HPE ProLiant ML30 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

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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
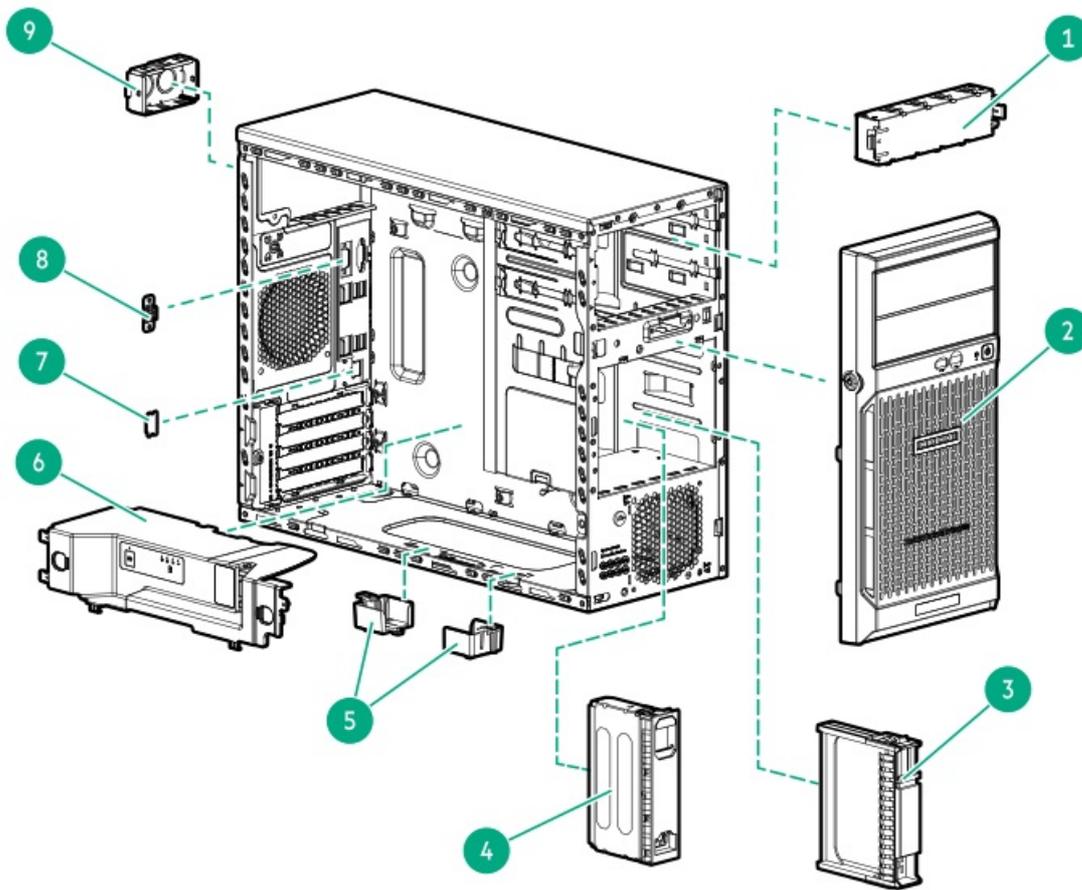
Item	Description
1	Media bay blank spare part
2	Front bezel spare part
3	SFF drive blank spare part
4	LFF drive blank spare part
5	Energy pack holder spare part
6	Air baffle spare part

Item	Description
7	iLO dedicated network port blank spare part
8	Serial port blank spare part
9	Power supply blank spare part

Front bezel spare part

Customer self repair: **Mandatory**

Description	Spare part number
Front bezel [1]	P48078-001

[1] This front bezel spare includes a new bezel key.

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

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 drive blanks .

Miscellaneous blank spare parts

Customer self repair: **Mandatory**

Description	Spare part number
Media bay blank	879518-001 [1]
iLO dedicated network port blank	P07883-001 [1]
Serial port blank	878510-001 [1]
Power supply blank	775423-001 [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:

- Removing and replacing the media bay blank
- Removing and replacing the iLO dedicated network port blank
- Removing and replacing the serial port blank
- Removing and replacing the power supply blank

Miscellaneous plastic spare parts

Customer self repair: **Mandatory**

Description	Spare part number
Air baffle	P07477-001
Energy pack holder	825640-001

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

- Removing and replacing the air baffle
- Removing and replacing the energy pack holder

System components

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https://www.hpe.com/info/partssurfer
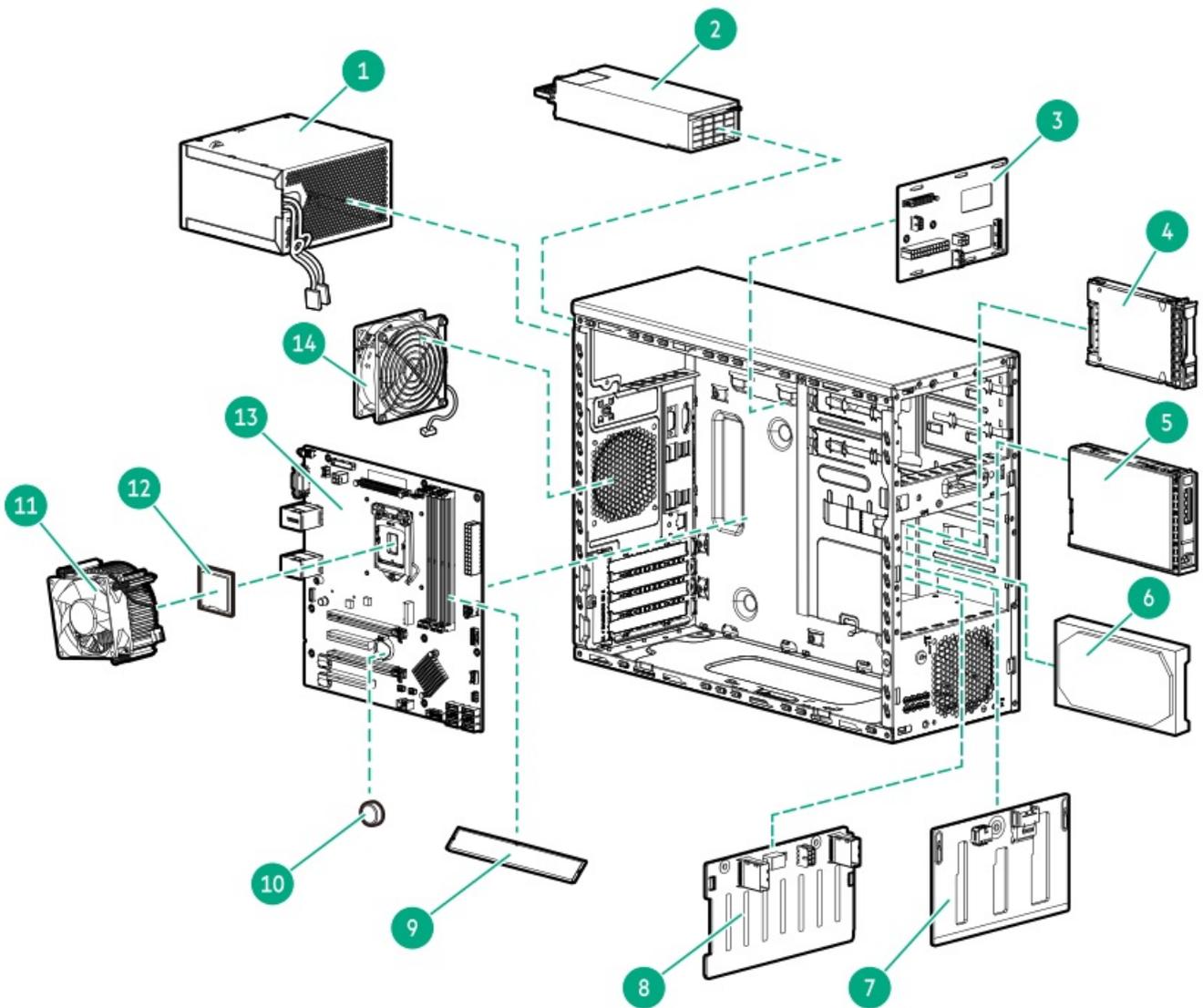
Item	Description
1	Non-hot-plug power supply spare part
2	Flexible Slot power supply spare part
3	Power distribution board
4	SFF hot-plug drive For more information on the removal and replacement procedures, see Removing and replacing a hot-plug drive.
5	LFF hot-plug drive For more information on the removal and replacement procedures, see Removing and replacing a hot-plug drive.
6	LFF non-hot-plug drive For more information on the removal and replacement procedures, see Removing and replacing an LFF non-hot-plug drive.
7	4 LFF hot-plug drive backplane spare part
8	8 SFF hot-plug drive backplane spare part
9	DIMM spare parts
10	System battery spare part
11	Heatsink spare parts
12	Processor spare parts

Item	Description
13	System board spare part
14	System fan spare part
15	Front I/O assembly spare part [1]
16	Front USB cable spare part [1]
17	Drive cable spare part [1]
18	Flexible Slot power supply cable spare kit [1]
19	Miscellaneous cable spare kit [1]

[1]   Not shown

Power supply spare part

Customer self repair: **Mandatory**

Description	Spare part number
HPE 350 W Gold Non-hot-plug Power Supply (92% efficiency)	P22004-001
HPE 500 W Flexible Slot Platinum Hot-plug Low Halogen Power Supply	866729-001

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

Power distribution board spare part

Customer self repair: **Mandatory**

Description	Spare part number
Power distribution board	P48076-001

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

Drive backplane spare parts

Customer self repair: **Mandatory**

Description	Spare part number
4 LFF hot-plug drive backplane	P48075-001
8 SFF hot-plug drive backplane	P39777-001

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

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.

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.

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

Description	Spare part number
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
Intel Xeon E-2388G, 3.2 GHz, 8C, 95 W	P45382-001
Intel Pentium Gold 6405, 4.1 GHz, 2C, 58 W	P45399-001

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

Heatsink spare parts

Customer self repair: **Optional**

Description	Spare part number
Standard heatsink	P44848-001
High-performance heatsink	P48079-001

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

System board spare part

Customer self repair: **Mandatory**

Description	Spare part number
System board	P48074-001

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

System fan spare part

Customer self repair: **Mandatory**

Description	Spare part number
System fan	825095-001

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

Front I/O assembly spare part

Customer self repair: **Optional**

Description	Spare part number
Front I/O assembly	P06531-001

For more information on the removal and replacement procedures, see Removing and replacing the front I/O assembly .

Front USB cable spare part

Customer self repair: **Mandatory**

Description	Spare part number
Front USB cable	P06532-001

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

Drive cable spare part

Customer self repair: **Mandatory**

Description	Spare part number
4 LFF non-hot-plug drive cable spare kit, includes: ● Drive power extension cable ● 4 LFF non-hot-plug drive SATA cable	P07483-001
4 LFF/8 SFF hot-plug drive SATA cable spare	P07484-001

Flexible Slot power supply cable spare kit

Customer self repair: **Mandatory**

Description	Spare part number
Flexible Slot power supply cable spare kit [1] • 24-pin power supply cable • 4-pin power supply cable • Flexible Slot power supply sideband cable	P07485-001

[1] This is a miscellaneous cable spare kit; only the Flexible Slot power supply cables listed in this table are used in this server.

Miscellaneous cable spare kit

Customer self repair: **Mandatory**

Description	Spare part number
Miscellaneous cable spare kit, includes: • 4 LFF / 8 SFF hot-plug drive SATA-power cable • Flexible Slot power fan-out cable • GPU auxiliary power cable	P48080-001

Server options

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https://www.hpe.com/info/partssurfer
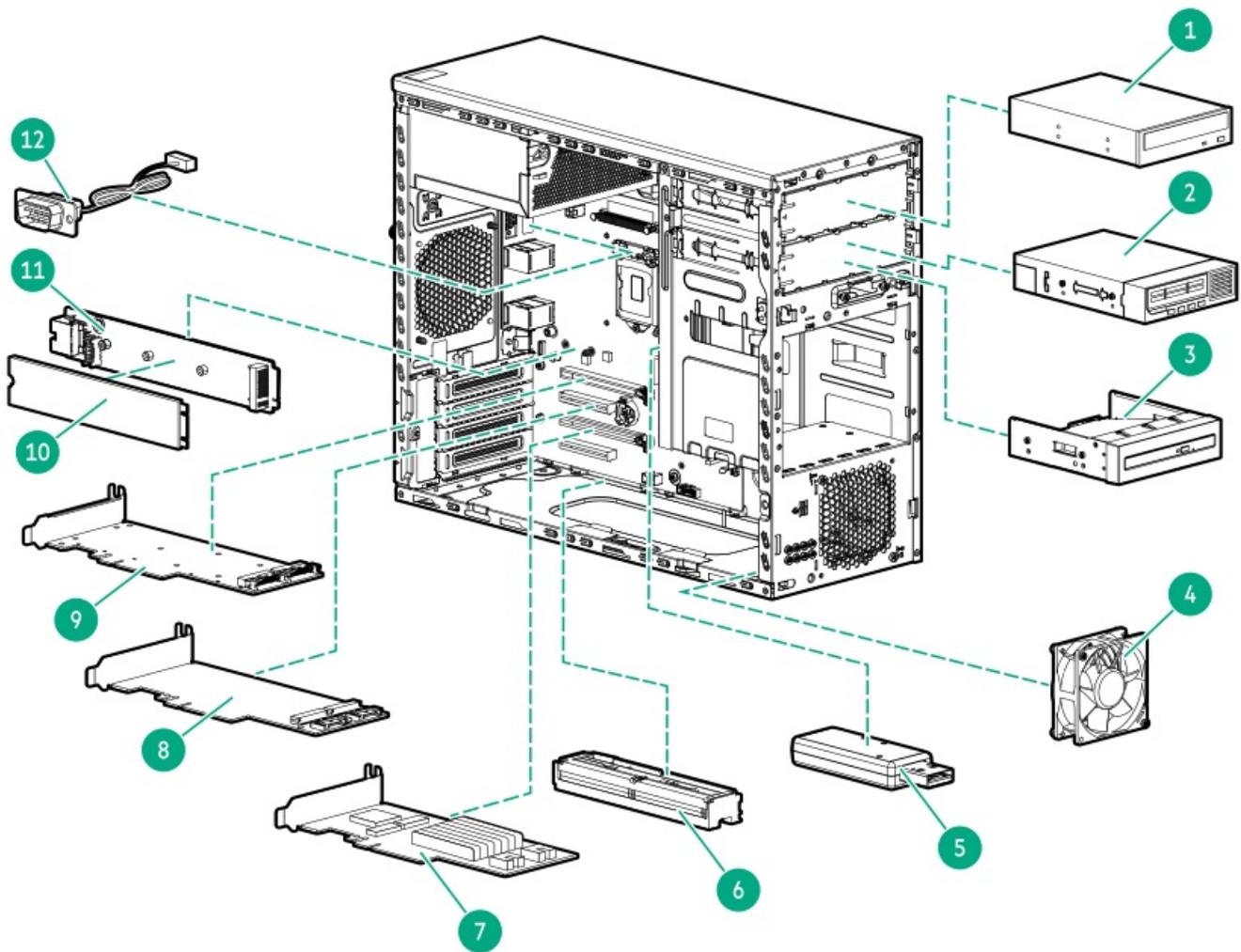
Item	Description
1	USB RDX drive spare part For more information on the removal and replacement procedures, see Removing and replacing a USB RDX drive.
2	SAS LTO tape drive spare part For more information on the removal and replacement procedures, see Removing and replacing a SAS LTO tape drive.
3	Optical drive spare part For more information on the removal and replacement procedures, see Removing and replacing an optical drive.
4	PCI fan spare part
5	Internal USB device spare part For more information on the removal and replacement procedures, see Removing and replacing an internal USB device.
6	Energy pack spare part
7	HPE NS204i-p NVMe OS Boot Device spare part For more information on the removal and replacement procedures, see Removing and replacing the HPE NS204i-p NVMe OS Boot Device.
8	Type-p storage controller spare parts
9	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.

Item	Description
10	M.2 SSD spare part For more information on the removal and replacement procedures, see • Removing and replacing an M.2 SSD • Removing and replacing the M.2 SATA SSD from the add-in card • Removing and replacing the M.2 NVMe SSD from the HPE NS204i-p NVMe OS Boot Device
11	iLO-M.2-serial module spare part
12	Serial port cable spare part
13	Optical drive SATA-power Y-cable spare part [1]
15	4 LFF / 8 SFF hot-plug drive standup controller Mini-SAS cable spare part [1]
16	LTO/RDX power extension cable spare part [1]

[1] Not shown

PCI fan spare part

Customer self repair: **Mandatory**

Description	Spare part number
PCI fan	P06530-001

For more information on the removal and replacement procedures, see Removing and replacing the PCI fan.

Energy pack spare part

Customer self repair: **Mandatory**

Description	Spare part number
HPE Smart Storage Battery 96 W, 145 mm cable	878643-001

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

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 the boot device
- Removing and replacing a boot device drive

Storage controller spare parts

Customer self repair: **Mandatory**

Description	Spare part number
HPE Smart Array E208e-p SR Gen10 Controller	836267-001
HPE Smart Array E208i-p SR Gen10 Controller	836266-001
HPE Smart Array P408e-p SR Gen10 Controller	836270-001
HPE Smart Array P408i-p SR Gen10 Controller	836269-001

For more information on the removal and replacement procedures, see Removing and replacing an expansion card.

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.

iLO-M.2-serial module spare part

Customer self repair: **Mandatory**

Description	Spare part number
iLO-M.2-serial module	P07480-001

For more information on the removal and replacement procedures, see Removing and replacing the iLO-M.2-serial module .

Serial port cable spare part

Customer self repair: **Mandatory**

Description	Spare part number
Serial port cable	P07896-001

For more information on the removal and replacement procedures, see Removing and replacing the serial port cable .

Optical drive SATA-power Y-cable spare part

Customer self repair: **Mandatory**

Description	Spare part number
Optical drive SATA-power Y-cable	878935-001

4 LFF / 8 SFF hot-plug drive standup controller Mini-SAS cable spare part

Customer self repair: **Mandatory**

Description	Spare part number
4 LFF / 8 SFF hot-plug drive standup controller Mini-SAS cable	878327-001

LTO/RDX power extension cable spare part

Customer self repair: **Mandatory**

Description	Spare part number
LTO/RDX power extension cable	P31508-001

Customer self repair

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

- **Mandatory**—Parts for which customer self repair is mandatory. If you request Hewlett Packard Enterprise to replace these parts, you will be charged for the travel and labor costs of this service.

- **Optional**—Parts for which customer self repair is optional. These parts are also designed for customer self repair. If, however, you require that Hewlett Packard Enterprise replace them for you, there may or may not be additional charges, depending on the type of warranty service designated for your product.

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

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

For more information about the Hewlett Packard Enterprise CSR program, contact your local service provider.

Parts only warranty service

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

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

Réparation par le client (CSR)

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

- **Obligatoire**—Pièces pour lesquelles la réparation par le client est obligatoire. Si vous demandez à Hewlett Packard Enterprise de remplacer ces pièces, les coûts de déplacement et main d'œuvre du service vous seront facturés.

- **Facultatif**—Pièces pour lesquelles la réparation par le client est facultative. Ces pièces sont également conçues pour permettre au client d'effectuer lui-même la réparation. Toutefois, si vous demandez à Hewlett Packard Enterprise de remplacer ces pièces, l'intervention peut ou non vous être facturée, selon le type de garantie applicable à votre produit.

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

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

Pour plus d'informations sur le programme CSR de Hewlett Packard Enterprise, contactez votre Mainteneur Agréé local.

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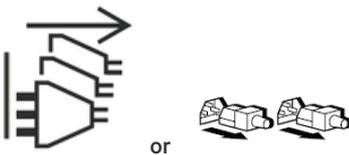
These symbols on power supplies or systems indicate that the equipment is supplied by multiple sources of power.

> **⚠ 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 10.40 kg (22.93 lb). When all components are installed, the server

can weigh up to 19.00 kg (41.89 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 10.40 kg (22.93 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, observe the following precautions:

- The leveling jacks are extended to the floor.

- The full weight of the rack rests on the leveling jacks.

- The stabilizing feet are attached to the rack if it is a single-rack installation.

- The racks are coupled together in multiple-rack installations.

⚠ **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

Procedure

1. Unlock the front bezel.

2. Open the front bezel.

3. Pull the front bezel away from the chassis.
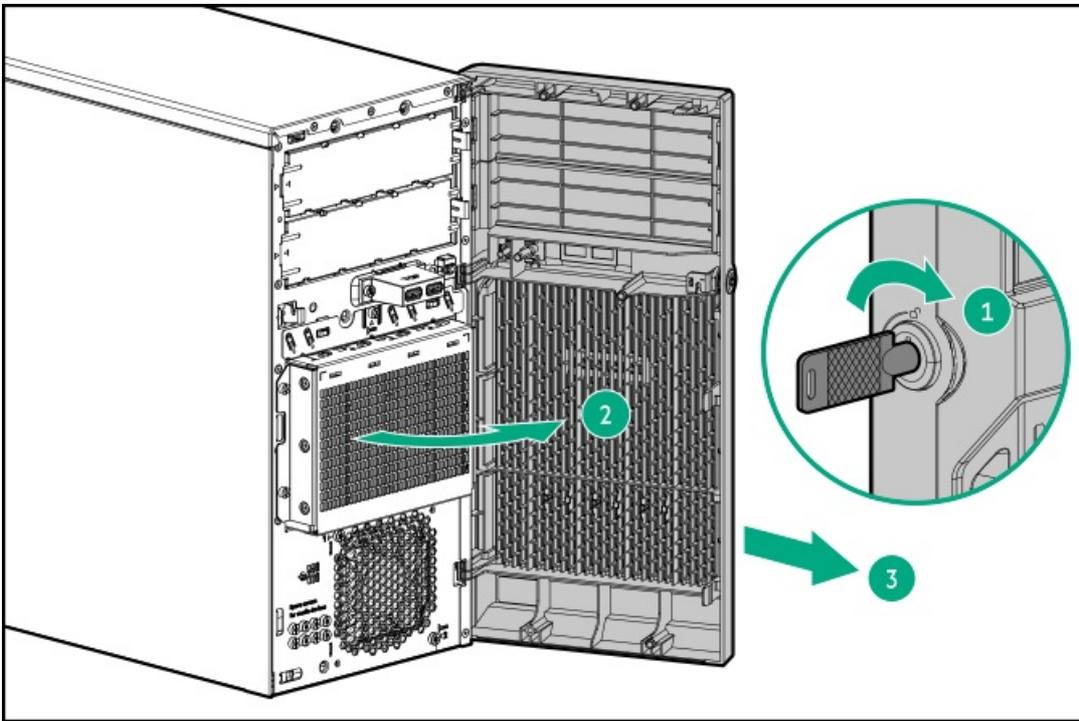
Power down the server

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

- Before you perform this procedure, review the:

  - Rack warnings and cautions

  - Server warnings and cautions

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

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

Procedure

1. Power down the server.

2. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. If installed, unlock and remove the security padlock and/or the Kensington security lock.

    For more information, see the lock documentation.

5. Slide the server tray out of the rack:

    a. Loosen the server tray thumbscrews (callout 1).

    b. Grasp the tray notch and slide the server out of the rack (callout 2).
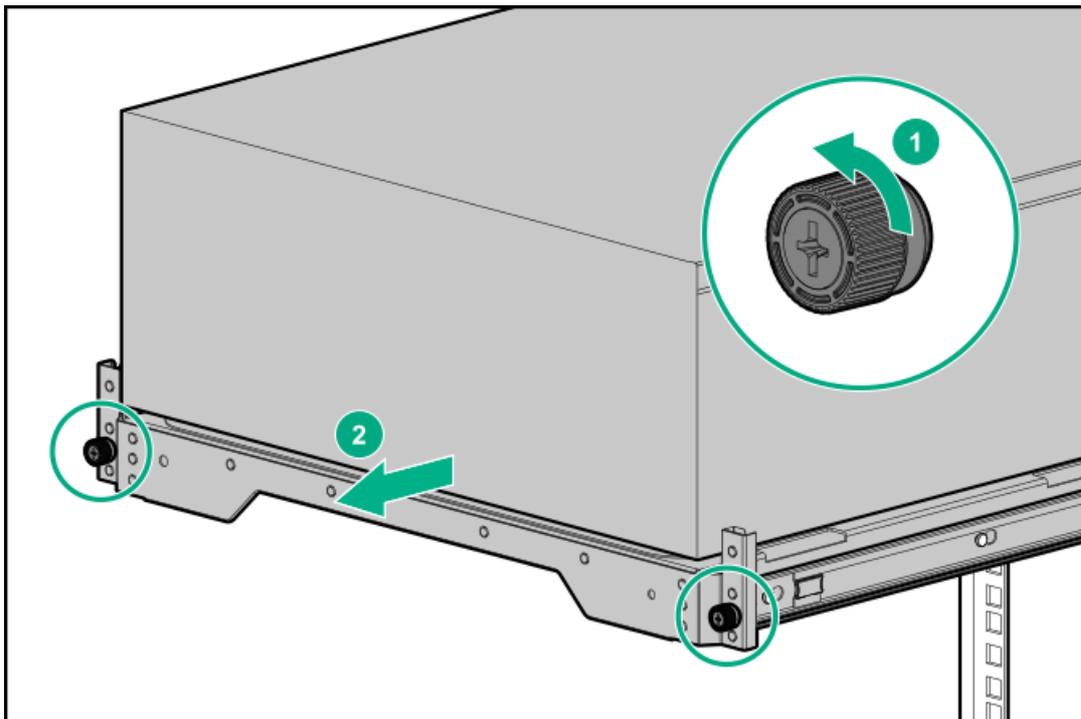
6. Remove the server from the tray.
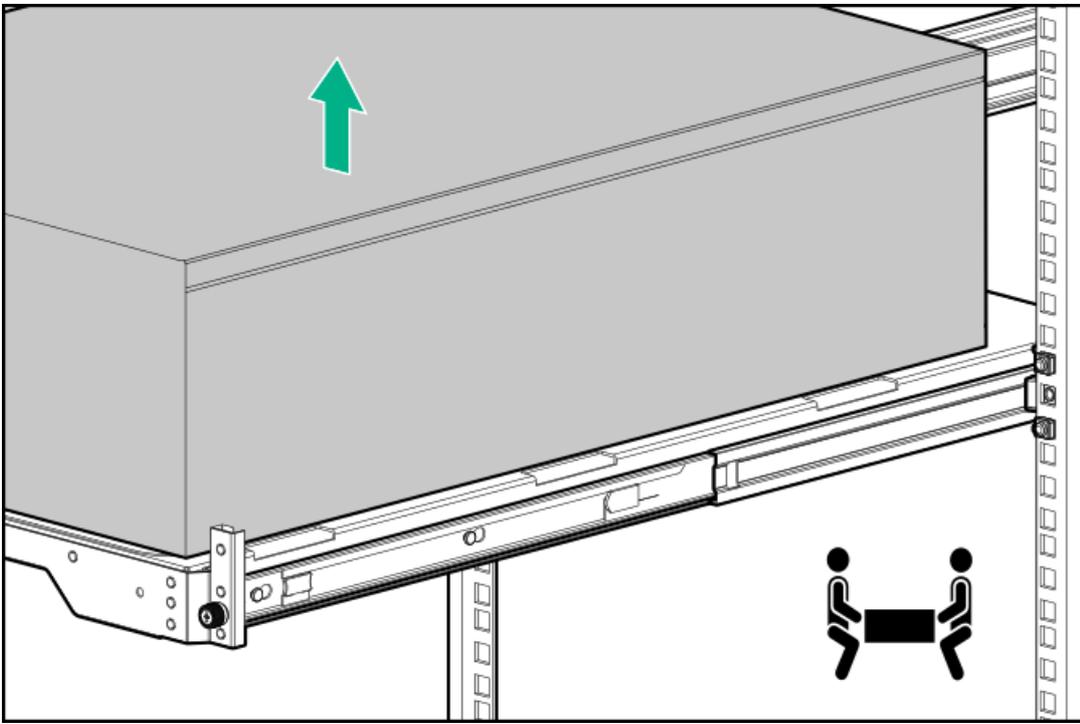
7. Place the server on a flat, level surface with the access panel facing up.

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 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.

Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.
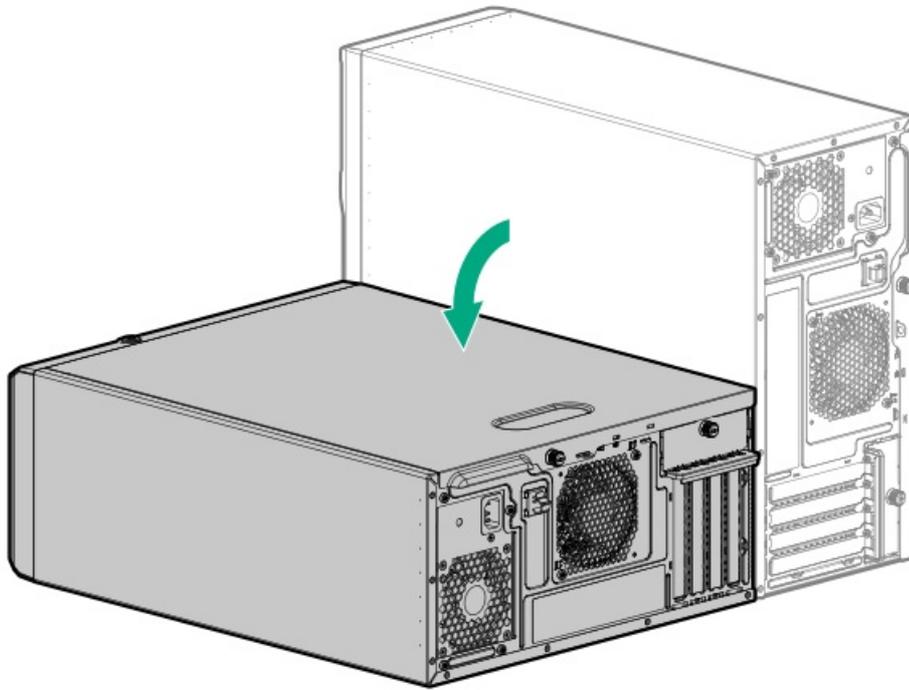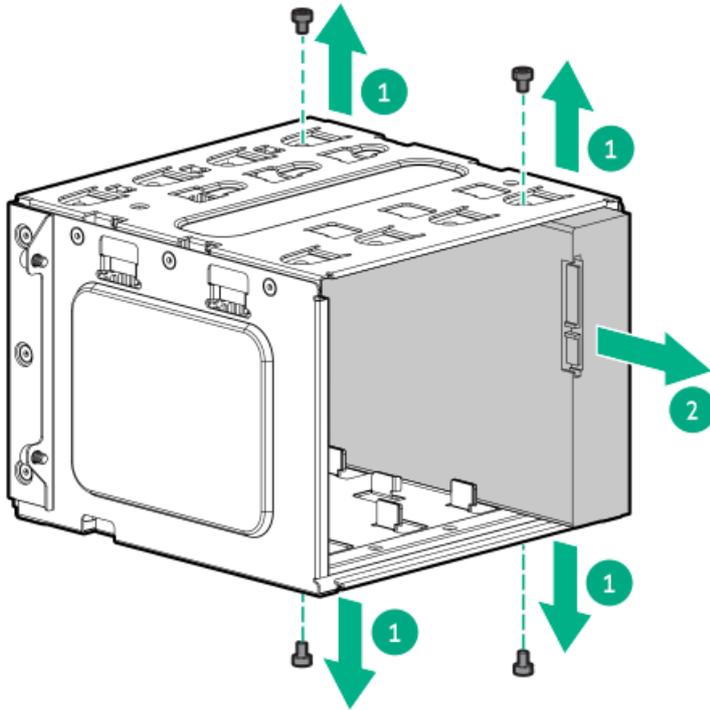
- If the server is in rack mode, remove the server from the rack.

5. Remove the access panel:

    a. Loosen the access panel thumbscrew (callout 1).

    b. Slide the access panel toward the rear panel, and then lift it away from the chassis (callout 2).
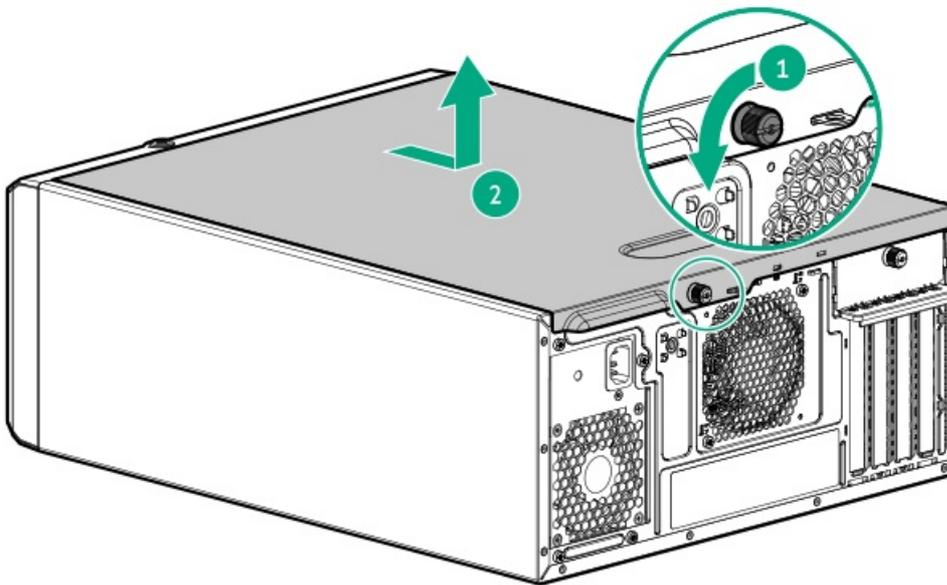
Remove the air baffle

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

Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.
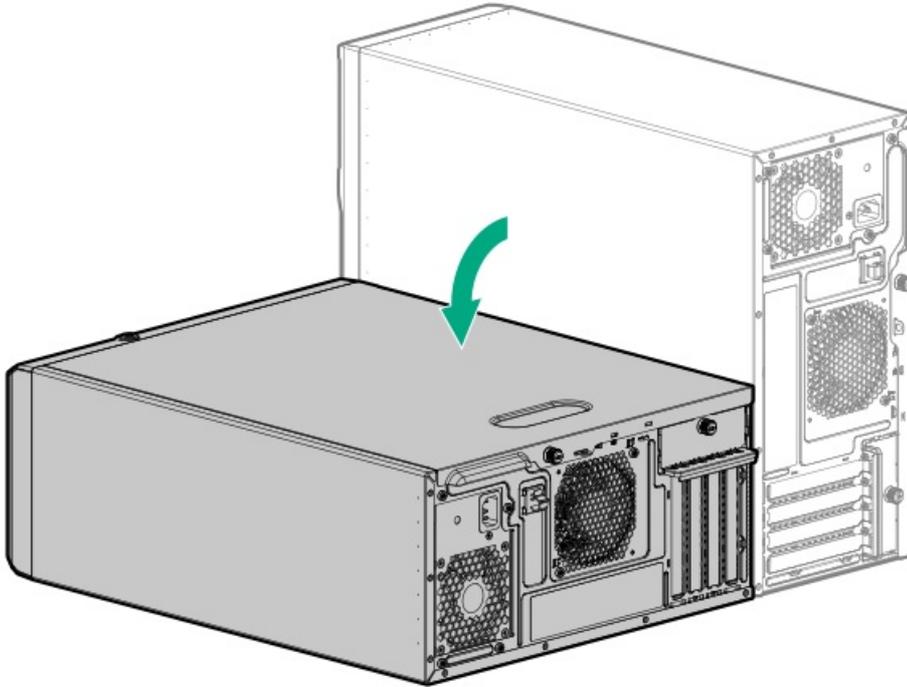
   - If the server is in rack mode, remove the server from the rack.

5. Remove the access panel.

6. Remove the air baffle:

   a. Lift the front end of the baffle from the chassis (callout 1).

   b. Remove the baffle tabs from its rear chassis slots (callout 2).
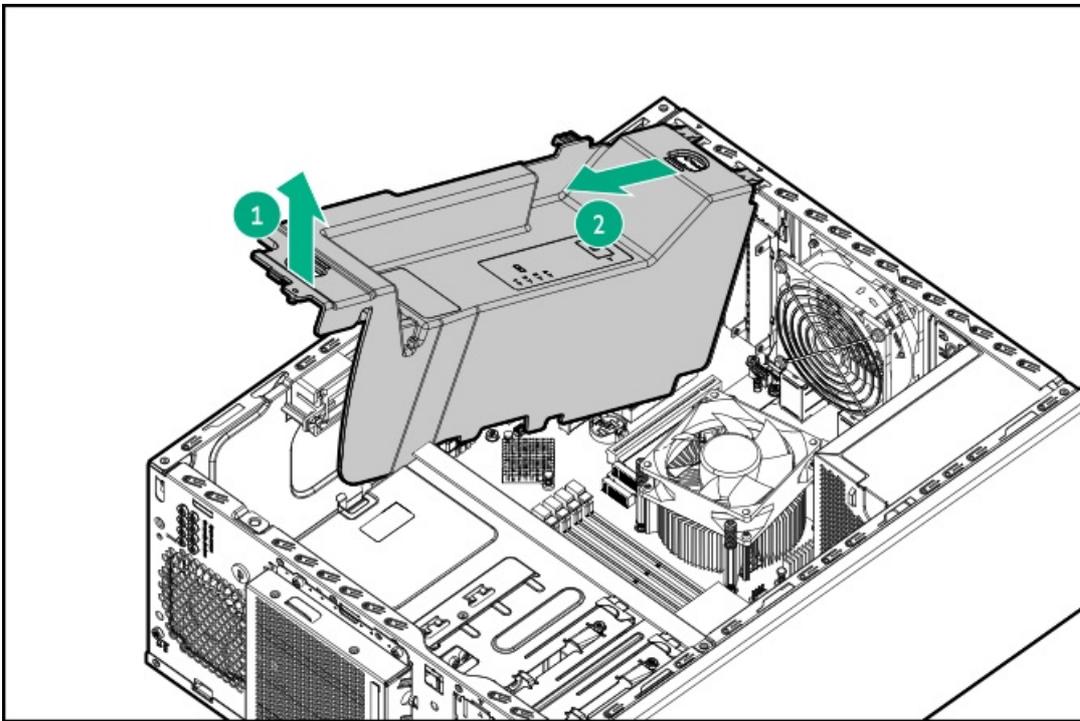
Remove the PCI blank retainer

Procedure

1. Loosen the retainer thumbscrew.

2. Slide the retainer up, and then remove it from the chassis.
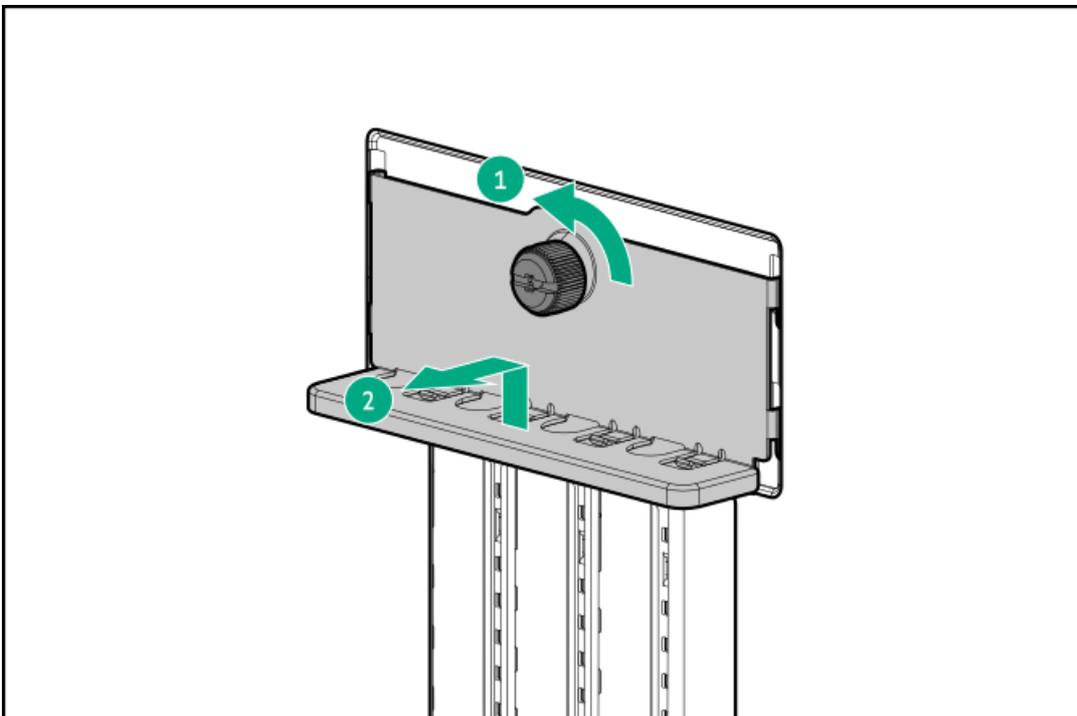
Remove a media drive

For better access to internal components, some procedures require the removal of the media drives.

Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.
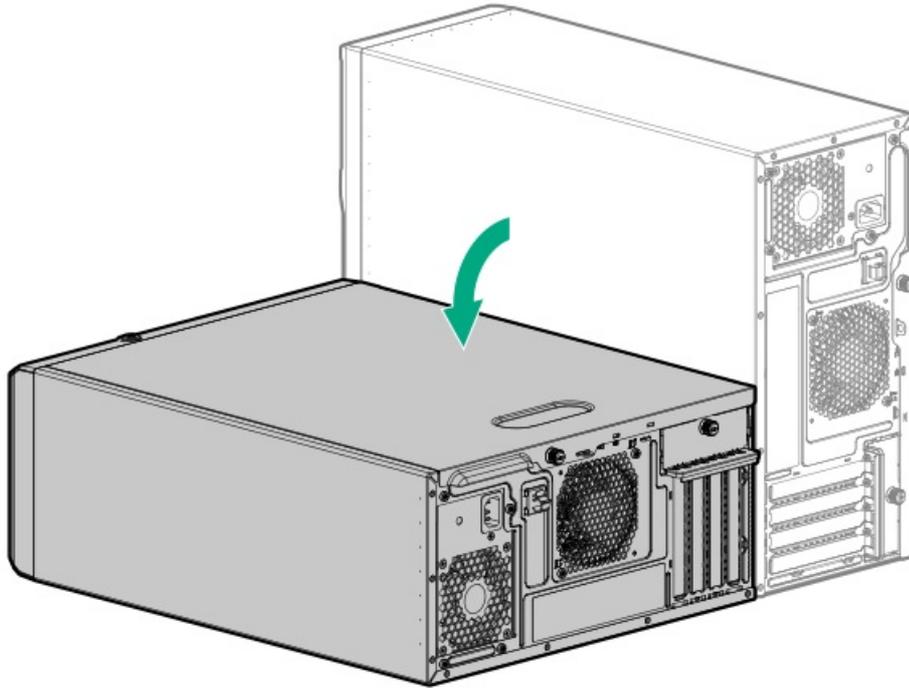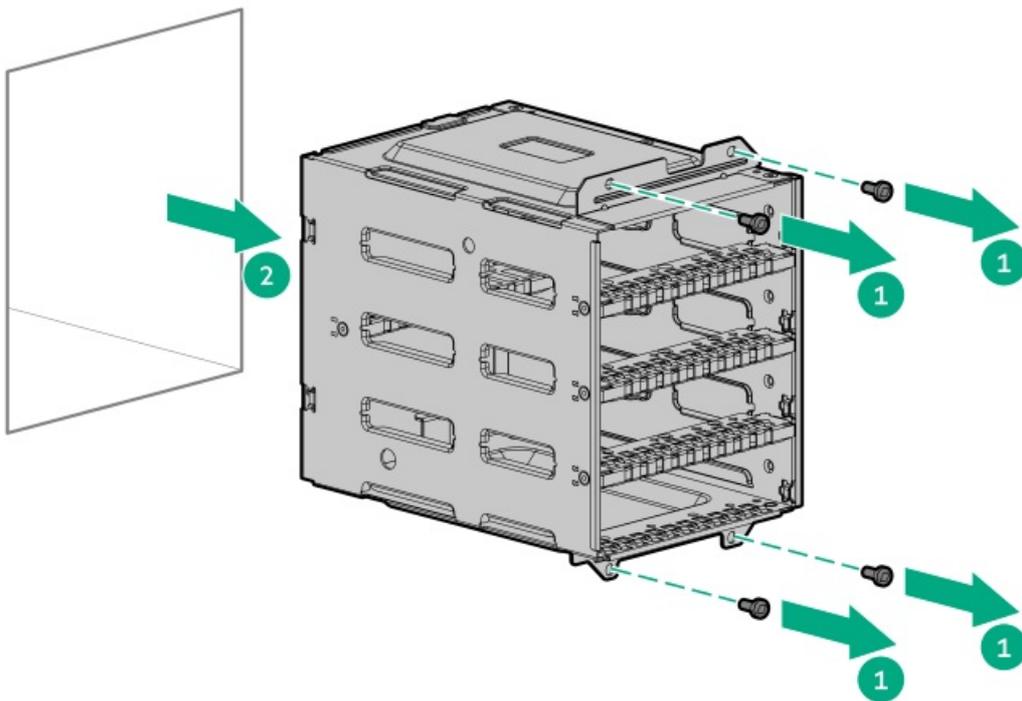

   - If the server is in rack mode, remove the server from the rack.

5. Remove the front bezel.

6. Remove the access panel.

7. Disconnect the drive cable from the media drive specified in the procedure:

   - LTO tape drive SAS-power Y-cable

   - RDX drive power and USB cables

   - Optical drive SATA-power Y-cable

8. Pull and hold the drive release latch (callout 1), and then slide the media drive out of the bay (callout 2).
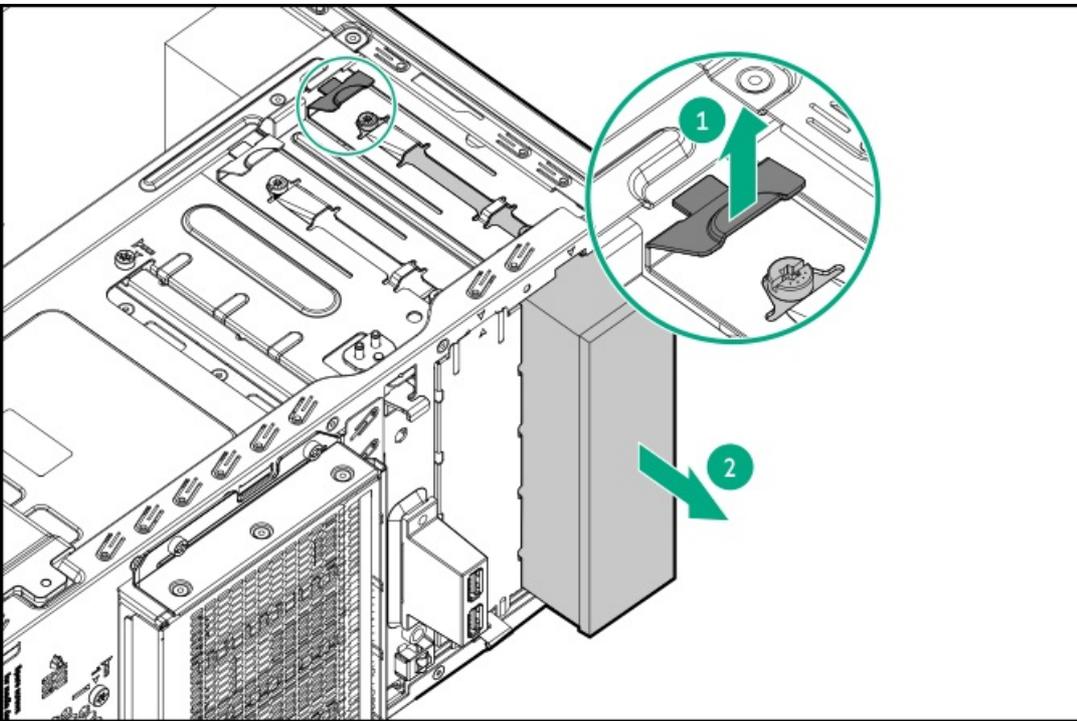
Power up the server

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.

Removing and replacing the front bezel

Procedure

1. Unlock the front bezel.

2. Open the front bezel.

3. Pull the front bezel away from the chassis.
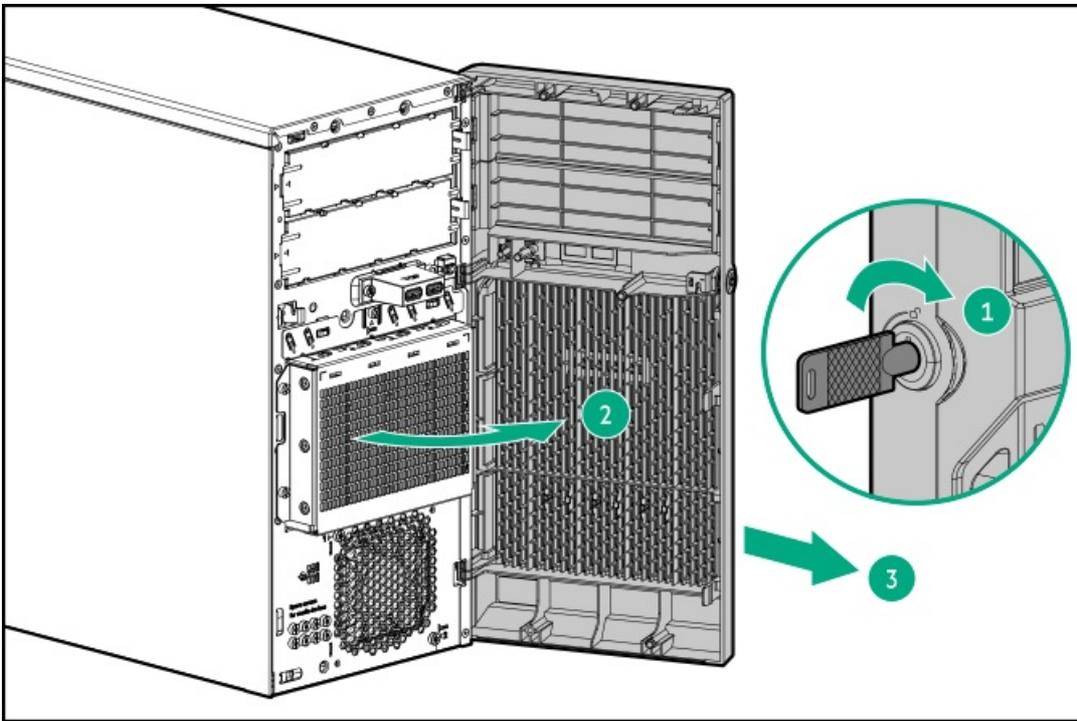
To replace the component, reverse the removal procedure.

Drive replacement

- Removing and replacing a non-hot-plug LFF SATA drive
- Removing and replacing a hot-plug LFF SAS or SATA drive

Removing and replacing a non-hot-plug LFF SATA 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 antistatic precautions.
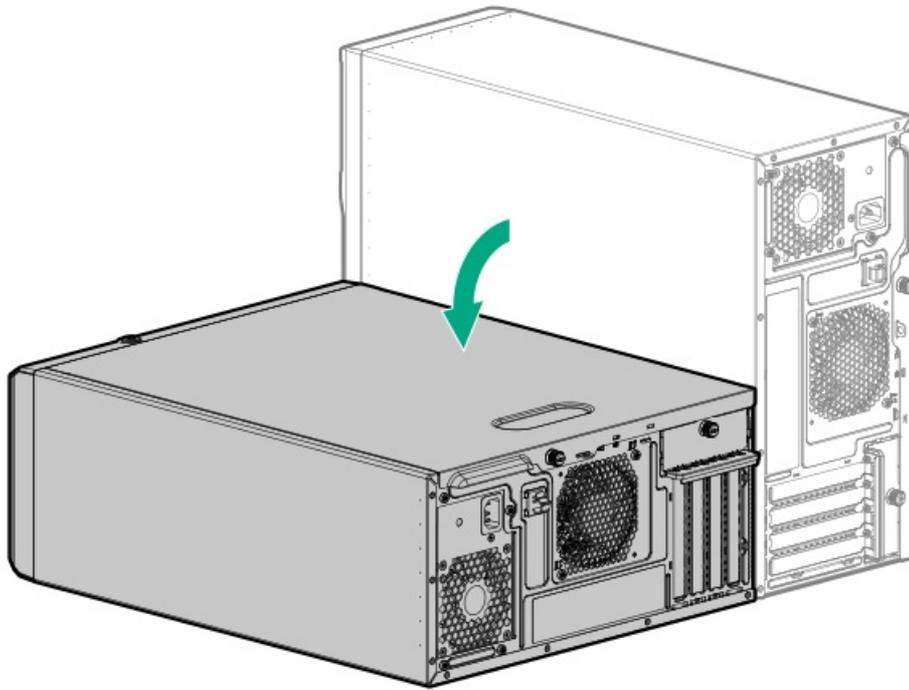
Prerequisites

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

Procedure

1. Back up all server data on the drive.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.
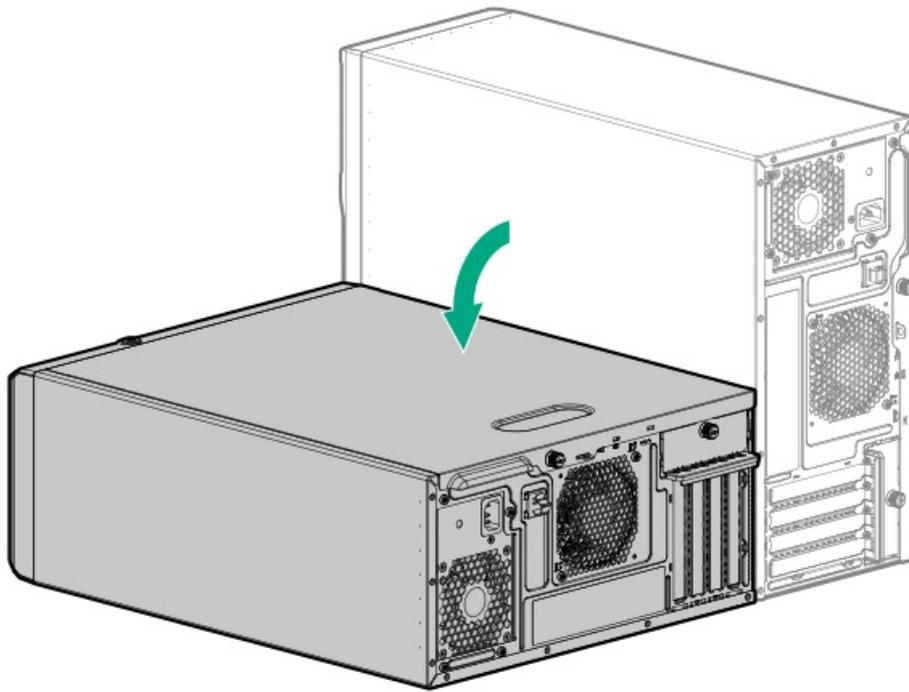
- If the server is in rack mode, remove the server from the rack.

6. Remove the front bezel.

7. Remove the access panel.

8. Disconnect the drive power and SATA cables.

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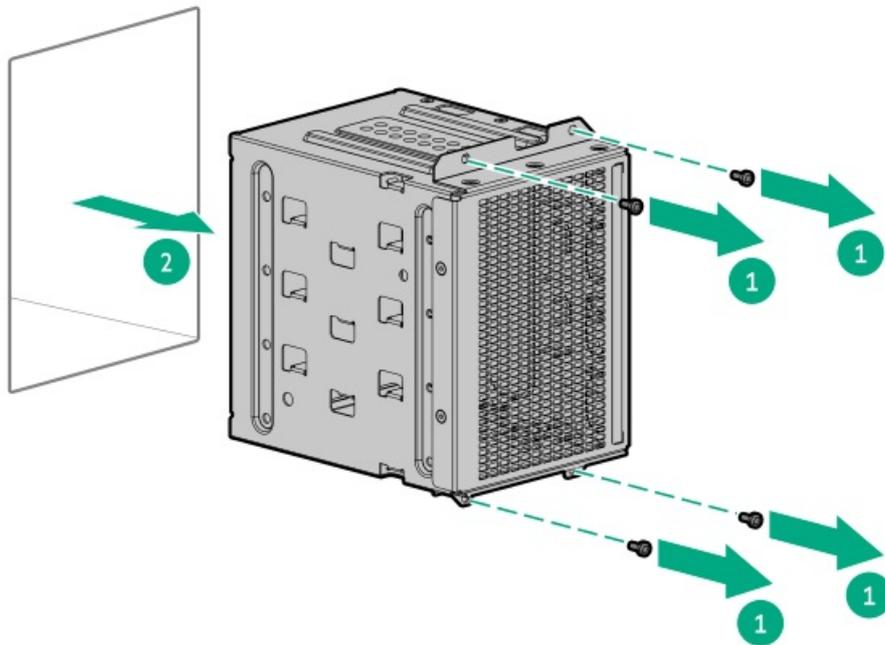
10. Remove the non-hot-plug drive.

To replace the component, reverse the removal procedure.

Removing and replacing a hot-plug LFF SAS or SATA 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 antistatic precautions.

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

Procedure

1. Back up all server data on the drive.

2. Remove the front bezel.

3. Observe the drive LED status and determine if the drive can be removed.

4. Remove the drive.
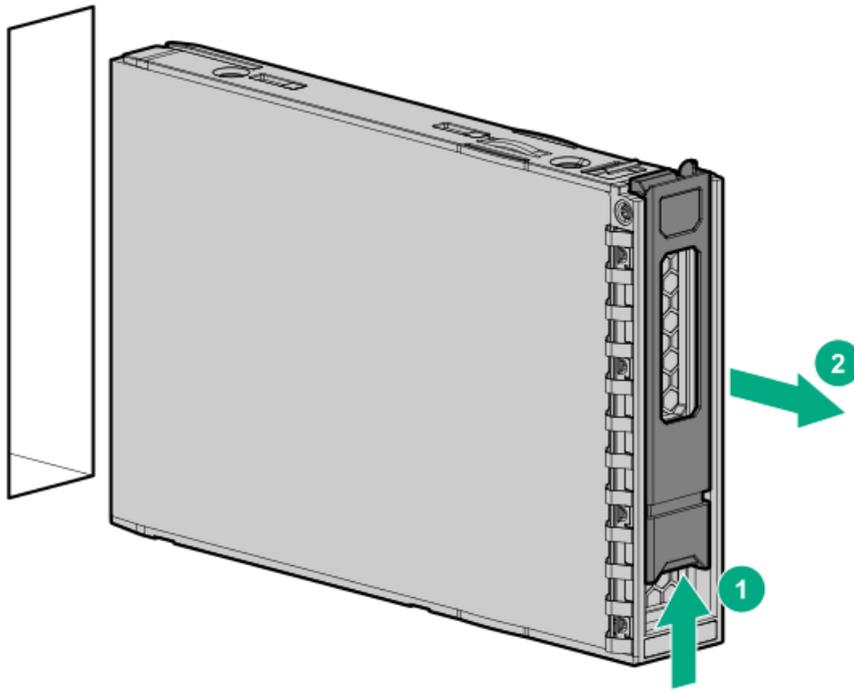
To replace the component, reverse the removal procedure.

Removing and replacing a hot-plug SFF SAS or SATA 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 antistatic precautions.

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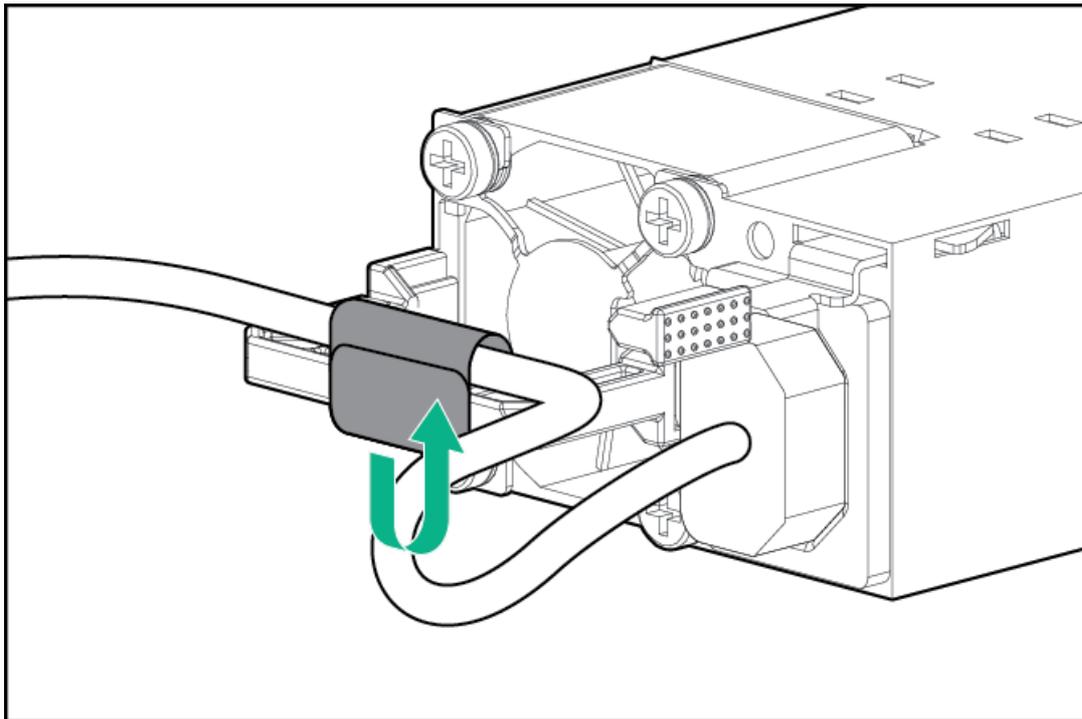
Procedure

1. Back up all server data on the drive.

2. Remove the front bezel.

3. Observe the drive LED status and determine if the drive can be removed.

4. Remove the drive.
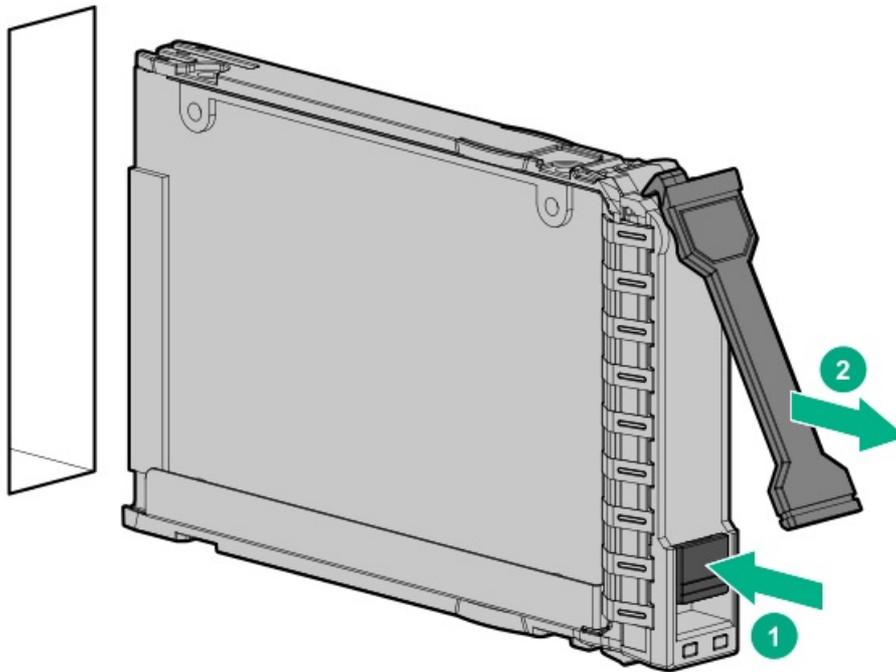
To replace the component, reverse the removal procedure.

Drive backplane replacement

- Removing and replacing the 4 LFF hot-plug drive backplane
- Removing and replacing the 8 SFF hot-plug drive backplane

Removing and replacing the 4 LFF hot-plug 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-15 Torx screwdriver available.

Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

- If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

- If the server is in rack mode, remove the server from the rack.

5. Remove the front bezel.

6. Remove all drives.

7. Remove the access panel.

8. Disconnect the drive power and onboard SATA cables.

9. Remove the 4 LFF hot-plug drive cage.

10. Remove the 4 LFF hot-plug drive backplane.

To replace the component, reverse the removal procedure.

Removing and replacing the 8 SFF hot-plug 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-15 Torx screwdriver available.

Procedure

1. Power down the server.

2. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

    - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

- If the server is in rack mode, remove the server from the rack.

5. Remove the front bezel.

6. Remove all drives.

7. Remove the access panel.

8. Disconnect the drive power and onboard SATA cables.

9. Remove the 8 SFF hot-plug drive cage.
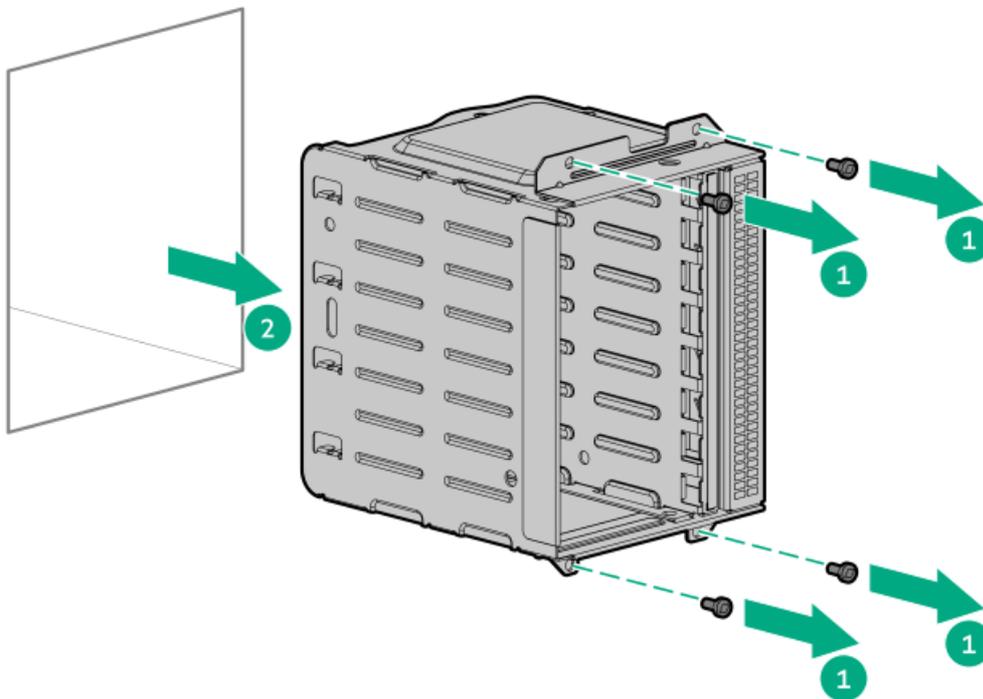
10. Remove the 8 SFF hot-plug drive backplane.
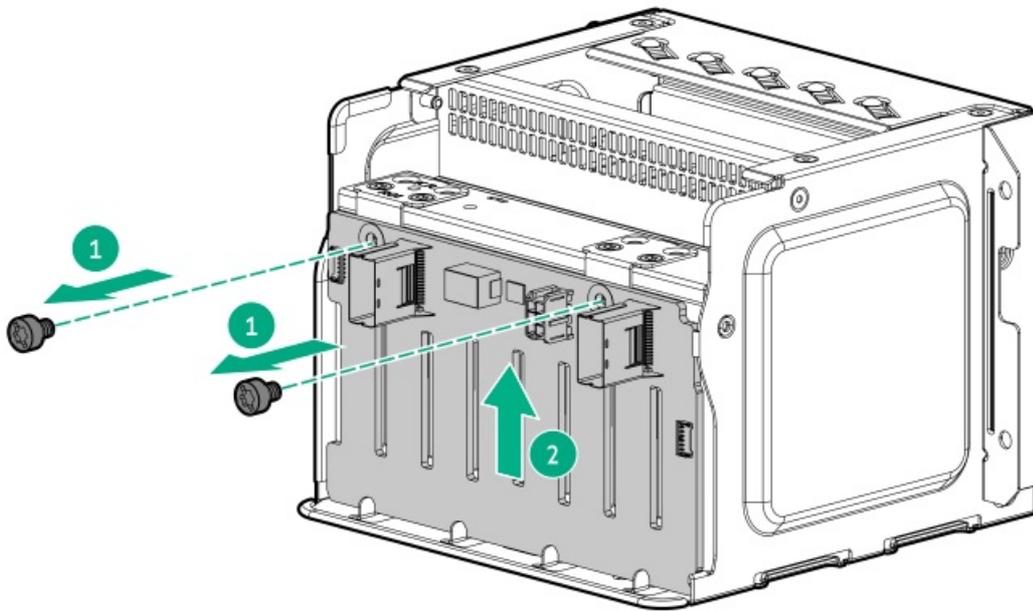
To replace the component, reverse the removal procedure.

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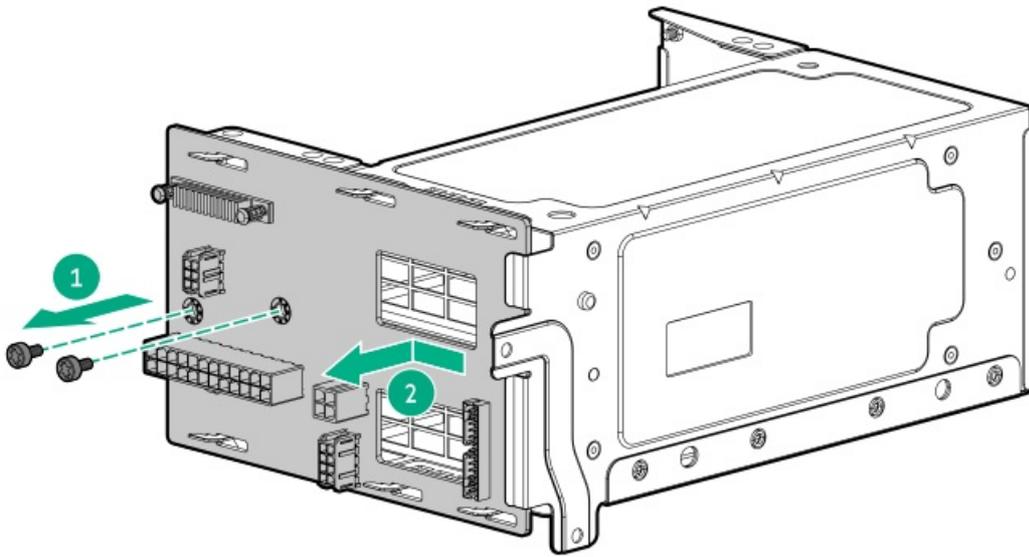
⚠ **WARNING:** To reduce the risk of injury from electric shock hazards, do not open power supplies. Refer all maintenance, upgrades, and servicing to qualified personnel

⚠ **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.
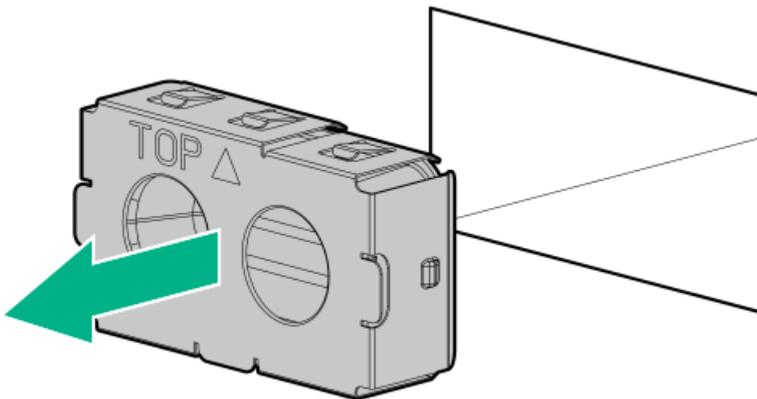
Removing and replacing a Flexible Slot power supply

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

Procedure

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

    a. Back up all server data.

    b. Power down the server.

    c. Disconnect the power cord from the power supply.

2. Remove the power supply:

    a. Release the power cord from the strain relief strap.

    b. Disconnect the power cord from the power supply.
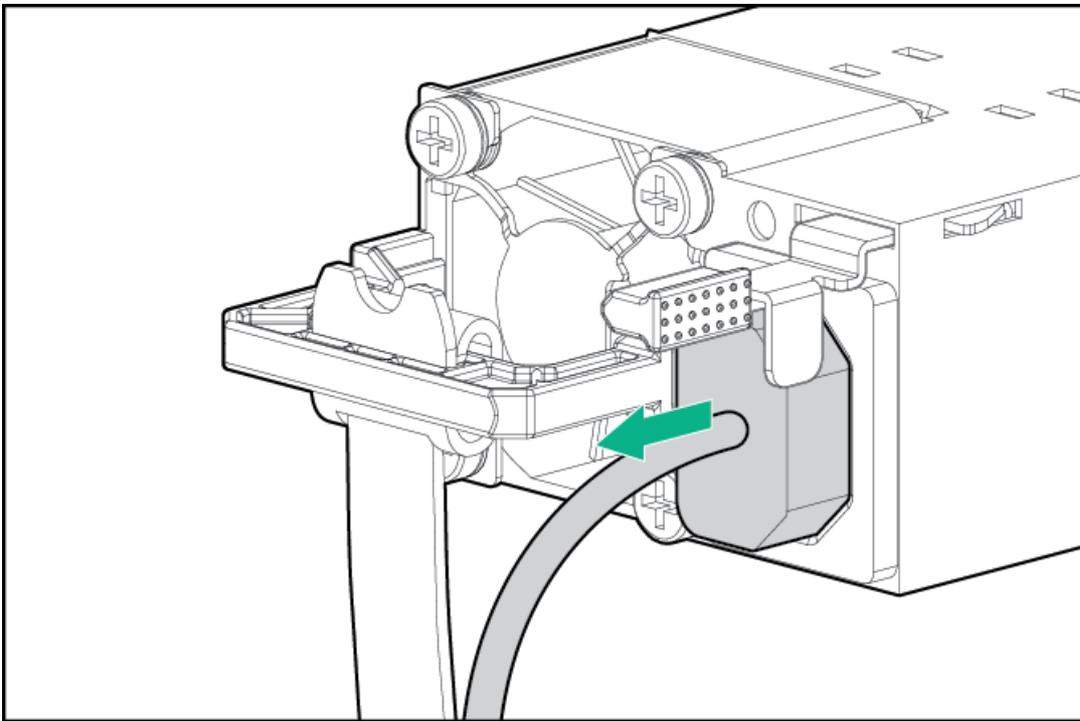
c. Press and hold the release lever, and then slide the power supply out of the bay.
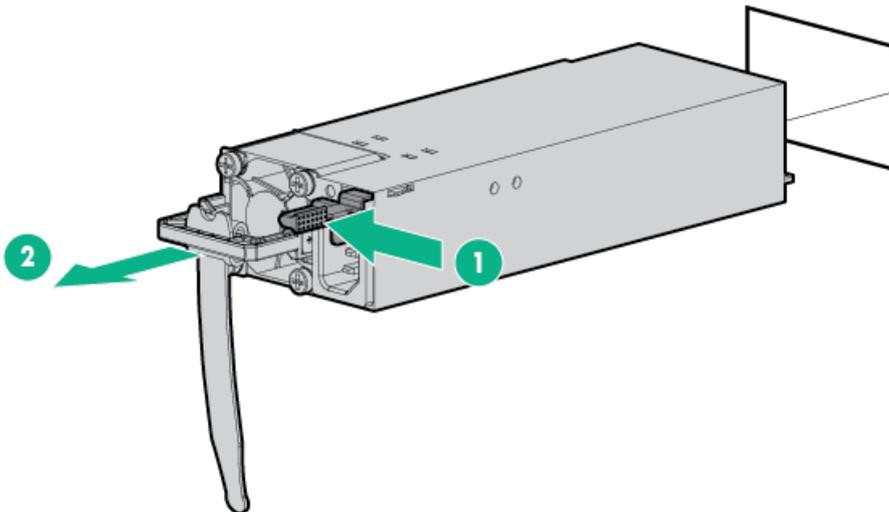
To replace the component, reverse the removal procedure.

Removing and replacing the non-hot-plug power supply

Prerequisites

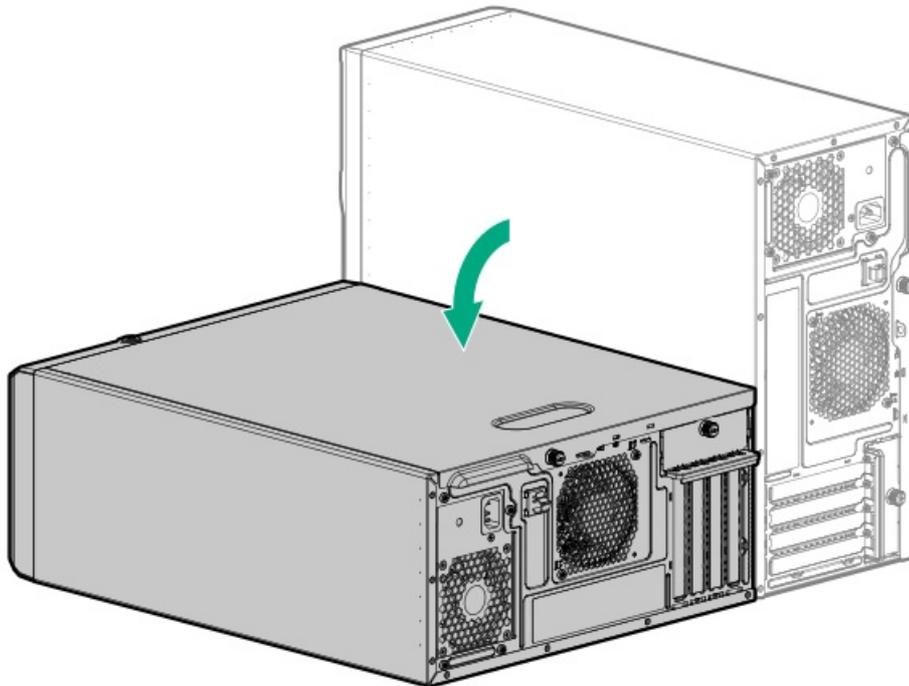Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

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

Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.
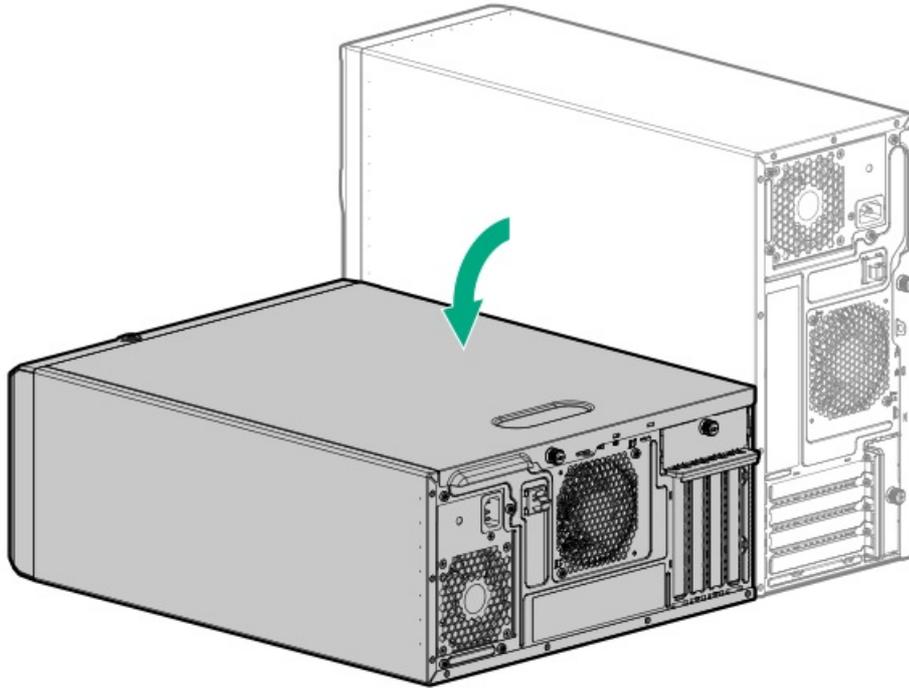
   - If the server is in rack mode, remove the server from the rack.

5. Remove the access panel.

6. If installed, remove the air baffle.

7. Disconnect all non-hot-plug power supply cables.

8. Remove the non-hot-plug power supply:

   a. Remove the power supply screws (callout 1).

   b. Press and hold the release latch (callout 2), and then remove the power supply (callout 3).
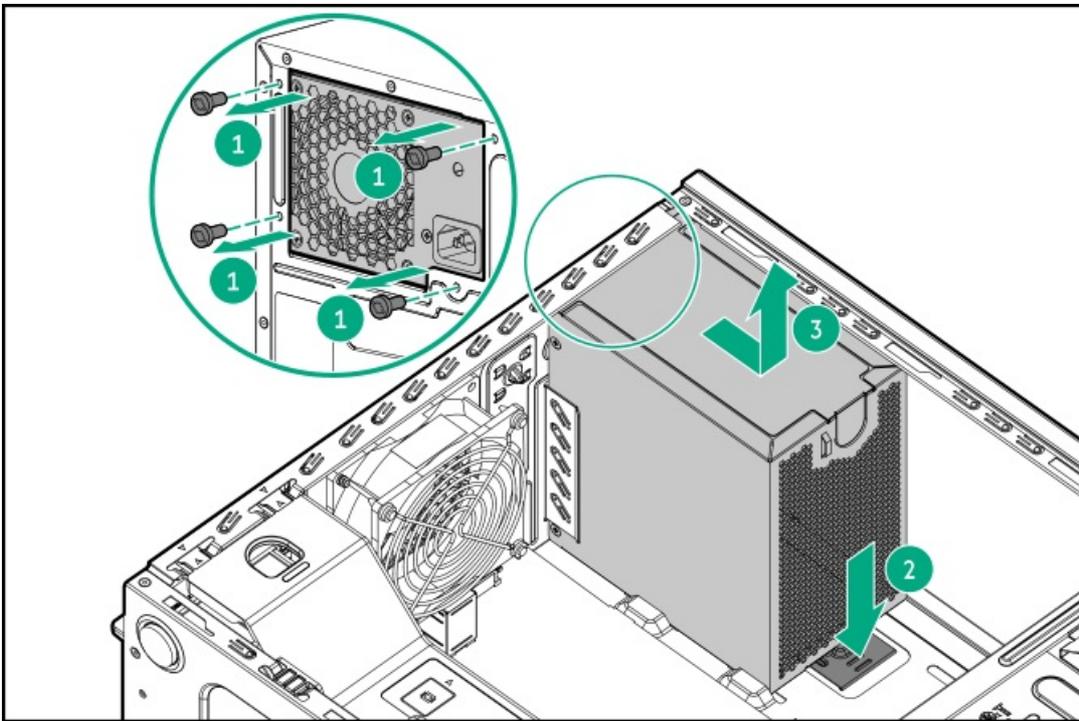
To replace the component, reverse the removal procedure.

Removing and replacing the power distribution board

⚠ **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. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

- If the server is in rack mode, remove the server from the rack.

