hz
Rated input current	5.5 A
Maximum rated input power	331 W at 115 VAC 330 W at 230 VAC
Efficiency	No less than 88% at 100% load No less than 92% at 50% load No less than 88% at 20% load
Power supply output	—
Rated steady-state power	290 W
Maximum peak power	366 W
Rated output power	290 W

ATX 290 W Platinum Non-hot-plug Power Supply (94% efficiency)

Specification	Value
Input requirements	—
Rated input voltage	100 VAC to 240 VAC
Rated input frequency	50 Hz to 60 Hz
Rated input current	5.5 A
Rated input power	331 W at 115 VAC 319 W at 230 VAC
Efficiency	At 230 VAC, 50 Hz: No less than 91% at 100% load No less than 94% at 50% load No less than 90% at 20% load No less than 80% at 10% load At 115 VAC, 60 Hz: No less than 87.6% at 100% load No less than 89.7% at 50% load No less than 87.2% at 20% load No less than 80.8% at 10% load
Power supply output	—
Rated steady-state power	290 W
Maximum peak power	366 W
Rated output power	290 W

HPE 500 W Flex Slot Platinum Hot-plug Low Halogen Power Supply (94% efficiency)

Specification	Value
Input requirements	—
Rated input voltage	100 VAC to 240 VAC
	240 VDC for China only
Rated input frequency	50 Hz to 60 Hz
	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	580 W at 100 VAC
	560 W at 200 VAC
	558 W at 240 VDC for China only
BTUs per hour	1999 at 100 VAC
	1912 at 200 VAC
	1904 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
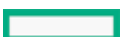
HPE 800 W Flex Slot -48 VDC Hot-plug Low Halogen Power Supply

Specification	Value
Input requirements	—
Rated input voltage	-40 VDC to -72 VDC
	-48 VDC nominal input
Rated input current	22.1 A at -40 VDC input
	18.2 A at -48 VDC input, nominal input
	12.0 A at -72 VDC input
Rated input power	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)	2983 at -40 VDC input
	2951 at -48 VDC input, nominal input
	2912 at -72 VDC input
Power supply output	—
Rated steady-state power	800 W at -40 VDC to -72 VDC
Maximum peak power	800 W at -40 VDC to -72 VDC
Maximum peak power	800 W at -40 VDC to -72 VDC input

⚠ **WARNING:** To reduce the risk of electric shock or energy hazards:
- This equipment must be installed by trained service personnel.
- 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.

Websites

General websites

Single Point of Connectivity Knowledge (SPOCK) Storage compatibility matrix

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

Storage white papers and analyst reports

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

For additional websites, see Support and other resources.

Product websites

HPE ProLiant DL20 Gen10 Plus Server product page

https://www.hpe.com/servers/dl20-gen10-plus

HPE ProLiant DL20 Gen10 Plus Server user documents

https://www.hpe.com/info/dl20gen10plus-docs

Support and other resources

- [Accessing Hewlett Packard Enterprise Support](#)
- [Accessing updates](#)
- [Remote support](#)
- [Warranty information](#)
- [Regulatory information](#)
- [Documentation feedback](#)

Accessing Hewlett Packard Enterprise Support

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

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

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

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

Information to collect

- Technical support registration number (if applicable)

- Product name, model or version, and serial number

- Operating system name and version

- Firmware version

- Error messages

- Product-specific reports and logs

- Add-on products or components

- Third-party products or components

Accessing updates

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

- To download product updates:

  Hewlett Packard Enterprise Support Center

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

  Hewlett Packard Enterprise Support Center: Software downloads

  > **https://www.hpe.com/support/downloads**

  My HPE Software Center

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

- To subscribe to eNewsletters and alerts:

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

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

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

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

Remote support

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

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

HPE Get Connected

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

HPE Pointnext Tech Care

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

HPE Complete Care

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

Warranty information

To view the warranty information for your product, see the links provided below:

HPE ProLiant and IA-32 Servers and Options

> **https://www.hpe.com/support/ProLiantServers-Warranties**

HPE Enterprise and Cloudline Servers

> **https://www.hpe.com/support/EnterpriseServers-Warranties**

HPE Storage Products

> **https://www.hpe.com/support/Storage-Warranties**

HPE Networking Products

> **https://www.hpe.com/support/Networking-Warranties**

Regulatory information

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

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

Additional regulatory information

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

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

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

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

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

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

Documentation feedback

Hewlett Packard Enterprise is committed to providing documentation that meets your needs. To help us improve the documentation, use the Feedback button and icons (located at the bottom of an opened document) on the Hewlett Packard Enterprise Support Center portal (https://www.hpe.com/support/hpesc) to send any errors, suggestions, or comments. All document information is captured by the process.