Hewlett Packard Enterprise

HPE ProLiant ML110 Gen10 Server Maintenance and Service Guide

Abstract

This guide describes identification and maintenance procedures, diagnostic tools, specifications and requirements for hardware components and software. This guide is for an experienced service technician. Hewlett Packard Enterprise assumes that you are qualified in the servicing of computer equipment, trained in recognizing hazards in products, and are familiar with weight and stability precautions.

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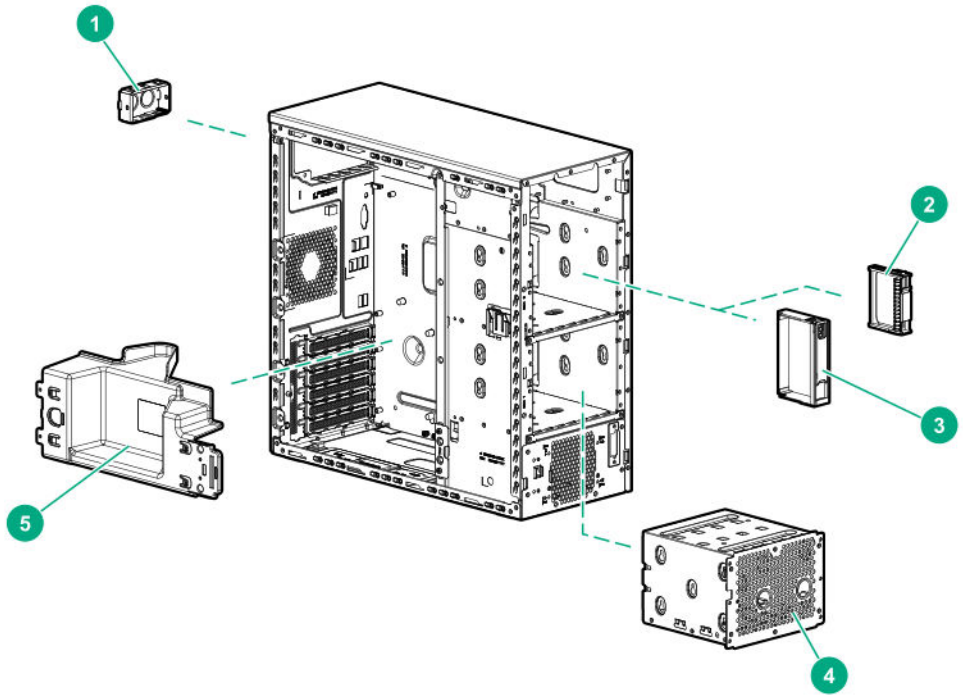
Illustrated parts catalog

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

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	**Flexible slot power supply blank spare part**
2	**SFF drive blank spare part**
3	**LFF drive blank spare part**
4	**Four-bay LFF non-hot-plug drive cage spare part**
5	**PCI air baffle spare part**

Flexible slot power supply blank spare part

Customer self repair: **Mandatory**

Description	Spare part number
Flexible slot power supply blank	775423-001

SFF drive blank spare part

Customer self repair: **Mandatory**

Description	Spare part number
SFF drive blank	670033-001

LFF drive blank spare part

Customer self repair: **Mandatory**

Description	Spare part number
LFF drive blank	827363-001

Four-bay LFF non-hot-plug drive cage spare part

Customer self repair: **Mandatory**

Description	Spare part number
Four-bay LFF non-hot-plug drive cage	792353-001

PCI air baffle spare part

Customer self repair: **Mandatory**

Description	Spare part number
PCI air baffle	791709-001

System components

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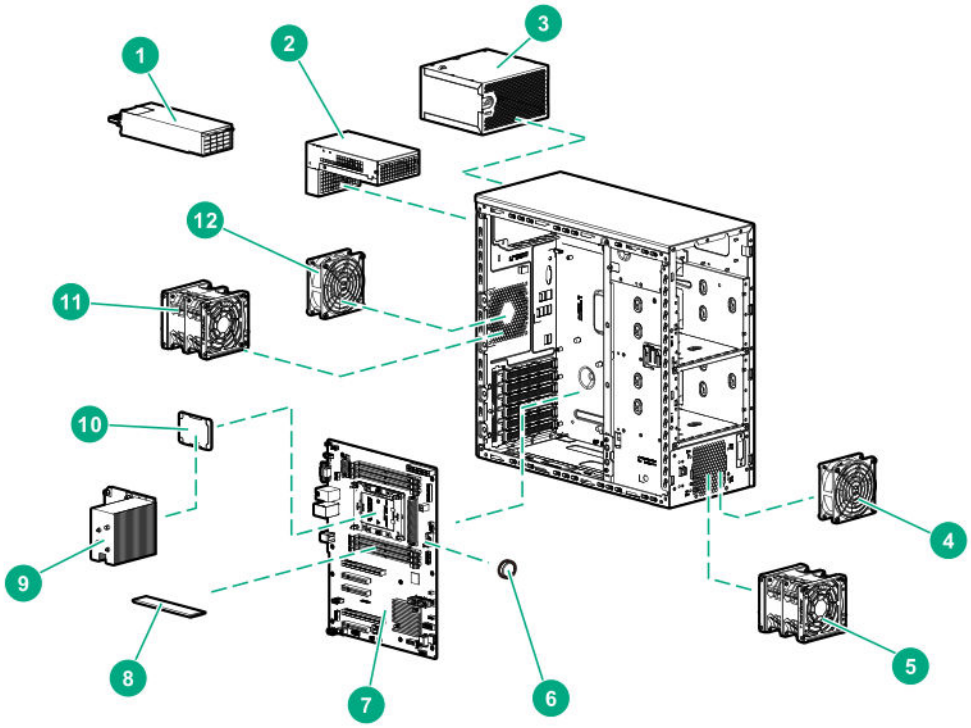

Item	Description
1	**Flexible Slot power supply spare part (hot-plug)**
2	**Redundant power supply backplane spare part**
3	**Non-hot-plug power supply spare part**
4	**Default PCI fan spare part**
5	**Redundant fan spare part**
6	**System battery spare part**
7	**System board assembly spare part**
8	**DIMM spare parts**
9	**Heatsink spare part**
10	**First-generation Intel Xeon Scalable Processor spare parts** **Second-generation Intel Xeon Scalable Processor spare parts**
11	**Redundant fan spare part**

Table Continued

Item	Description
12	**Default system fan spare part**
13	**Serial port cable spare part***
14	**Front USB 3.0 ports cable spare part***
15	**iLO Service Port cable spare part***

*Not shown

Flexible Slot power supply spare part (hot-plug)

Customer self repair: **mandatory**

Description	Spare part number
HPE 500W Flex Slot Platinum Hot Plug Low Halogen Power Supply	866729-001
HPE 800 W Flexible Slot Platinum Hot-plug Low Halogen Power Supply	866730-001

Redundant power supply backplane spare part

Customer self repair: **Mandatory**

Description	Spare part number
Redundant power supply backplane module (cables included)	878925-001

Non-hot-plug power supply spare part

Customer self repair: **mandatory**

Description	Spare part number
ATX 350 W power supply	878924-001
ATX 550 W power supply (88% efficiency)	878923-001
ATX 550 W power supply (92% efficiency)	P22005-001

Default PCI fan spare part

Customer self repair: **Mandatory**

Description	Spare part number
Default PCI fan	878929-001

Redundant fan spare part

Customer self repair: **Mandatory**

Description	Spare part number
Redundant fan[1]	878927-001

[1] This redundant fan spare part is used for either redundant system fan or redundant PCI fan replacement.

System battery spare part

Customer self repair: **Mandatory**

Description	Spare part number
System battery	319603-001

System board assembly spare part

Customer self repair: **Optional**

Description	Spare part number
System board assembly for the first-generation Intel Xeon Scalable Processors	878926-001
System board assembly for the second-generation Intel Xeon Scalable Processors	P11532-001

DIMM spare parts

Customer self repair: **mandatory**

Description	Spare part number
PC4-2666V DIMM spares	—
8 GB, single-rank x8 PC4-2666V-R	850879-001
8 GB, single-rank x8 PC4-2666V-R, Standard Memory	872969-001
16 GB, single-rank x4 PC4-2666V-R	850880-001
16 GB, single-rank x4 PC4-2666V-R, Standard Memory	872970-001
32 GB, dual-rank x4 PC4-2666V-R	850881-001
PC4-2933Y DIMM spares	—
8 GB, single-rank x8 PC4-2933Y-R	P06186-001
16 GB, single-rank x4 PC4-2933Y-R	P06187-001
16 GB, dual-rank x8 PC4-2933Y-R	P06188-001
32 GB, dual-rank x4 PC4-2933Y-R	P06189-001

CAUTION: Before replacing a DIMM, expansion board, 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.