5. Remove the access panel.

6. If installed, remove all media drives.

7. Remove all power supplies.

8. Disconnect the RPS cables.

9. Remove the RPS cage.
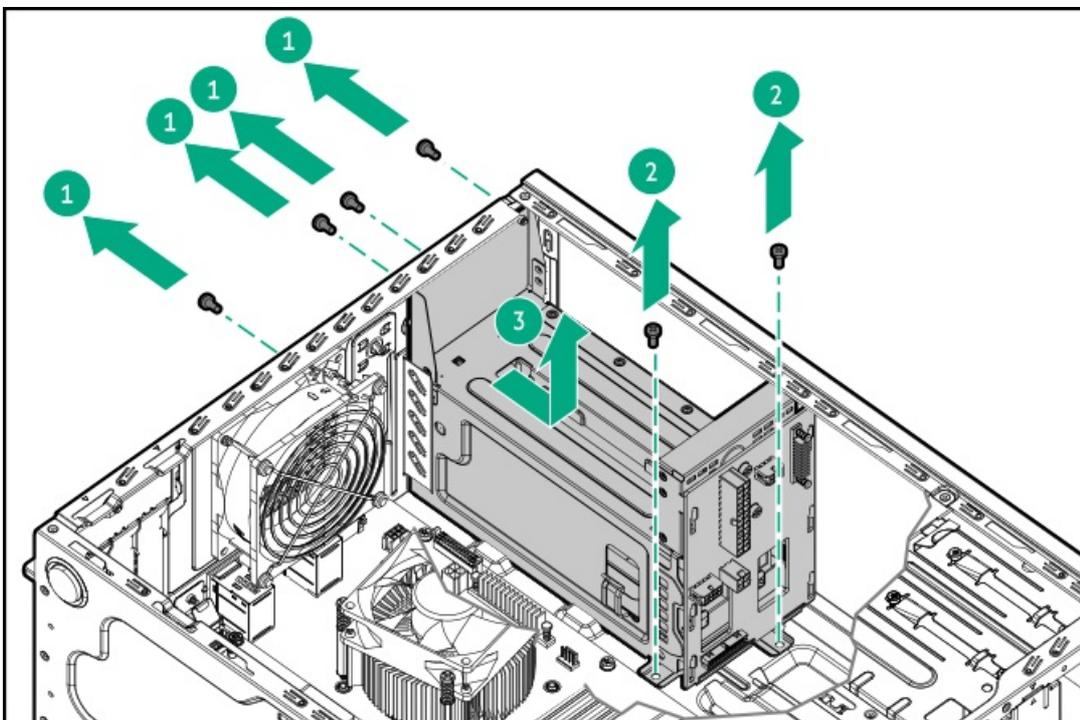
10. Remove the power distribution board.

To replace the component, reverse the removal procedure.

Removing and replacing the 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.
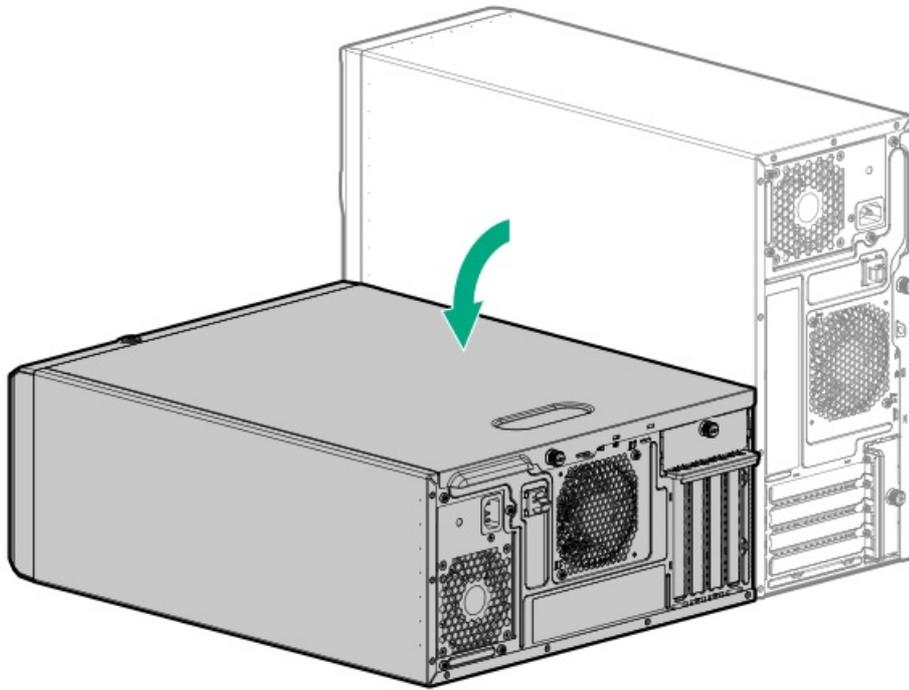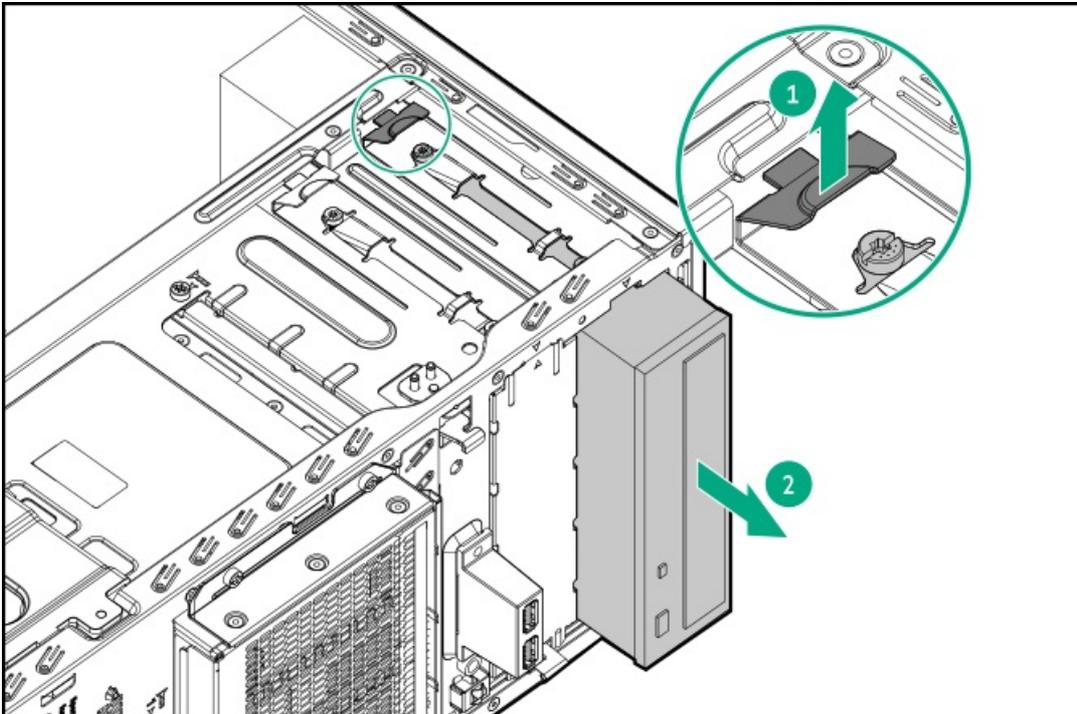
Procedure

1. Remove the power supply blank from the bay.

2. Immediately install the replacement power supply blank spare.

Removing and replacing drive blanks

⚠ **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 front bezel.

2. Remove the drive blank.

    Retain the blank for future use.

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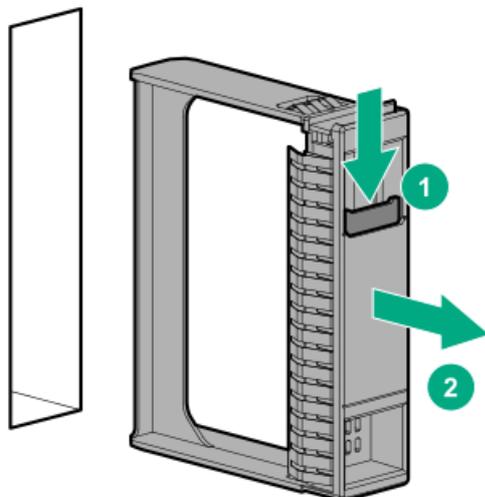
    - SFF drive blank
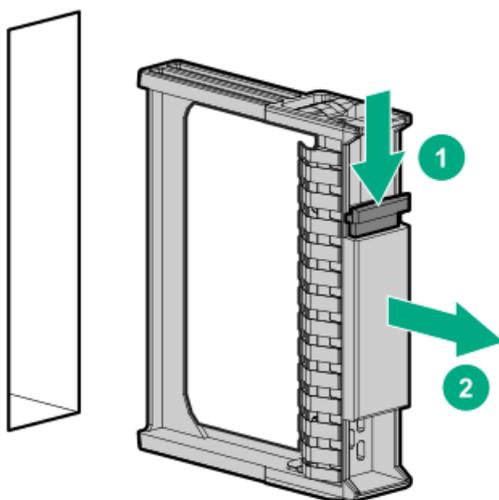
To replace the component, reverse the removal procedure.

Media device replacement

- Removing and replacing a SAS LTO tape drive
- Removing and replacing a USB RDX docking station
- Removing and replacing an optical drive

Removing and replacing a SAS LTO tape 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 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-15 Torx screwdriver available.

Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

   - If the server is in rack mode, remove the server from the rack.

5. Remove the front bezel.

6. Remove the access panel.

7. Disconnect the drive power and SAS cables.

8. Pull up and hold the release latch (callout 1), and then remove the LTO tape drive (callout 2).
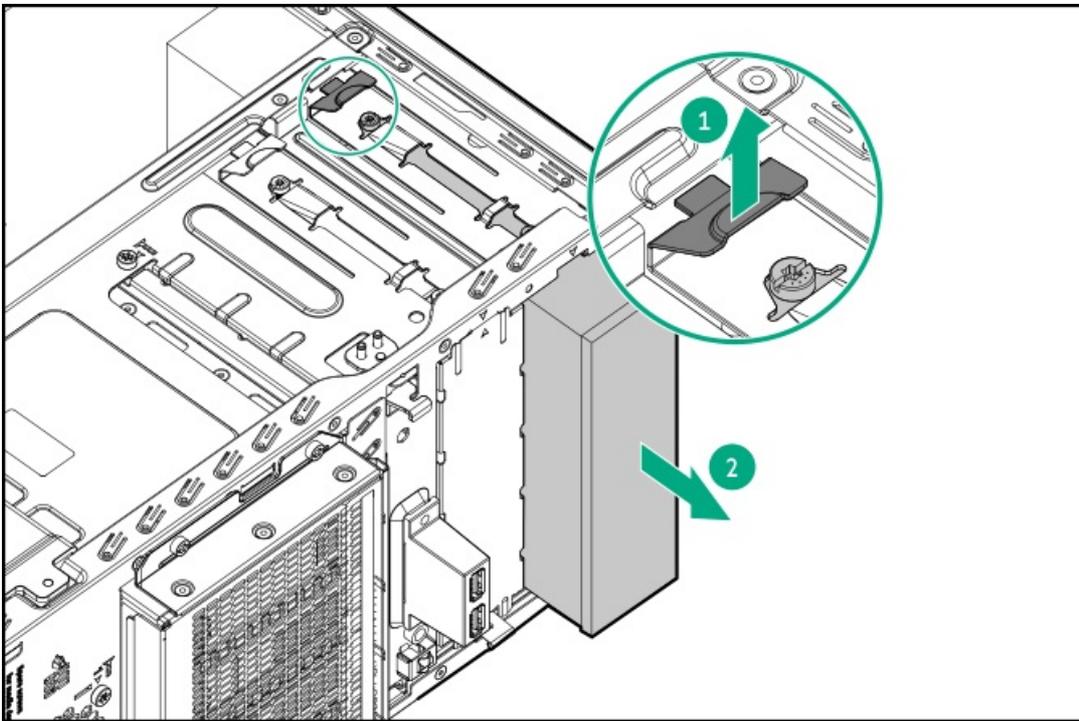
To replace the component, reverse the removal procedure.

Removing and replacing a USB RDX docking station

⚠ **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.

Prerequisites

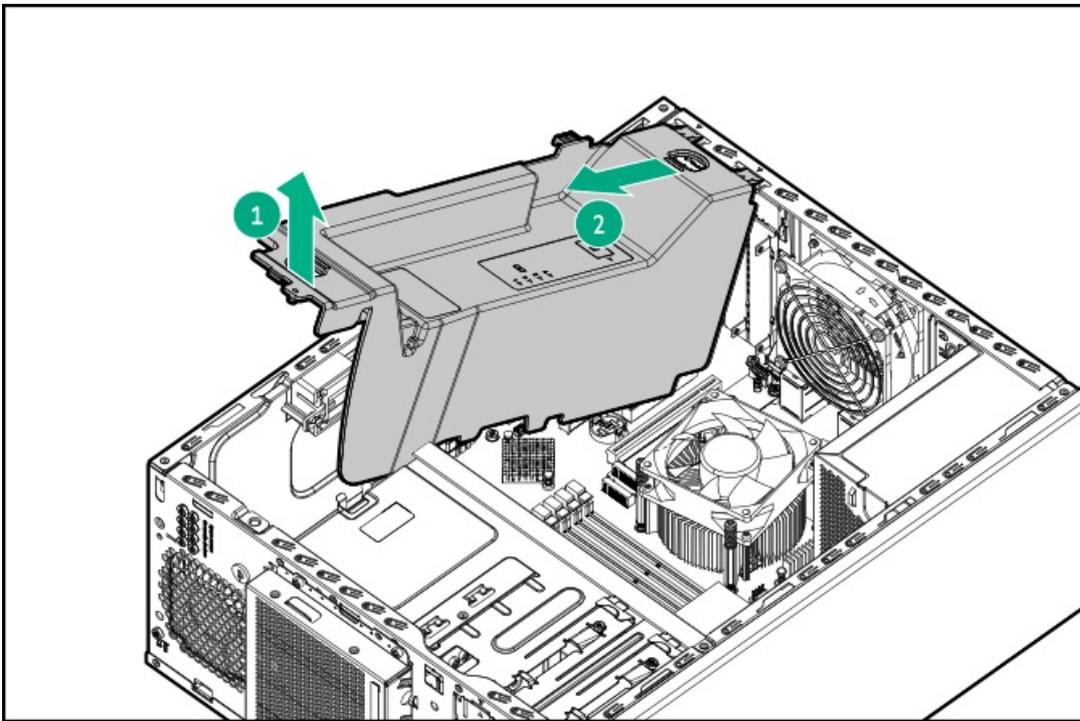Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

Procedure

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

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

- If the server is in rack mode, remove the server from the rack.

5. Remove the front bezel.

6. Remove the access panel.

7. Disconnect the power and USB cables.

8. Pull up and hold the release latch (callout 1), and then remove the RDX docking station (callout 2).

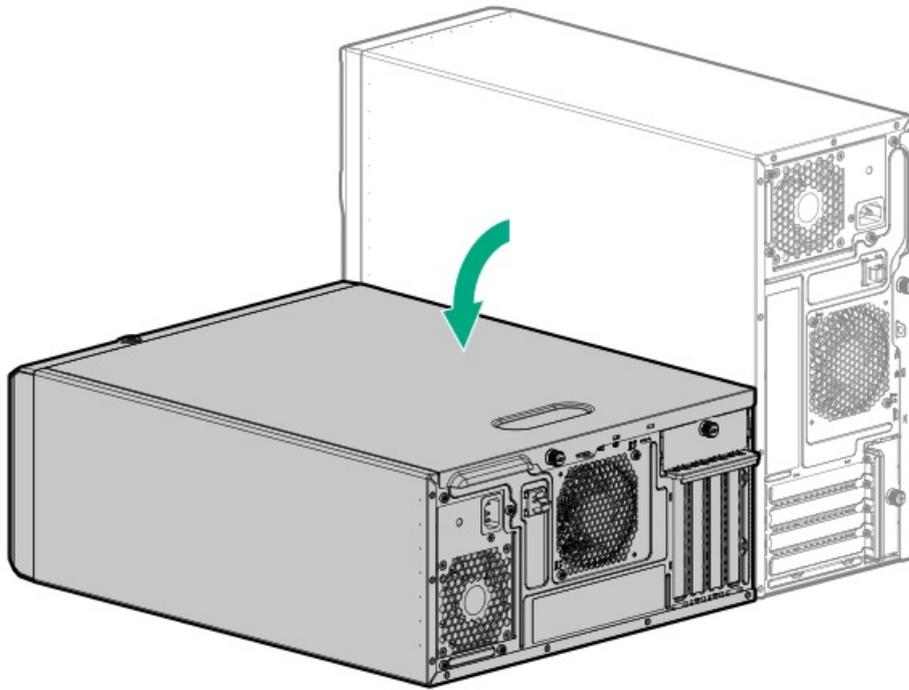To replace the component, reverse the removal procedure.

Removing and replacing an optical drive

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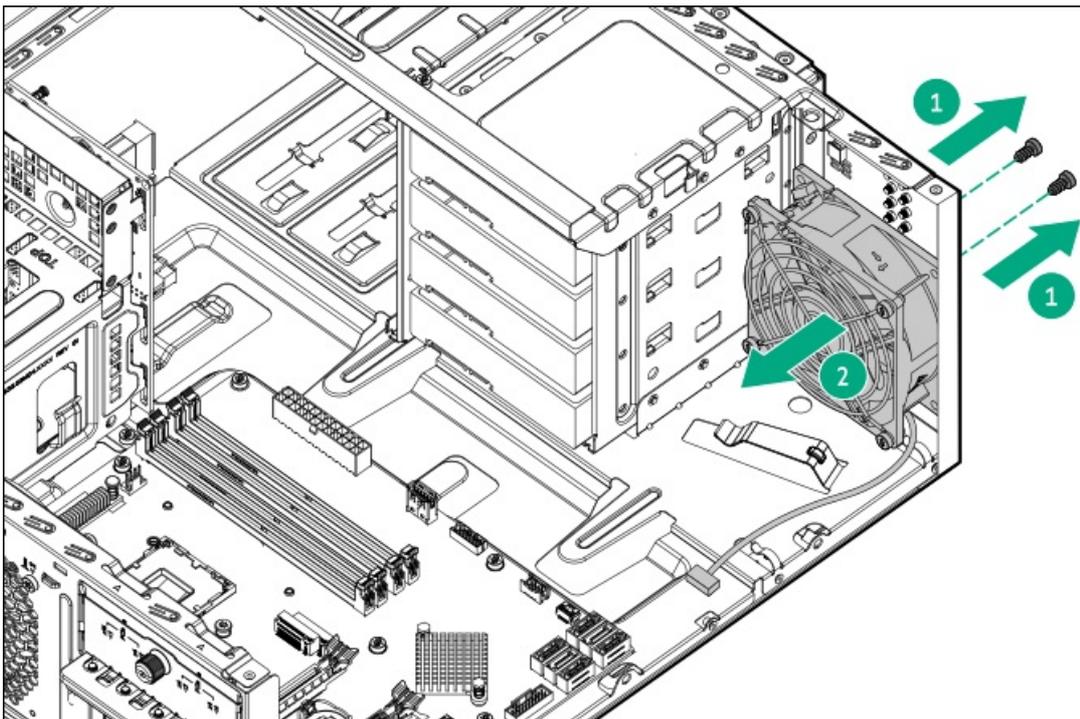
Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

   - If the server is in rack mode, remove the server from the rack.

5. Remove the front bezel.

6. Remove the access panel.

7. Disconnect the power and SATA cables.

8. Pull up and hold the release latch (callout 1), and then remove the optical drive assembly (callout 2).
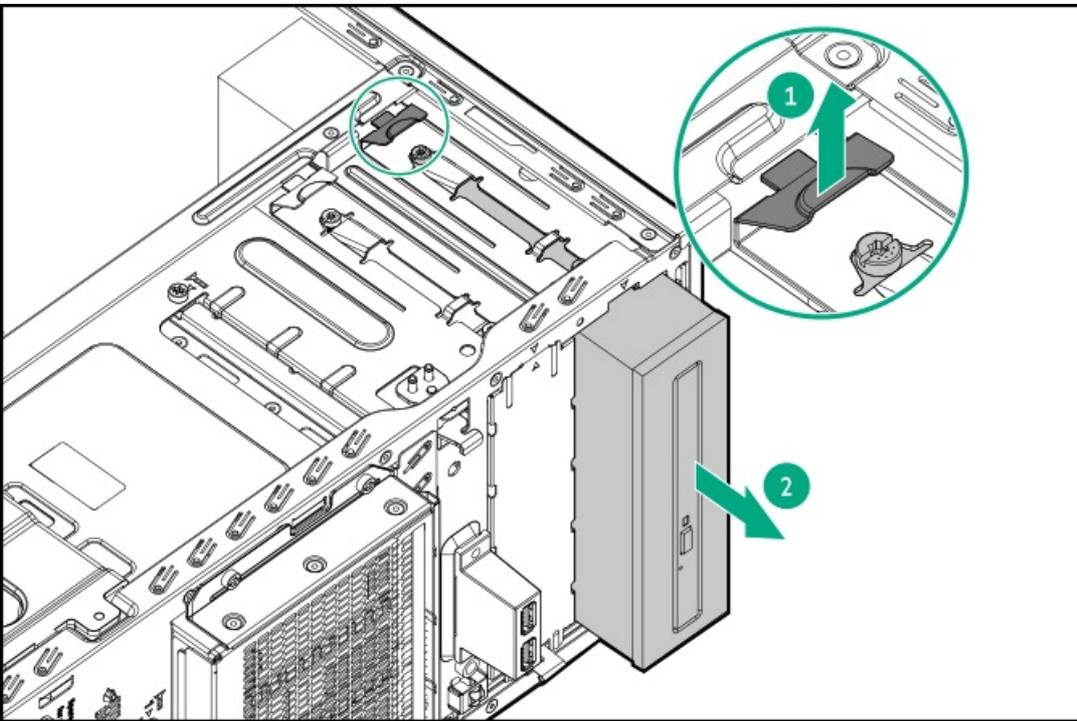
To replace the component, reverse the removal procedure.

Removing and replacing the media bay 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. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Remove the front bezel.

5. Press and hold the latch (callout 1), and then pull out the blank from the bay (callout 2).
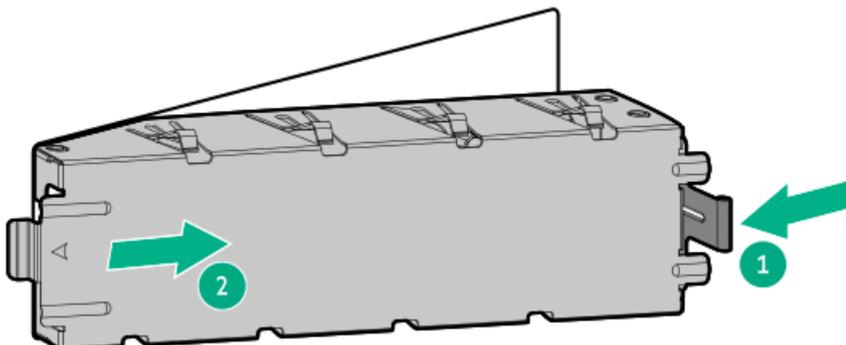
To replace the component, reverse the removal procedure.

Removing and replacing the air baffle

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

Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.
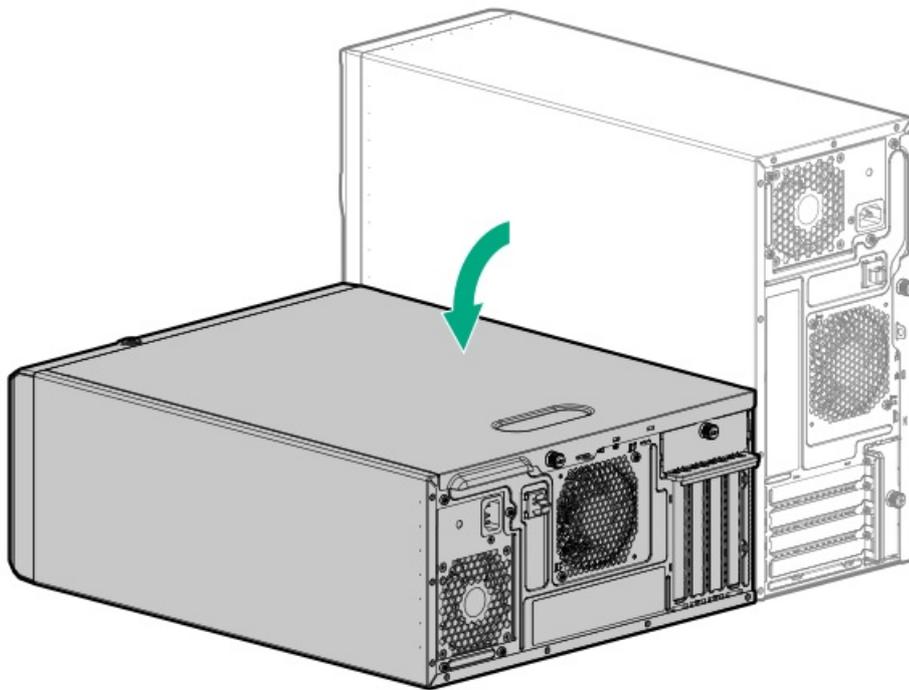
   - If the server is in rack mode, remove the server from the rack.

5. Remove the access panel.

6. Remove the air baffle:

   a. Lift the front end of the baffle from the chassis (callout 1).

   b. Remove the baffle tabs from its rear chassis slots (callout 2).

To replace the component, reverse the removal procedure.

Fan replacement

- Removing and replacing the system fan
- Removing and replacing the PCI fan

Removing and replacing the PCI fan

Prerequisites

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

Procedure

1. Power down the server.

2. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

    - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

- If the server is in rack mode, remove the server from the rack.

5. Remove the front bezel.

6. Remove the access panel.

7. Remove the air baffle.

8. If needed, disconnect any system cables that might be blocking access to the bottom side of the drive cage.

9. Disconnect the PCI fan cable.

10. Remove the PCI fan:

   a. Remove the fan screws (callout 1).

   b. Remove the fan from the chassis (callout 2).

To replace the component, reverse the removal procedure.

Removing and replacing the system fan

Prerequisites

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

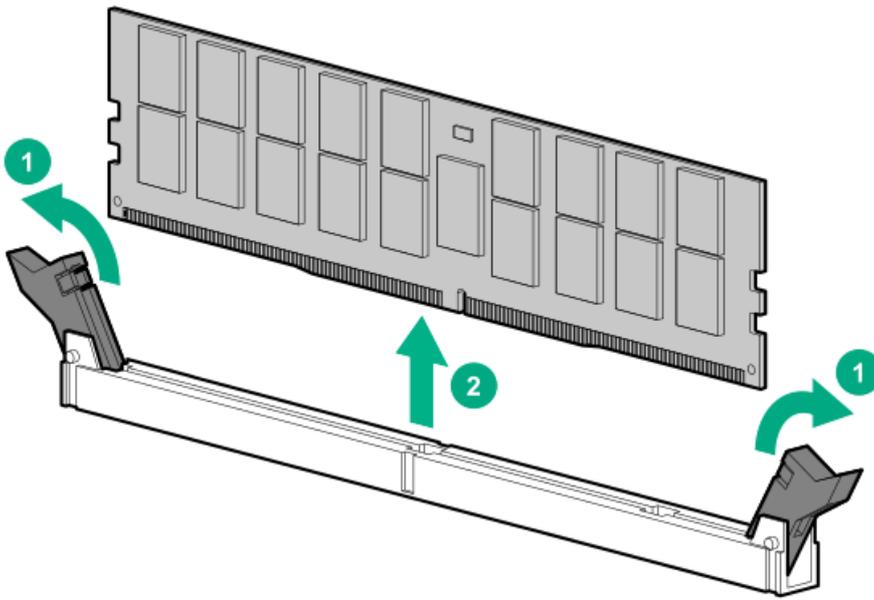**Procedure**

1. Power down the server.

2. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

    - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.
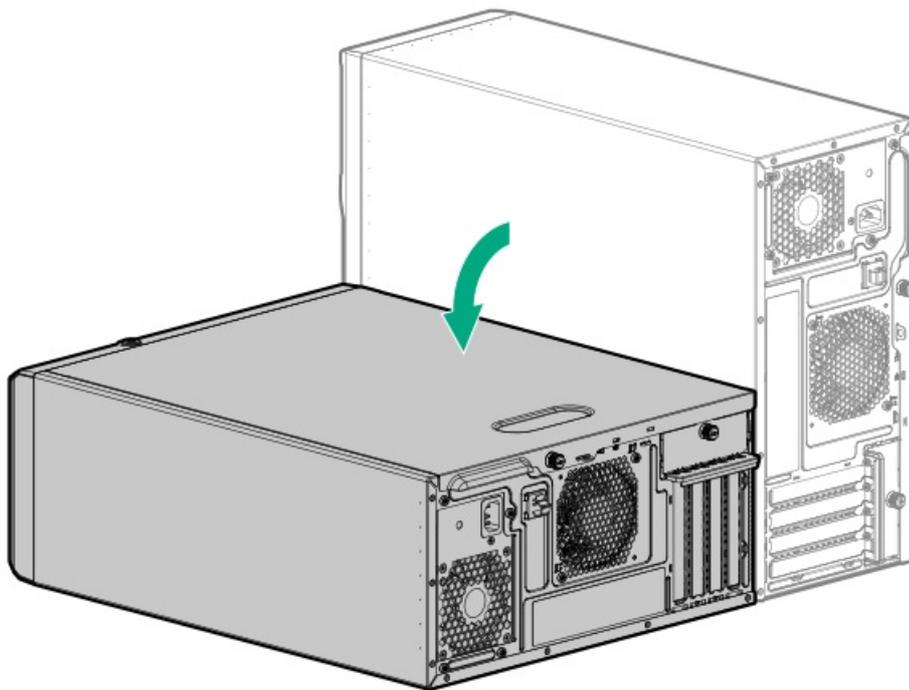
    - If the server is in rack mode, remove the server from the rack.

5. Remove the access panel.

6. Disconnect the system fan cable.

7. Remove the system fan:

    a. Remove the fan screws (callout 1).
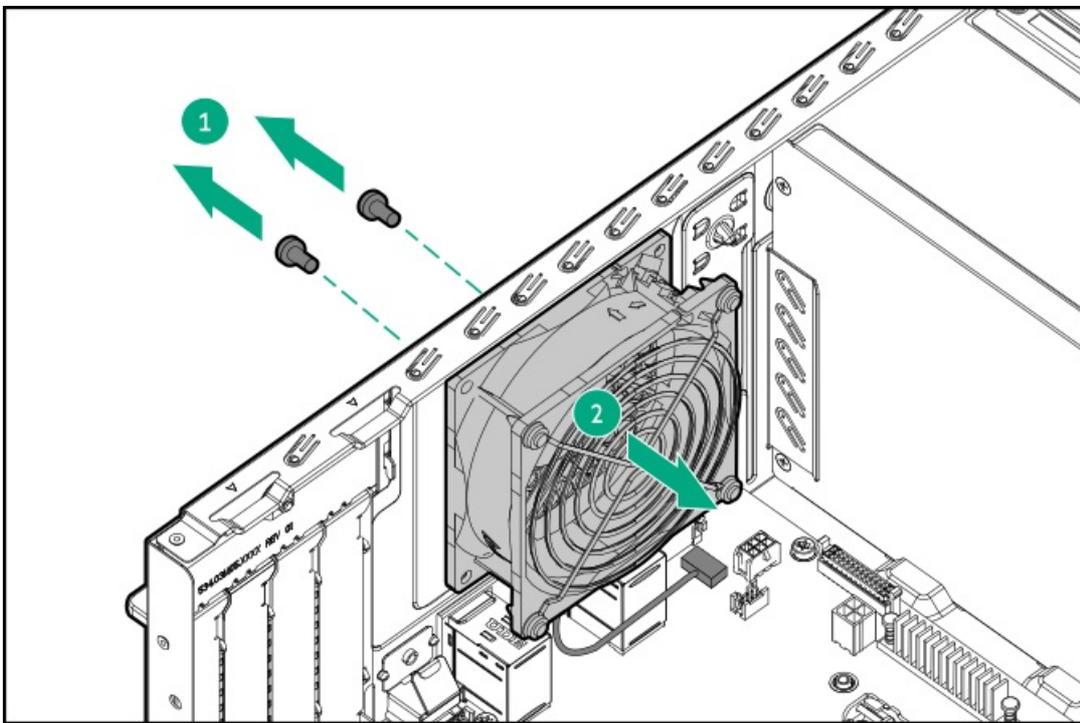
    b. Remove the fan from the chassis (callout 2).

To replace the component, reverse the removal procedure.
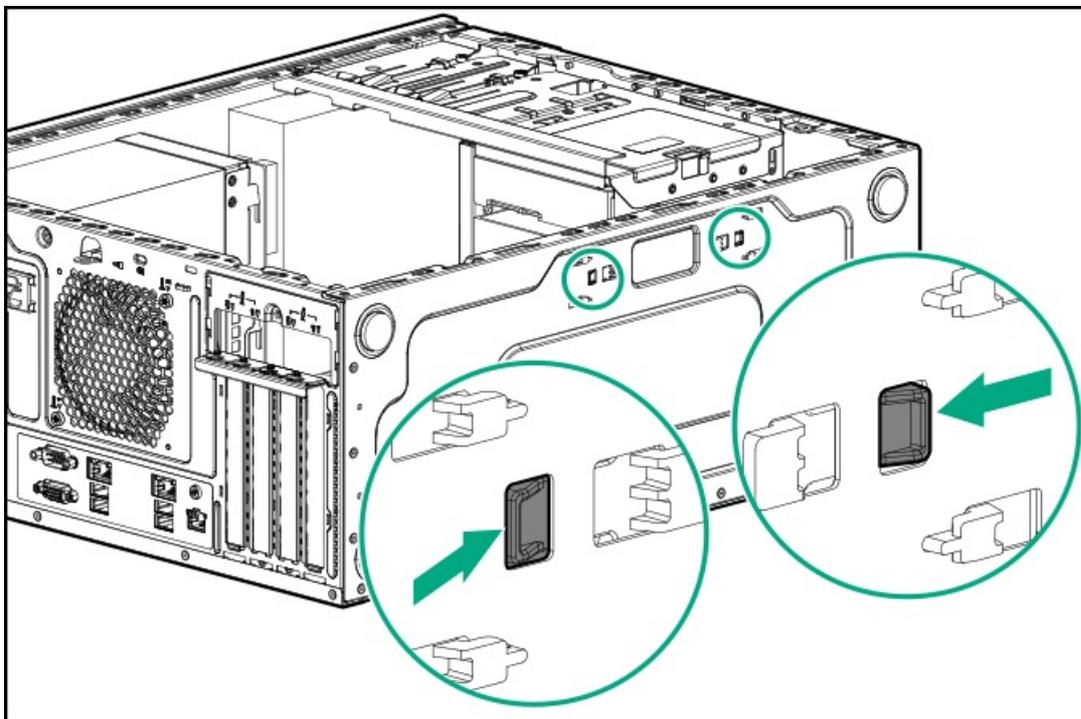
Removing and replacing the energy pack

Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.
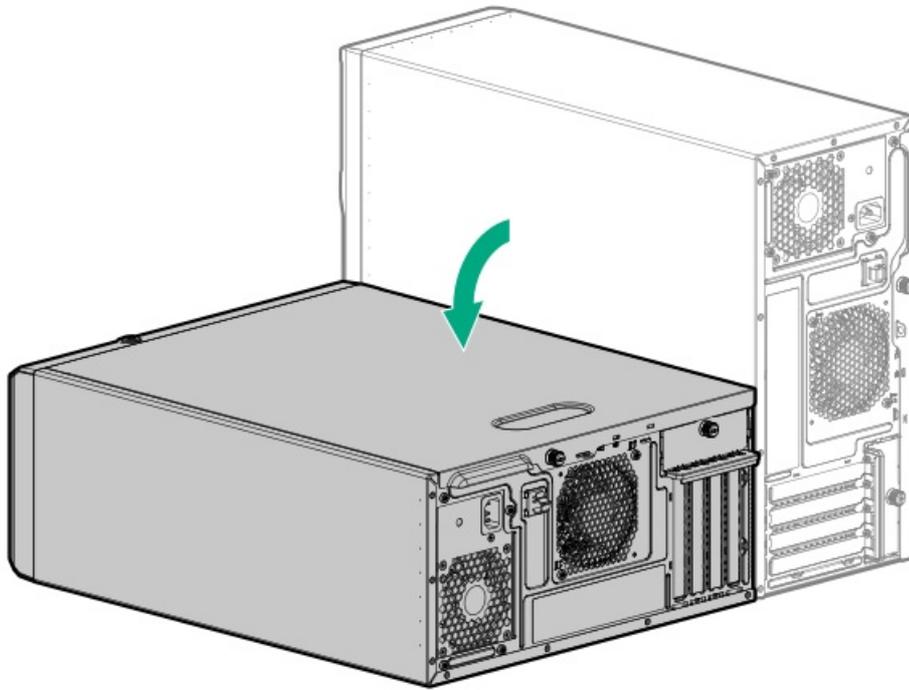
- If the server is in rack mode, remove the server from the rack.

5. Remove the access panel.

6. If installed, remove the air baffle.

7. Remove the energy pack:

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

   b. Press and hold the rear latch (callout 2), and then lift the rear end of the energy pack from the holder (callout 3).

   c. Remove the energy pack from the holder (callout 4).
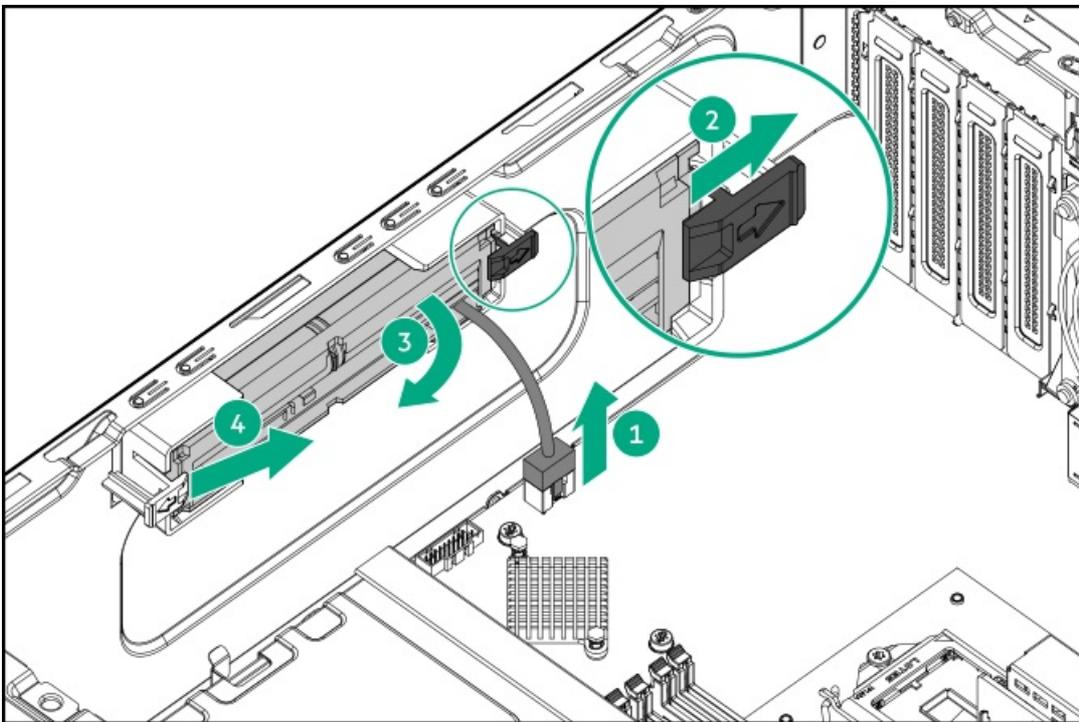
To replace the component, reverse the removal procedure.

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 underlined 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. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

   - If the server is in rack mode, remove the server from the rack.

5. Remove the access panel.

6. Remove the DIMM.

To replace the component, reverse the removal procedure.

Removing and replacing the energy pack holder

Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.
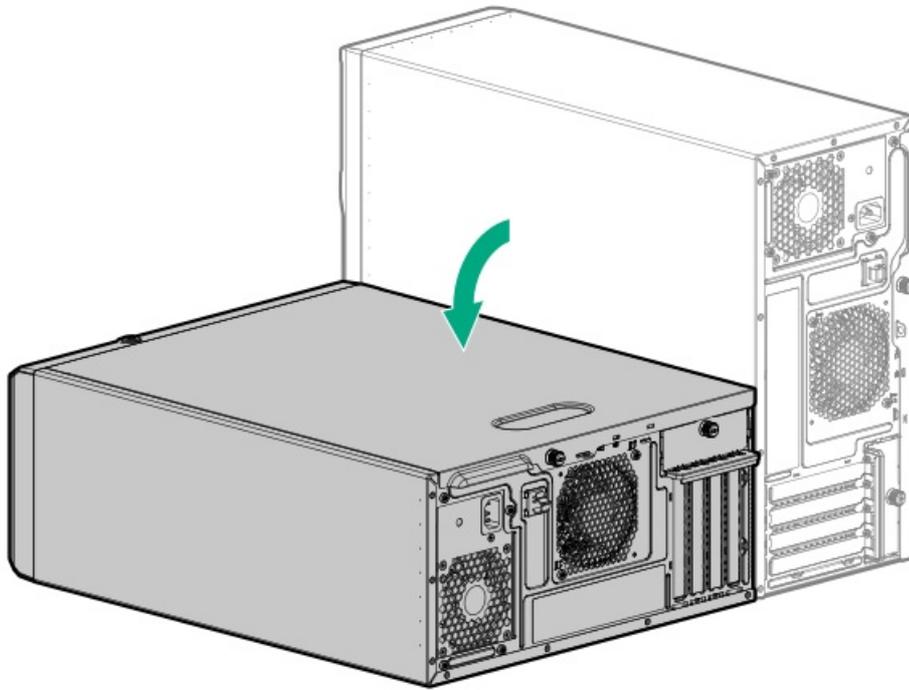
- If the server is in rack mode, remove the server from the rack.

5. Remove the access panel.

6. If installed, remove the air baffle.

7. If installed, remove the energy pack.

8. Remove the energy pack holders:

   a. Push the latches inwards to release the holders on the bottom of the chassis.

   b. Remove the energy pack holders from the chassis.
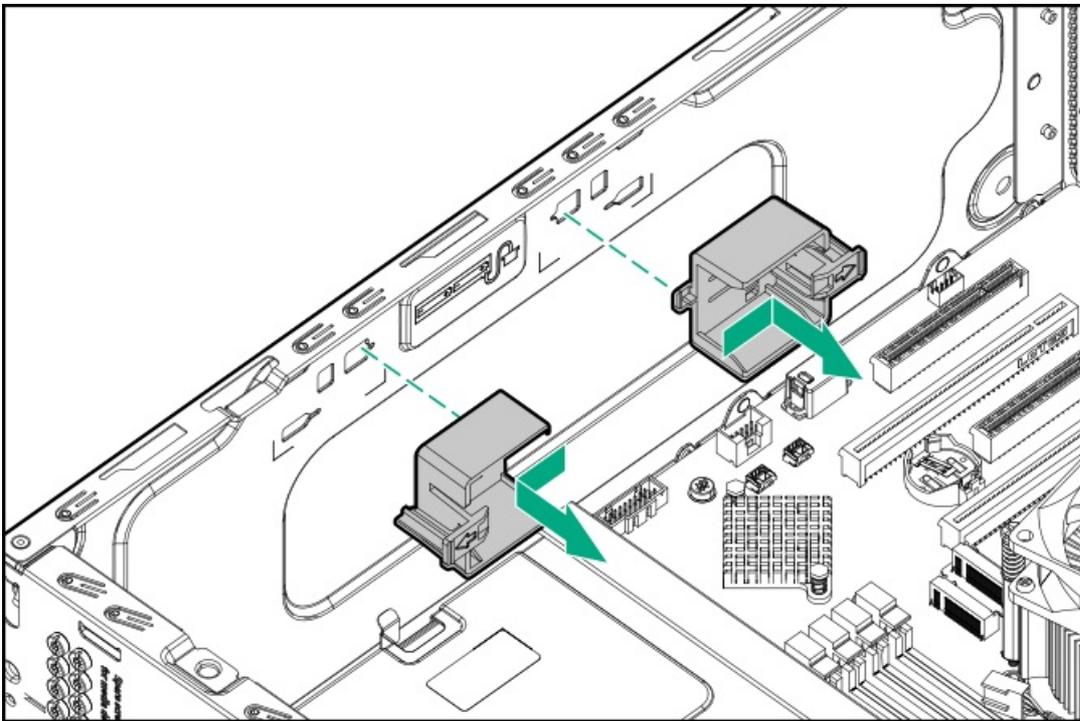
To replace the component, reverse the removal procedure.

Heatsink replacement

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

Removing the heatsink

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

Procedure

1. [Power down the server](#).

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

- If the server is in rack mode, <u>remove the server from the rack</u>.

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

6. Allow the heatsink to cool.

7. Remove the heatsink:

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

> ⚠ **CAUTION:**
>
> The heatsink fan does not have a fan guard. Special attention is needed when removing or installing the heatsink to prevent finger injury.
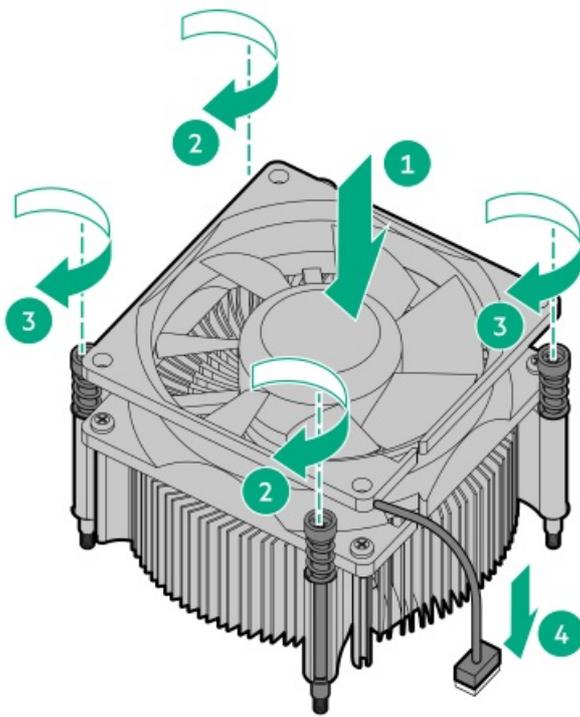
> ⚠ **CAUTION:**
>
> Heatsink screws must be tightened and loosened in alternating sequence. Do not overtighten the screws as this might damage the system board or the processor socket.

  a. Disconnect the heatsink fan cable (callout 1).

  b. Use a T-15 Torx screwdriver to loosen one pair of diagonally opposite screws, and then loosen the other pair of screws (callouts 2 and 3).

  c. Lift the heatsink away from the system board (callout 4).

Installing the heatsink

Prerequisites

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

- T-15 Torx screwdriver or a torque screwdriver with T-15 drill bit
- Alcohol wipe

Procedure

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

   Allow the alcohol to evaporate before continuing.

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

3. Install the heatsink:

> △ **CAUTION:**
>
> The heatsink fan does not have a fan guard. Special attention is needed when removing or installing the heatsink to prevent finger injury.

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

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

> △ **CAUTION:**
>
> Heatsink screws must be tightened and loosened in alternating sequence. Do not overtighten the screws as this might damage the system board or the processor socket.

a. Position the heatsink on top of the processor, ensuring that it is properly seated before securing the screws (callout 1).

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

   When using a torque screwdriver, apply 0.68 N·m (6.0 lbf-in) of torque to completely tighten the screws.

c. Connect the heatsink fan cable (callout 4).

4. Install the access panel.

5. Do one of the following:

   - Orient the server back in tower mode.
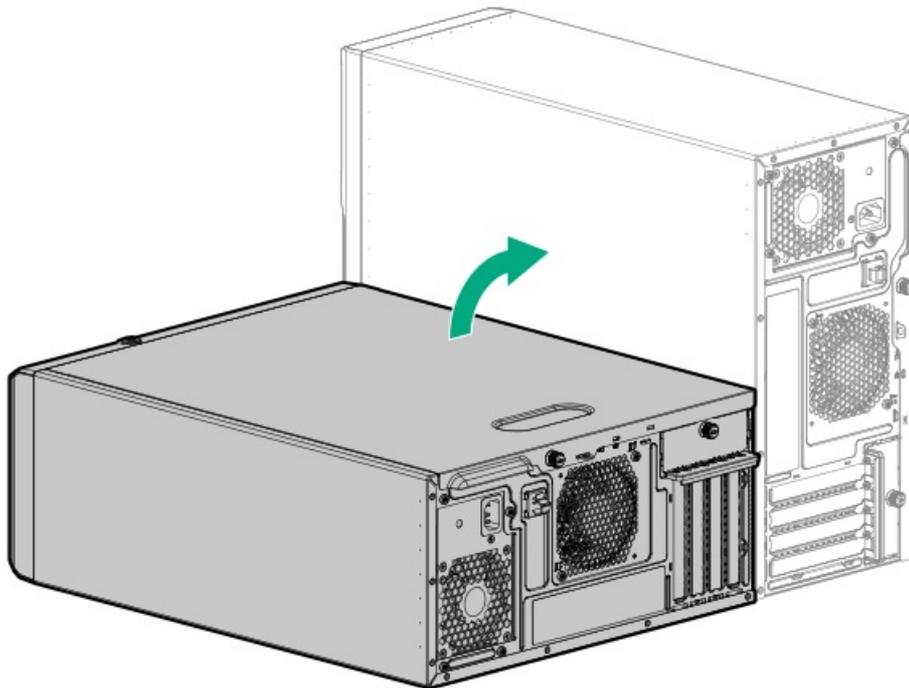
   - Install the server into the rack.

6. Connect all peripheral cables to the server.

7. Connect each power cord to the server.

8. Connect each power cord to the power source.

9. Power up the server.

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 [Hewlett Packard Enterprise Support Center website](#) .

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

Removing the processor

Prerequisites

- [Review the processor cautions](#).

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

  - T-15 Torx screwdriver

  - Alcohol wipe

Procedure

1. [Power down the server](#).

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

- If the server is in rack mode, <u>remove the server from the rack</u>.

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

6. Allow the heatsink to cool.

7. Remove the heatsink:

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

> ⚠ **CAUTION:**
>
> The heatsink fan does not have a fan guard. Special attention is needed when removing or installing the heatsink to prevent finger injury.

> ⚠ **CAUTION:**
>
> Heatsink screws must be tightened and loosened in alternating sequence. Do not overtighten the screws as this might damage the system board or the processor socket.

a. Disconnect the heatsink fan cable (callout 1).

b. Use a T-15 Torx screwdriver to loosen one pair of diagonally opposite screws, and then loosen the other pair of screws (callouts 2 and 3).

c. Lift the heatsink away from the system board (callout 4).

8. Use an alcohol wipe to remove the existing thermal grease from the heatsink and processor.

    Allow the alcohol to evaporate before continuing.

9. 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).
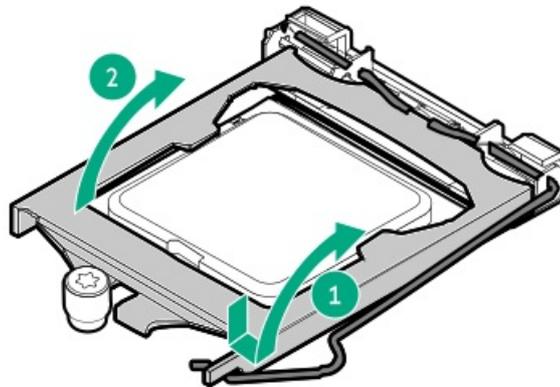
10. Do not touch the socket contacts or the bottom of the processor.
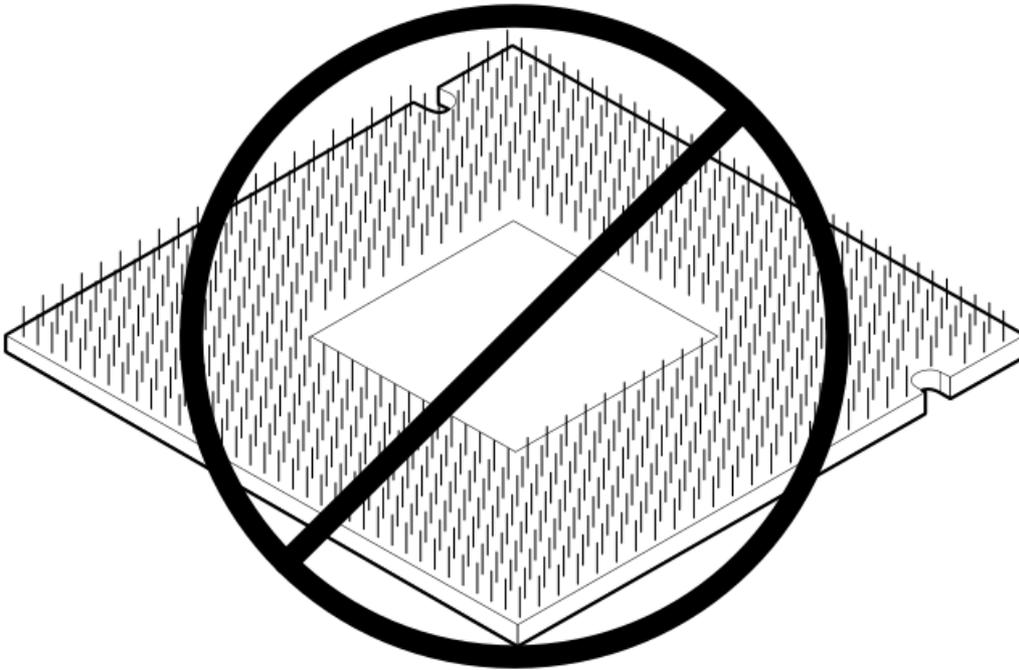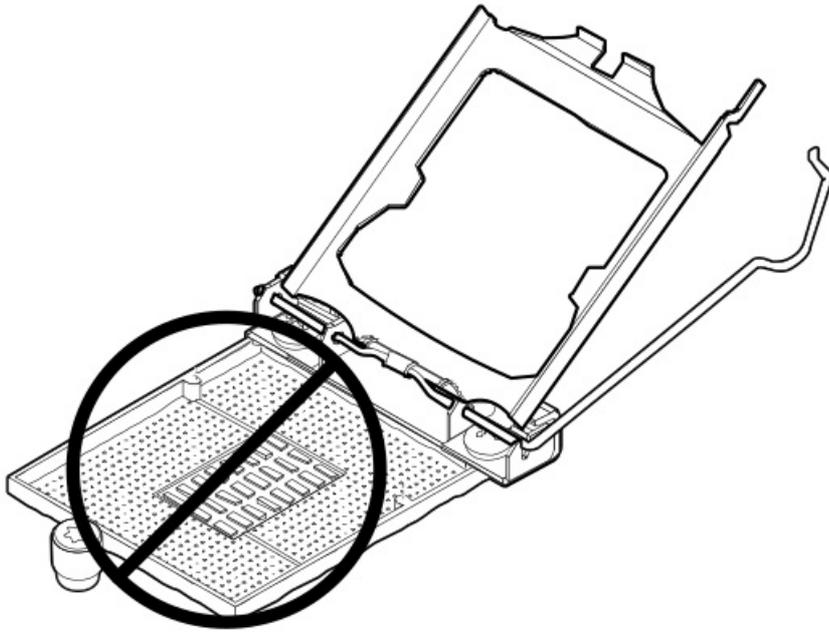
11. Hold the processor by the edges, and then lift it out of the socket.
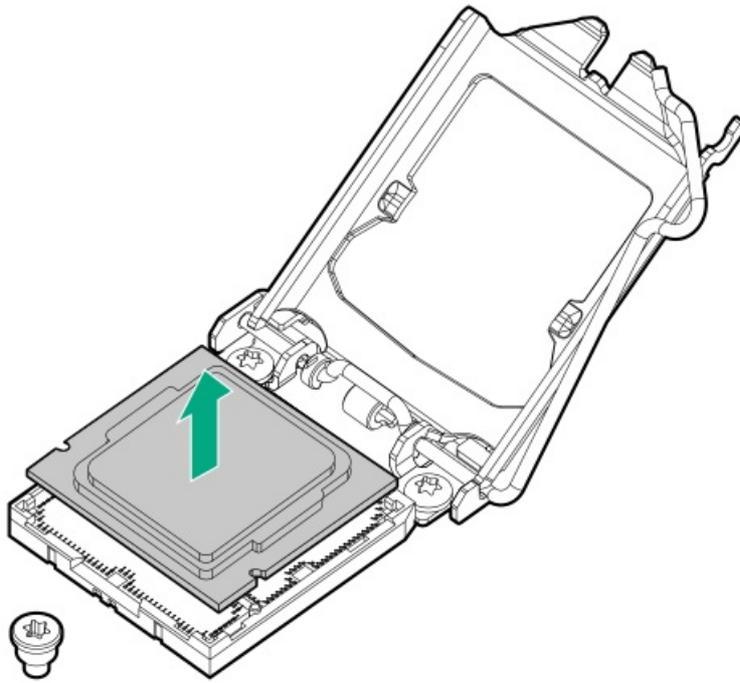
Installing the processor

Prerequisites

- Review the processor cautions.

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

    - T-15 Torx screwdriver or a torque screwdriver with T-15 drill bit

    - 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.
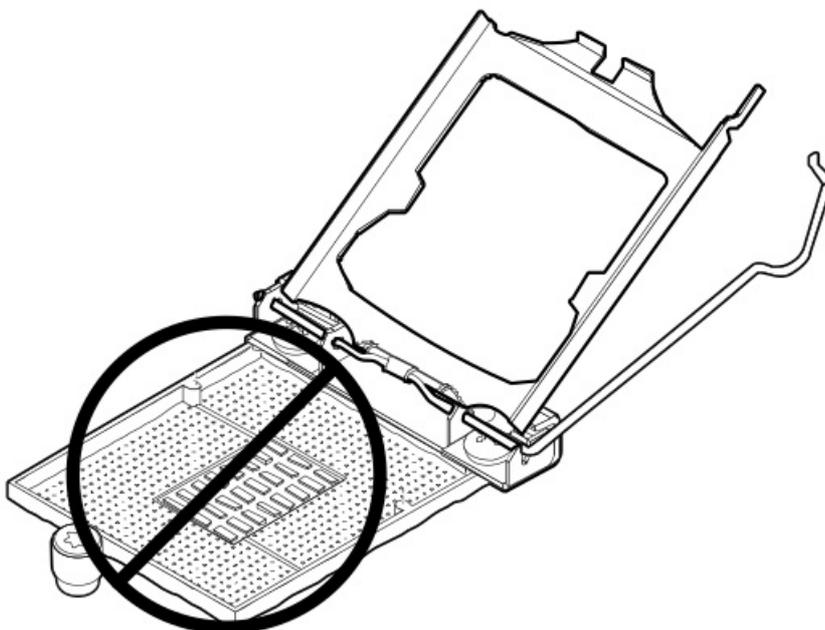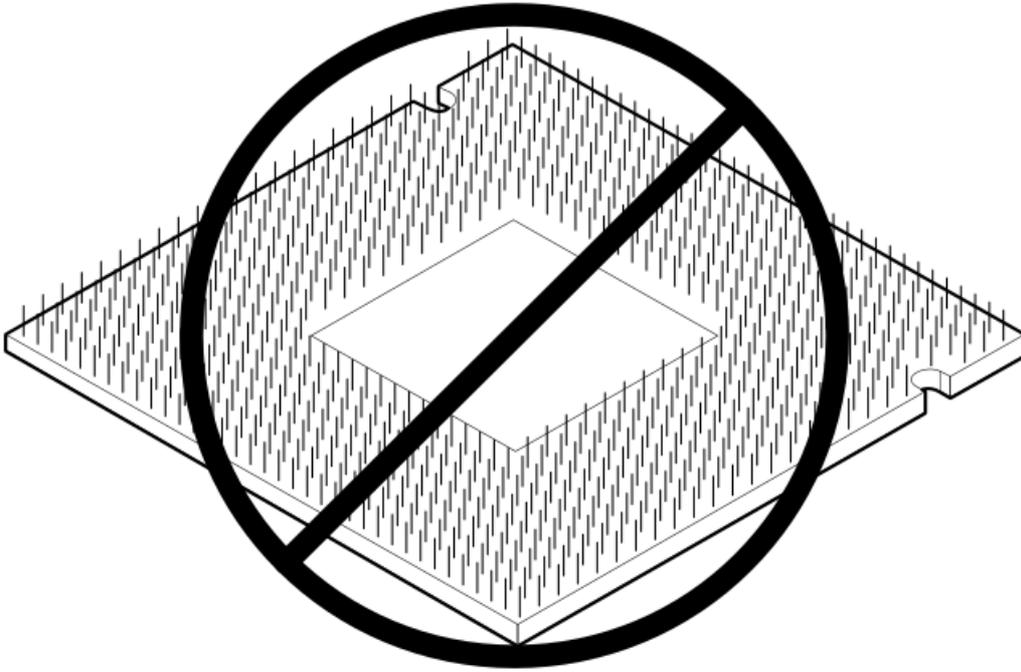
2. Install the processor:

   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.
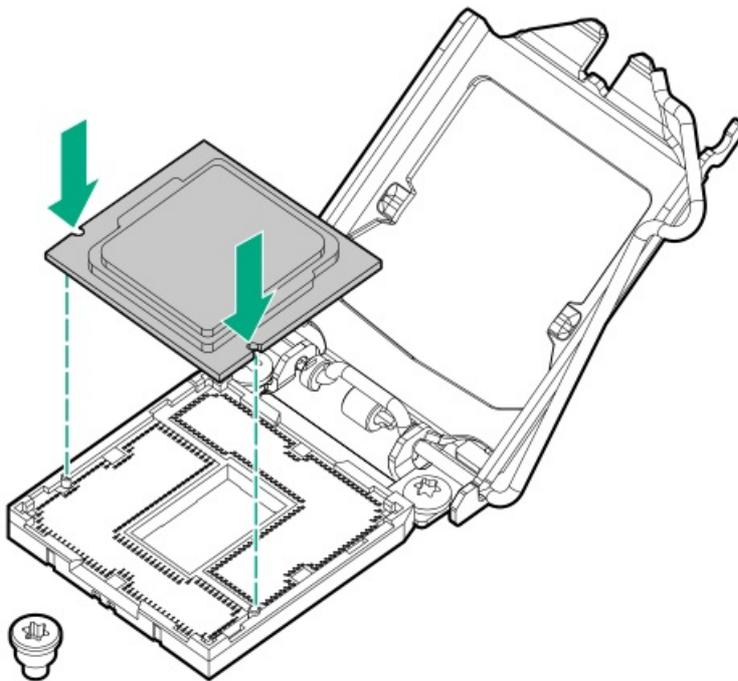
⚠ **CAUTION:**

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).
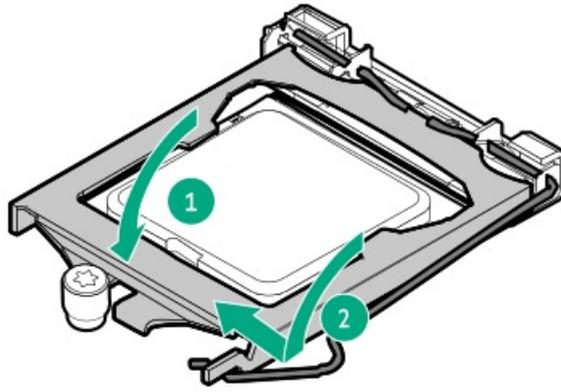
4. Apply new thermal grease to the processor in the pattern shown in the following image to ensure even distribution. Use the full contents of the thermal grease syringe.

5. Install the heatsink:

⚠ CAUTION:

The heatsink fan does not have a fan guard. Special attention is needed when removing or installing the heatsink to prevent finger injury.

⚠ CAUTION:

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

⚠ CAUTION:

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

⚠ CAUTION:

Heatsink screws must be tightened and loosened in alternating sequence. Do not overtighten the screws as this might damage the system board or the processor socket.

a. Position the heatsink on top of the processor, ensuring that it is properly seated before securing the screws (callout 1).

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

When using a torque screwdriver, apply 0.68 N·m (6.0 lbf-in) of torque to completely tighten the screws.
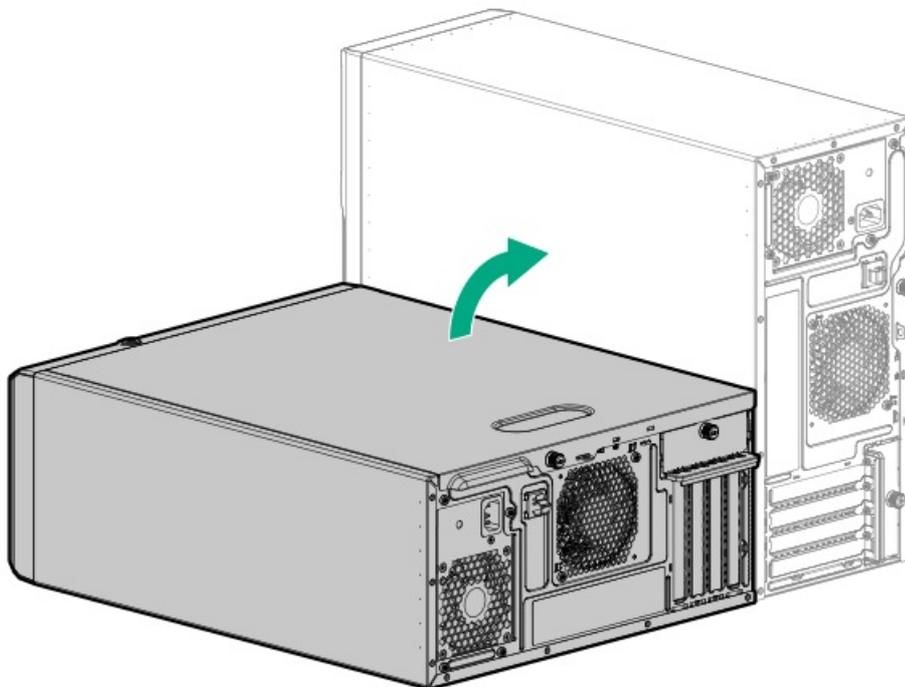
c. Connect the heatsink fan cable (callout 4).

6. Install the access panel.

7. Do one of the following:

   - Orient the server back in tower mode.

   - Install the server into the rack.

8. Connect all peripheral cables to the server.

9. Connect each power cord to the server.

10. Connect each power cord to the power source.

11. Power up the server.

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 PCIe slots have either an expansion slot cover 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-15 Torx screwdriver available.

Procedure

1. Power down the server.

2. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

    - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

    - If the server is in rack mode, remove the server from the rack.

5. Remove the access panel.

6. If installed, remove the air baffle.

7. Disconnect any internal cables that are connected to the expansion card.

8. Remove the PCI blank retainer.

9. Remove the expansion card.
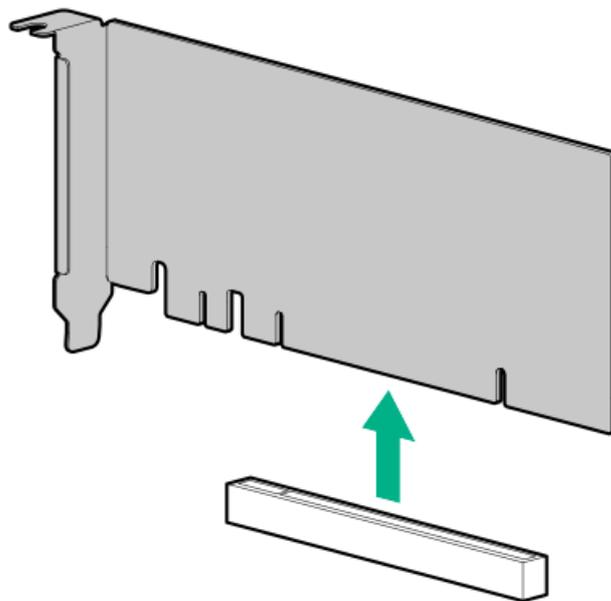
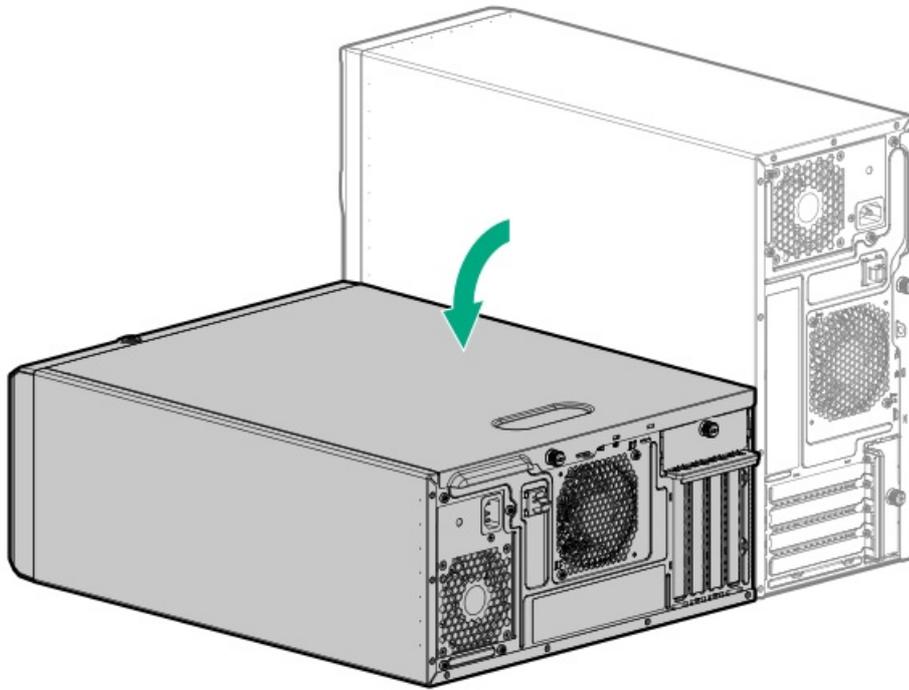To replace the component, reverse the removal procedure.

Removing and replacing an M.2 SSD

Prerequisites

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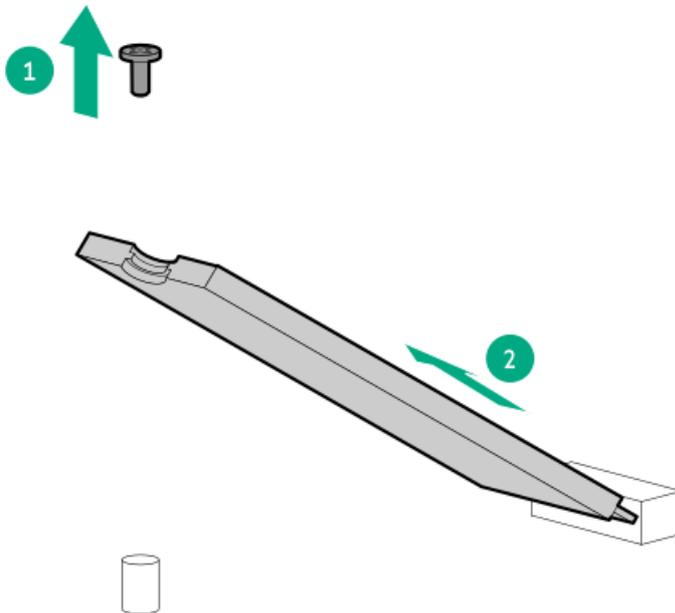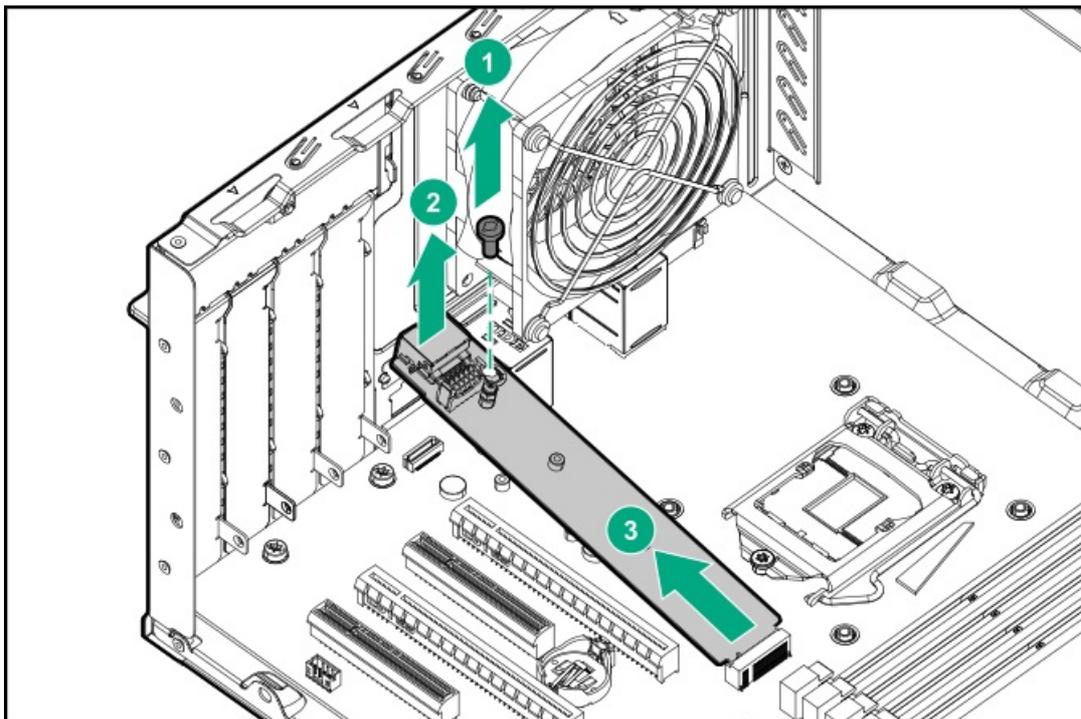
Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

   ● If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

- If the server is in rack mode, remove the server from the rack.

5. Remove the access panel.

6. Remove the air baffle.

7. Remove the M.2 SSD.

   Retain the screw for installing the new M.2 SSD.

To replace the component, reverse the removal procedure.

Removing and replacing the iLO-M.2-serial module

⚠ **CAUTION:**

A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive

devices. To prevent damage, observe antistatic precautions.

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

Prerequisites

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

- T-15 Torx screwdriver
- Phillips No. 1 screwdriver
- 4.5 mm hex nut screwdriver

Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.
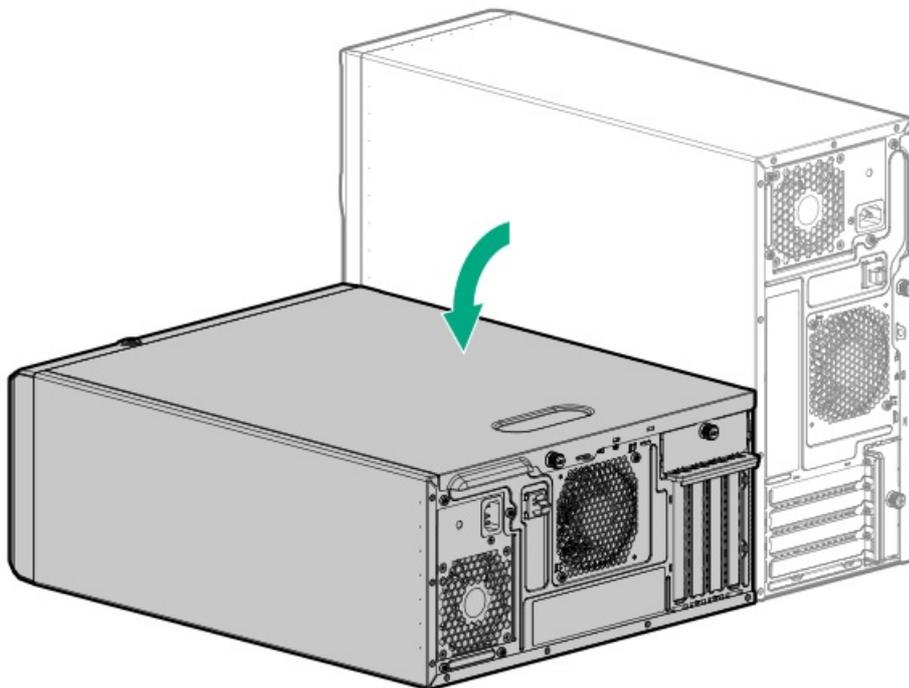
   - If the server is in rack mode, remove the server from the rack.

5. Remove the access panel.

6. If installed, remove the air baffle.

7. If installed, disconnect the serial port cable from the module .

8. If installed, remove the M.2 SSD.

9. Remove the iLO-M.2-serial module:

   a. Remove the module stabilizer.
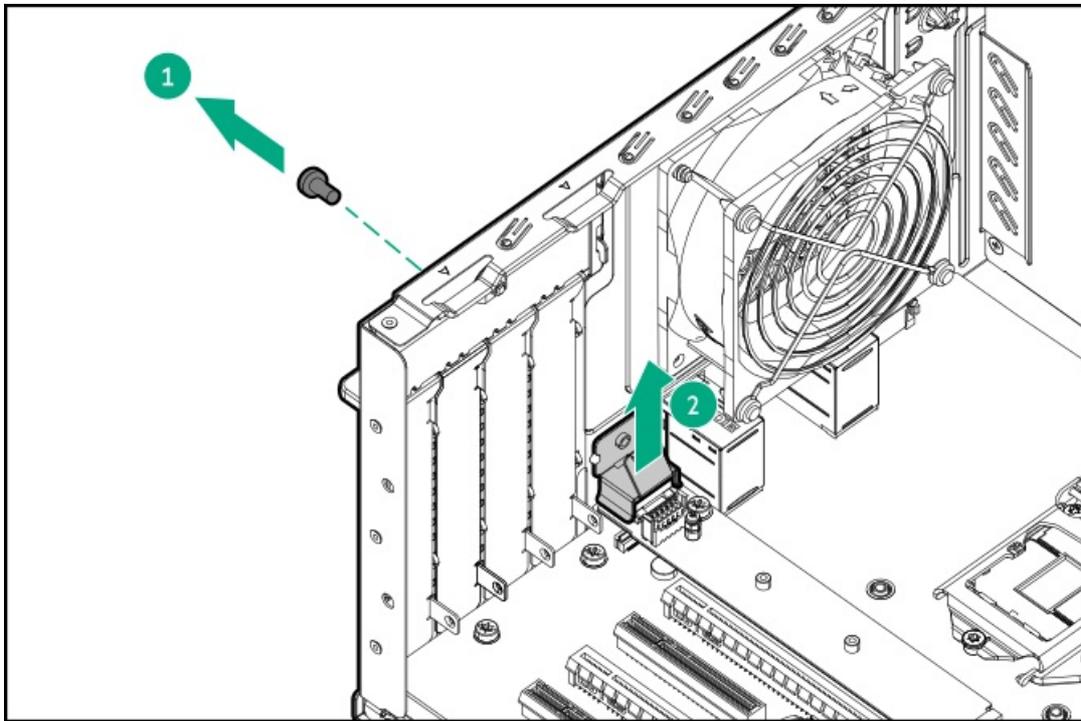
b. Remove the module screw (callout 1).

c. Carefully lift the port end of the module up (callout 2), and then disconnect the module from the system board (callout 3)

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 antistatic precautions.

⚠ **CAUTION:**

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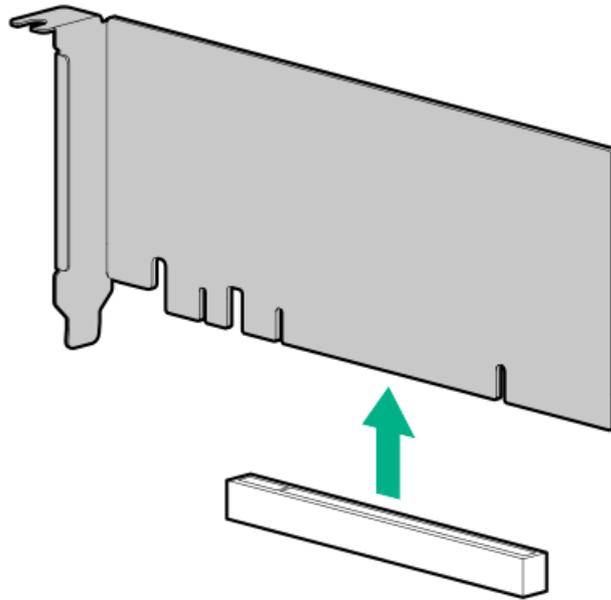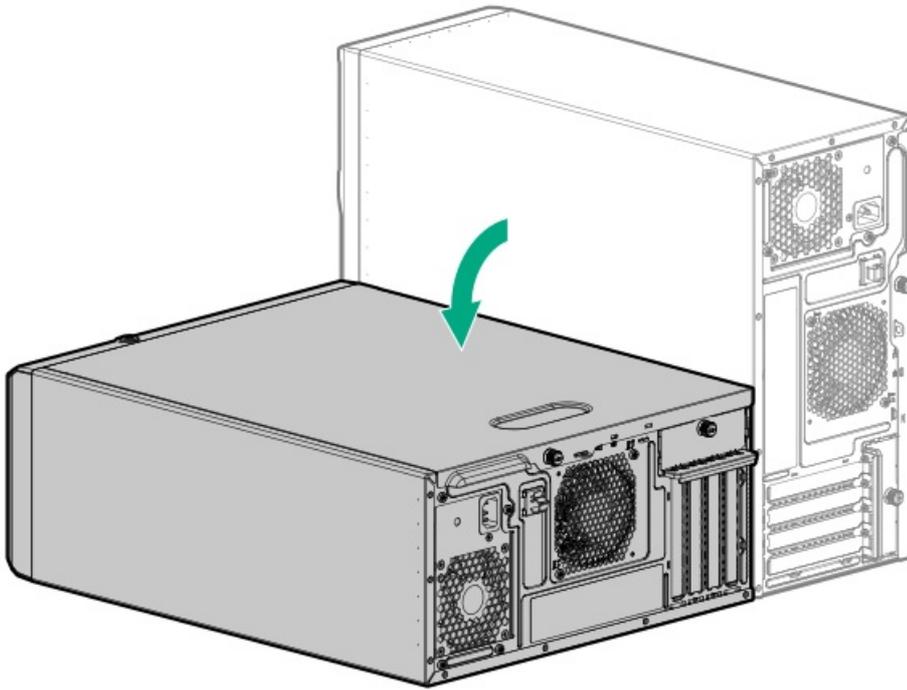
Prerequisites

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

Procedure

1. Back up all server data.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

   - If the server is in rack mode, remove the server from the rack.

6. Remove the access panel.

7. If installed, remove the air baffle.

8. Disonnect the M.2 SATA SSD cable .

9. Remove the PCI blank retainer.

10. Remove the add-in card.

11. Remove the M.2 SATA SSDs from the add-in card.

Retain these SSDs for installation onto the new add-in card.

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:**

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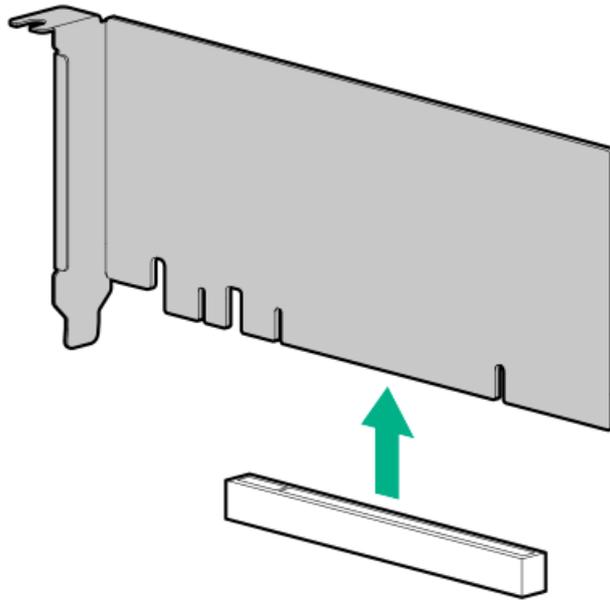
Prerequisites

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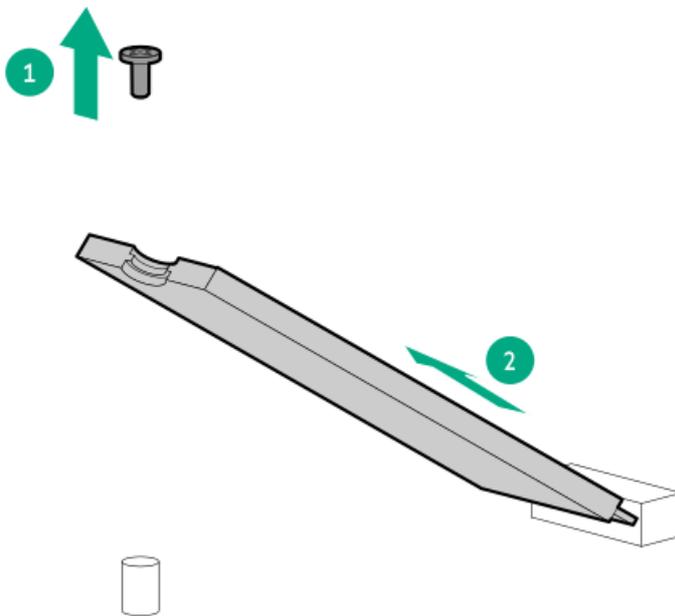
Procedure

1. Back up all server data.

2. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

   - If the server is in rack mode, remove the server from the rack.