Heatsink spare part

Customer self repair: **No**

Description	Spare part number
Heatsink assembly	878922-001

First-generation Intel Xeon Scalable Processor spare parts

Customer self repair: **No**

Description	Spare part number
Intel Xeon Bronze series processors	—
1.70 GHz Intel Xeon Bronze 3104, 6C, 85 W	875709-001
1.70 GHz Intel Xeon Bronze 3106, 8C, 85 W	875710-001
Intel Xeon Silver series processors	—
1.80 GHz Intel Xeon Silver 4108, 8C, 85 W	875712-001
2.10 GHz Intel Xeon Silver 4110, 8C, 85 W	875711-001
2.60 GHz Intel Xeon Silver 4112, 4C, 85 W	875714-001
Intel Xeon Gold series processors	—
2.20 GHz Intel Xeon Gold 5120, 14C, 105 W	875718-001
3.60 GHz Intel Xeon Gold 5122, 4C, 105 W	875719-001

Second-generation Intel Xeon Scalable Processor spare parts

Customer self repair: **no**

Description	Spare part number
Intel Xeon Bronze series processor	—
1.90 GHz Intel Xeon Bronze 3204, 6C, 85 W	P11604-001
1.90 GHz Intel Xeon Bronze 3206R, 8C, 85 W	P19248-001
Intel Xeon Silver series processors	—
2.10 GHz Intel Xeon Silver 4208, 8C, 85 W	P11605-001

Table Continued

Description	Spare part number
2.10 GHz Intel Xeon Silver 4216, 16C, 100 W	P11609-001
2.20 GHz Intel Xeon Silver 4210, 10C, 85 W	P11606-001
2.20 GHz Intel Xeon Silver 4214, 12C, 85 W	P11607-001
2.40 GHz Intel Xeon Silver 4210R, 10C, 100 W	P19246-001
2.40 GHz Intel Xeon Silver 4214R, 12C, 100 W	P19245-001
2.50 GHz Intel Xeon Silver 4215, 8C, 85 W	P11608-001
Intel Xeon Gold series processors	—
2.50 GHz Intel Xeon Gold 5215, 10C, 85 W	P11610-001
3.80 GHz Intel Xeon Gold 5222, 4C, 105 W	P11632-001
Intel Xeon Gold series processors, Network Function Virtualization	—
2.30 GHz Intel Xeon Gold 5218N, 16C, 110 W	P12021-001

Default system fan spare part

Customer self repair: **Mandatory**

Description	Spare part number
Default system fan	878928-001

Serial port cable spare part

Customer self repair: **Mandatory**

Description	Spare part number
Serial port cable	875571-001

Front USB 3.0 ports cable spare part

Customer self repair: **Mandatory**

Description	Spare part number
Front USB 3.0 ports cable	878932-001

iLO Service Port cable spare part

Customer self repair: **Mandatory**

Description	Spare part number
iLO Service Port cable	878933-001

Server options

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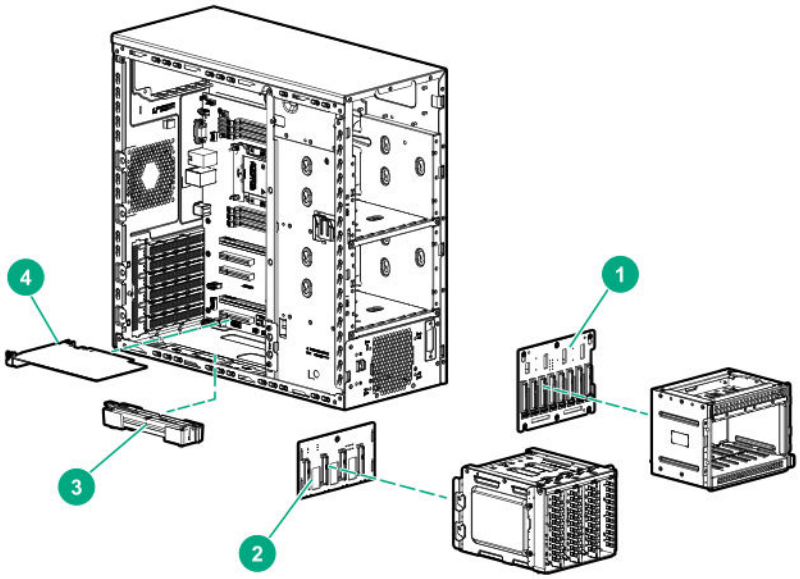

Item	Description
1	**Eight-bay SFF drive cage assembly spare part**
2	**Four-bay LFF drive cage backplane spare part**
3	**Energy pack spare parts**
4	**HPE 12G SAS Expander Card spare part**
5	**Serial port cable spare part***
6	**Four-bay LFF/eight-bay SFF hot-plug drive Mini-SAS cable spare part***
7	**Four-bay LFF non-hot-plug drive SATA to Mini-SAS cable spare part***
8	**Optical drive SATA-power cable spare part***
9	**Storage controller backup power cable spare part***
10	**HPE 12G SAS Expander Card cable spare kit***
11	**GPU auxiliary power cable spare parts***
12	**HPE Trusted Platform Module 2.0 spare part***

*Not shown

Eight-bay SFF drive cage assembly spare part

Customer self repair: **Mandatory**

Description	Spare part number
Eight-bay SFF drive cage backplane	792352-001

Four-bay LFF drive cage backplane spare part

Customer self repair: **Mandatory**

Description	Spare part number
Four-bay LFF drive cage backplane	878930-001

Energy pack spare parts

HPE Smart Storage Hybrid Capacitor spare part

Customer self repair: **mandatory**

Description	Spare part number
HPE Smart Storage Hybrid Capacitor, 260mm cable	P07474-001

HPE Smart Storage Battery spare part

Customer self repair: **Mandatory**

Description	Spare part number
HPE Smart Storage Battery 96 W, 260 mm cable	878644-001

HPE 12G SAS Expander Card spare part

Customer self repair: **optional**

Description	Spare part number
HPE 12G SAS Expander Card	876907-001

CAUTION: Before replacing a DIMM, expansion board, 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.

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

Serial port cable spare part

Customer self repair: **Mandatory**

Description	Spare part number
Serial port cable	875571-001

Four-bay LFF/eight-bay SFF hot-plug drive Mini-SAS cable spare part

Customer self repair: **Mandatary**

Description	Spare part number
Four-bay LFF/eight-bay SFF hot-plug drive Mini-SAS cable	878327-001

Four-bay LFF non-hot-plug drive SATA to Mini-SAS cable spare part

Customer self repair: **Mandatory**

Description	Spare part number
Four-bay LFF non-hot-plug drive SATA to Mini-SAS cable	878934-001

Optical drive SATA-power cable spare part

Customer self repair: **Mandatory**

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

Storage controller backup power cable spare part

Customer self repair: **Mandatory**

Description	Spare part number
HPE Smart Array SR controller backup power cable	878646-001

HPE 12G SAS Expander Card cable spare kit

Customer self repair: **mandatory**

Description	Spare part number
HPE 12G SAS Expander Card cables: • Expander card ports 1 and 2 Mini-SAS X-cable for a controller • Expander card ports 3 and 4 Mini-SAS X-cable for the drive bays 1–8 • Expander card ports 5 and 6 Mini-SAS X-cable for the drive bays 9–16	P12893-001

GPU auxiliary power cable spare parts

Customer self repair: **mandatory**

Description	Spare part number
Redundant power supply backplane module (cables included)	878925-001
ATX 550 W power supply	878923-001

HPE Trusted Platform Module 2.0 spare part

Customer self repair: **No**

Description	Spare part number
HPE Trusted Platform Module Gen10, TAA	872159-001

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 Agrée local.

Service de garantie "pièces seules"

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

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

Riparazione da parte del cliente

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

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

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

In base alla disponibilità e alla località geografica, le parti CSR vengono spedite con consegna entro il giorno lavorativo seguente. La consegna nel giorno stesso o entro quattro ore è offerta con un supplemento di costo solo in alcune zone. In caso di necessità si può richiedere l'assistenza telefonica di un addetto del centro di supporto tecnico Hewlett Packard Enterprise. Nel materiale fornito con una parte di ricambio CSR, Hewlett Packard Enterprise specifica se il cliente deve restituire dei component. Qualora sia richiesta la resa ad Hewlett Packard Enterprise del componente difettoso, lo si deve spedire ad Hewlett Packard Enterprise entro un determinato periodo di tempo, generalmente cinque (5) giorni lavorativi. Il componente difettoso deve essere restituito con la documentazione associata nell'imballo di spedizione fornito. La mancata restituzione del componente può comportare la fatturazione del ricambio da parte di Hewlett Packard Enterprise. Nel caso di riparazione da parte del cliente, Hewlett Packard Enterprise sostiene tutte le spese di spedizione e resa e sceglie il corriere/vettore da utilizzare.

Per ulteriori informazioni sul programma CSR di Hewlett Packard Enterprise, contattare il centro di assistenza di zona.

Servizio di garanzia per i soli componenti

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

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

Customer Self Repair

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

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

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

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

Weitere Informationen über das Hewlett Packard Enterprise Customer Self Repair Programm erhalten Sie von Ihrem Servicepartner vor Ort.

Parts-only Warranty Service (Garantieservice ausschließlich für Teile)

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

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

Reparaciones del propio cliente

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

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

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

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

Para obtener más información acerca del programa de Reparaciones del propio cliente de Hewlett Packard Enterprise, póngase en contacto con su proveedor de servicios local.

Servicio de garantía exclusivo de componentes

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

Para este servicio de garantía exclusivo de componentes, es obligatoria la sustitución de componentes por parte del usuario (CSR). Si solicita a Hewlett Packard Enterprise que realice la sustitución de estos componentes, tendrá que hacerse cargo de los gastos de desplazamiento y de mano de obra de dicho servicio.

Customer Self Repair

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

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

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

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

Neem contact op met een Service Partner voor meer informatie over het Customer Self Repair programma van Hewlett Packard Enterprise.

Garantieservice "Parts Only"

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

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

Reparo feito pelo cliente

Os produtos da Hewlett Packard Enterprise são projetados com muitas peças para reparo feito pelo cliente (CSR) de modo a minimizar o tempo de reparo e permitir maior flexibilidade na substituição de peças com defeito. Se, durante o período de diagnóstico, a Hewlett Packard Enterprise (ou fornecedores/parceiros da Hewlett Packard Enterprise) concluir que o reparo pode ser efetuado pelo uso de uma peça CSR, a Hewlett Packard Enterprise enviará a peça diretamente ao cliente. Há duas categorias de peças CSR:

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

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

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

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

Serviço de garantia apenas para peças

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

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

カスタマーセルフリペア

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

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

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

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

部品のみ保証サービス

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

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

客户自行维修

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

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

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

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

有关 Hewlett Packard Enterprise 客户自行维修计划的详细信息，请与您当地的服务提供商联系。

仅部件保修服务

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

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

客戶自行維修

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

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

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

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

如需 Hewlett Packard Enterprise 的 CSR 方案詳細資訊，請連絡您當地的服務供應商。

僅限零件的保固服務

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

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

고객 셀프 수리

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

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

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

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

Hewlett Packard Enterprise CSR 프로그램에 대한 자세한 내용은 가까운 서비스 제공업체에 문의하십시오.

부품 제공 보증 서비스

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

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Removal and replacement procedures

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

Required tools

You need the following items for some procedures:

- T-10 Torx screwdriver
- T-15 Torx screwdriver
- 5.0 mm hex nut screwdriver
- Phillips No. 1 screwdriver
- Small flat-bladed, nonconductive tool

Safety considerations

Before performing service procedures, review all the safety information.

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

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

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

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

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

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

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

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

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

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

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

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

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

Server warnings and cautions

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.

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

AVERTISSEMENT: Pour réduire les risques d'incendie ou de brûlures après le retrait du module batterie :

- N'essayez pas de démonter, d'écraser ou de percer le module batterie.
- Ne court-circuitez pas ses contacts externes.
- Ne jetez pas le module batterie dans le feu ou dans l'eau.

Après avoir déconnecté l'alimentation, une tension peut subsister dans la batterie durant 1 à 160 secondes.

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 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.

Rack warnings and cautions

WARNING: When all components are removed, the server weighs ( ). When all components are installed, the server can weigh up to ( ).

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 ( ), so at least two people must lift the server into the enclosure 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 enclosure.
- Adequately stabilized the enclosure before extending a component outside the enclosure. Extend only one component at a time. A enclosure 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 enclosure, be sure to properly scope the limitations of the enclosure. Before proceeding with the installation, consider the following:

- You must fully understand the static and dynamic load carrying capacity of the enclosure 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.

Preparation procedures

To access some components and perform certain service procedures, you must perform one or more of the following procedures:

Procedure

- **Power down the server**
- **Remove the server from the rack**

  NOTE: To install the server to the rack, reverse the removal procedure and place the server at the center of the tray after installation.

- **Remove the access panel**
- **Remove the front bezel**

Power down the server

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

IMPORTANT: When the server is in standby mode, auxiliary power is still being provided to the system.

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

- Press and release the Power On/Standby button.

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

- Press and hold the Power On/Standby button for more than 4 seconds to force the server to enter standby mode.

  This method forces the server to enter standby mode without properly exiting applications and the OS. If an application stops responding, you can use this method to force a shutdown.

- Use a virtual power button selection through iLO.

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

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

Remove the server from the rack

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

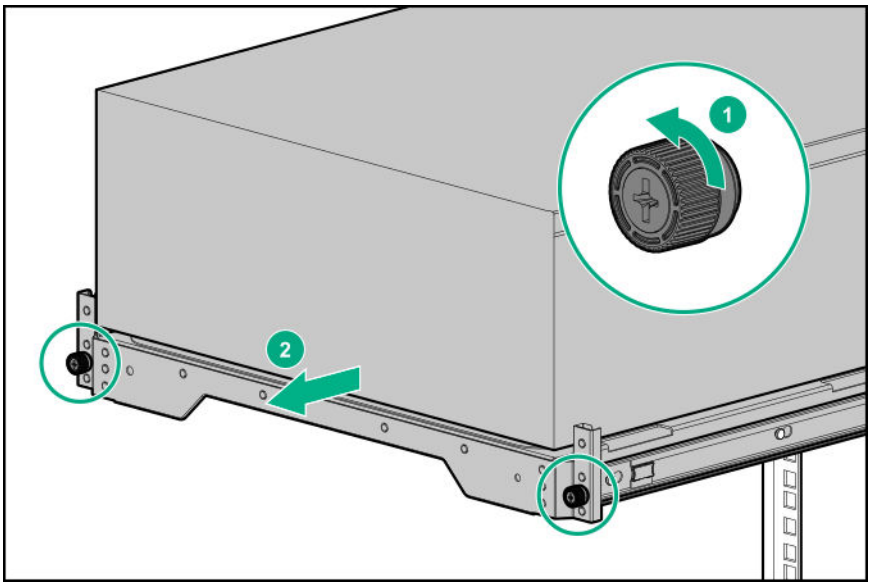
- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Get help to lift and stabilize the product during installation or removal, especially when the product is not fastened to the rails. Hewlett Packard Enterprise recommends that a minimum of two people are required for all rack server installations. A third person may be required to help align the server if the server is installed higher than chest level.
- Use caution when installing the server in or removing the server from the rack; it is unstable when not fastened to the rails.

Prerequisites

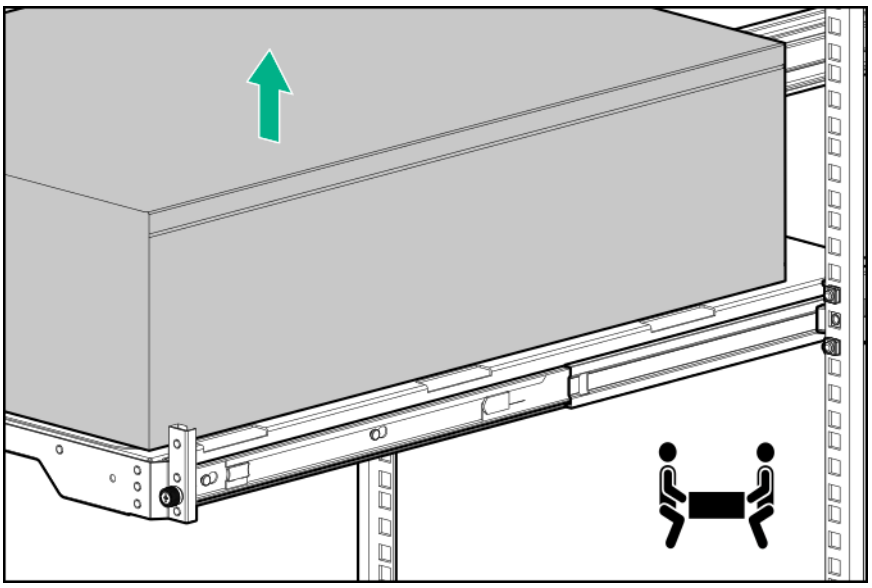
Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

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 peripherals cables from the server.
4. If a Kensington security cable is installed, disconnect it from the rear panel. See the security cable documentation for instructions.
5. Fully extend the server out of the rack:
   a. Loosen the server tray thumbscrews.
   b. Hold the tray notch to slide the server out of the rack.



6. Lift the server from the tray.

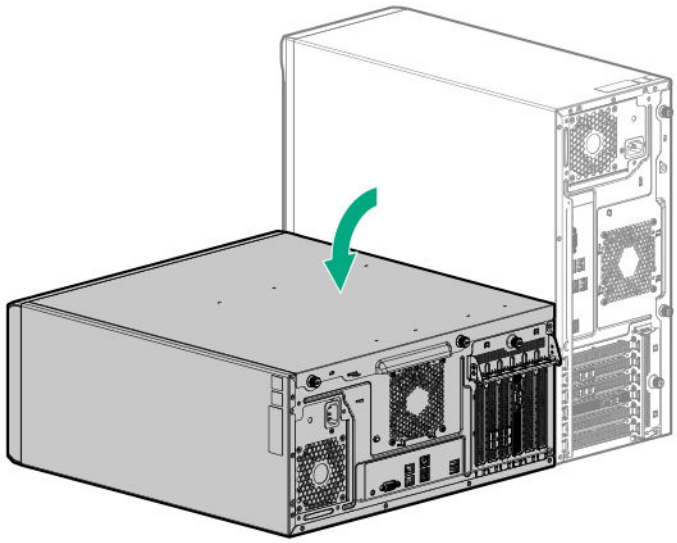


7. Place the server on a sturdy, level surface.

Position the tower server for hardware configuration

Procedure

Place the server on a flat, level surface with the access panel facing up.



Remove the access panel

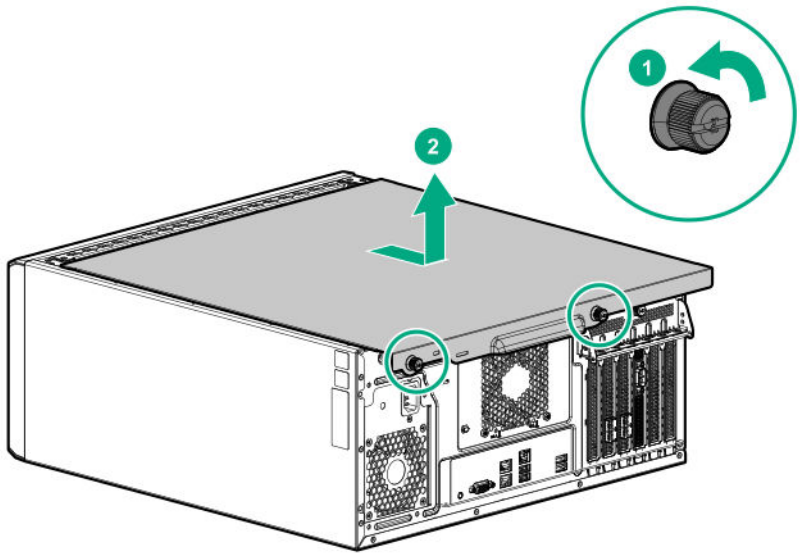
WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

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

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

Procedure

1. **Power down the server**.
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Disconnect all peripherals cables from the server.
4. If a Kensington security cable is installed, disconnect it from the rear panel. See the security cable documentation for instructions.
5. Do one of the following:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
6. Remove the access panel:
   a. Loosen the access panel thumbscrews.
   b. Slide and remove the access panel from the server.



Remove the front bezel

Procedure

1. If the bezel is locked, **power down the server**.
2. Remove all power:

a. Disconnect each power cord from the power source.

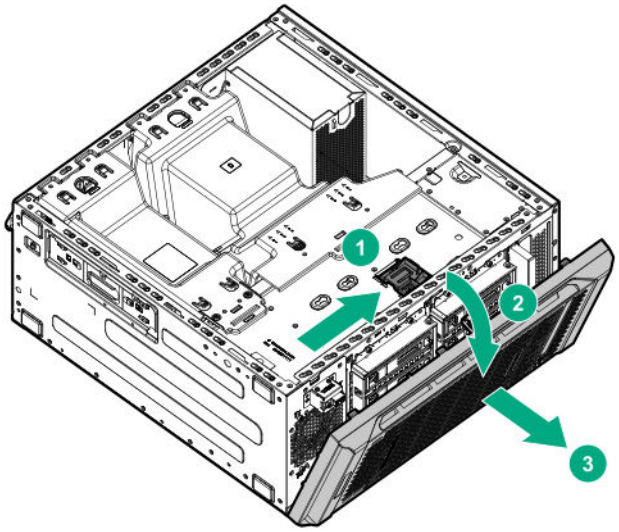
b. Disconnect each power cord from the server.