6. Remove the access panel.

7. If installed, remove the air baffle.

8. Disonnect the M.2 SATA SSD cable .

9. Remove the PCI blank retainer.

10. Remove the add-in card.

11. Remove the M.2 SATA SSDs from the add-in card.

To replace the component, reverse the removal procedure.

HPE NS204i-p NVMe OS Boot Device replacement

- [Removing and replacing the boot device](#)
- [Removing and replacing a boot device drive](#)
- [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 antistatic precautions.

> **△ CAUTION:**
>
> To prevent improper cooling and thermal damage, do not operate the server unless all PCIe slots have either an expansion slot cover or an expansion card installed.
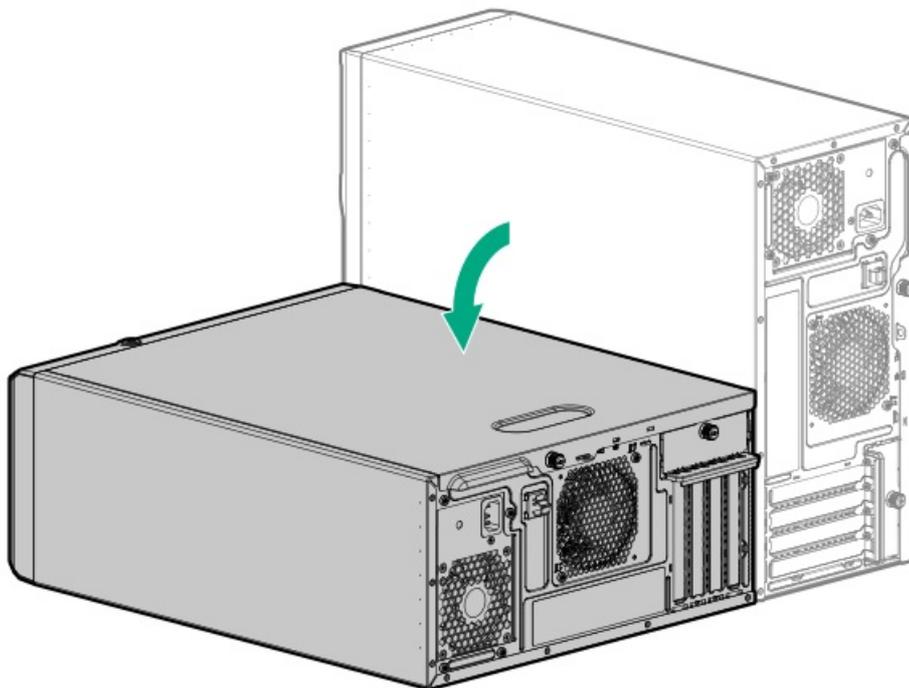
> **△ CAUTION:**
>
> Before replacing a DIMM, expansion card, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot. Do not bend or flex circuit boards when reseating components.
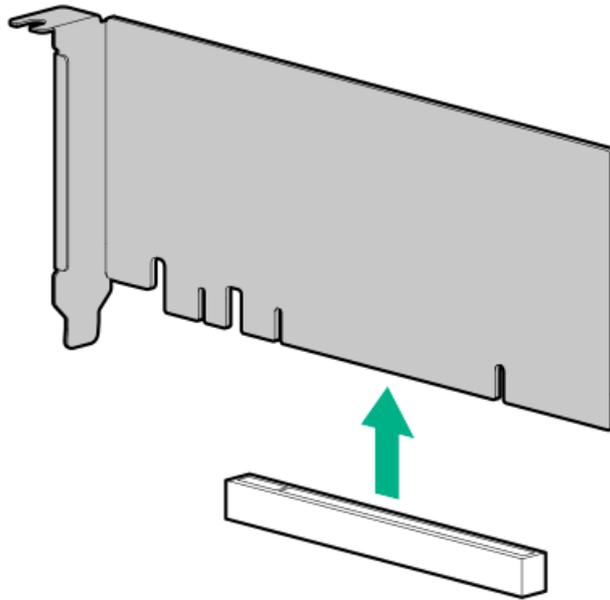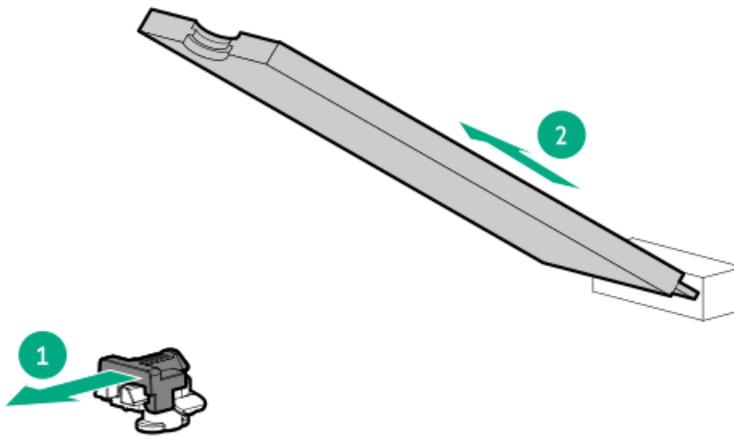
Procedure

1. Back up all server data.

2. Power down the server.

3. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Do one of the following:

    - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

    - If the server is in rack mode, remove the server from the rack.

6. Remove the access panel.

7. If installed, remove the air baffle.

8. Remove the PCI blank retainer.

9. Remove the boot device.

10. Remove the M.2 NVMe SSDs from the boot device.

Retain these SSDs for installation onto the new boot device.

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. Power down the server.

3. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.

5. Do one of the following:

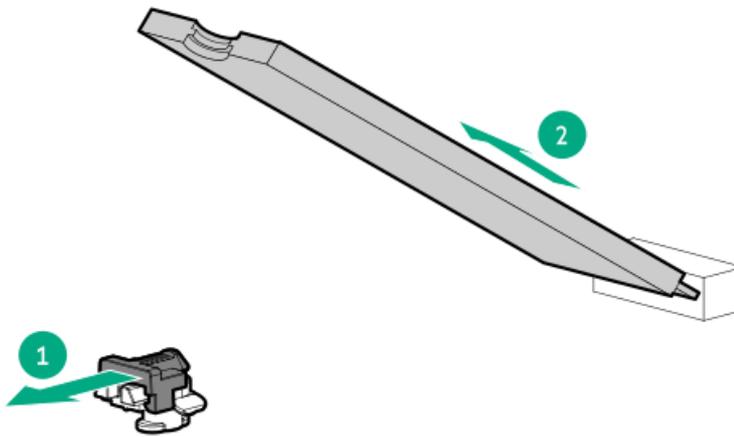   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.
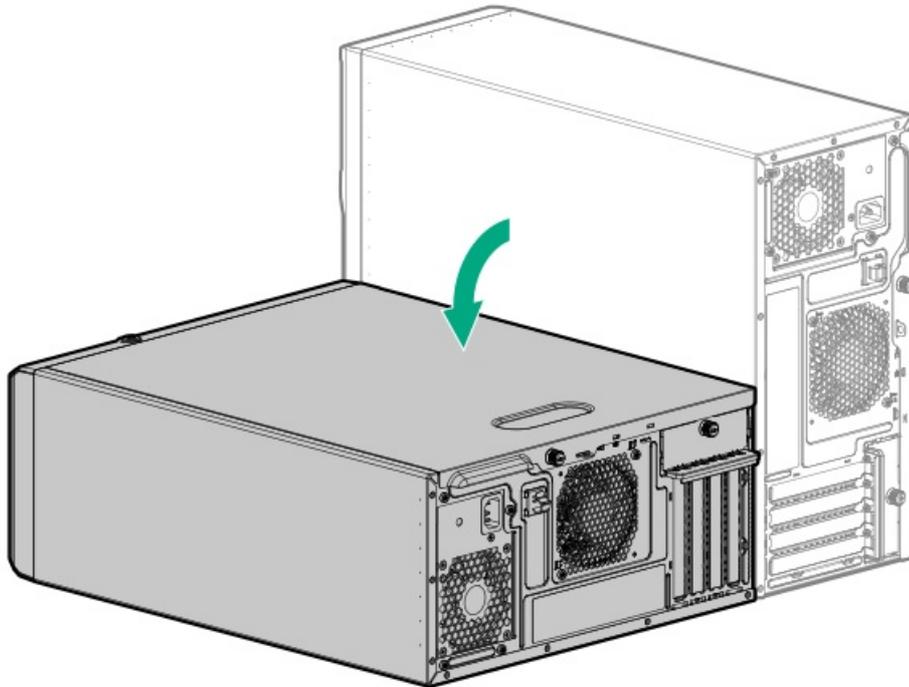
   - If the server is in rack mode, remove the server from the rack.

6. Remove the access panel.

7. If installed, remove the air baffle.

8. Remove the PCI blank retainer.

9. Remove the boot device.
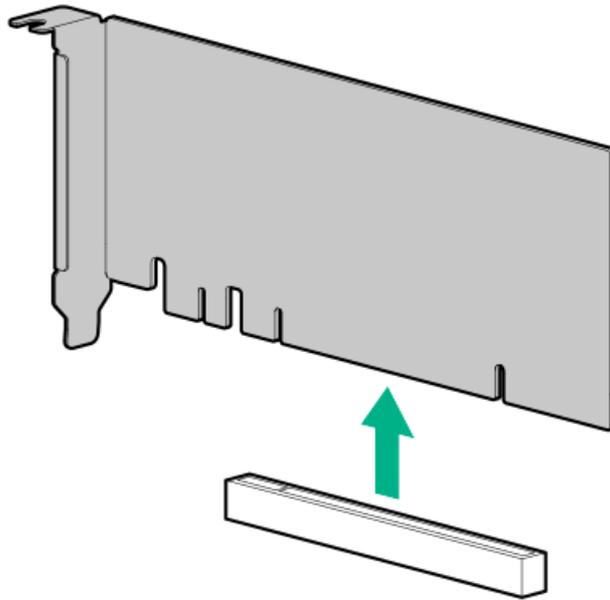
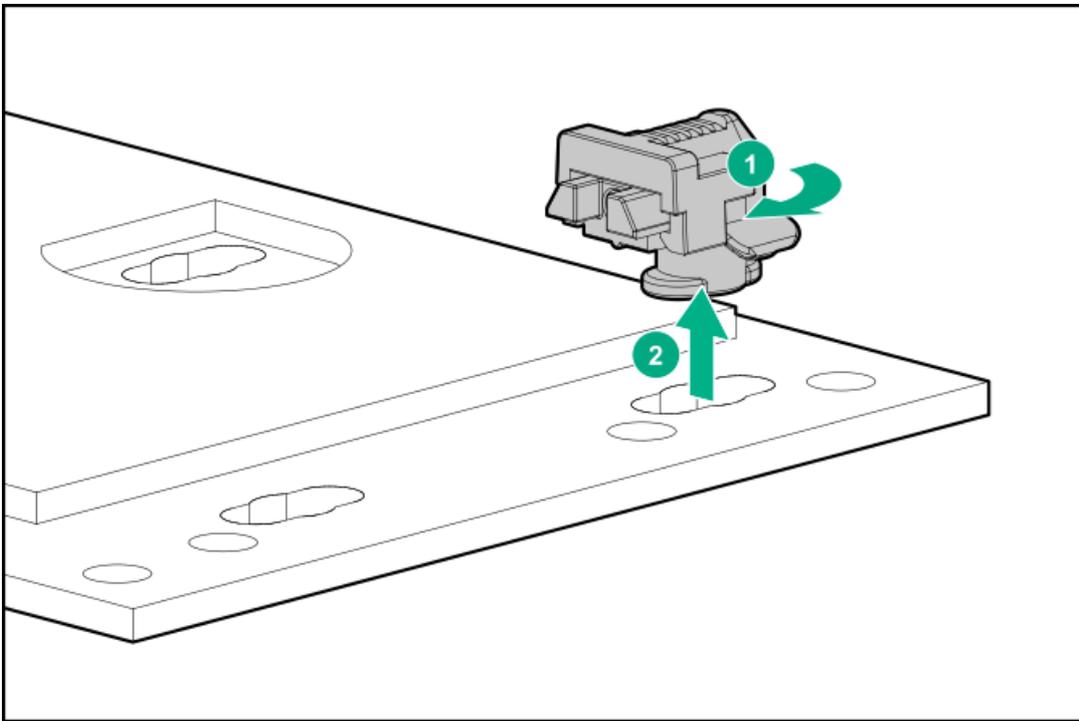10. Remove the M.2 NVMe SSD from the boot device.
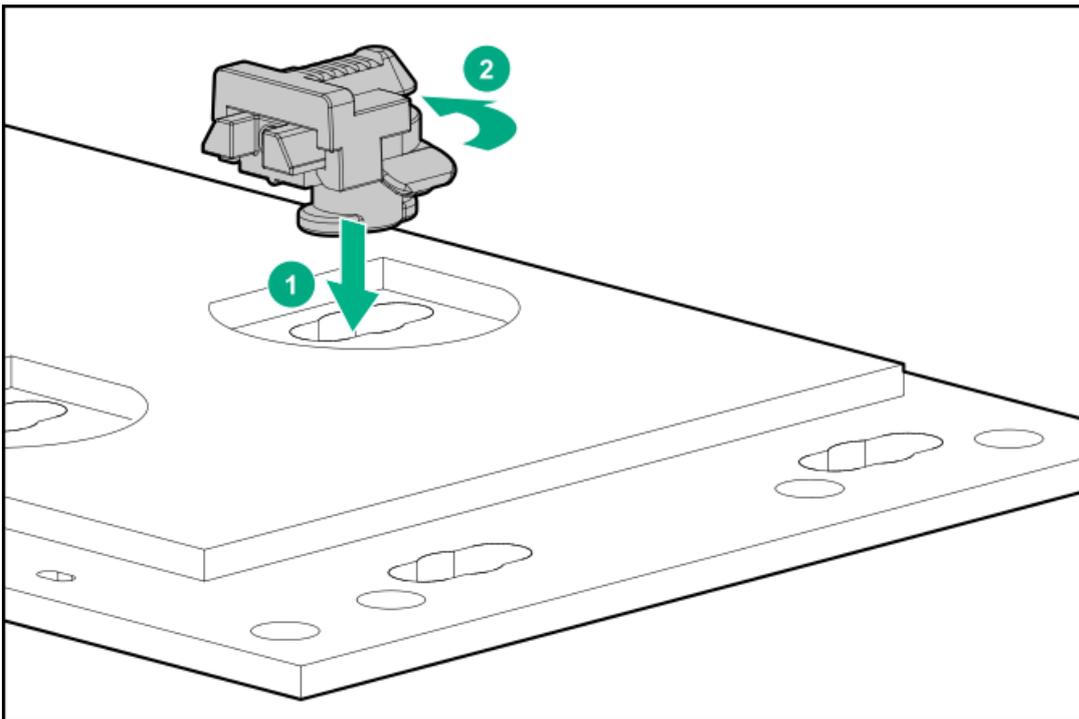

To replace the component, reverse the removal procedure.

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.

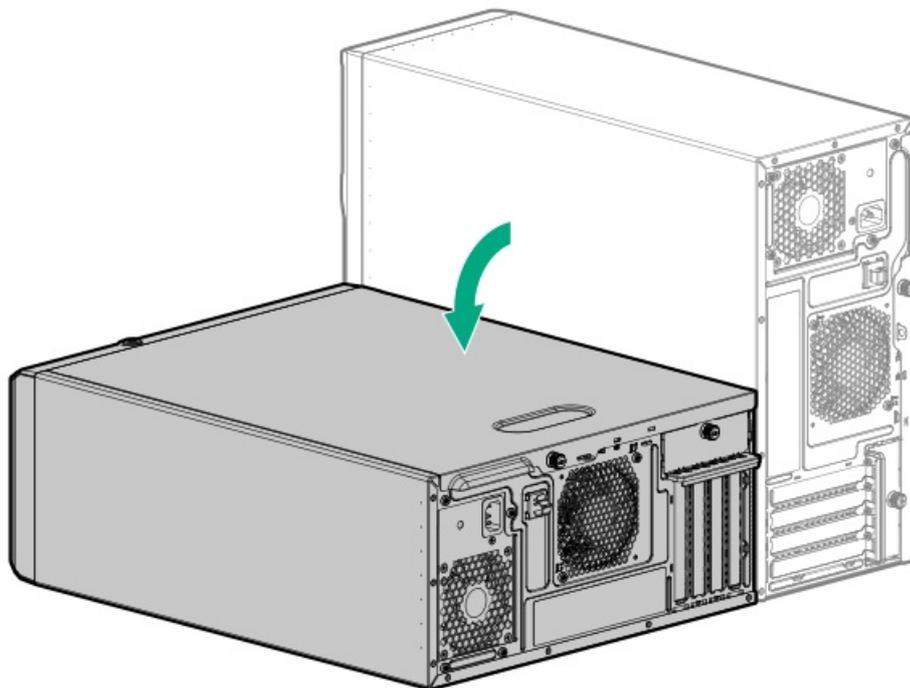2. Install the retaining latch at the 80 mm drive location.

Removing and replacing an internal USB device

Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.
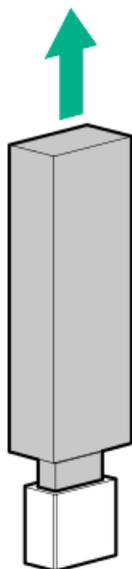
4. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

   - If the server is in rack mode, remove the server from the rack.

5. Remove the access panel.

6. Unplug the USB device from the USB port.

To replace the component, reverse the removal procedure.

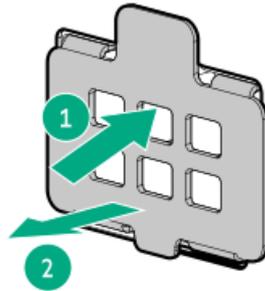# Removing and replacing the iLO dedicated network port blank

Prerequisites

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

Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Remove the iLO dedicated network port blank:

   a. Use a spudger to pry the blank from the chassis (callout 1).

   b. Remove the blank (callout 2).

To replace the component, reverse the removal procedure.
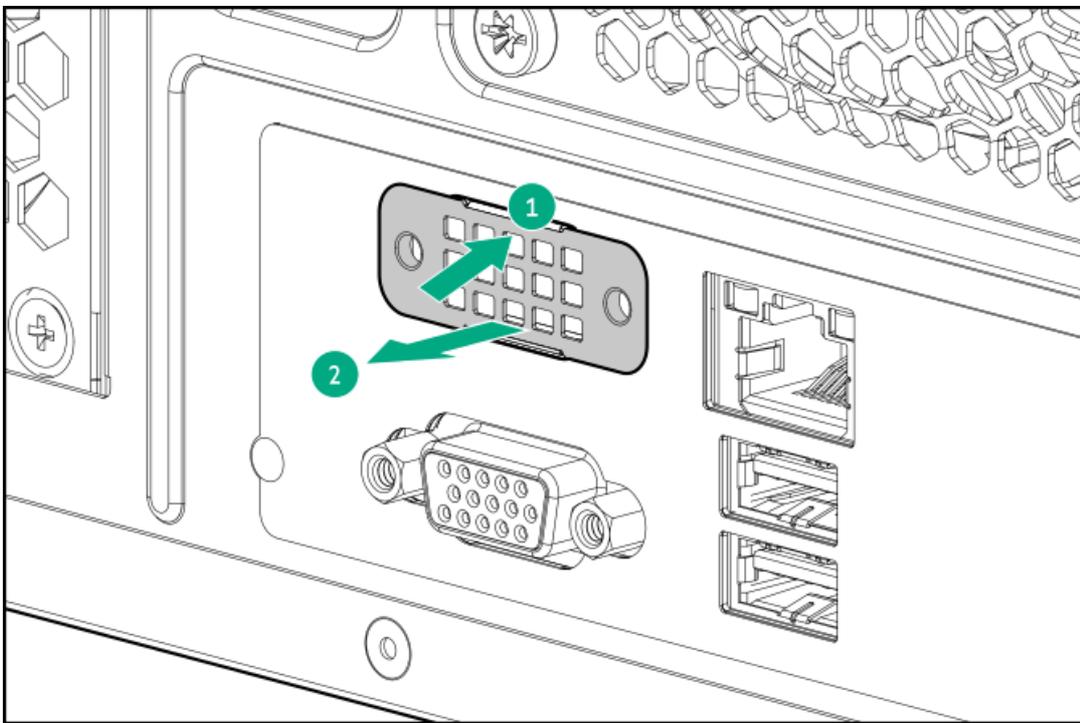
Removing and replacing the serial port blank

Prerequisites

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

Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Remove the serial port blank:

   a. Use a plastic spudger to pry the blank from the chassis (callout 1).

   b. Remove the blank (callout 2).

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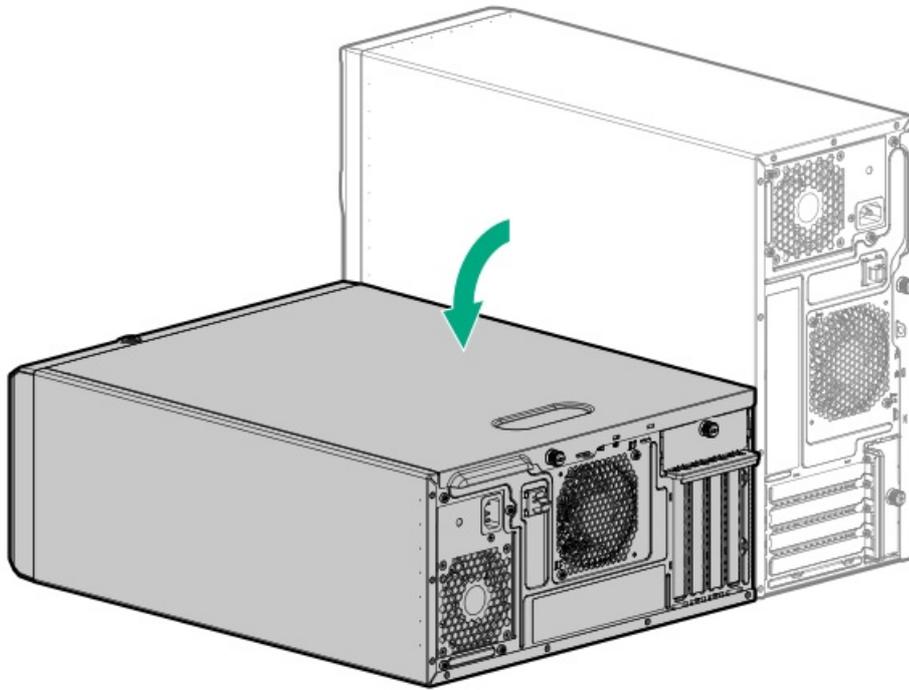
To replace the component, reverse the removal procedure.

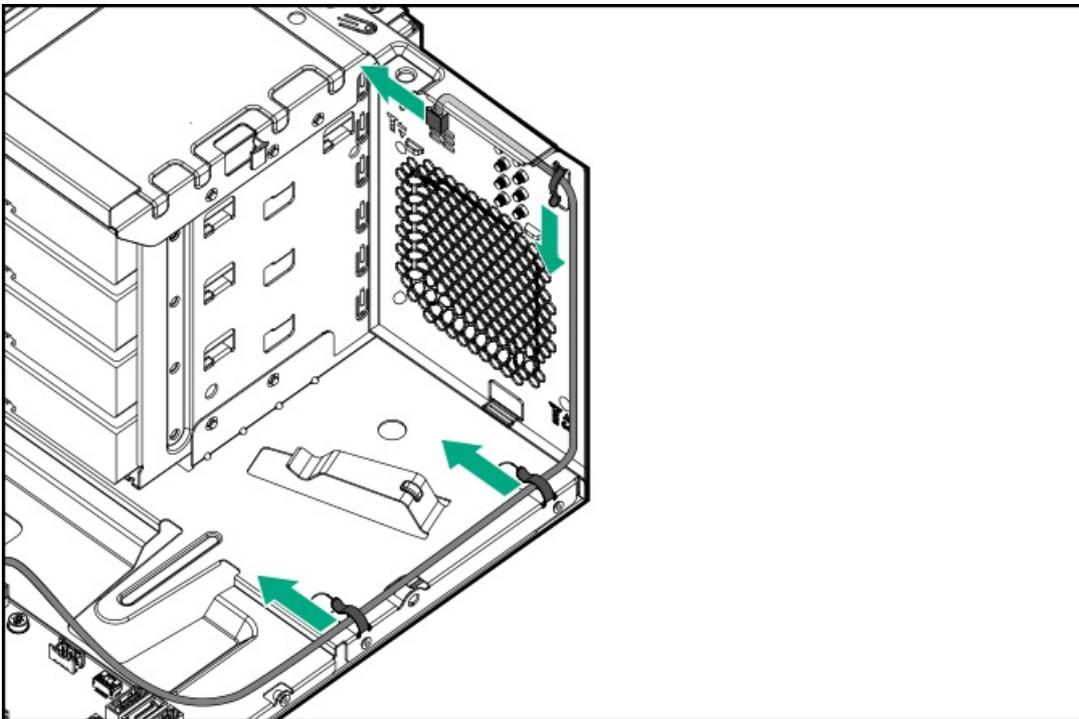# Removing and replacing the front I/O assembly

Prerequisites

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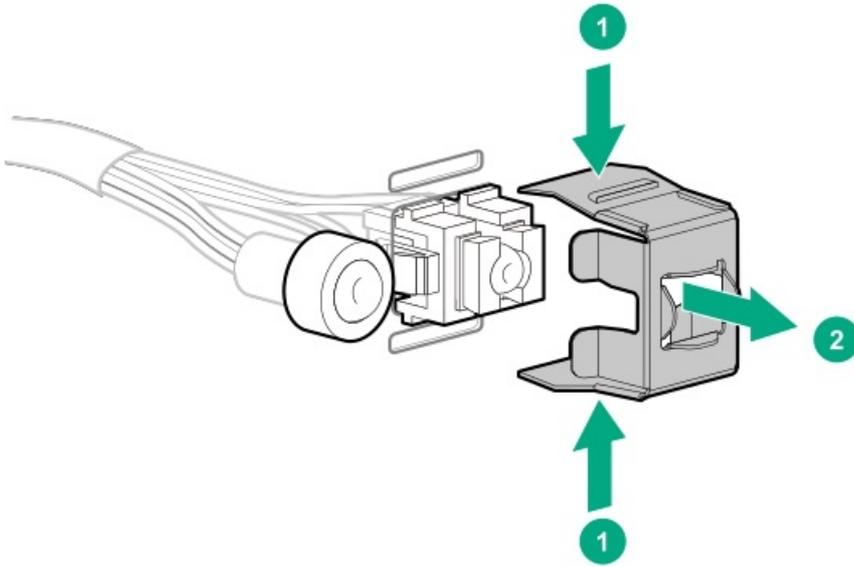
Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

- If the server is in rack mode, remove the server from the rack.

5. Remove the access panel.

6. If installed, remove the air baffle.

7. If installed, remove the PCI fan.

8. Disconnect the front I/O cable from the system board.

9. Remove the ambient temperature sensor cable from the clips.

10. Press the front I/O bracket on both the ends from inside of the chassis (callout 1), and then remove the front I/O bracket (callout 2).

11. Press the latches of the I/O assembly holder from inside of the chassis (callout 1), and then pull the the I/O front cable assembly from the front panel (callout 2).
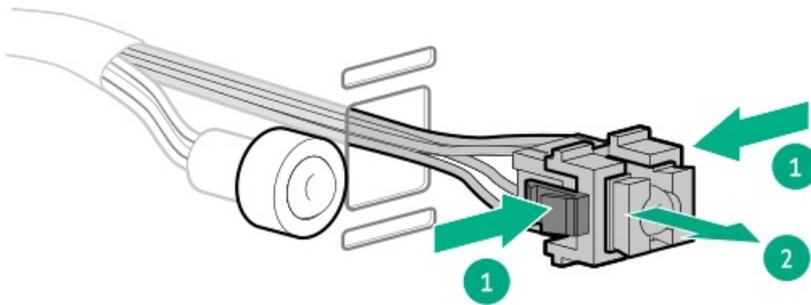
12. Remove the I/O cable:

    a. Use a plastic spudger to pry both sides of the I/O assembly holder (callout 1), and then remove the holder from the I/O cable.
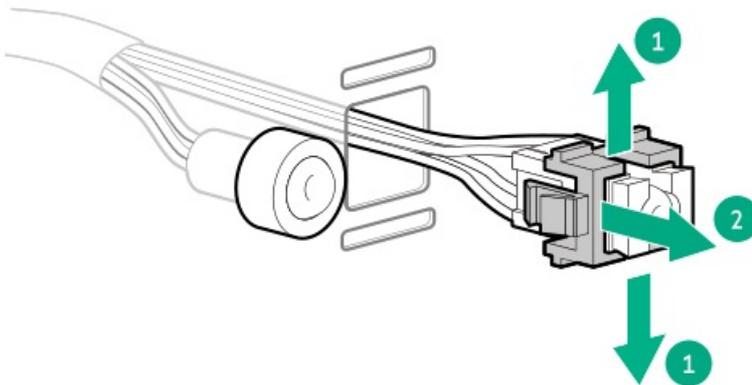
    b. Remove the front I/O cable.

To replace the component, reverse the removal procedure.

Removing and replacing the front USB cable

Prerequisites

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

Procedure

1. Power down the server.

2. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

    - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

- If the server is in rack mode, remove the server from the rack.

5. Remove the front bezel.

6. Remove the access panel.

7. If installed, remove the air baffle.

8. Disconnect the front USB ports from the system board .
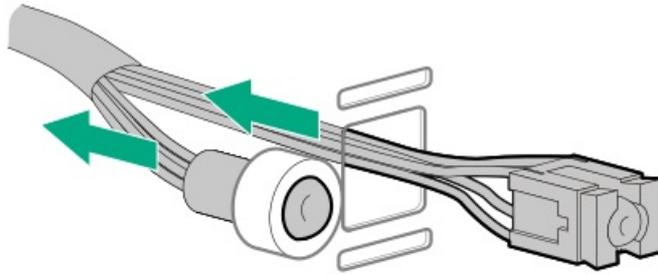
9. Remove the front USB cable screws (callout 1), and then remove the cable from the front panel (callouts 2 and 3).
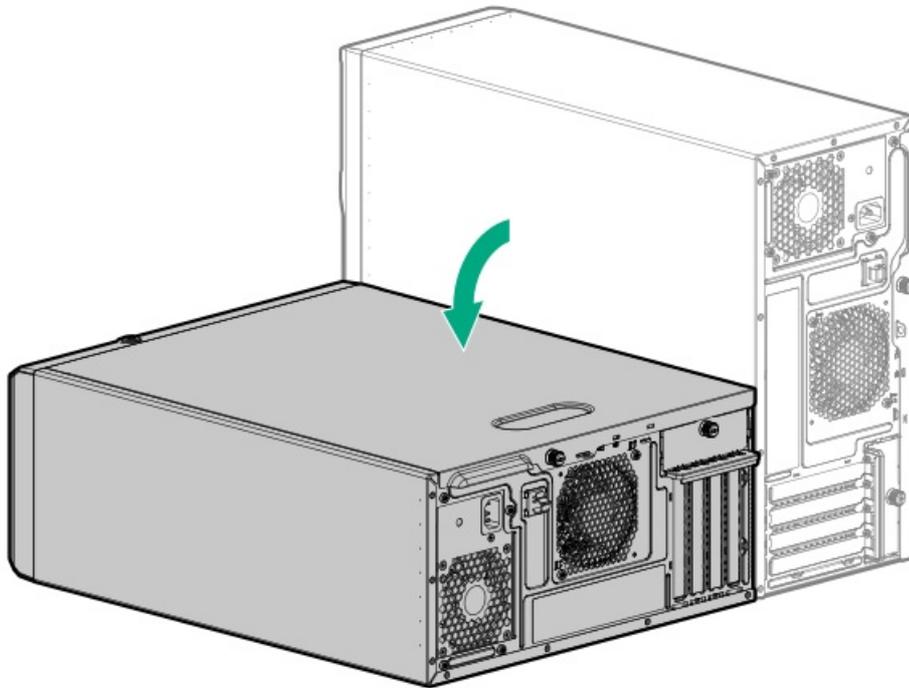

To replace the component, reverse the removal procedure.

Removing and replacing the serial port cable

Prerequisites

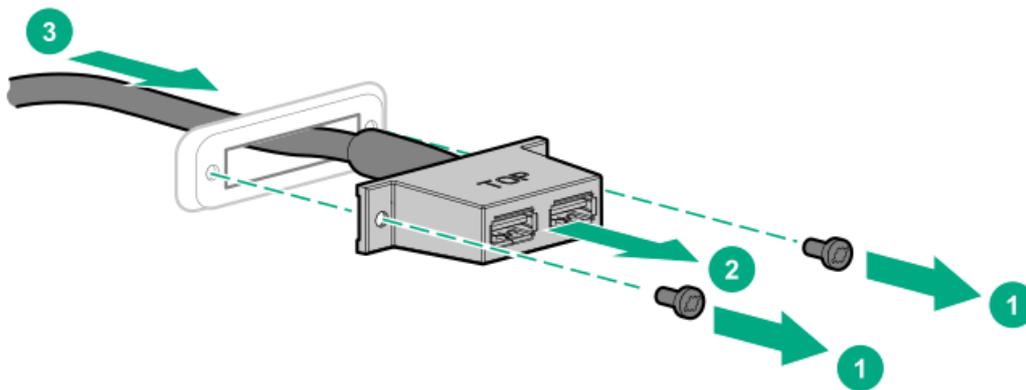Before you perform this procedure, make sure that you have a hex screwdriver available.

Procedure

1. Power down the server.

2. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

    - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.
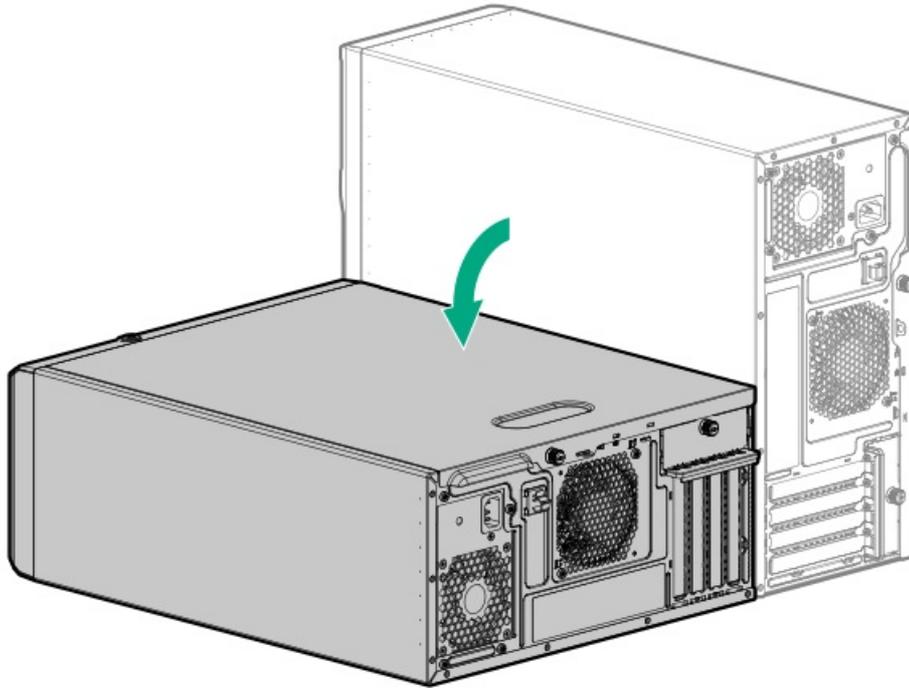
    - If the server is in rack mode, remove the server from the rack.

5. Remove the access panel.

6. Remove the serial port:

    a. Remove the hex screws (callout 1).

    b. Detach the serial port from the rear panel (callout 2).
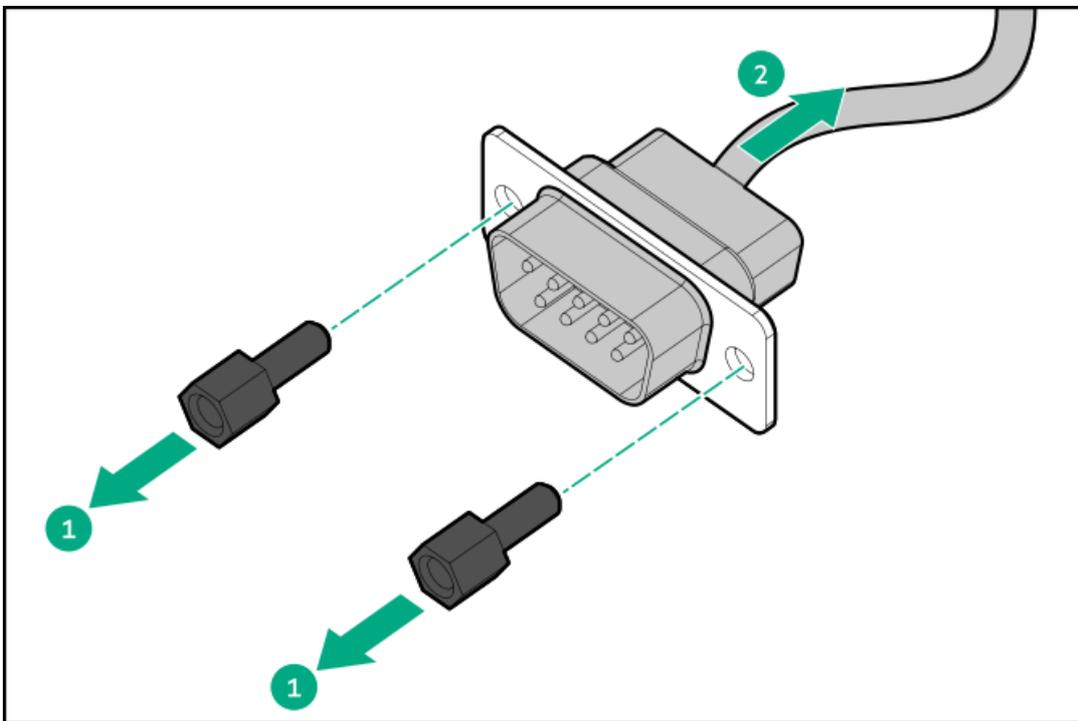
To replace the component, reverse the removal procedure.

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

Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.
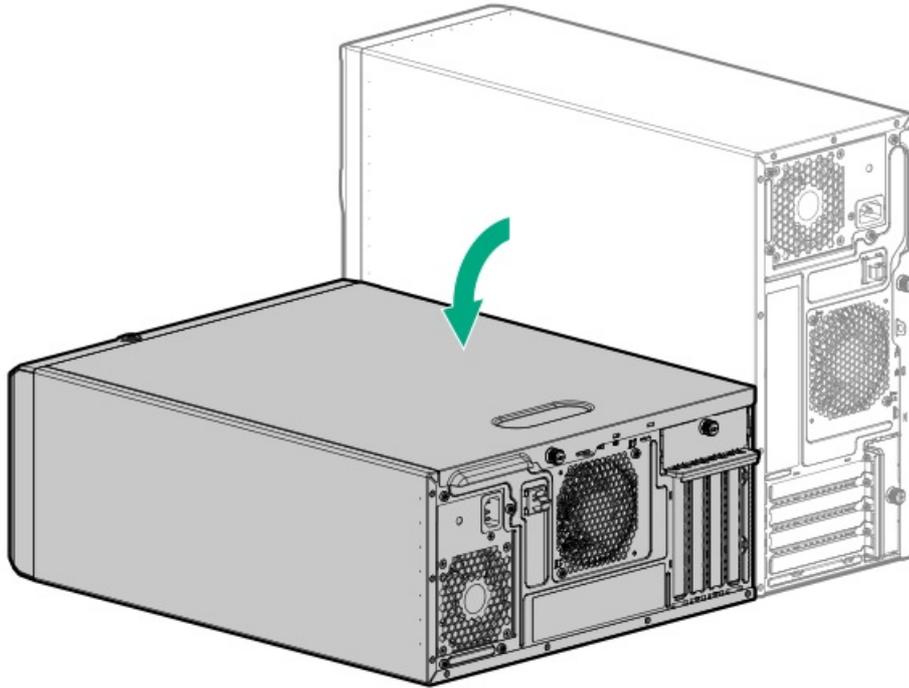
   - If the server is in rack mode, remove the server from the rack.