3. If the front bezel is locked by the internal locker, **remove the access panel**.
4. Open and remove the front bezel:

   a. Slide up the internal locker.

   b. Open the front bezel.

   c. Remove the front bezel.



Remove the PCI air baffle

Procedure

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

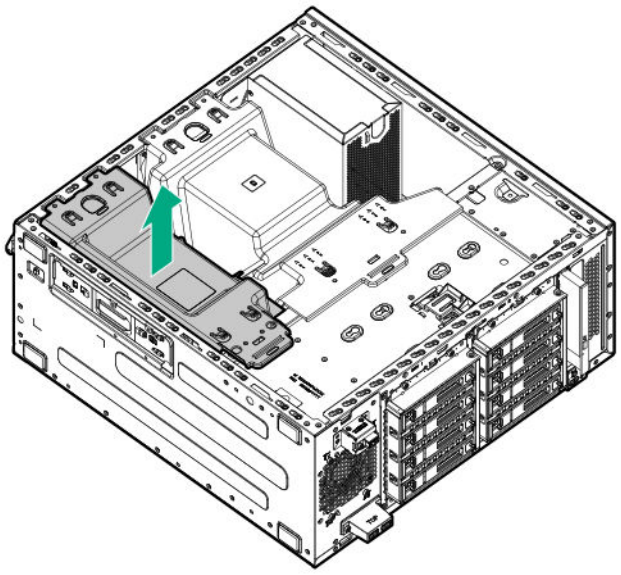
   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the server.

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

   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.

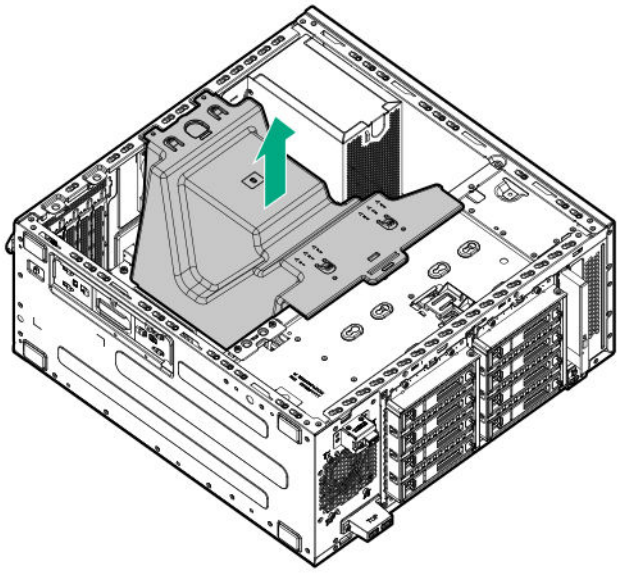
5. **Remove the access panel**.
6. Remove the PCI air baffle.



Remove the system air baffle

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:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.
6. **Remove the PCI air baffle**.
7. Pull the system air baffle straight up and out of the chassis.

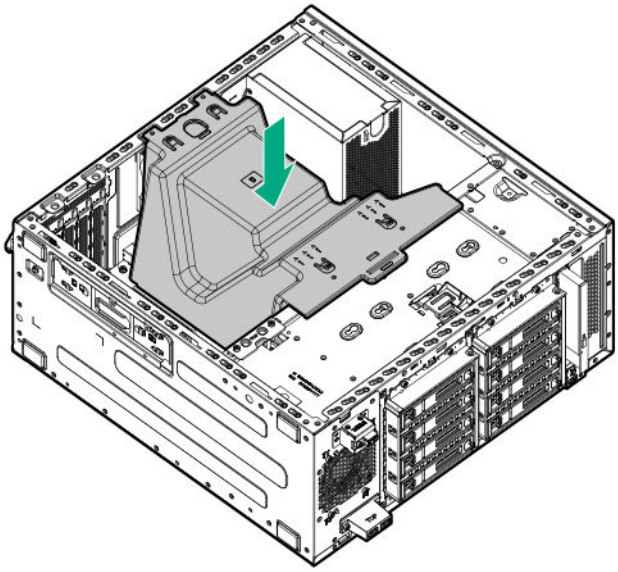


Install the system air baffle

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

Procedure

1. Install the system air baffle straight down in the chassis.



2. **Install the PCI air baffle**
3. **Install the front bezel**.
4. **Install the access panel**.
5. Do one of the following:

- Server in rack mode: **Install the server into the rack**.
- Server in tower mode: Return the server to an upright position.

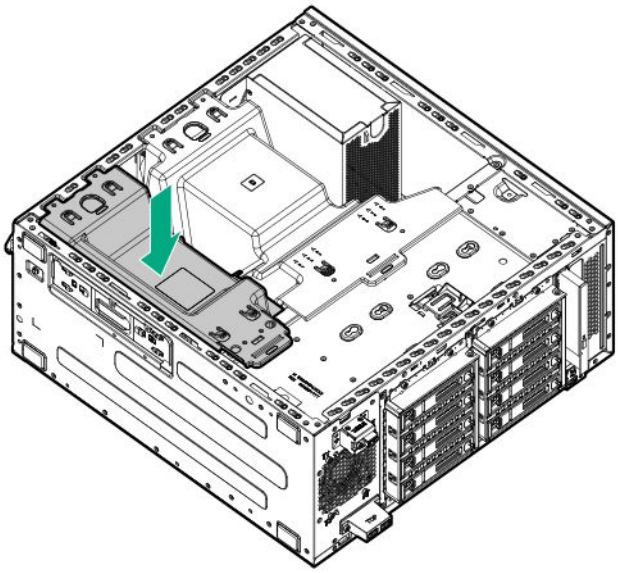
6. Connect all peripheral cables to the server.
7. Connect each power cord to the server.
8. Connect each power cord to the power source.
9. **Power up the server**.

Install the PCI air baffle

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

Procedure

1. Install the PCI air baffle.

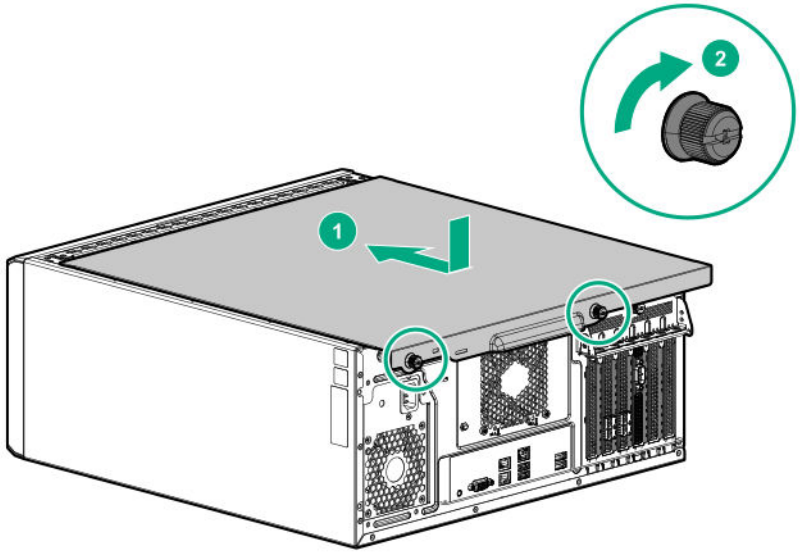


2. **Install the front bezel**.
3. **Install the access panel**.
4. Do one of the following:
   - Server in rack mode: **Install the server into the rack**.
   - Server in tower mode: Return the server to an upright position.
5. Connect all peripheral cables to the server.
6. Connect each power cord to the server.
7. Connect each power cord to the power source.
8. **Power up the server**.

Install the access panel

Procedure

1. Install the access panel:
   a. Place the access panel on the chassis, and slide it towards the front of the server.
   b. Tighten the thumbscrews.

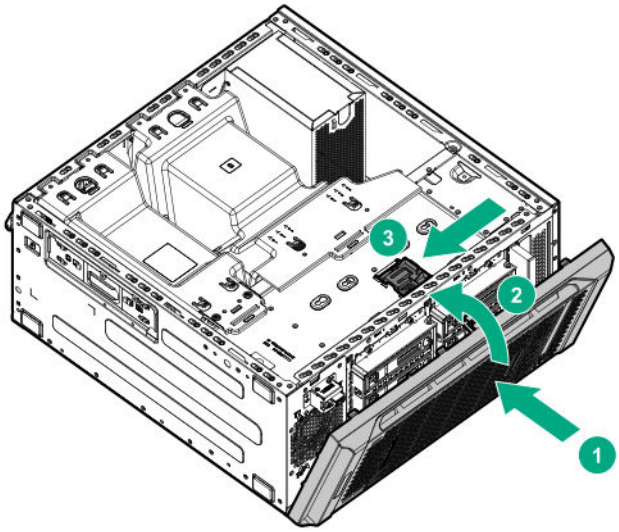


2. If a Kensington security cable was removed, connect it to the rear panel. See the security cable documentation for instructions.
3. Do one of the following:
   - Server in rack mode: **Install the server into the rack**.
   - Server in tower mode: Return the server to an upright position.
4. Connect all peripheral cables to the server.
5. Connect each power cord to the server.
6. Connect each power cord to the power source.
7. **Power up the server**.

Install the front bezel

Procedure

1. Install and close the front bezel.



2. Do one of the following:
   - Lock the internal locker.
   - Leave the internal locker in unlock position if you want to access the front panel any time without removing the access panel.
3. **Install the access panel**.
4. Do one of the following:
   - Server in rack mode: **Install the server into the rack**.
   - Server in tower mode: Return the server to an upright position.
5. Connect all peripheral cables to the server.
6. Connect each power cord to the server.
7. Connect each power cord to the power source.
8. **Power up the server**.

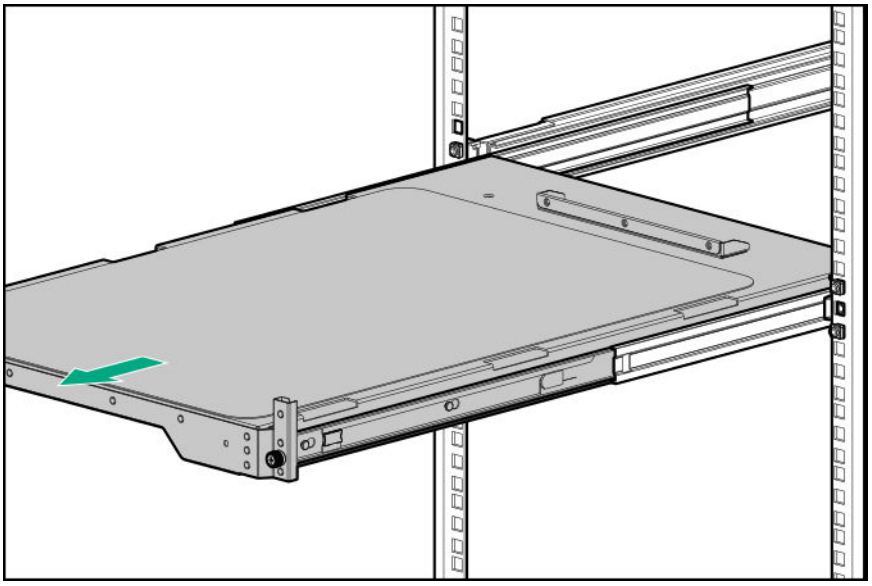
Install the server into the rack

Prerequisites

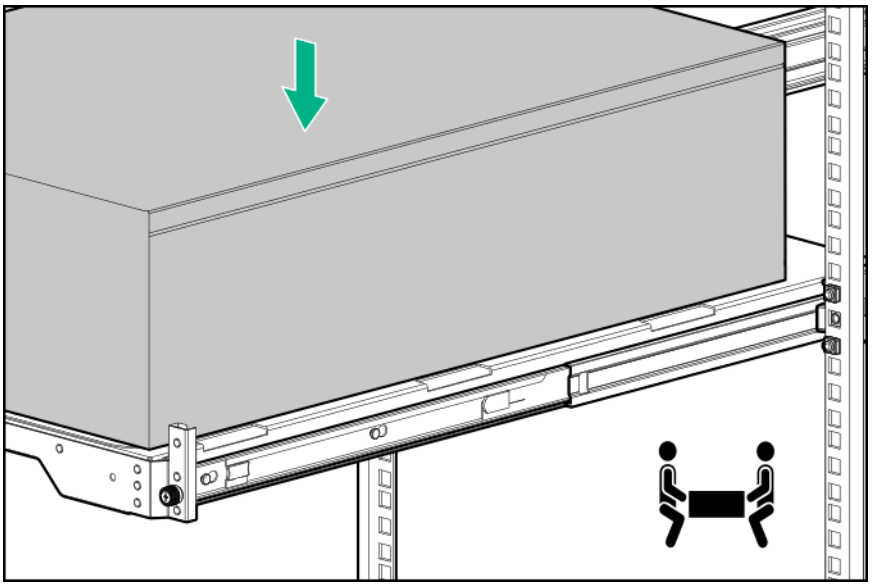
Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

Procedure

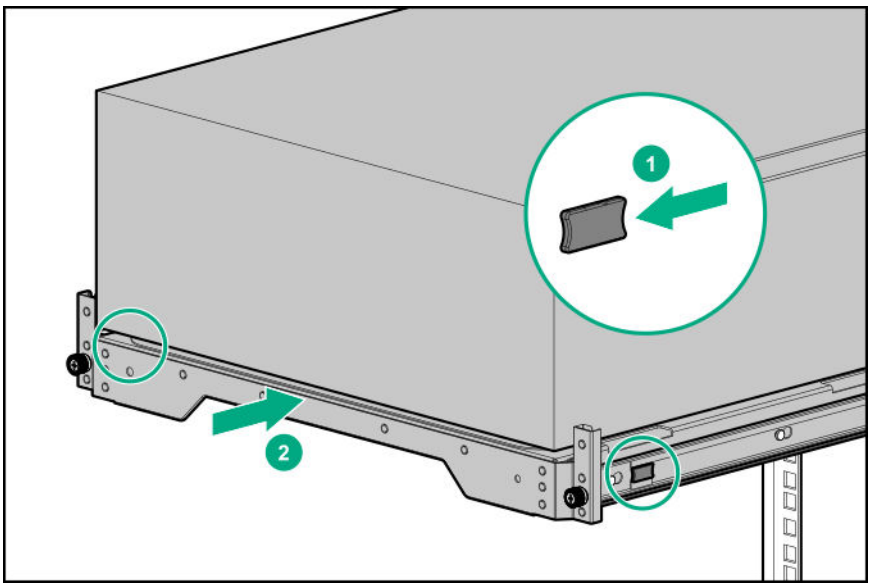
1. Grasp the tray notch and extend the server tray out of the rack.



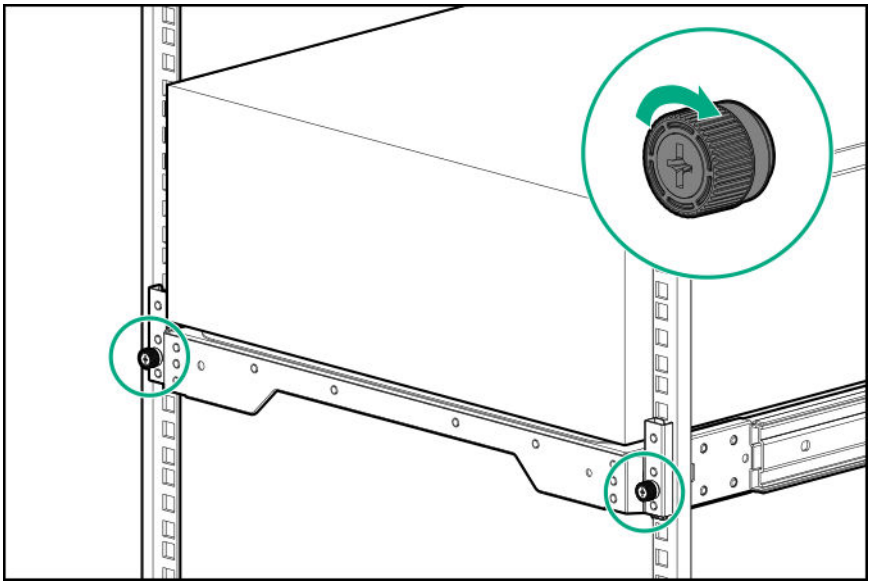
2. Place the server at the center of the server tray.
   Align the front panel of the server with the edge of the tray.



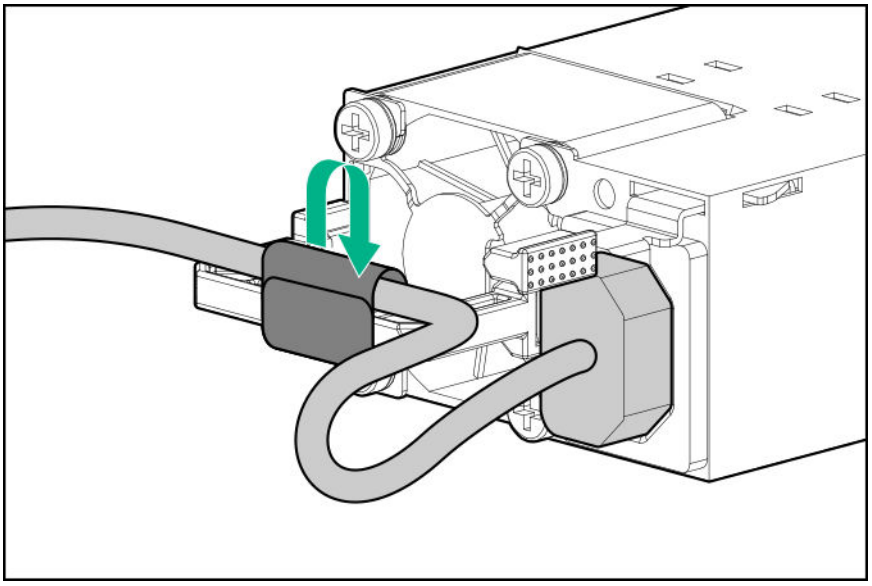
3. Press and hold the blue rail-release tabs, and then slide the server tray back into the rack.



4. Tighten the server tray thumbscrews.



5. Connect all peripheral cables and power cords to the rear panel.
6. Secure the power cord with the strain relief strap. Roll the extra length of the strap around the power input module handle.



7. Connect each power cord to the power source.
8. **Power up the server**.
9. **Enable the increased cooling function**.

The installation is complete.

Enable the increased cooling function

The server generates more heat when it is installed in a rack. To maintain proper cooling, increase the fan speed.

Procedure

1. From the **System Utilities** screen, select **System Configuration** > **BIOS/Platform Configuration (RBSU)** > **Advanced Options** > **Fan and Thermal Options** > **Thermal Configuration**.
2. Select **Increased Cooling**
3. Save your setting.

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.

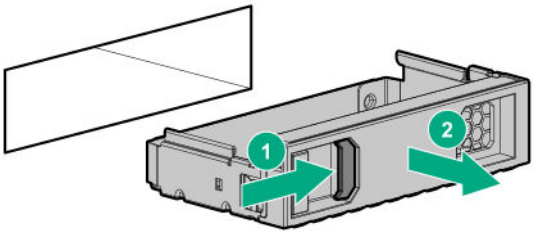
Removing and replacing a drive blank

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

Removing and replacing an LFF drive blank

Procedure

1. **Remove the front bezel**.
2. Remove the drive blank.

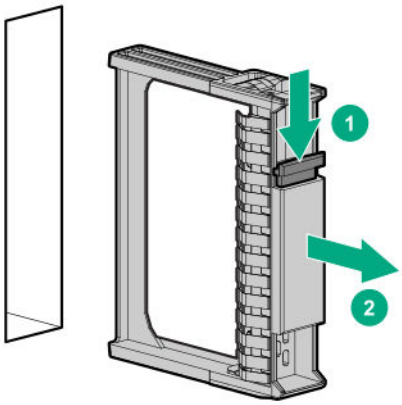


3. To replace the blank, slide the blank into the bay until it locks into place.

Removing and replacing an SFF drive blank

Procedure

1. **Remove the front bezel**.
2. Remove the drive blank.