5. Remove the access panel.

6. If installed, remove the air baffle.

7. Locate the battery on the system board .

8. 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).
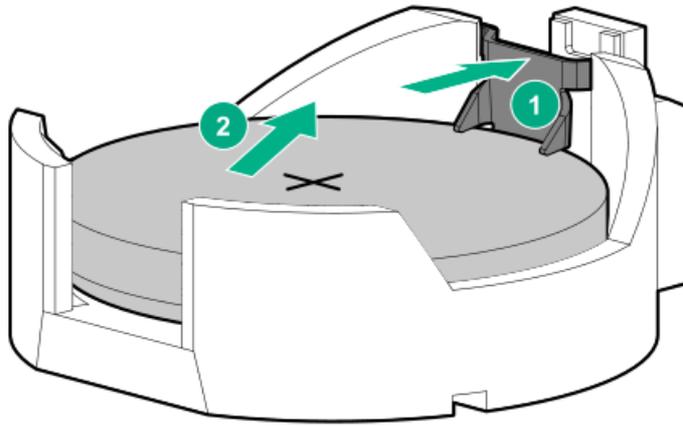
9. Install the system battery:

   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).
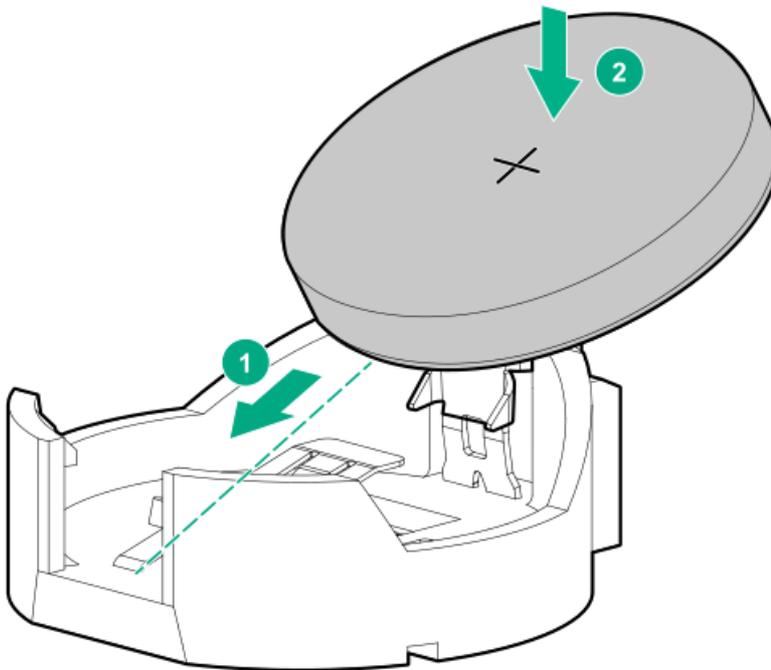
10. If removed, install the air baffle.

11. Install the access panel.

12. Do one of the following:

    ● Orient the server back in tower mode.
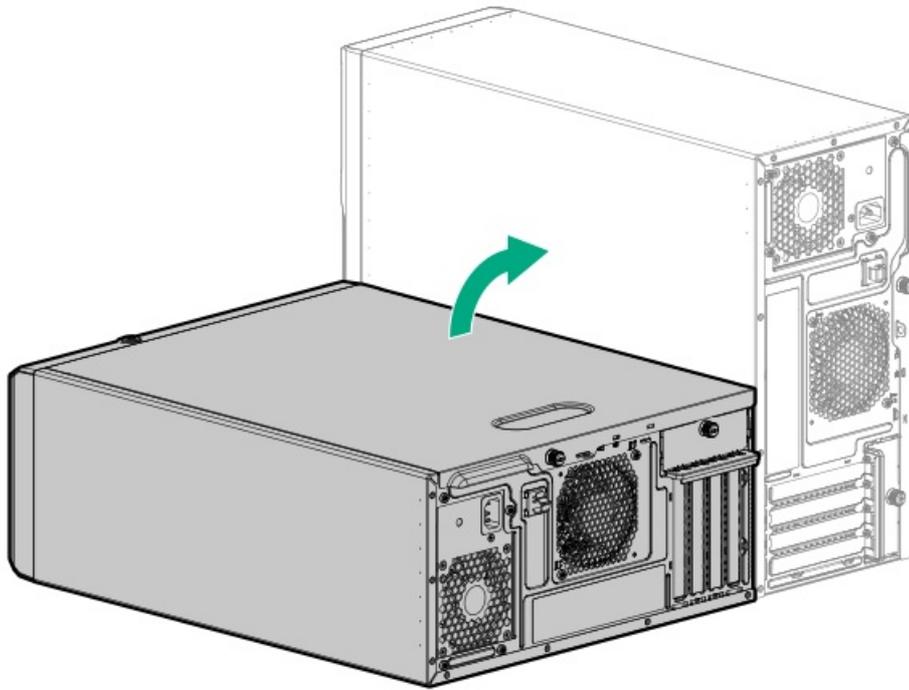
- Install the server into the rack.

13. Connect all peripheral cables to the server.

14. Connect each power cord to the server.

15. Connect each power cord to the power source.

16. Power up the server.

17. Properly dispose of the old battery.

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

System board replacement

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

Removing the system board assembly

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.
- Alcohol wipe

Procedure

1. Power down the server.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.

4. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.
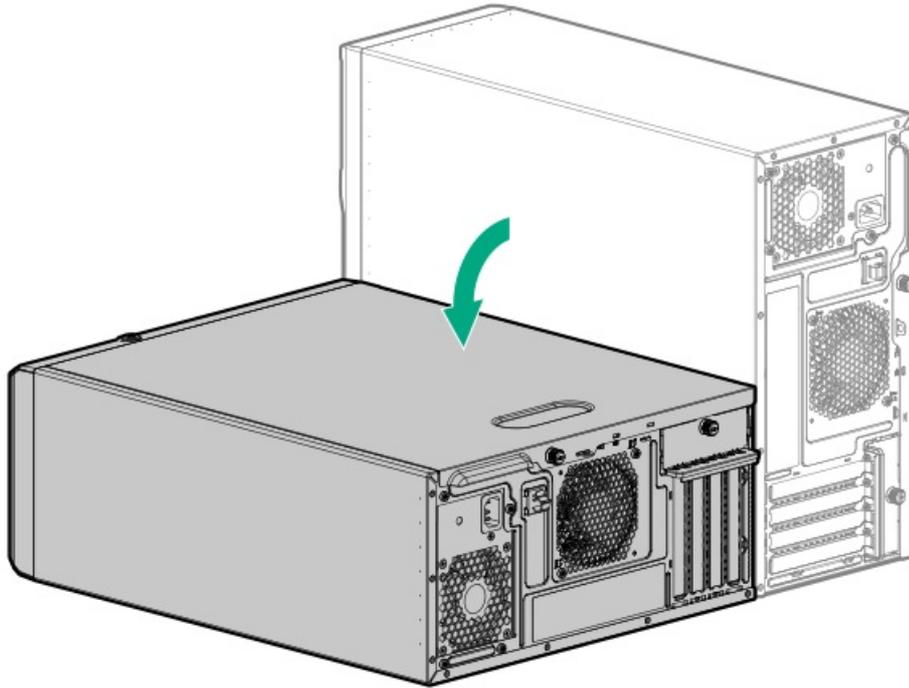

   - If the server is in rack mode, remove the server from the rack.

5. Remove the access panel.

6. If installed, remove the air baffle.

7. Disconnect all cables from the expansion cards and the system board.

8. Remove the system fan.

9. Remove all DIMMs.

10. If installed, remove the following components:

    - Internal USB device

    - Type-p storage controller

    - Energy pack

    - Energy pack holders

    - Serial port cable

    - iLO-M.2-serial module

11. Allow the heatsink to cool.

12. Remove the heatsink:

    ⚠ **CAUTION:**

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

⚠ **CAUTION:**

The heatsink fan does not have a fan guard. Special attention is needed when removing or installing the heatsink to prevent finger injury.

⚠ **CAUTION:**

Heatsink screws must be tightened and loosened in alternating sequence. Do not overtighten the screws as this might damage the system board or the processor socket.

a. Disconnect the heatsink fan cable (callout 1).

b. Use a T-15 Torx screwdriver to loosen one pair of diagonally opposite screws, and then loosen the other pair of screws (callouts 2 and 3).

c. Lift the heatsink away from the system board (callout 4).

13. Use an alcohol wipe to remove the existing thermal grease from the heatsink and processor.

    Allow the alcohol to evaporate before continuing.

14. 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).
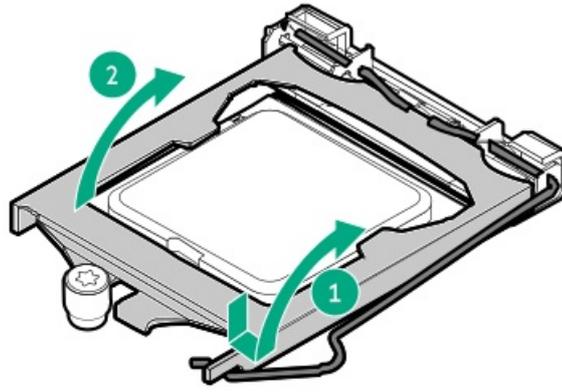
15. Do not touch the socket contacts or the bottom of the processor.
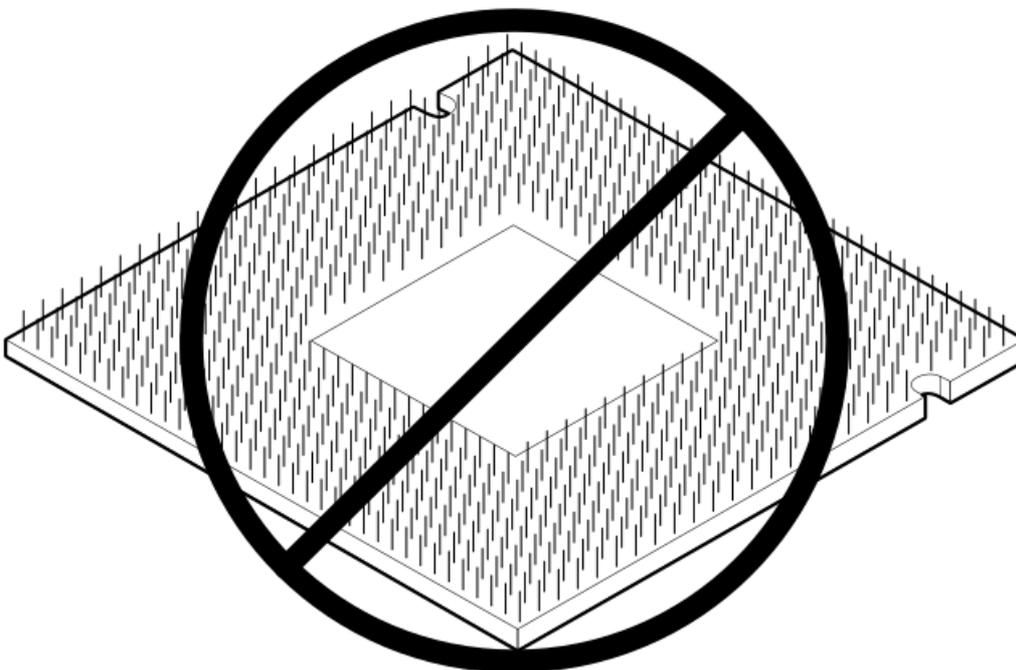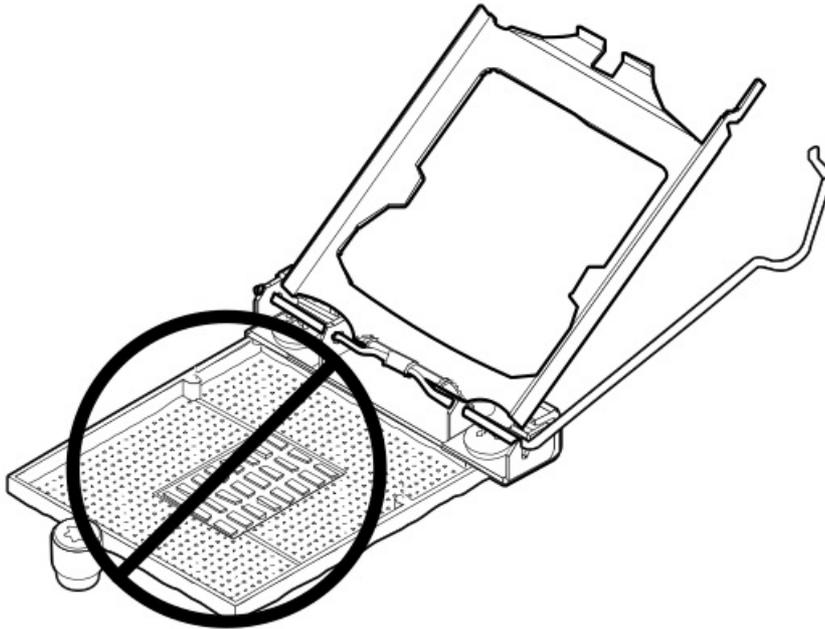
16. Hold the processor by the edges, and then lift it out of the socket.
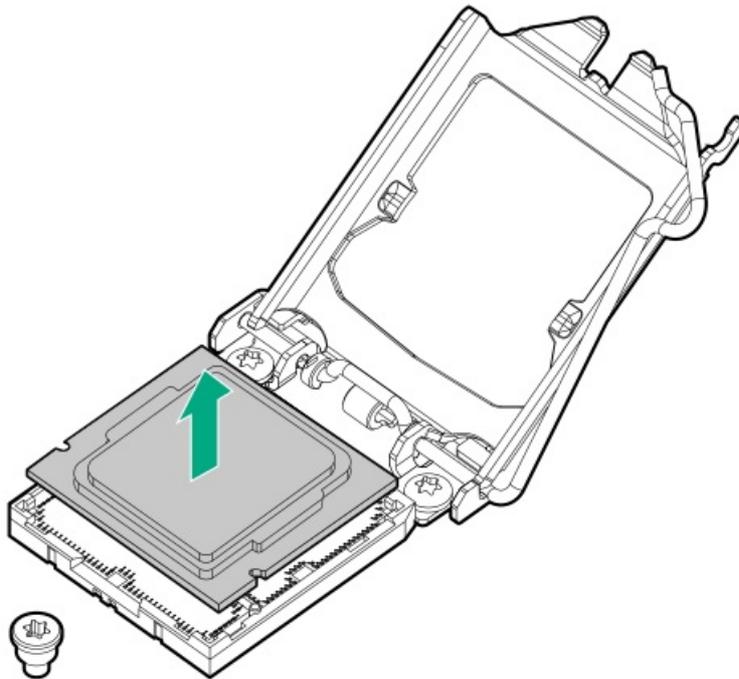
17. Remove the system board screws (callout 1), and then remove the system board (callout 2).
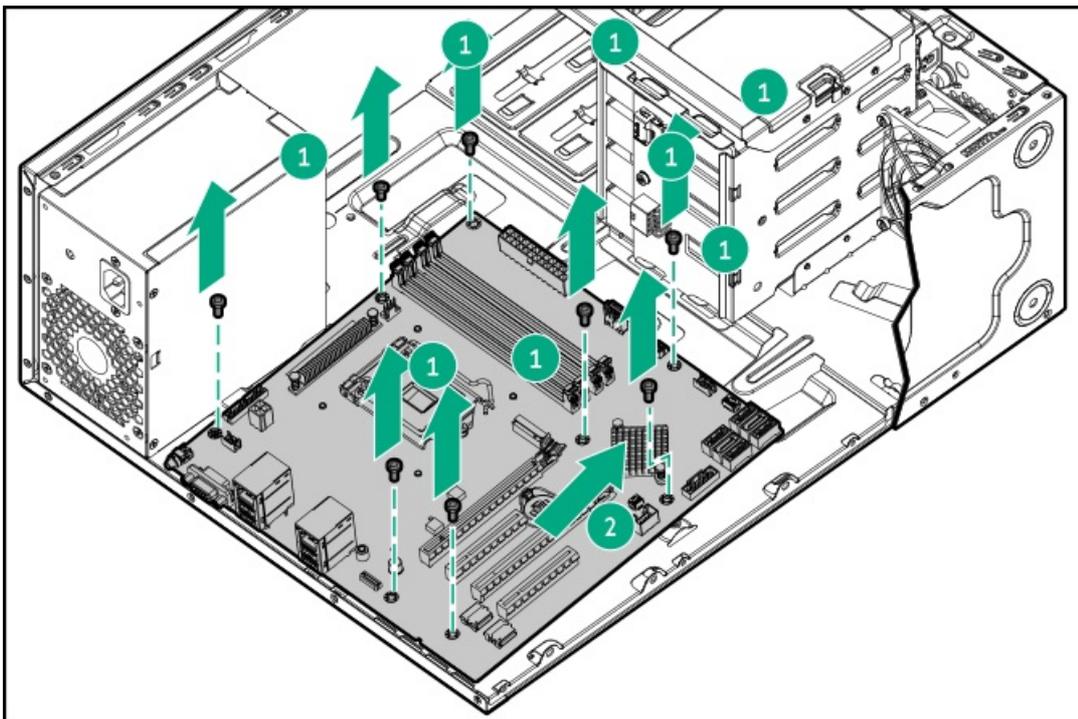
Installing the system board assembly

Prerequisites

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

- T-15 Torx screwdriver or a torque screwdriver with T-15 drill bit

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

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

Procedure

1. Position the system board over te alignment tabs on the chassis.
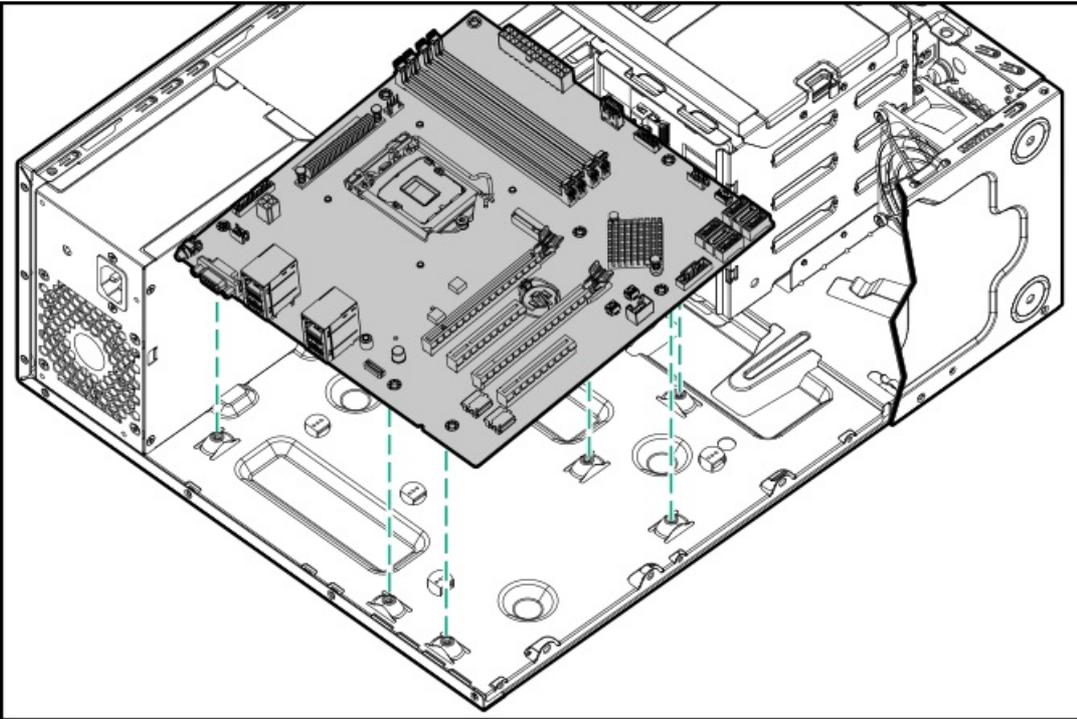
2. Install the system board (callout 1), and then secure the board with the screws (callout 2).
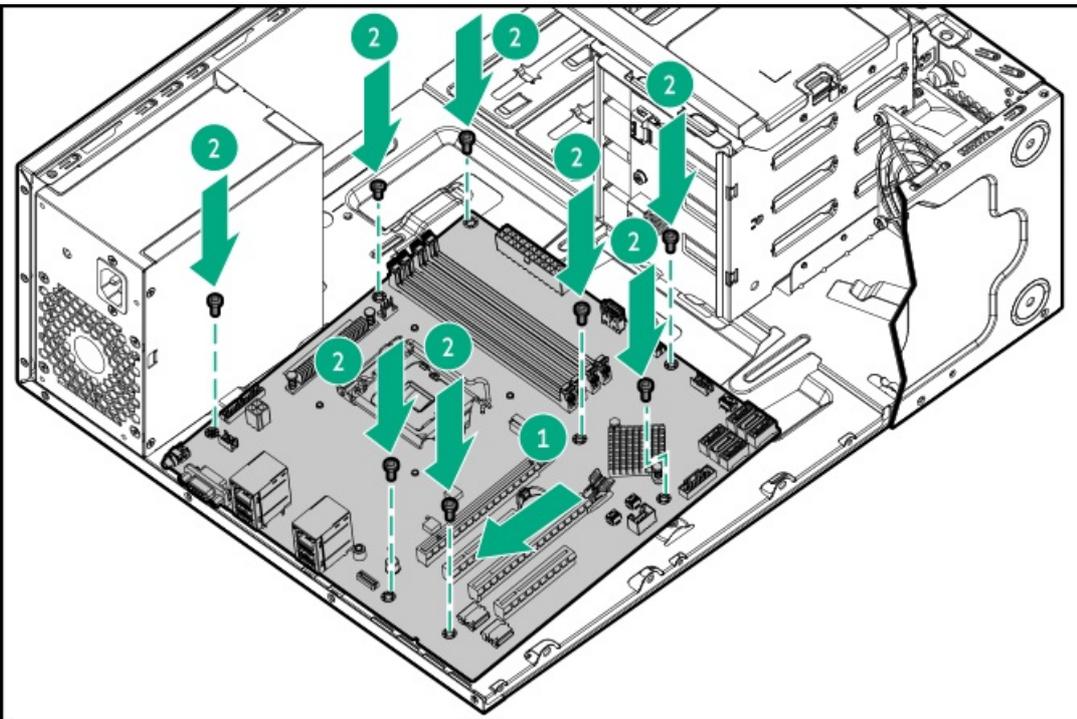
3. Open the processor load plate:

   a. Push the processor locking lever down to unclip, and then lift it upwards (callout 1).

   b. Open the processor load plate (callout 2).
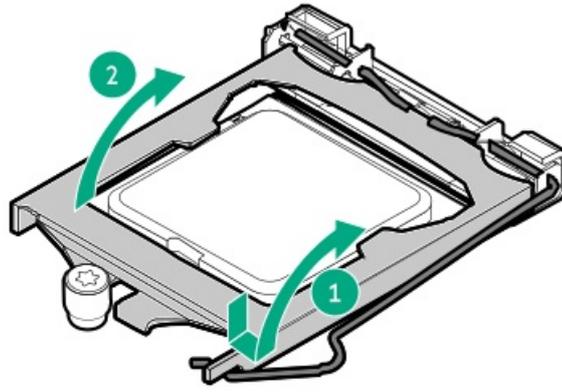
> **⚠ CAUTION:**
>
> **THE PINS ON THE PROCESSOR SOCKET AND ON THE PROCESSOR ARE VERY FRAGILE AND EASILY DAMAGED.** Any damage to them might require replacing the system board.

4. Do not touch the socket contacts or the bottom of the processor.
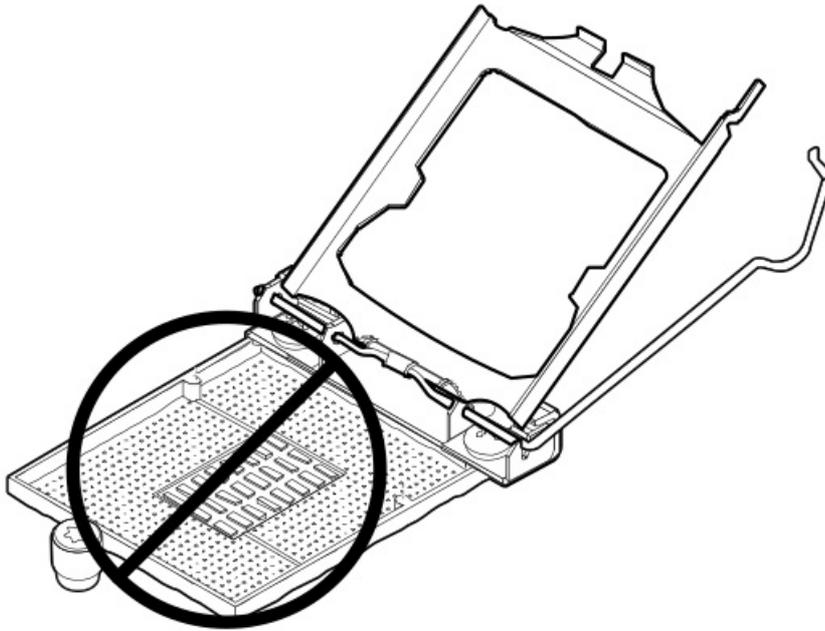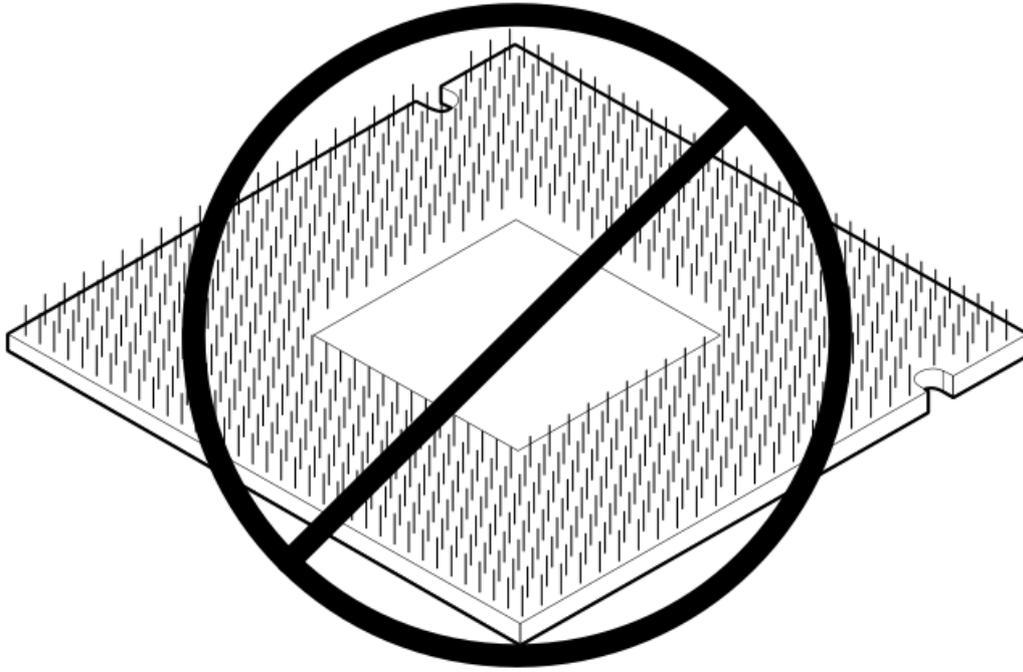
5. Remove the processor socket cover.
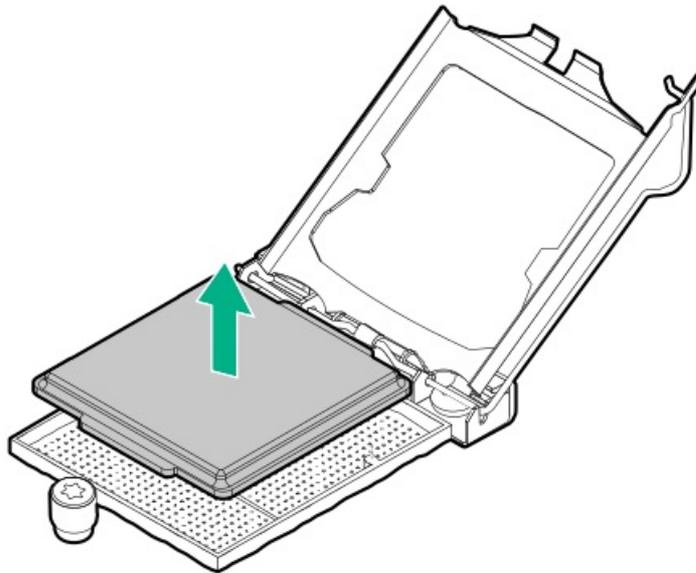
6. Install the processor:

   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.
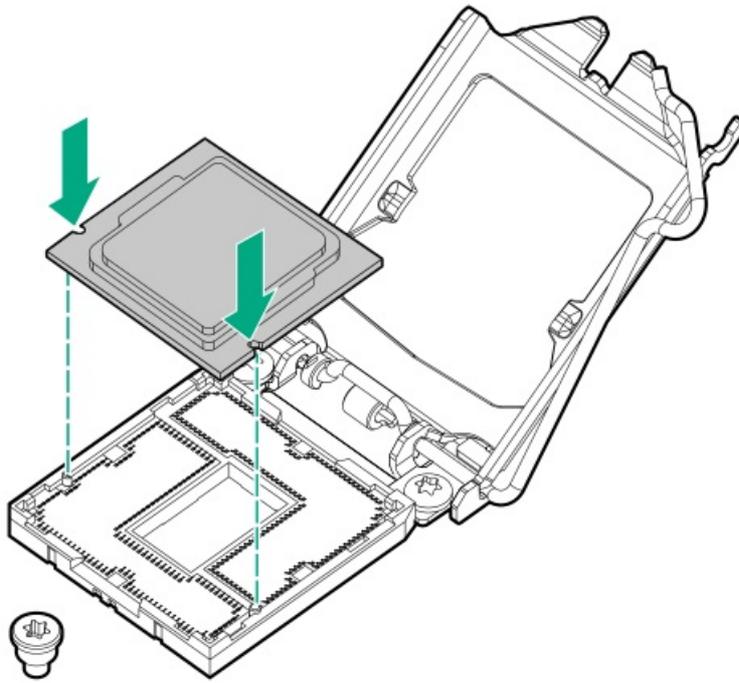
⚠ CAUTION:

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.

7. Close the processor load plate (callout 1), and then engage the processor locking lever (callout 2).
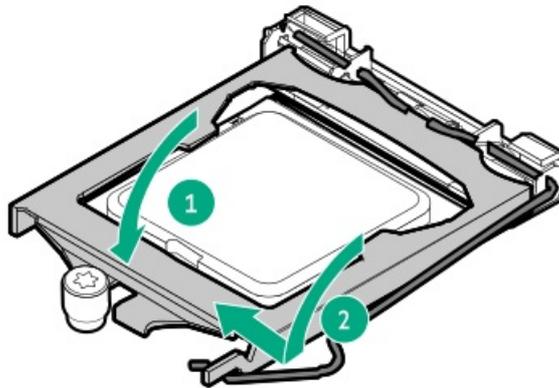
8. Apply new thermal grease to the processor in the pattern shown in the following image to ensure even distribution. Use the full contents of the thermal grease syringe.

9. Install the heatsink:

> **⚠ CAUTION:**
>
> The heatsink fan does not have a fan guard. Special attention is needed when removing or installing the heatsink to prevent finger injury.

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

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

> **⚠ CAUTION:**
>
> Heatsink screws must be tightened and loosened in alternating sequence. Do not overtighten the screws as this might damage the system board or the processor socket.

a. Position the heatsink on top of the processor, ensuring that it is properly seated before securing the screws (callout 1).

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

When using a torque screwdriver, apply 0.68 N·m (6.0 lbf-in) of torque to completely tighten the screws.

c. Connect the heatsink fan cable (callout 4).

10. Install all removed components on the new system board.

11. If removed, install the air baffle.

12. Install the access panel.

13. Do one of the following:

    - Orient the server back in tower mode.
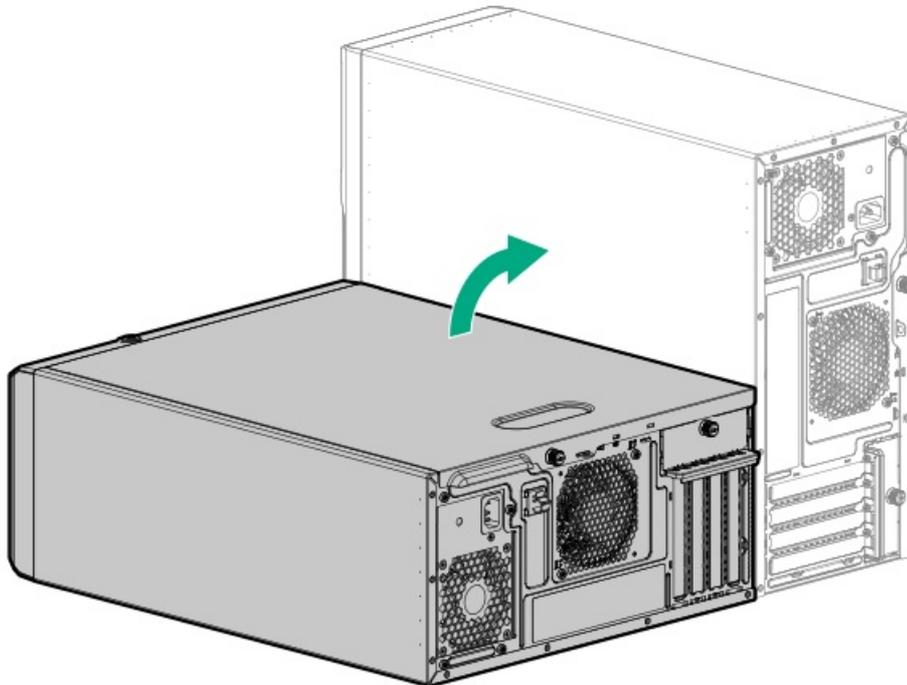
    - Install the server into the rack.

14. Connect all peripheral cables to the server.

15. Connect each power cord to the server.

16. Connect each power cord to the power source.

17. Power up the server.

18. Make sure 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-enter the server serial number and product ID, and configure the date and time settings .

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 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**
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**

To monitor	Use	Supported notifications
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
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 drive models
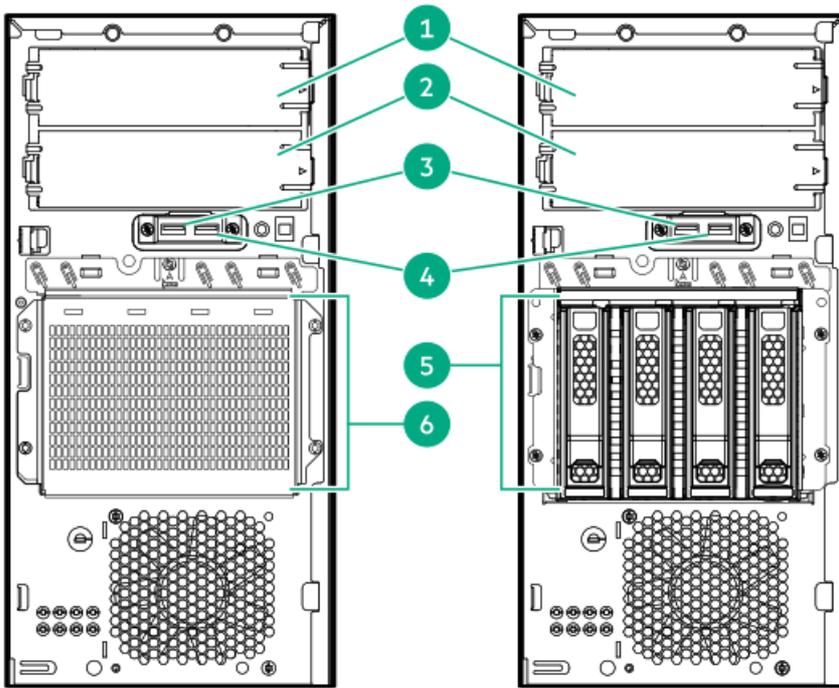
Item	Description
1	Media bay 1 [1]
2	Media bay 2 [2]
3	USB 3.2 Gen1 port
4	USB 2.0 port
5	4 LFF hot-plug drives
6	4 LFF non-hot-plug drive cage

[1] Media bay 1 supports a SATA optical drive, SAS LTO drive, or a USB RDX docking station.
[2] Media bay 2 supports a SATA optical drive or a USB RDX docking station.

SFF drive model
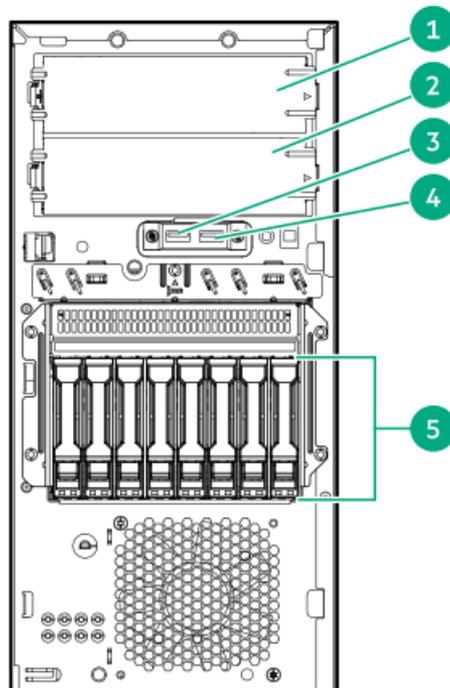
Item	Description
1	Media bay 1 [1]
2	Media bay 2 [2]
3	USB 3.2 Gen1 port
4	USB 2.0 port
5	8 SFF hot-plug drives

[1] Media 1 supports a SATA optical drive, SAS LTO drive, or a USB RDX docking station.
[2] Media 2 supports a SATA optical drive or a USB RDX docking station.

Front panel LED and button
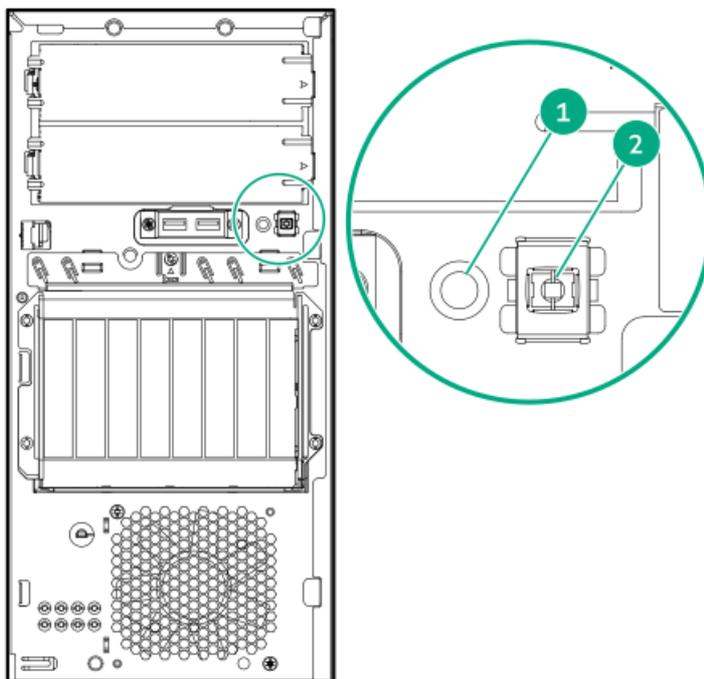
Item	Description	Status	Definition
1	Health LED [1]	Solid green	Normal
		Flashing green	iLO is rebooting
		Flashing amber	System degraded [2]
		Flashing red	System critical [2]
2	Power On/Standby button and system power LED [1]	Solid green	System on
		Flashing green	Performing power-on sequence
		Solid amber	System in standby
		Off	No power present [3]

[1] When the two LEDs described in this table 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, power supply failure has occurred, or the

front I/O cable is disconnected.

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
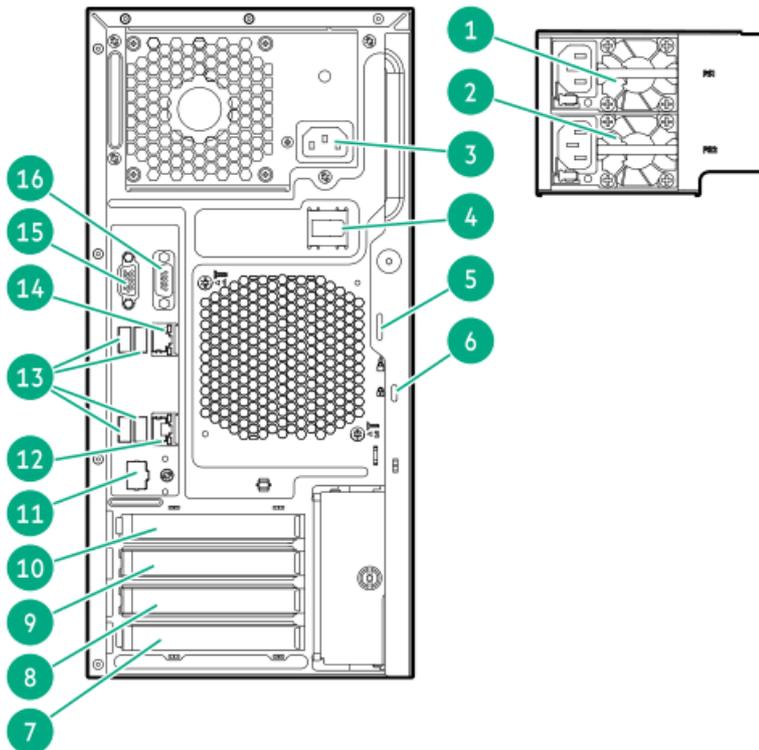
Item	Description
1	Flexible Slot power supply 1 (hot-plug)
2	Flexible Slot power supply 2 (hot-plug)
3	Non-hot-plug power supply
4	Power cord clip (for non-hot-plug power supply）
5	Padlock eye
6	Kensington security slot
7	Slot 4 PCIe3 x8 (4, 1)
8	Slot 3 PCIe3 x16 (4, 1)
9	Slot 2 PCIe3 x8 (4, 1)
10	Slot 1 PCIe4 x16 (16, 8, 4, 1)
11	iLO dedicated network port (optional)
12	NIC port 2 (1 GbE)
13	USB 3.0 ports
14	NIC 1 / iLO shared port (1 GbE)
15	Video port
16	Serial port (optional)

Rear panel LEDs
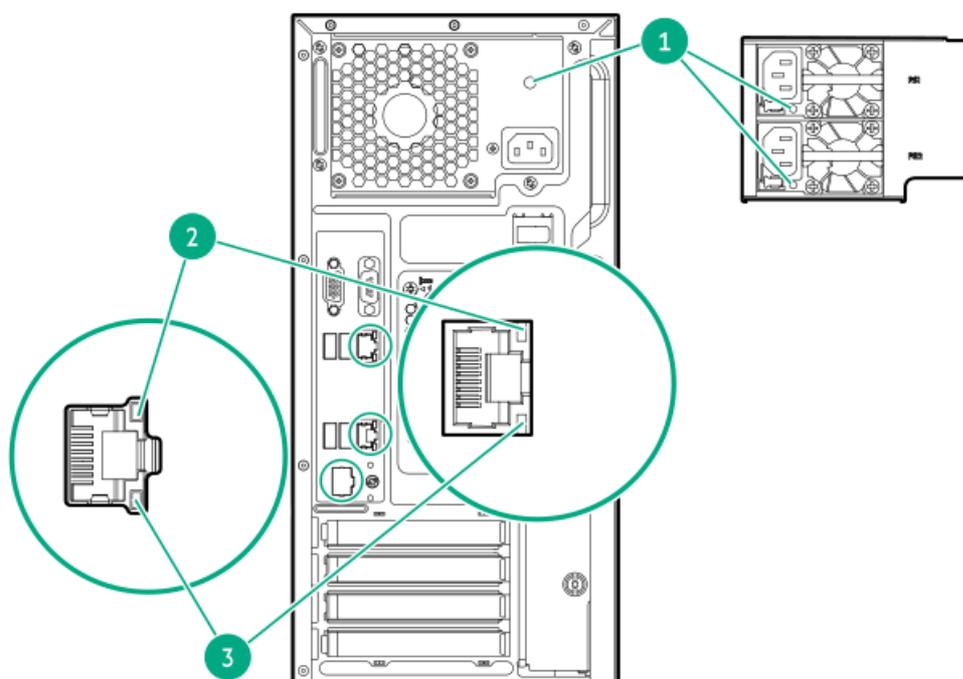
Item	Description	Status	Definition
1	Power supply	Solid green	The power supply is operating normally.