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

Removing and replacing drives

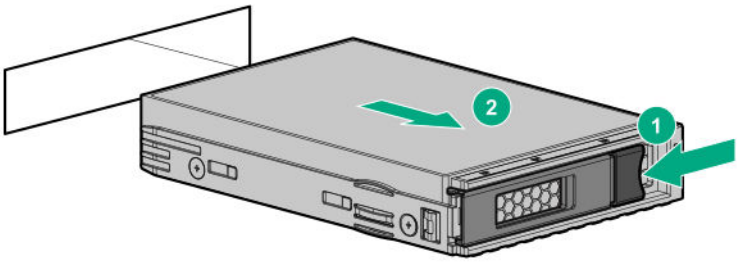
Removing and replacing the hot-plug drive

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

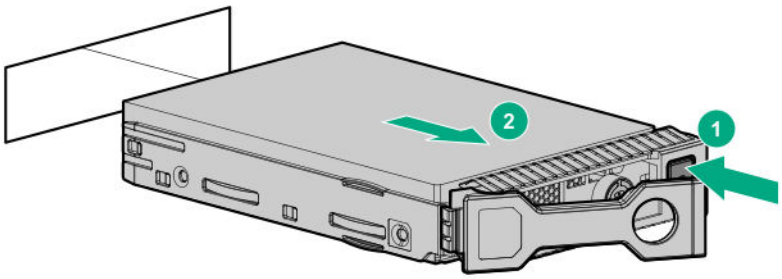
Procedure

1. **Remove the front bezel**.
2. Back up all server data on the drive.
3. **Determine the status of the drive from the drive LED definitions**.
4. Remove the drive:

- LFF



- SFF



To replace the component, reverse the removal procedure.

Removing and replacing the non-hot-plug drive

Prerequisites

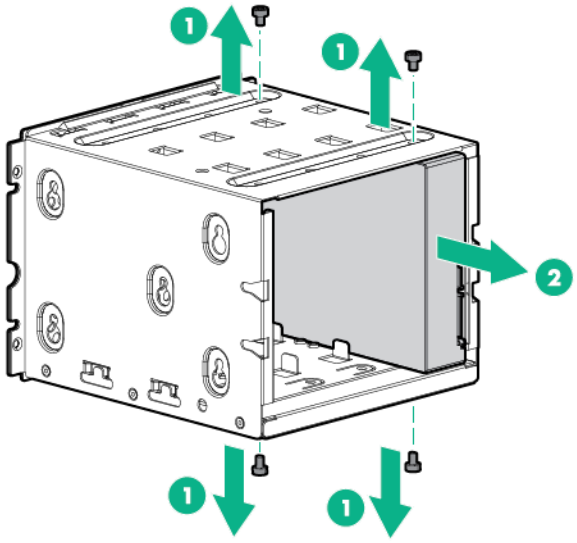
Before you perform this procedure, make sure you have the T-15 Torx screwdriver available.

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:

- Server in rack mode: **Remove the server from the rack**.
- Server in tower mode: **Position the tower server for hardware configuration**.

5. **Remove the access panel**.
6. **Remove the front bezel**.
7. **Remove the PCI air baffle**.
8. **Remove the system air baffle**.
9. Disconnect all existing drive cables.
10. **Remove the non-hot-plug drive cage**.
11. Label the drives before removing them. The drives must be returned to their original locations.
12. Remove the drives.



To replace the component, reverse the removal procedure.

Removing and replacing the front panel LEDs cable

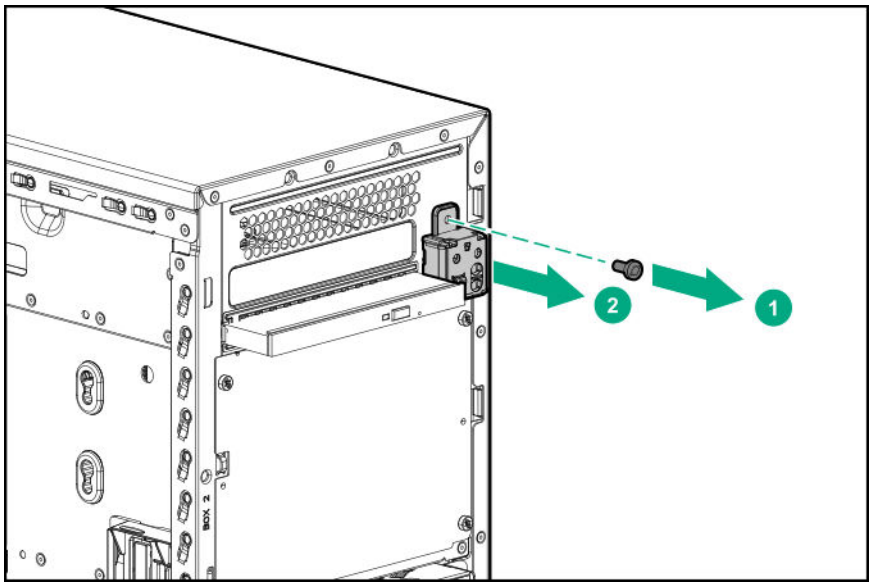
Prerequisites

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:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.
6. **Remove the front bezel**.
7. **Remove the PCI air baffle**.
8. **Remove the system air baffle**.
9. Disconnect the front panel LEDs cable from the system board.
10. Remove the front panel LEDs cable:
    a. Remove the screw.
    b. Remove the front panel LEDs cable from the front panel.



To replace the component, reverse the removal procedure.

Removing and replacing the front panel USB ports cable assembly

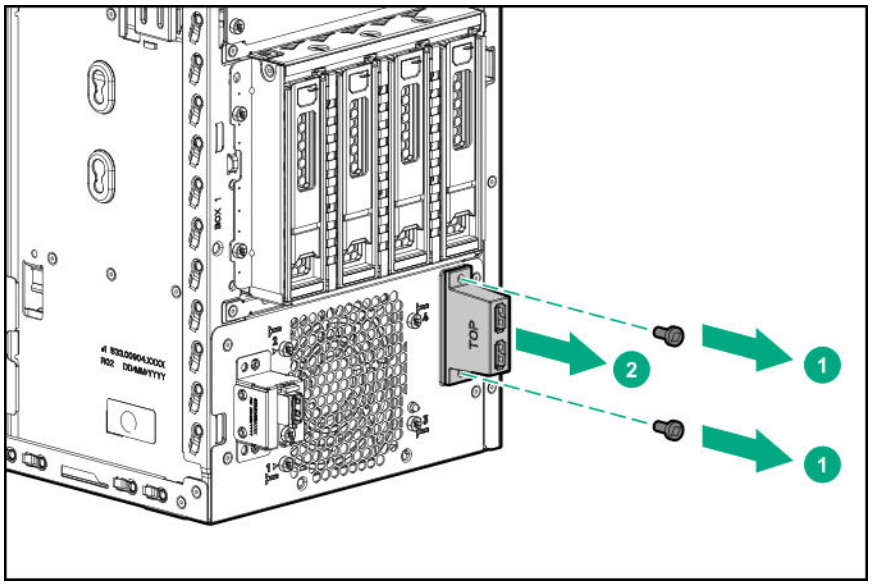
Prerequisites

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:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.
6. **Remove the front bezel**.
7. **Remove the PCI air baffle**.
8. **Remove the system air baffle**.
9. Disconnect the front USB 3.0 ports cable from the system board.
10. Remove the front panel USB ports cable:
    a. Remove the screws.
    b. Remove the front panel USB ports cable from the front panel.



To replace the component, reverse the removal procedure.

Removing and replacing the iLO Service Port 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.

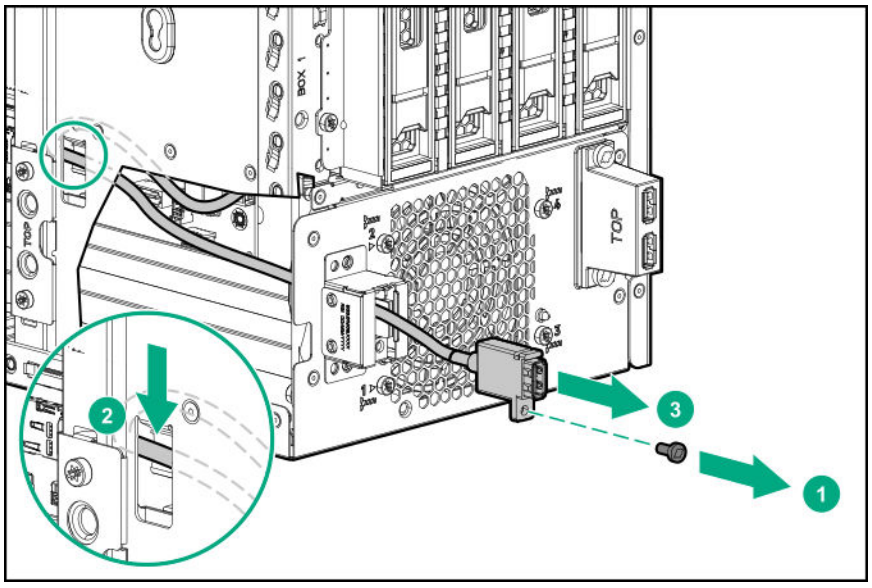
b. Disconnect each power cord from the server.

3. Disconnect all peripheral cables from the server.
4. Do one of the following:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.
6. **Remove the front bezel**.
7. **Remove the PCI air baffle**.
8. **Remove the system air baffle**.
9. Disconnect the iLO Service Port cable from the system board.
10. Remove the iLO Service Port cable:

    a. Remove the screw.

    b. Release the cable secured in the cable clip on the chassis.

    c. Pull the iLO Service Port cable away from the front panel.



To replace the component, reverse the removal procedure.