Item	Description	Status	Definition
		Off	One or more of the following conditions exists: ● Power is unavailable ● Power supply failure ● Power supply is in standby mode ● Power supply error ● The front I/O cable is disconnected.
2	NIC/iLO link	Solid green	Network link
		Off	No network link
3	NIC/iLO status	Solid green	Linked to network
		Flashing green	Network active
		Off	No network activity

System board components
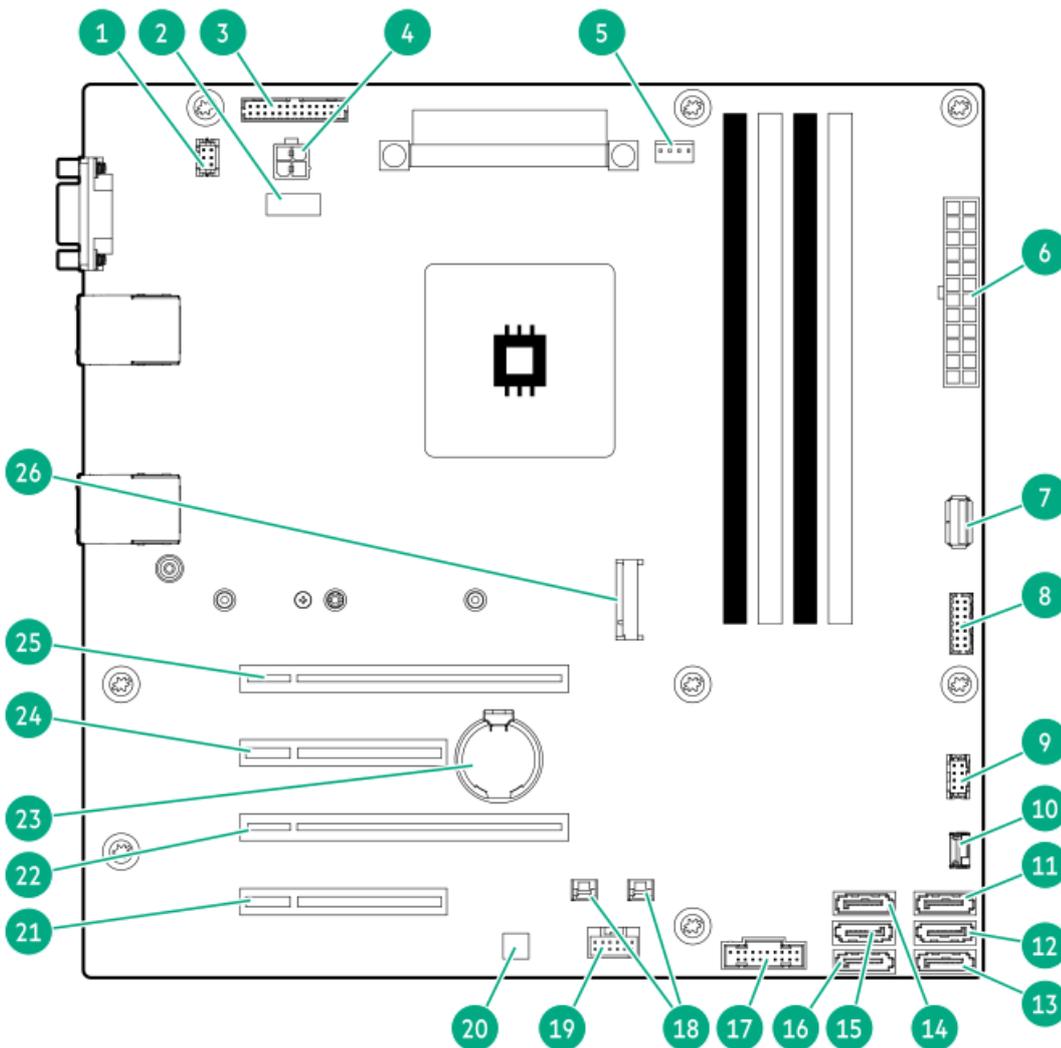
Item	Description

Item	Description
1	Fan connector 2 (system fan)
2	System maintenance switch
3	Flexible Slot power supply sideband connector
4	4-pin power supply connector
5	Fan connector 3 (heatsink fan)
6	24-pin power supply connector
7	Internal USB 3.2 Gen1 port
8	Front I/O connector
9	Fan connector 1 (PCI fan)
10	Drive backplane sideband connector
11	SATA port 5 [1], [2]
12	SATA port 6 [1]
13	SATA port 1 [3]
14	SATA port 2 [3]
15	SATA port 3 [3]
16	SATA port 4 [3]
17	Front USB connector
18	Storage controller backup power connectors
19	Energy pack connector
20	HPE Trusted Platform Module 2.0 Gen10 (embedded TPM)
21	Slot 4 PCIe3 x8 (4, 1)
22	Slot 3 PCIe3 x16 (4, 1)
23	System battery
24	Slot 2 PCIe3 x8 (4, 1)
25	Slot 1 PCIe4 x16 (16, 8, 4, 1)
26	M.2 slot [4]

[1] All SATA ports support 6Gb/s transfer rate. The ports 5–6 are for the media bays.
[2] The optical drive option is only supported in SATA port 5.
[3] All SATA ports support 6Gb/s transfer rate. The ports 1–4 are for drive bays.
[4] The M.2 slot supports either a SATA or NVMe SSD, or the iLO-M.2-serial module option.

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

Position	Default	Function
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.
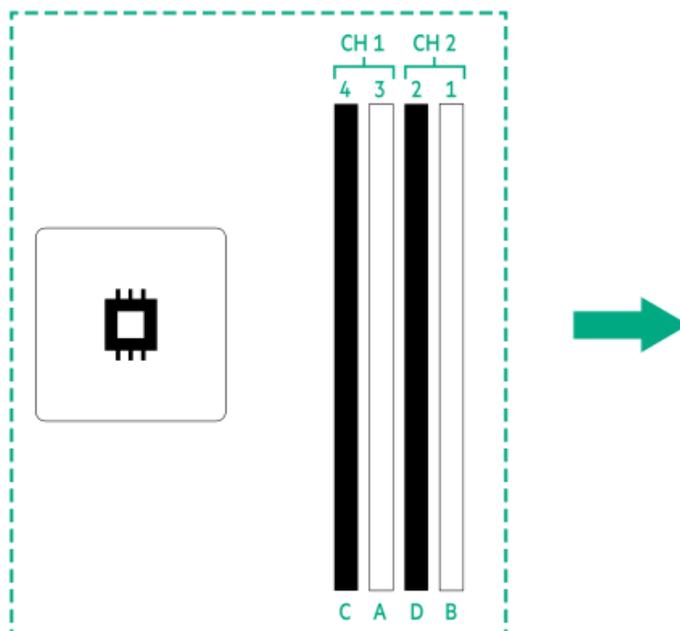
DIMM label identification

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**).
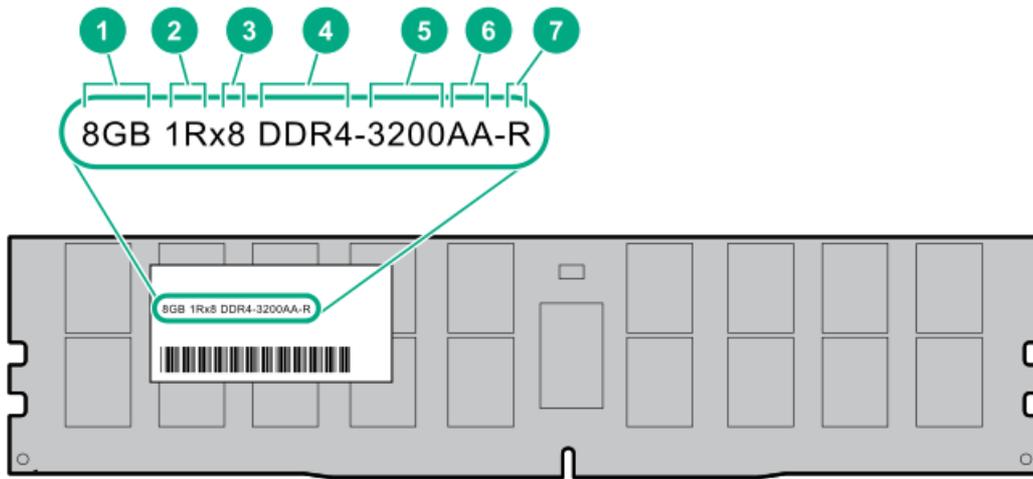
Item	Description	Example
1	Capacity	8 GB
		16 GB
		32 GB
		64 GB
		128 GB
		256 GB
2	Rank	1R = Single rank
		2R = Dual rank
		4R = Quad rank
		8R = Octal rank
3	Data width on DRAM	x4 = 4-bit
		x8 = 8-bit
4	Memory generation	PC4 = DDR4
5	Maximum memory speed	3200 MT/s
6	CAS latency	AA = CAS 22-22-22
		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.

4 LFF non-hot-plug drive numbering

In the 4 LFF non-hot-plug drive configuration:

- SATA drives are supported.

- Onboard connection for Intel VROC SATA RAID support is through the SATA ports 1–4.
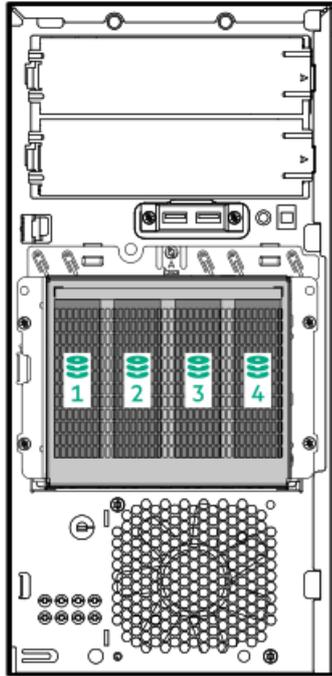
4 LFF hot-plug drive numbering

In the 4 LFF hot-plug drive configuration:

- SAS and SATA drives are supported.

- Onboard connection for Intel VROC SATA RAID support is through the SATA ports 1–4.
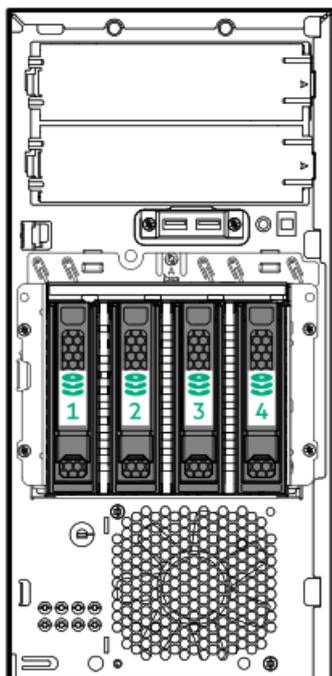
8 SFF hot-plug drive numbering

In the 8 SFF hot-plug drive configuration:

- SAS and SATA drives are supported.

- Onboard connection for Intel VROC SATA RAID support is through the SATA ports 1–4. Only SATA drives 1–4 are covered in the software RAID.
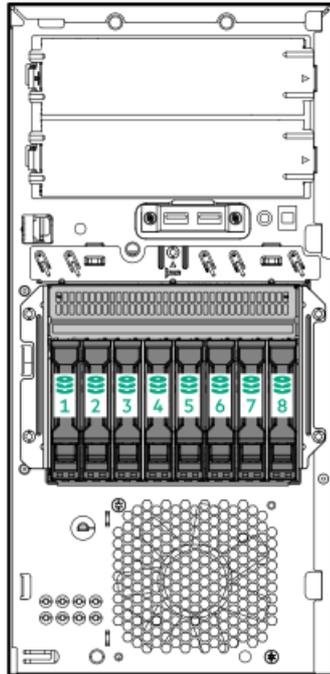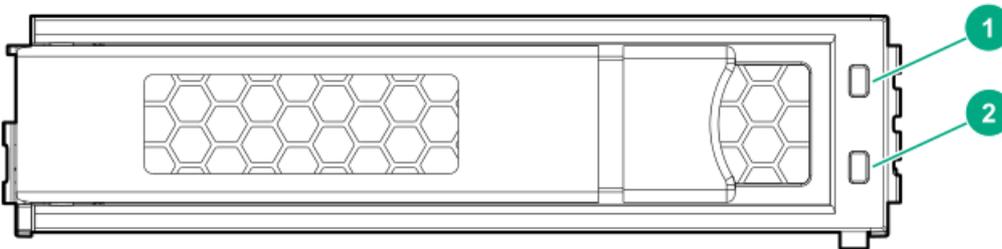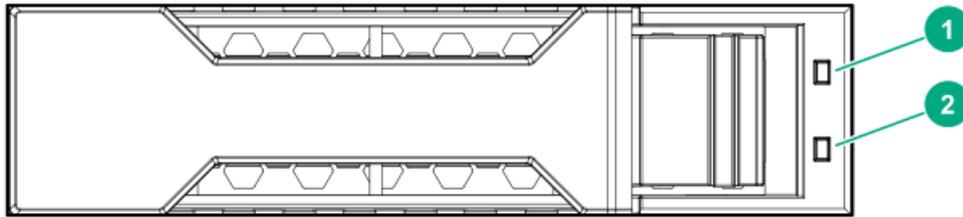

HPE Basic Drive LED definitions

LFF low-profile drive carrier

The LFF low-profile drive carrier supports hot-plug SAS and SATA drives.

SFF basic drive carrier

The SFF basic drive carrier supports hot-plug SAS and SATA drives.

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.
		Off	The drive is not configured by a RAID controller or is a spare drive.

PCIe4 slot description
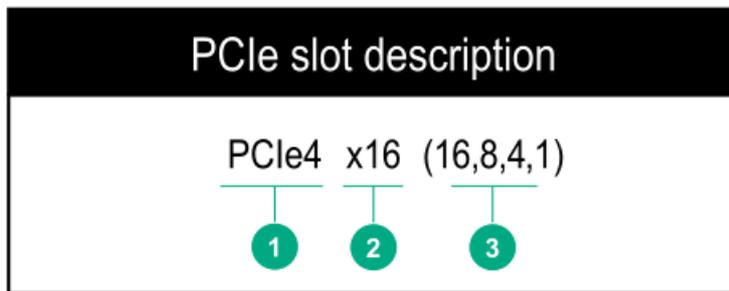
Item	Description	Definition
1	PCI Express version	Each PCIe version corresponds to a specific data transfer rate between the processor and peripheral devices. Generally, a version update corresponds to an increase in transfer rate. • PCIe 1.x • PCIe 2.x • PCIe 3.x • PCIe 4.x The PCIe technology is under 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.

PCIe expansion slot definitions

> ⓘ **IMPORTANT:** If an Intel Pentium processor is installed, the data transfer rate (throughput) of the PCIe4 expansion slot 1 switches down to PCIe3 speed.
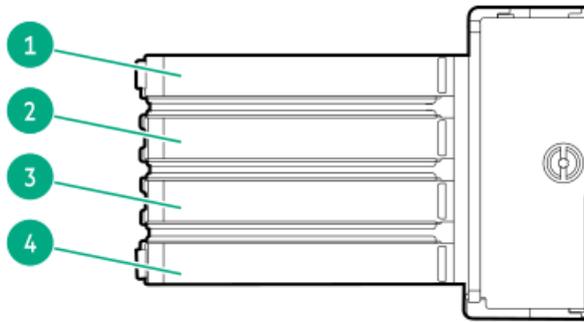
Slot number	Slot type	Slot power	Supported form factors
1	PCIe4 x16 (16, 8, 4, 1)	75 W	Full-height, full-length
2	PCIe3 x8 (4, 1)	25 W	Full-height, half-length
3	PCIe3 x16 (4, 1)	75 W	Full-height, full-length
4	PCIe3 x8 (4, 1)	25 W	Full-height, half-length

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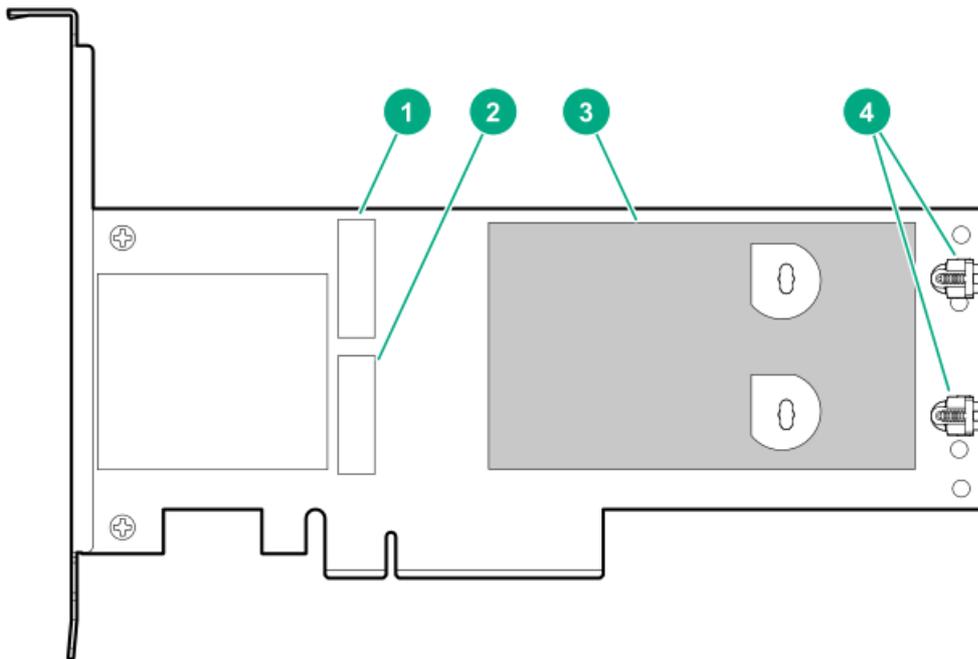
Item	Description
1	Drive bay 1
2	Drive bay 2
3	Thermal interface pad with removable liner
4	M.2 drive retaining latches

HPE NS204i-p NVMe OS Boot Device LED definitions
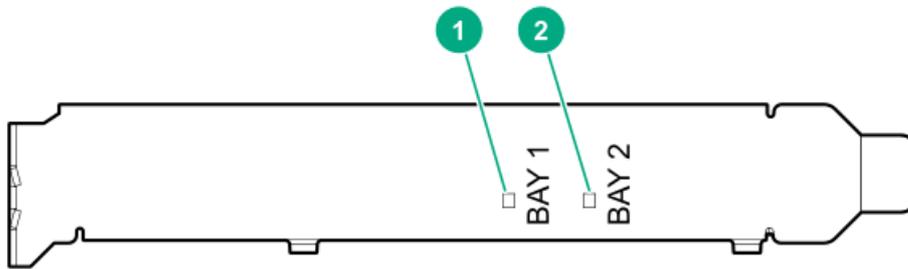
Item	Description	Fault LED status
1	Bay 1 LED	Off: Normal
2	Bay 2 LED	Flashing 1Hz: Drive predictive failure
		Amber: Drive failure

Fan numbering
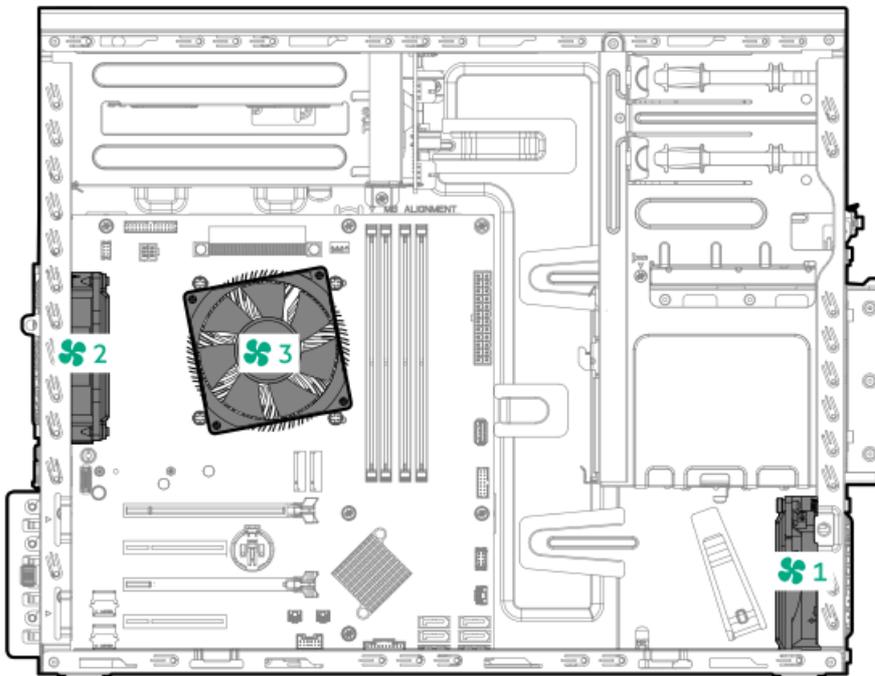
Fan number	Description
1	PCI fan (optional)
2	System fan
3	Heatsink fan

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.

Media device screws

There are eight T-15 Torx screws on the front panel. These screws are spare screws for installing media devices.
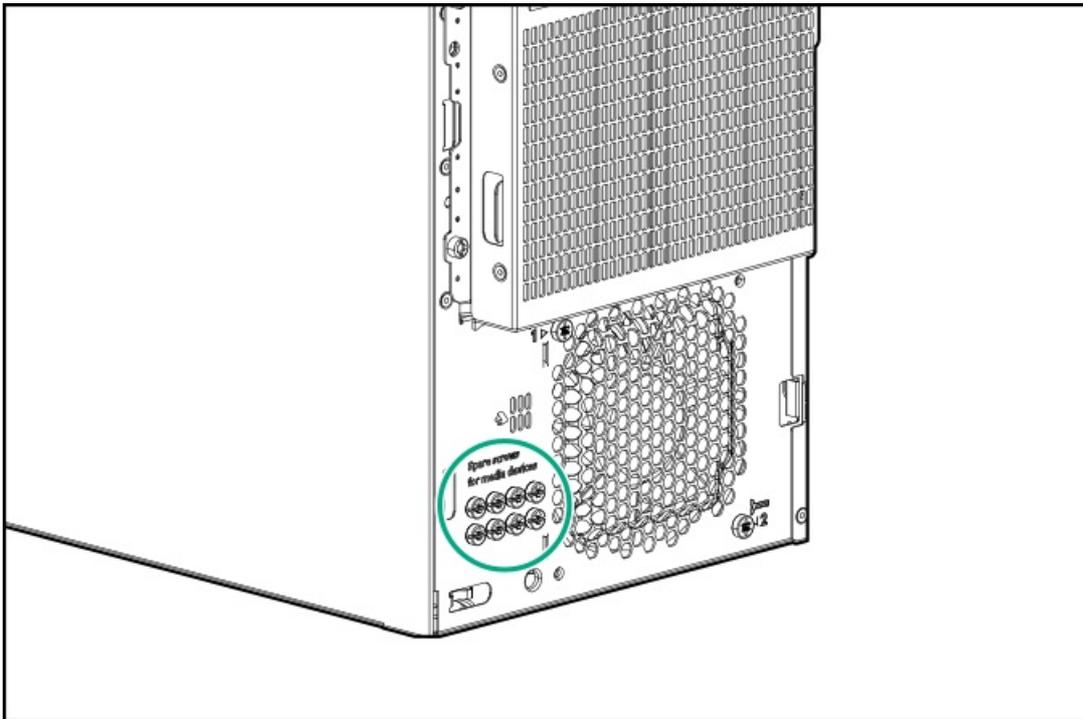
Trusted Platform Module 2.0

The 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).

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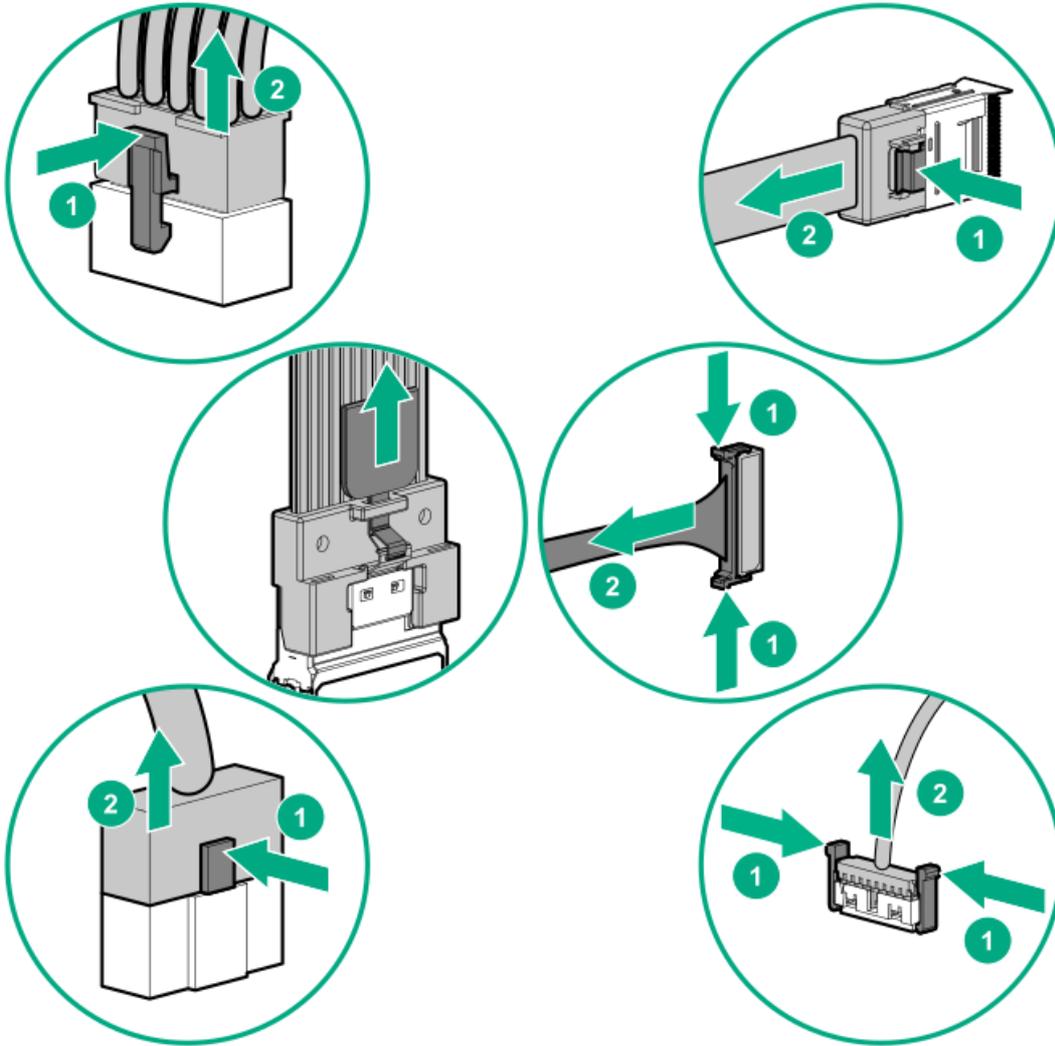
- Remove cables that are no longer being used. Retaining them inside the system can restrict airflow. If you intend to use the removed cables later, label and store them for future use.
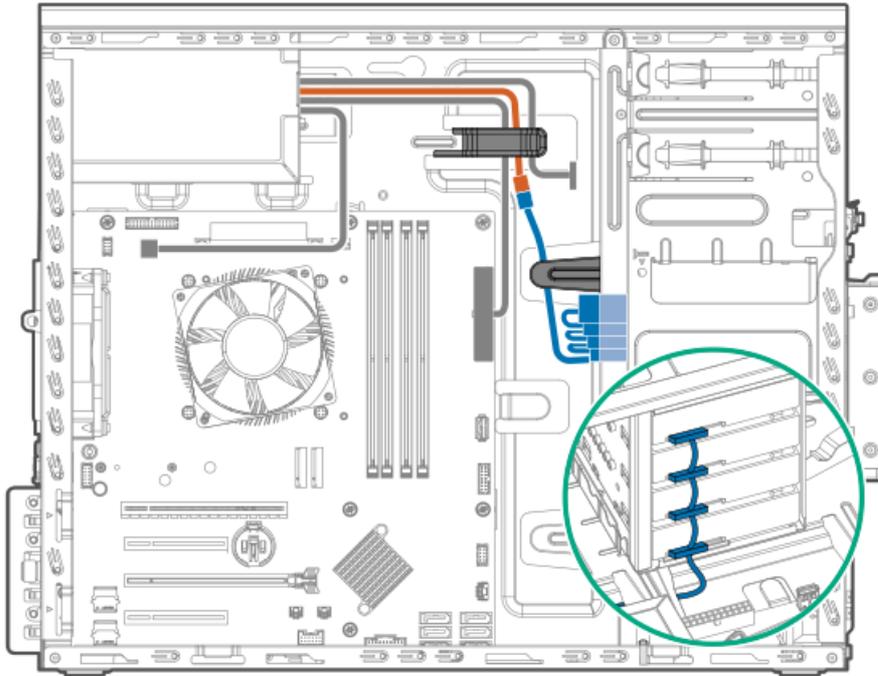
Storage cabling

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

Drive power cabling

4 LFF non-hot plug drive power cabling from the non-hot-plug power supply

Color	Description
Orange	P3 connector from the non-hot-plug power supply fan-out cable
Blue	SATA-power splitter cable

4 LFF non-hot plug drive power cabling from the Flexible Slot power supply
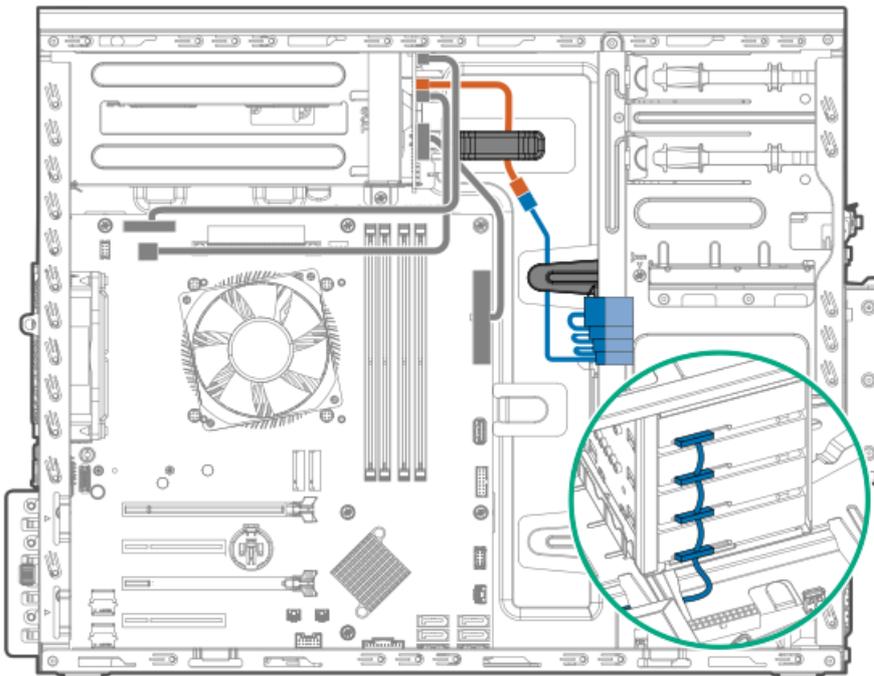
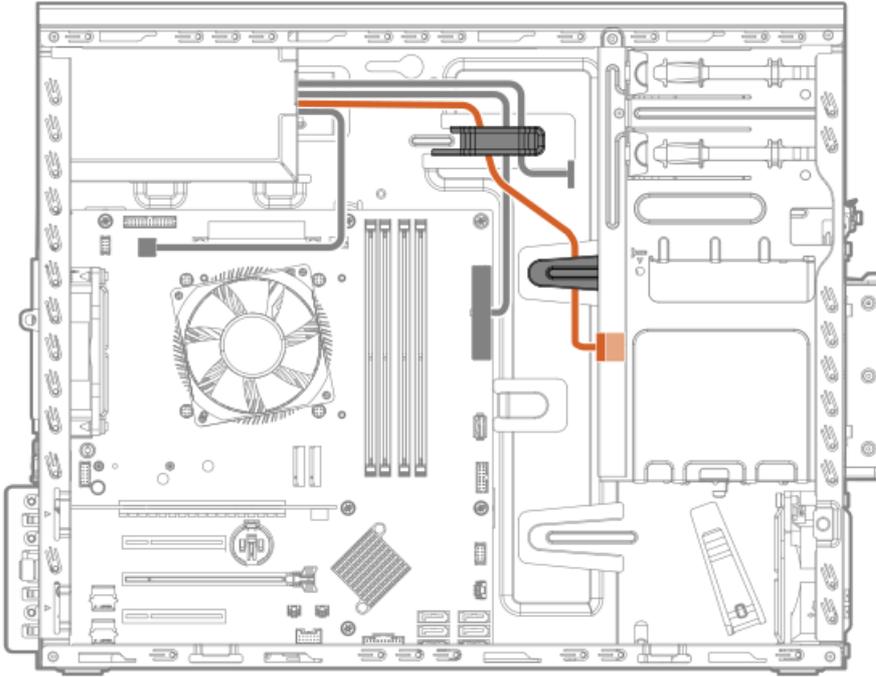| Color	Description
Orange	Drive power cable (NHP PWR, from the Flexible Slot power fan-out cable)
Blue	SATA-power splitter cable

4 LFF / 8 SFF hot-plug drive cabling from the non-hot-plug power supply

Color	Description
Orange	P3 connector from the non-hot-plug power supply fan-out cable
Blue	SATA-power cable

4 LFF / 8 SFF hot-plug drive cabling from the Flexible Slot power supply

The orange cable in the following diagram is the drive power cable (BP PWR) from the Flexible Slot power fan-out cable.
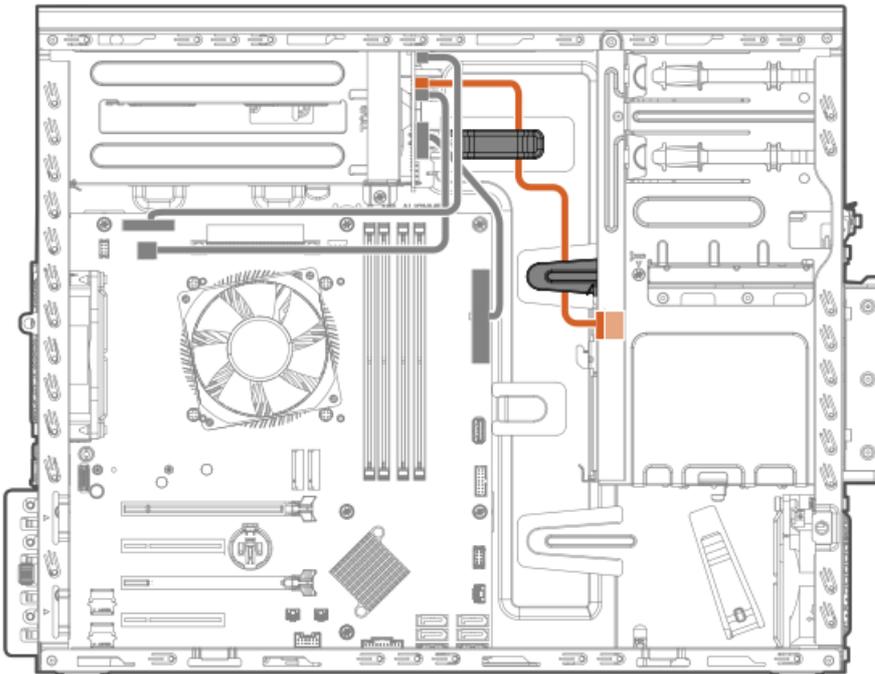
Storage controller cabling

- 4 LFF non-hot-plug drive controller cabling
- 4 LFF / 8 SFF hot-plug drive controller cabling

4 LFF non-hot-plug drive controller cabling
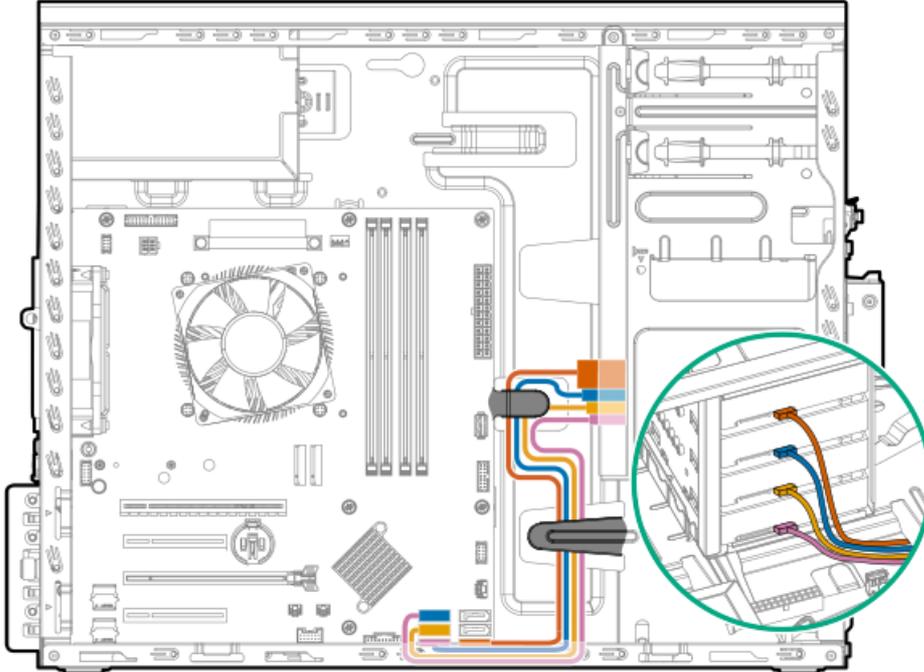
Color	Description
Orange	Onboard SATA port 1 cable
Blue	Onboard SATA port 2 cable
Gold	Onboard SATA port 3 cable
Pink	Onboard SATA port 4 cable

4 LFF / 8 SFF hot-plug drive controller cabling

4 LFF / 8 SFF hot-plug drive: Onboard SATA cabling

The onboard SATA cabling for the 4 LFF and 8 SFF drive configurations use a single Mini-SAS splitter cable.
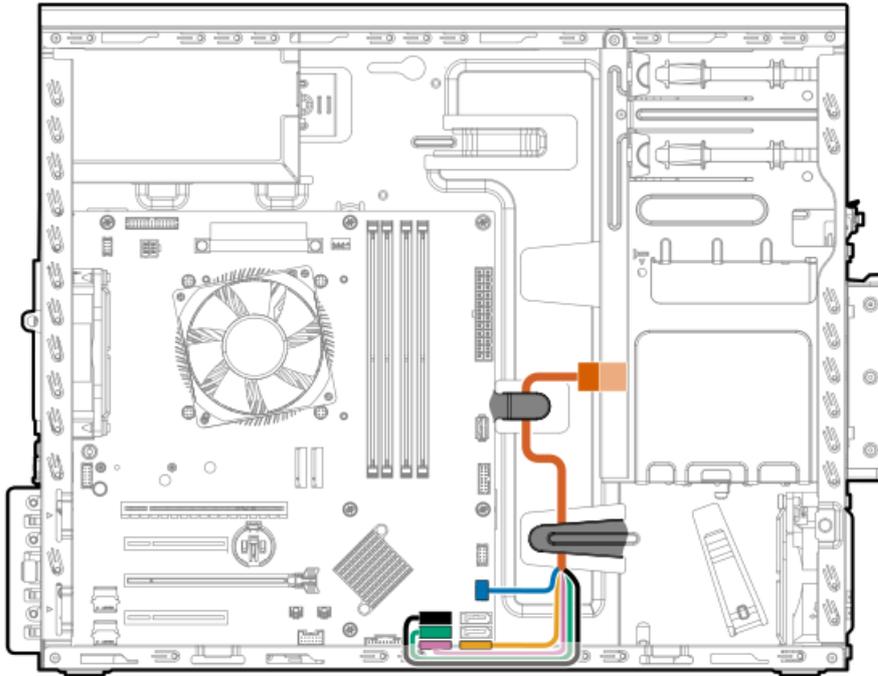
Color	Mini-SAS splitter cable connection
Orange	Drive backplane
Blue	Drive backplane sideband connector
Gold	Onboard SATA port 1
Pink	Onboard SATA port 4
Green	Onboard SATA port 3
Black	Onboard SATA port 2