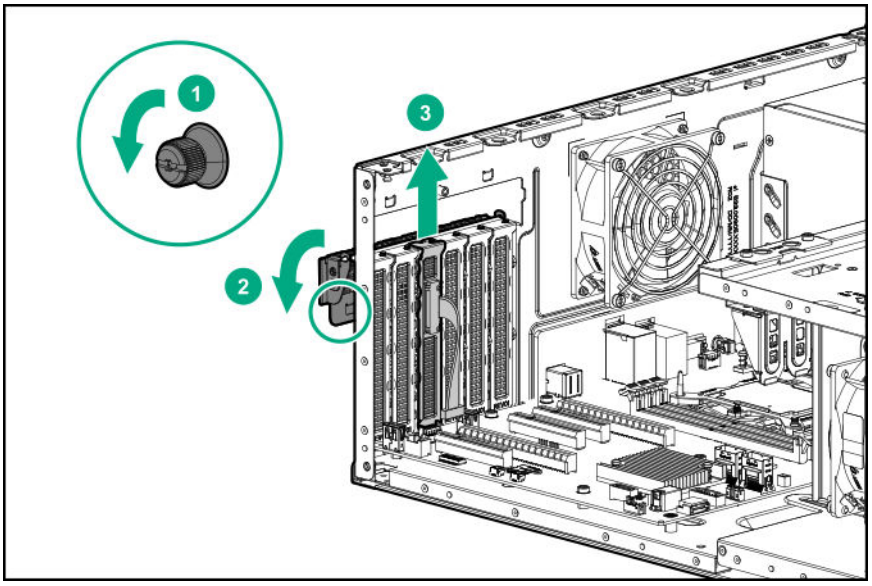
Removing and replacing the serial port cable

Prerequisites

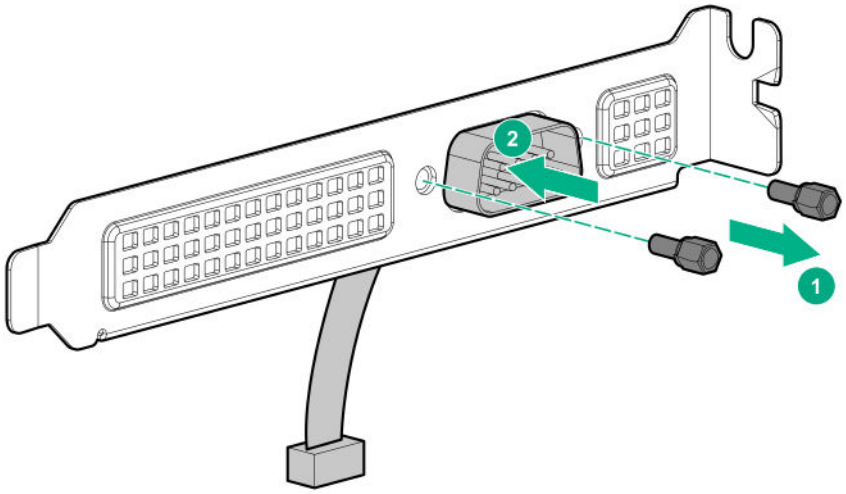
Before you perform this procedure, make sure that you have a 5.0 mm hex nut screwdriver available.

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:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.
6. **Remove the PCI air baffle**.
7. **Remove the system air baffle**.
8. Remove the serial port bracket:
   a. Loosen the thumbscrew and open the PCIe slot cover retainer.
   b. Disconnect the serial cable from the system board and remove the serial port bracket.



9. Remove the serial port cable from the bracket:
   a. Remove the nut screws.
   b. Detach the serial port cable from the bracket.



To replace the component, reverse the removal procedure.

DIMM-processor compatibility

The installed processor determines the type of DIMM that is supported in the server:

- First-generation Intel Xeon Scalable processors support DDR4-2666 DIMMs.
- Second-generation Intel Xeon Scalable processors support DDR4-2933 DIMMs.

Mixing DIMM types is not supported. Install only the supported DDR4-2666 or DDR4-2933 DIMMs in the server.

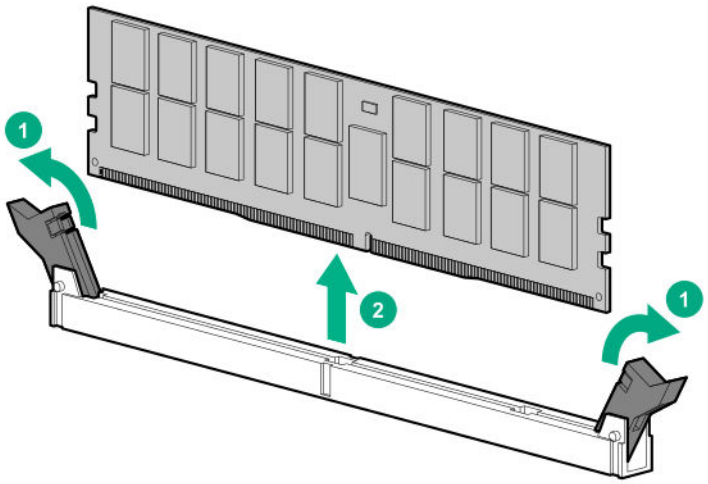
Removing and replacing the DIMM

IMPORTANT: Before replacing a DIMM, expansion board, or any other circuit board component due to a perceived hardware error, verify 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:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.

6. **Remove the PCI air baffle**.
7. **Remove the system air baffle**.
8. Remove the DIMM.

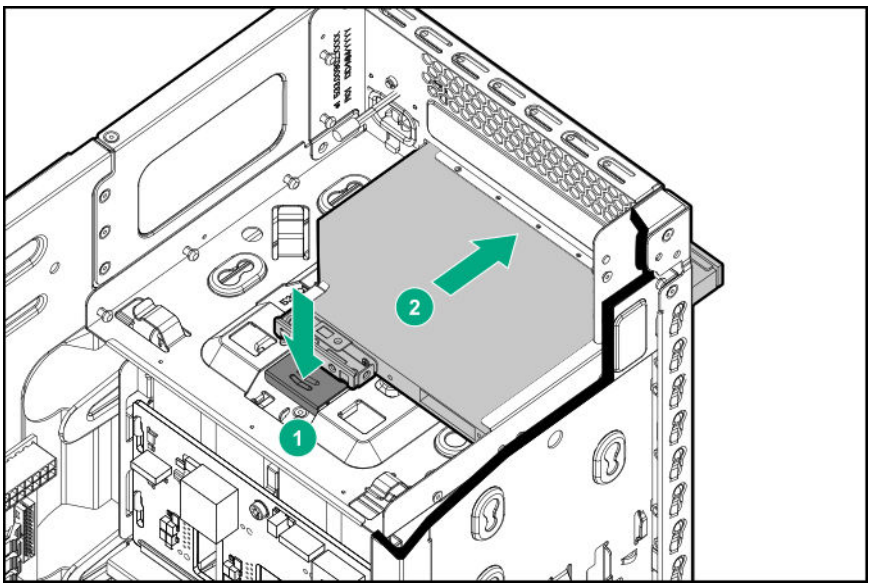


To replace the component, reverse the removal procedure.

Removing and replacing the optical drive

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:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.
6. **Remove the system air baffle**.
7. **Remove the PCI air baffle**.
8. Disconnect all cables from the optical drive, and then remove the cables from the clip and metal tabs.
9. Press the metal tab to remove the optical drive.



To replace the component, reverse the removal procedure.

Removing and replacing the four-bay LFF non-hot-plug drive cage

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

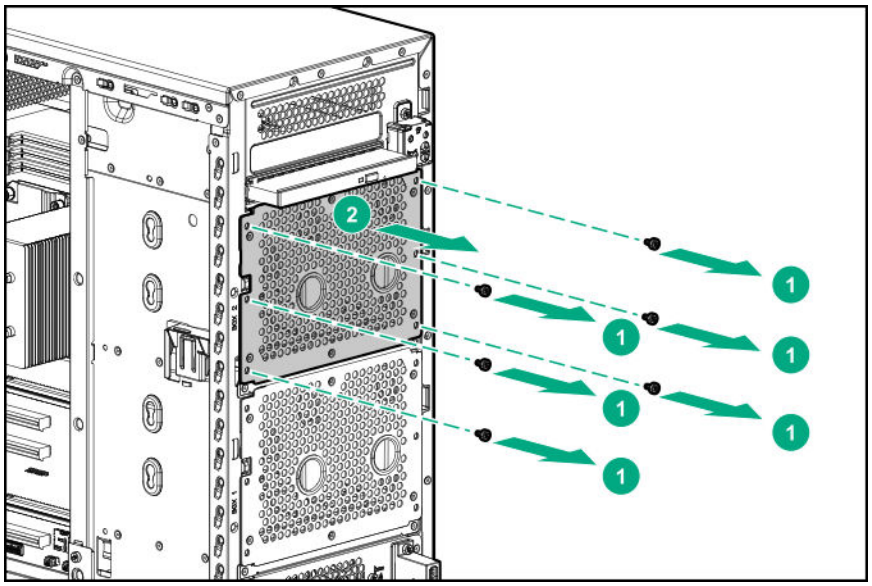
Prerequisites

Before you perform this procedure, make sure that you have the 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:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.
6. **Remove the front bezel**.
7. **Remove the PCI air baffle**.
8. **Remove the system air baffle**.
9. Disconnect all existing drive cables.

10. Remove the four-bay LFF non-hot-plug drive cage.



11. **Remove the drives**.

To replace the component, reverse the removal procedure.