4 LFF hot-plug drive: Type-p controller cabling
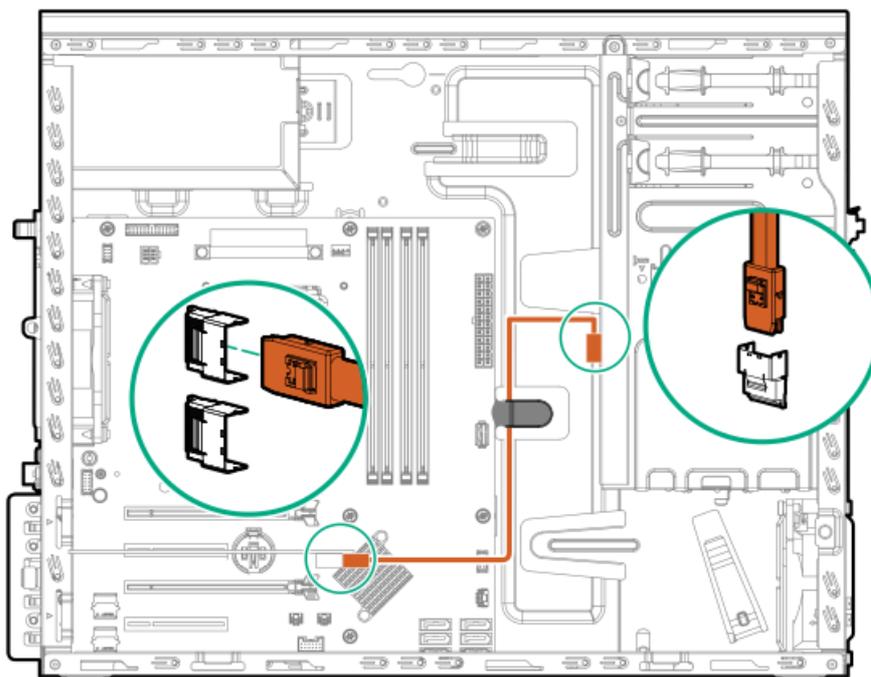
8 SFF hot-plug drive: Type-p controller cabling
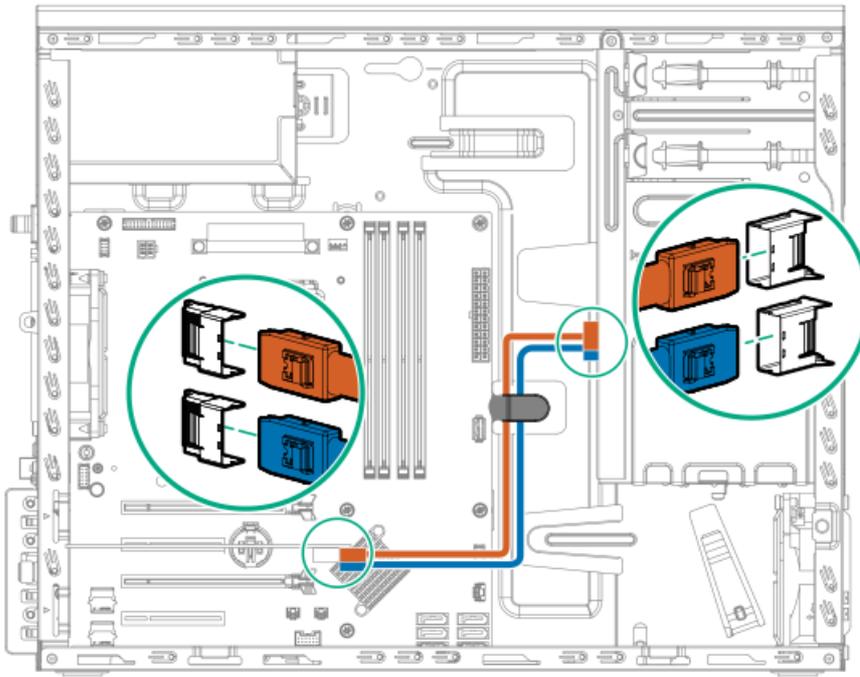
Color	Description
Orange	Port 1 Mini-SAS cable
Blue	Port 2 Mini-SAS cable

Energy pack cabling
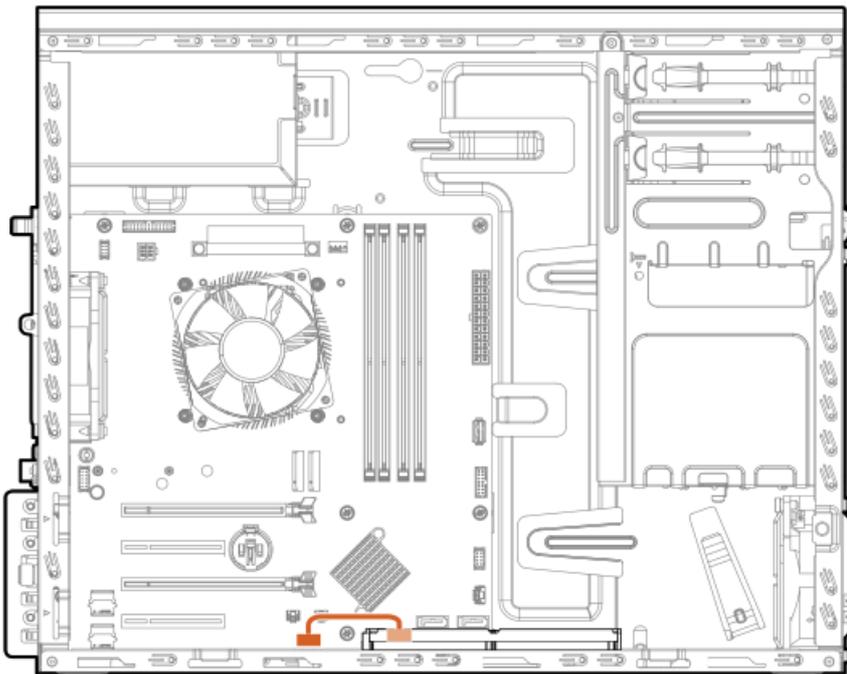
Storage controller backup power cabling

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

- The expansion slot where the controller is installed

- The location of the storage controller backup power connector on the controller

  Use the following diagram for reference only.
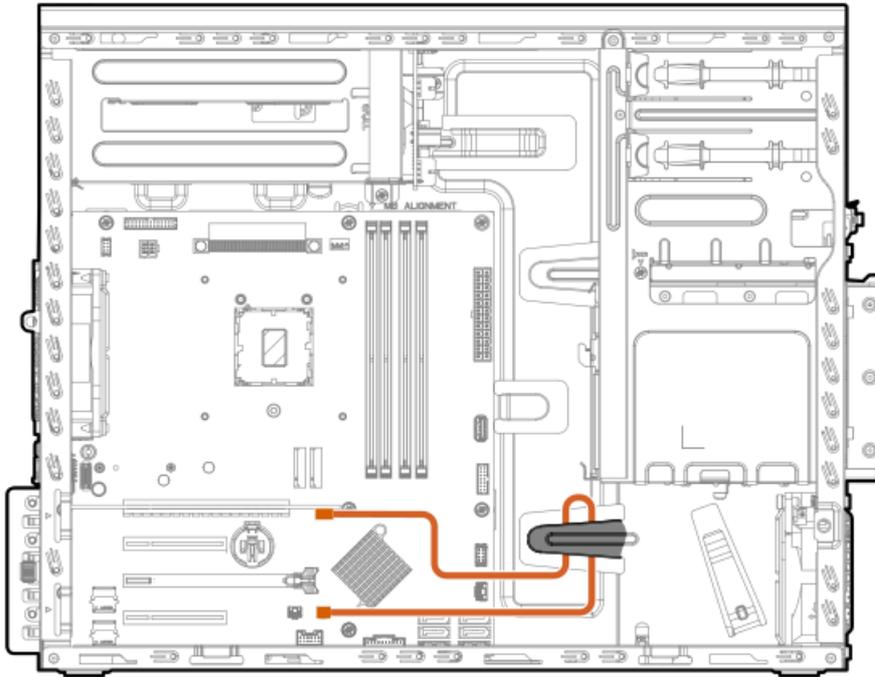
Media device cabling

- LTO tape drive cabling

- RDX backup system drive cabling

- Optical drive cabling

LTO tape drive cabling

LTO tape drive cabling with non-hot-plug power supply
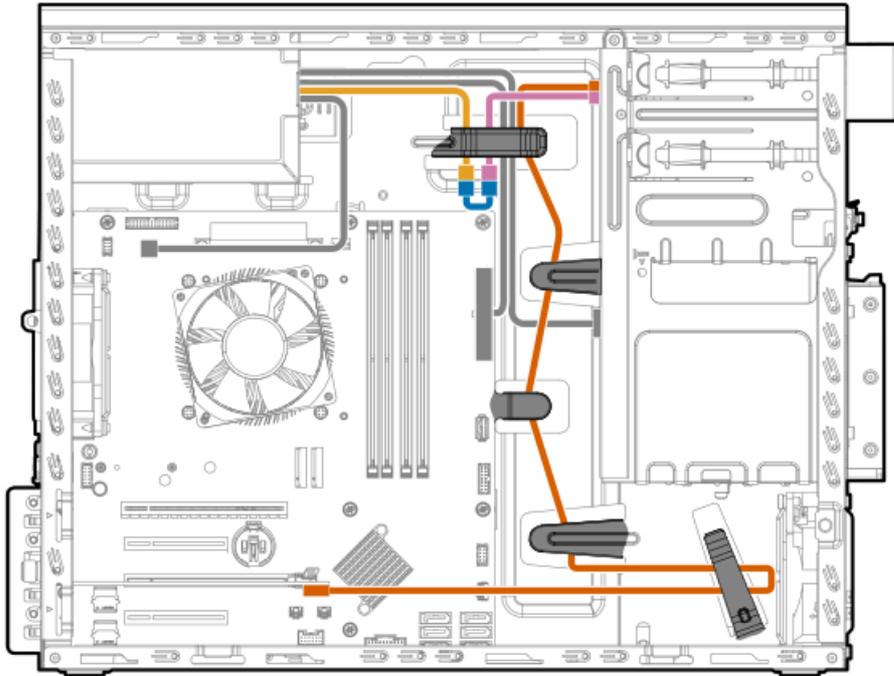
Color	Description
Gold	P9 / P10 connector of the non-hot-plug power supply fan-out cable
Pink	Power connector of the LTO tape drive SAS-power Y-cable
Orange	SAS connector of the LTO tape drive SAS-power Y-cable
Blue	LTO/RDX power extension cable

LTO tape drive cabling with Flexible Slot power supply
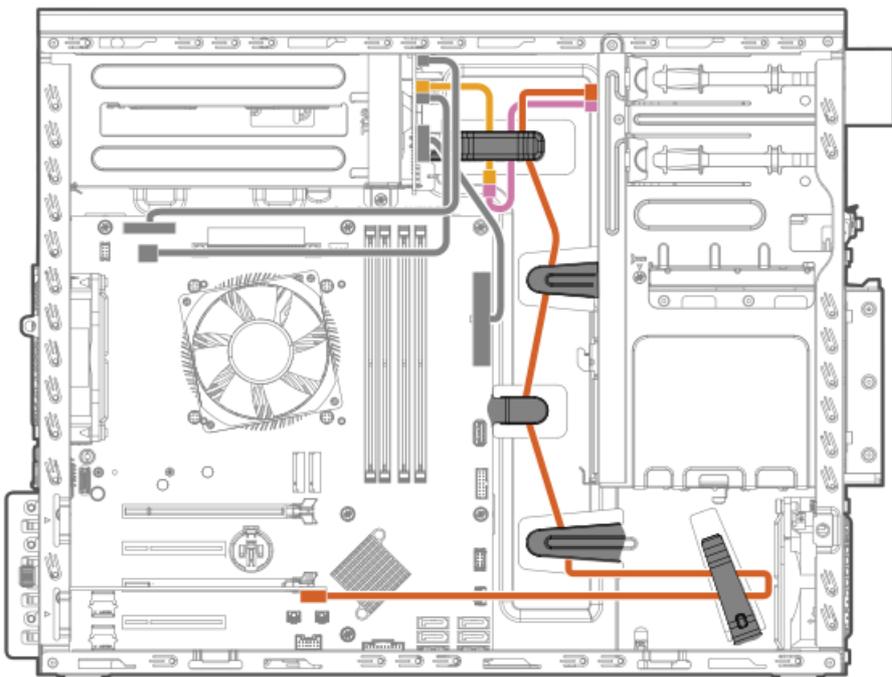
Color	Description
Gold	P4 / P2 connector of the Flexible Slot power fan-out cable

Color	Description
Pink	Power connector of the LTO tape drive SAS-power Y-cable
Orange	SAS connector of the LTO tape drive SAS-power Y-cable

RDX backup system cabling

RDX backup system cabling with non-hot-plug power supply
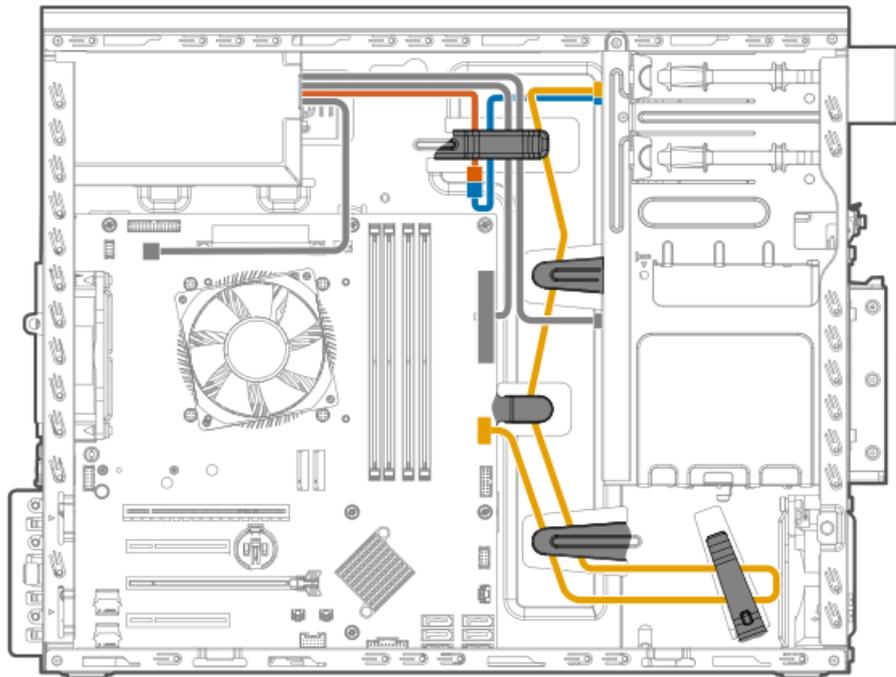
Color	Description
Orange	P9 / P10 connector of the non-hot-plug power supply fan-out cable
Blue	LTO/RDX power extension cable
Gold	RDX USB cable

RDX backup system cabling with Flexible Slot power supply
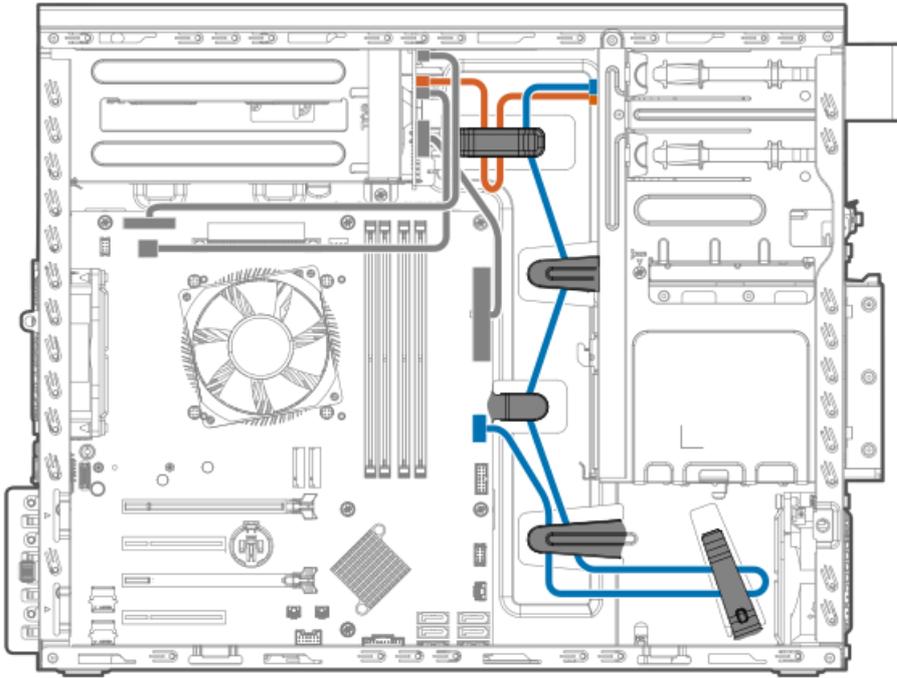
Color	Description
Orange	P4 / P2 connector of the Flexible Slot power fan-out cable
Blue	RDX USB cable

Optical drive cabling

Optical drive cabling with non-hot-plug power supply
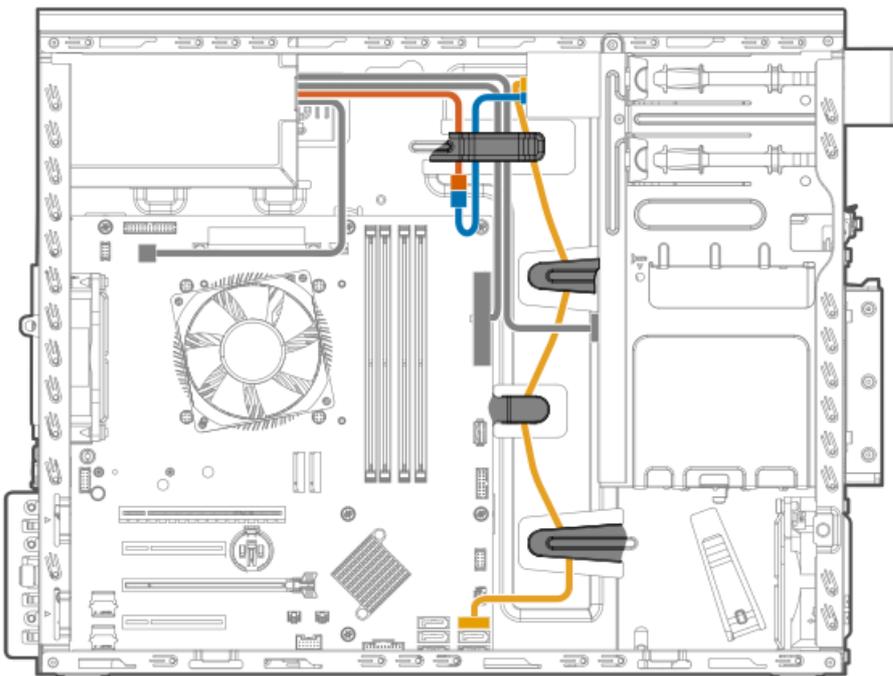
Color	Description

Color	Description
Orange	P4 connector of the non-hot-plug power supply fan-out cable
Blue	Power connector of the SATA-power Y-cable
Gold	SATA connector of the SATA-power Y-cable

Optical drive cabling with Flexible Slot power supply
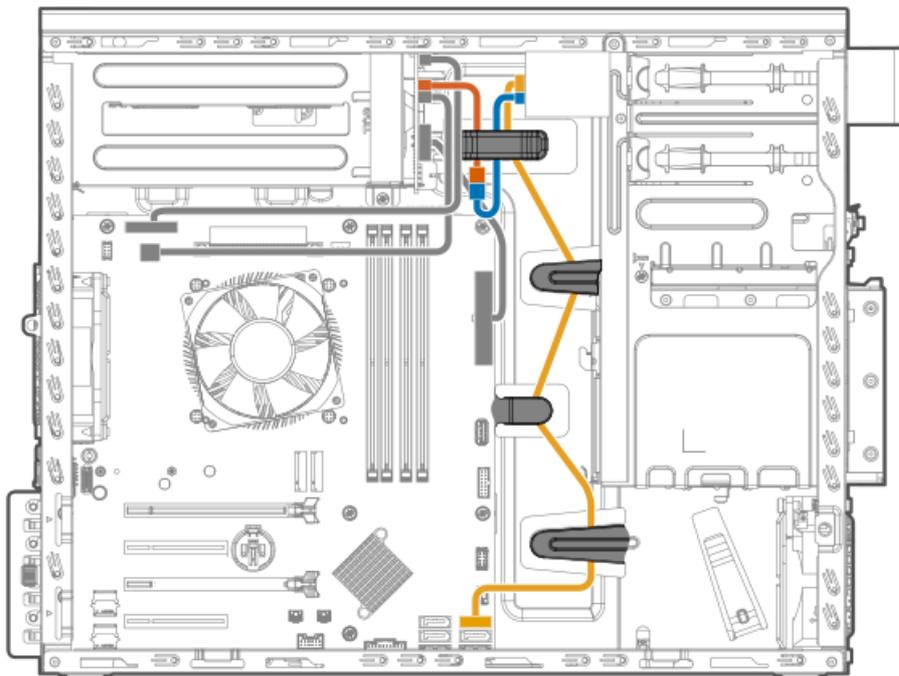
Color	Description
Orange	ODD PWR connector of the Flexible Slot power fan-out cable
Blue	Power connector of the SATA-power Y-cable
Gold	SATA connector of the SATA-power Y-cable

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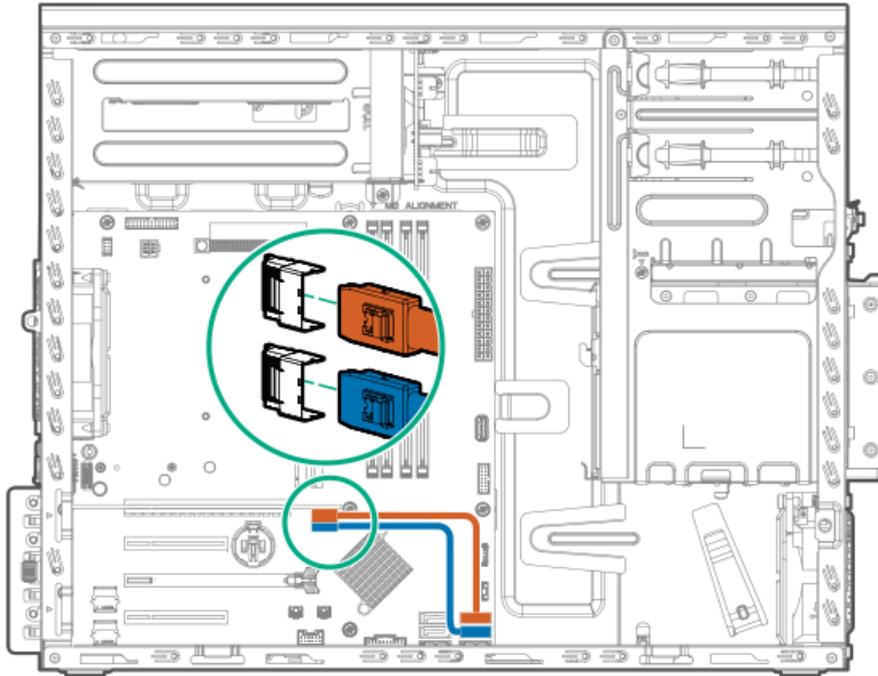
Color	Description
Orange	M.2 SATA SSD 1 cable
Blue	M.2 SATA SSD 2 cable

Fan cabling

- PCI fan cabling

- System fan cabling

- Heatsink fan cabling

PCI fan cabling
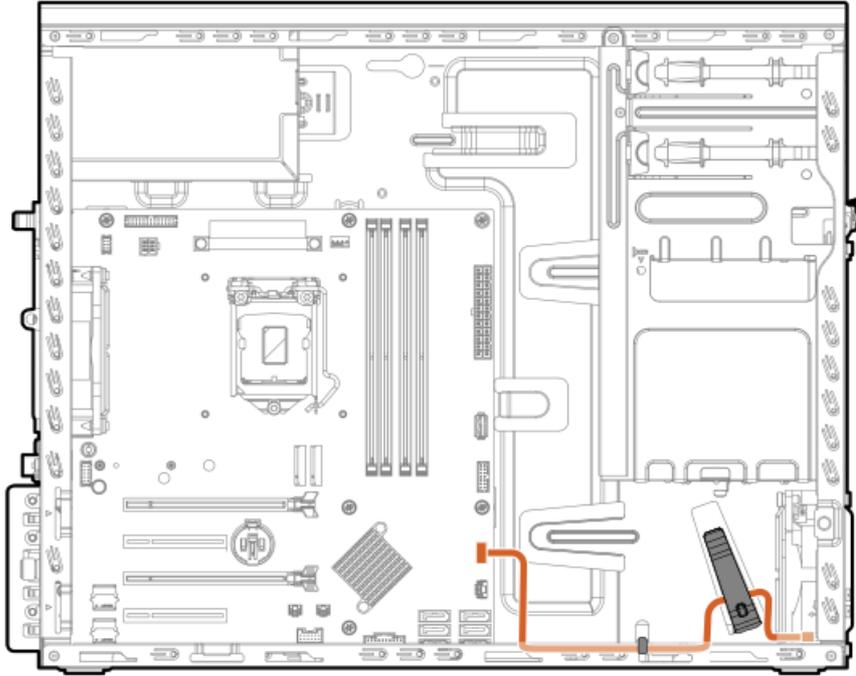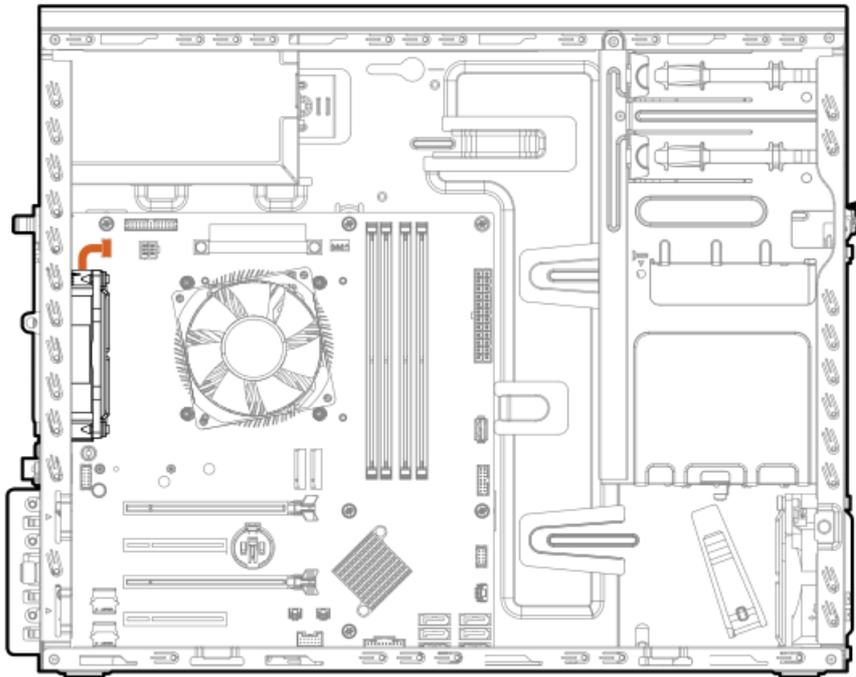
System fan cabling

Heatsink fan cabling
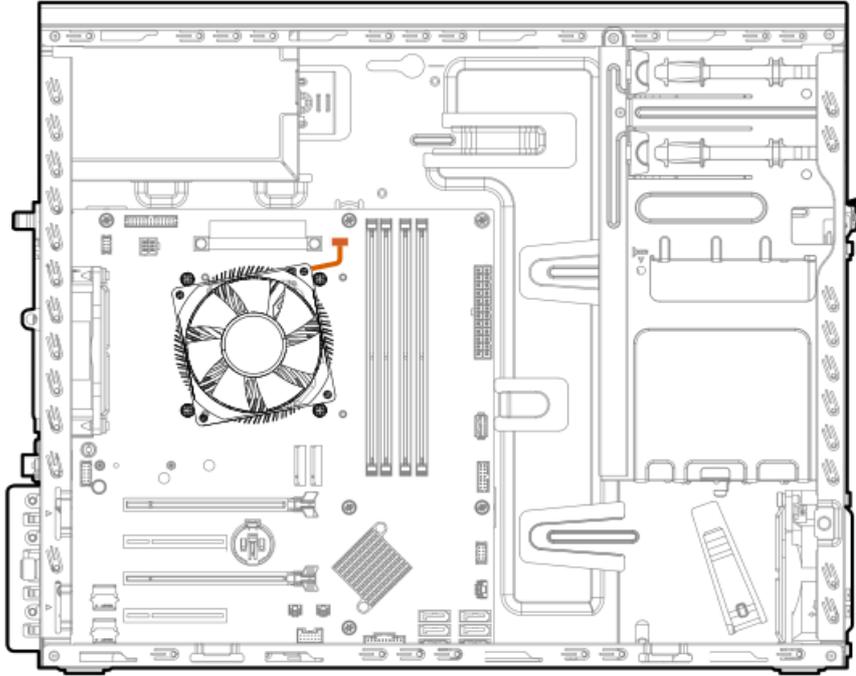
Serial port cabling

To prevent the serial port cable from blocking the system fan airflow, route the cable beneath the fan, and then secure the extra length of the cable in the serial port cable clip.
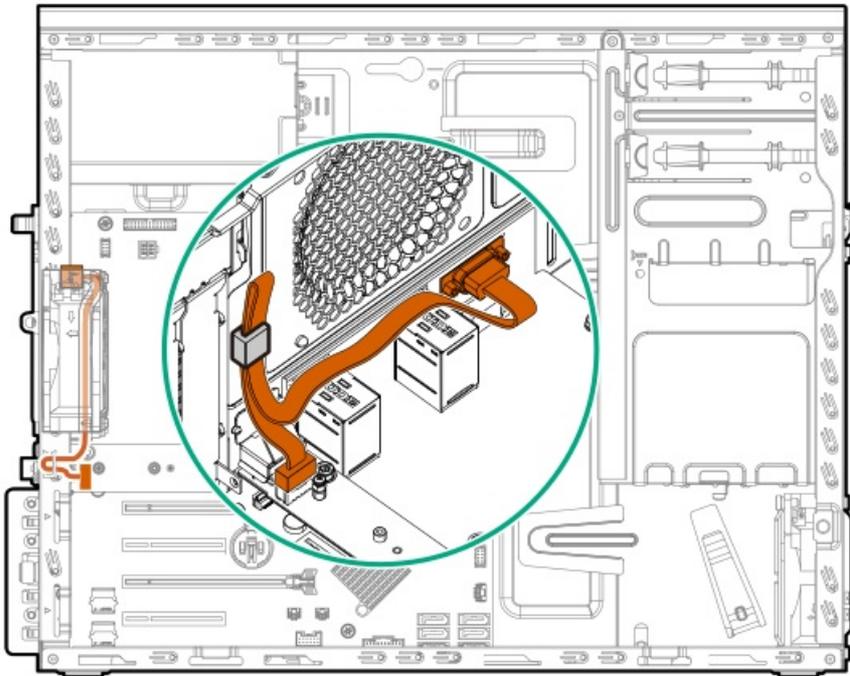
Front I/O cabling
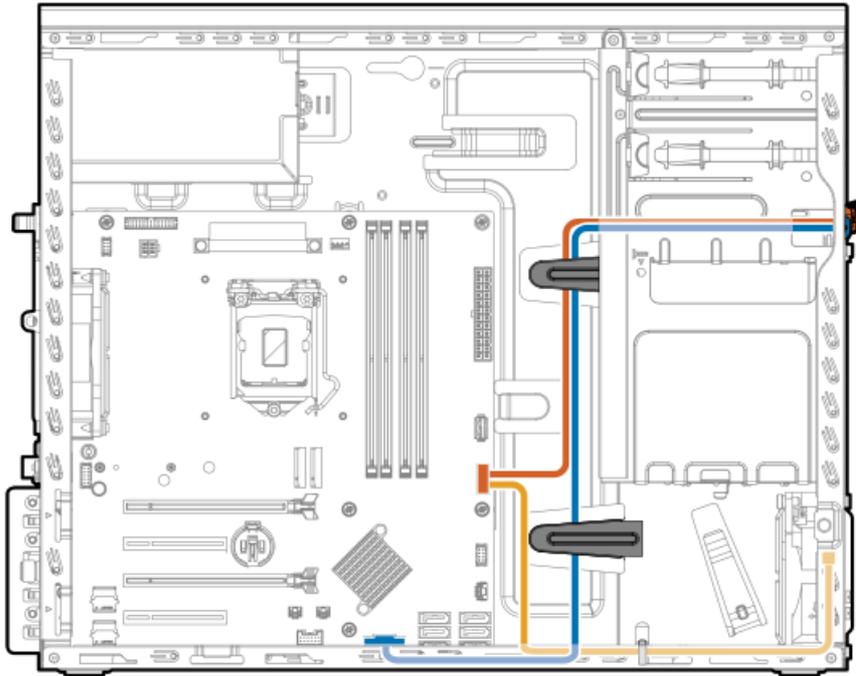
Color	Description
Orange	Front I/O cable
Blue	Front USB cable
Gold	Ambient temperature sensor cable

Power supply cabling

- Non-hot-plug power supply cabling
- Flexible Slot power supply cabling

Non-hot-plug power supply cabling

The gray cable in the following diagram is the power fan-out cable.
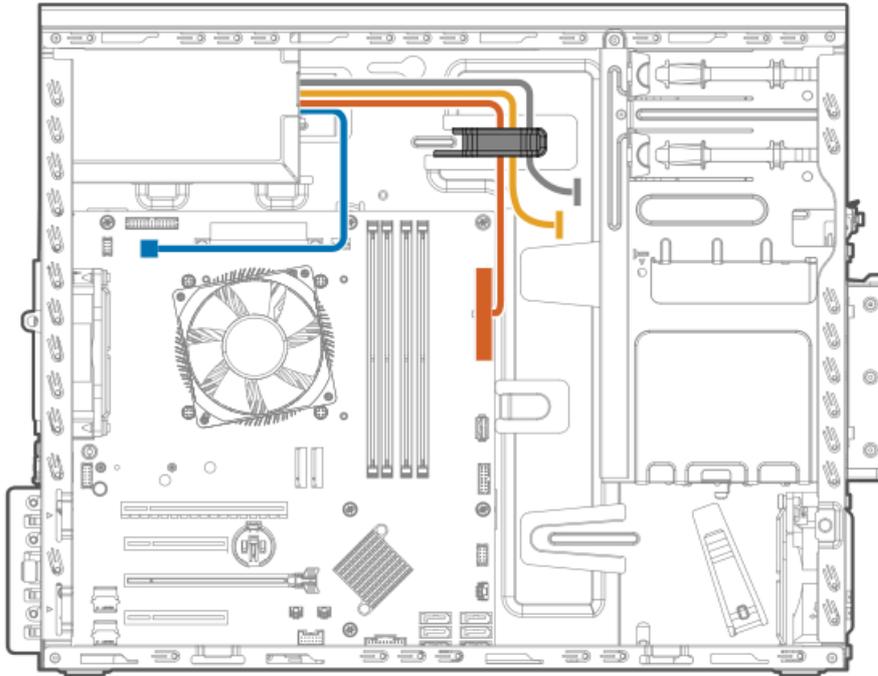
Color	Description
Orange	24-pin power supply cable
Blue	4-pin power supply cable
Gold	Drive power cabling

Non-hot-plug power supply fan-out cable connectors
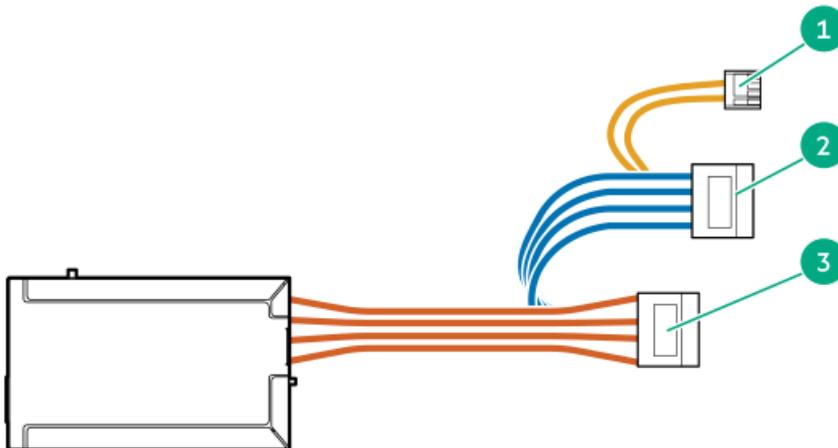
Item	Cable label	Connection
1	P4	Connects to the optical drive
2	P10	Connects to the LTO/RDX power extension cable
3	P9	Connects to the LTO/RDX power extension cable

Flexible Slot power supply cabling

The gray cable in the following diagram is the power fan-out cable.
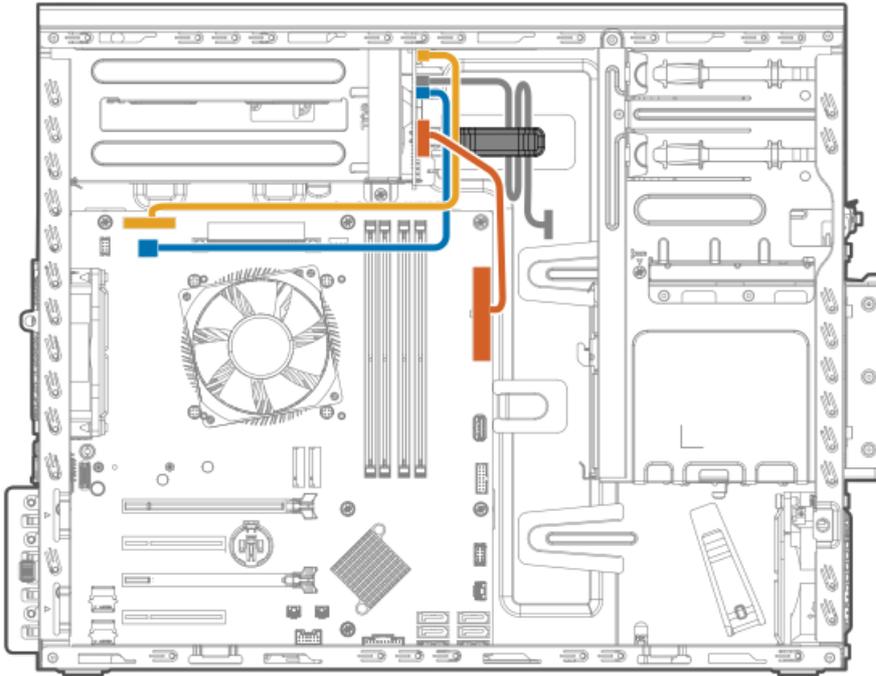
Color	Description
Orange	24-pin power supply cable
Blue	4-pin power supply cable
Gold	Flexible Slot power supply sideband cable

Flexible Slot power fan-out cable connectors
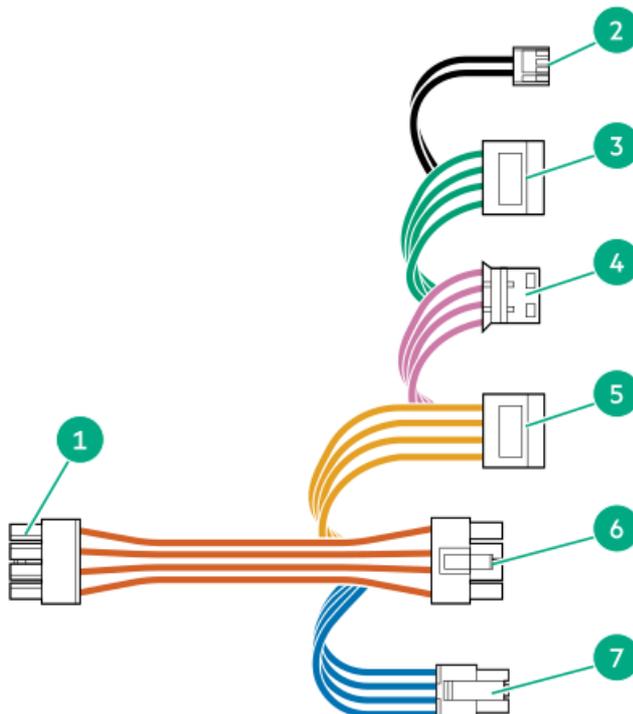
Item	Cable label	Connection

Item	Cable label	Connection
1	HDD PWR (PDB)	Connects to RPS power distribution board
2	ODD PWR	Connects to the optical drive
3	P4	Connects to the LTO/RDX power extension cable
4	LTO PWR	LTO/RDX power connector
5	P2	Connects to the LTO/RDX power extension cable
6	NHP PWR	Connects to the SATA-power splitter cable in the 4 LFF non-hot-plug drive configuration
7	BP HP PWR	Connects to the 4 LFF / 8 SFF hot-plug drive backplane

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	36.83 cm (14.50 in)
Depth	47.50 cm (18.70 in)
Width	17.53 cm (6.90 in)
Weight, approximate values	—
Minimum	10.40 kg (22.93 lb)
Maximum	19.00 kg (41.89 lb)

Power supply specifications

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

- HPE 350 W Gold Non-hot-plug Power Supply (92% efficiency)

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

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

HPE 350 W Gold Non-hot-plug Power Supply (92% efficiency)

Specification	Value
Input requirements	—

Specification	Value
Rated input voltage	100 VAC to 240 VAC
Rated input frequency	47 Hz to 63 Hz
Rated input current	6 A
Rated input power	400 W at 115 VAC 400 W at 230 VAC
Efficiency	At 115 VAC: No less than 87% at 100% load No less than 90% at 50% load No less than 87% at 20% load At 230 VAC: 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	350 W at 115 VAC 350 W at 230 VAC
Maximum peak power	385 W at 115 VAC 385 W at 230 VAC
Rated output power	350 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	—

Specification	Value
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

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 ML30 Gen10 Plus Server product page

https://www.hpe.com/servers/ml30-gen10-plus

HPE ProLiant ML30 Gen10 Plus Server user documents

https://www.hpe.com/info/ml30gen10plus-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:

- 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.