Removing and replacing the four-bay LFF drive backplane

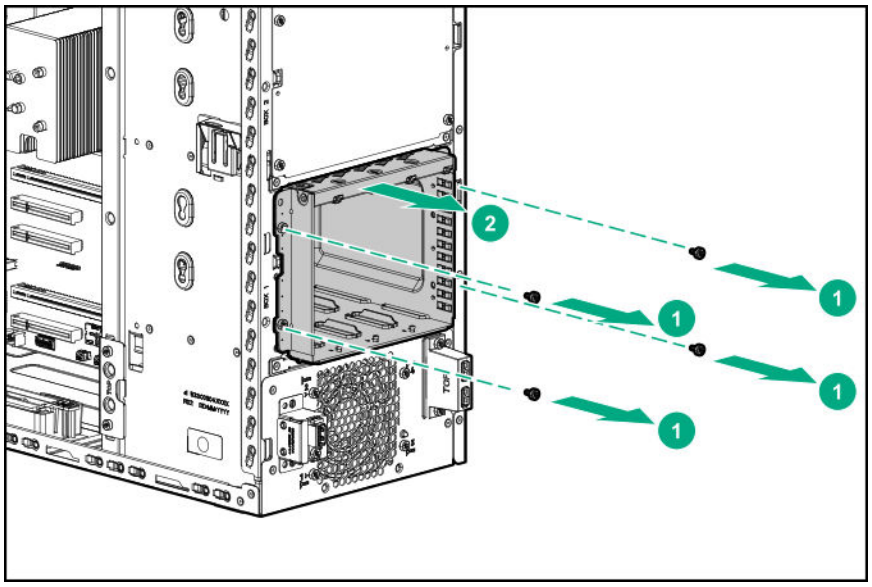
Prerequisites

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

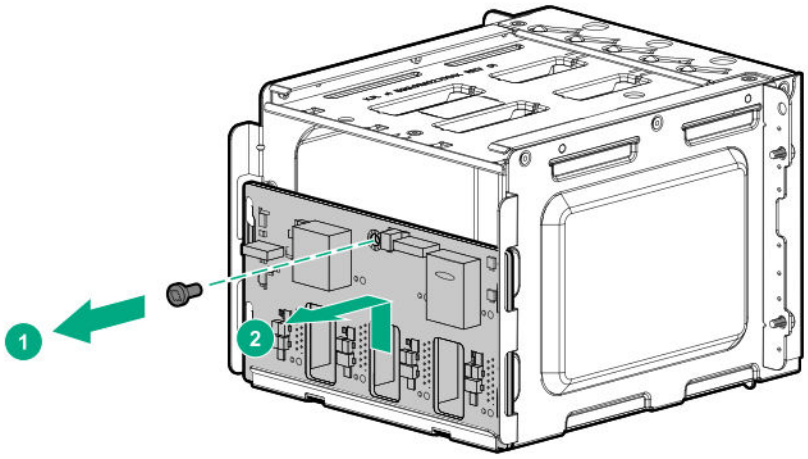
Procedure

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:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.
6. **Remove the front bezel**.
7. **Remove the PCI air baffle**.
8. **Remove the system air baffle**.
9. Disconnect all existing drive cables from the drive backplane.

10. Label the drives before removing them. The drives and drive blanks must be returned to their original locations.
11. Remove all **drives** and **drive blanks**.
12. Remove the drive cage.



13. Remove the drive backplane.



To replace the component, reverse the removal procedure.

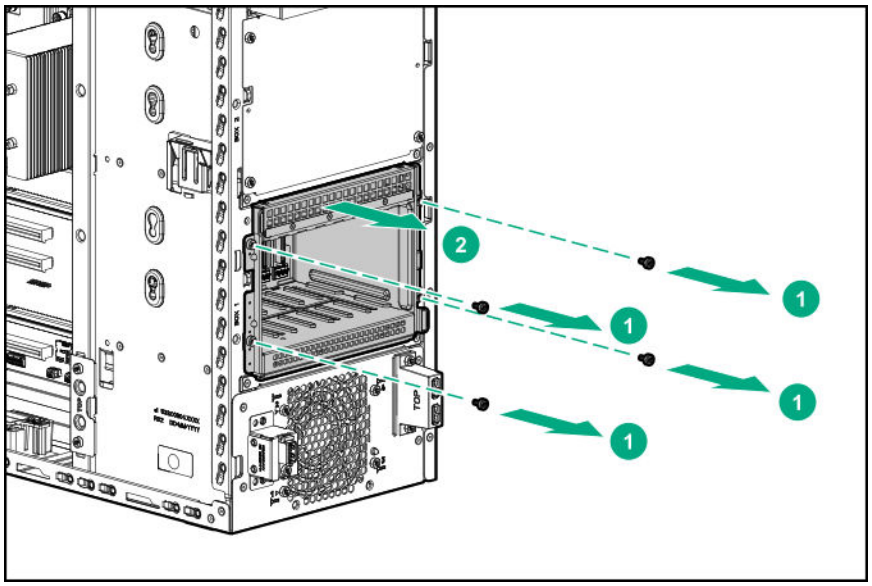
Removing and replacing the eight-bay SFF drive cage assembly

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:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.
6. **Remove the front bezel**.
7. **Remove the PCI air baffle**.
8. **Remove the system air baffle**.
9. Disconnect all existing drive cables.
10. Label the drives before removing them. The drives must be returned to their original locations.
11. Remove all **drives** and **drive blanks**.
12. Remove the drive cage assembly.



To replace the component, reverse the removal procedure.

Removing and replacing the M.2 SSD enablement board

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

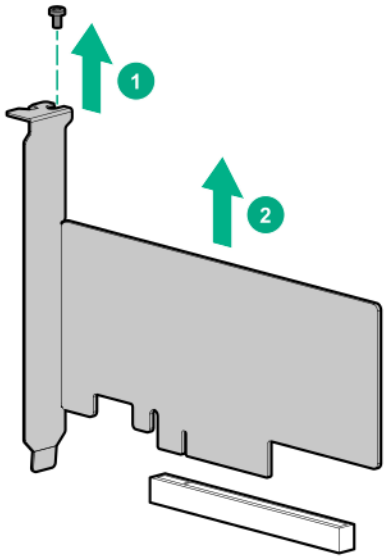
CAUTION: Before replacing a DIMM, expansion board, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot. Do not bend or flex circuit boards when reseating components.

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:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.
6. **Remove the PCI air baffle**.
7. **Remove the system air baffle**.
8. Disconnect the M.2 SATA cables from the enablement board.
9. Remove the M.2 SSD enablement board.



10. **Remove the M.2 SSD**.

To replace the component, reverse the removal procedure.

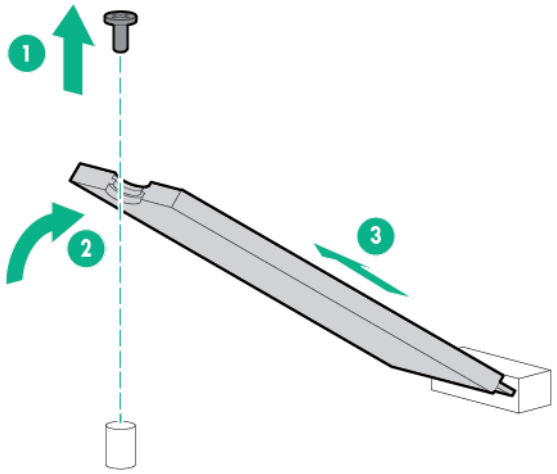
Removing and replacing the M.2 SSD

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:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.
6. **Remove the PCI air baffle**.
7. **Remove the system air baffle**.
8. **Remove the M.2 SSD enablement board**.
9. Remove the M.2 SSD.



To replace the component, reverse the removal procedure.

Removing and replacing the HPE NS204i-p NVMe OS Boot Device option

Removing and replacing the boot device

Procedure

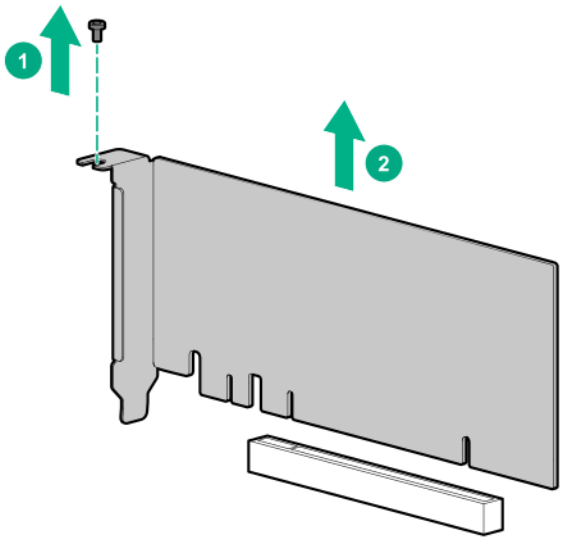
1. Observe the following alerts:

   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.

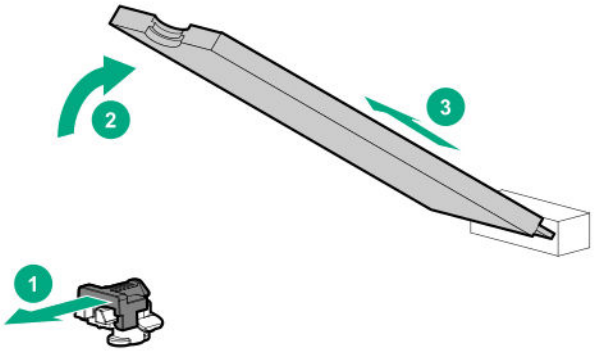
   WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

2. Back up all server data.
3. **Power down the server**.
4. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
5. Disconnect all peripheral cables from the server.
6. Do one of the following:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
7. **Remove the access panel**.

8. Remove the PCIe riser cage, if necessary.
9. Remove the boot device.



10. Remove the drives from the boot device.



Retain these drives for installation onto the replacement 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 model (110mm)
- 22080 model (80mm)

Two drives of the same physical size, or one of each size (80mm and 110mm), can be installed at the same time. Depending on the replacement drive model, you might be required to **relocate the M.2 drive retaining latches** on the boot device.

Prerequisites

Review the **boot device drive bay LEDs** to determine the failed drive.

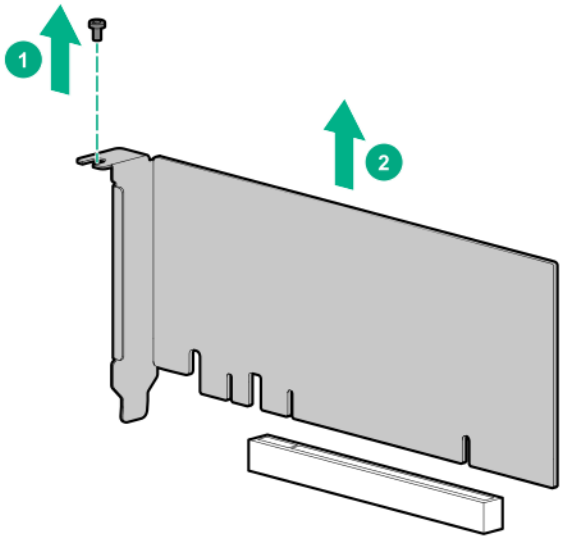
Procedure

1. Observe the following alerts:

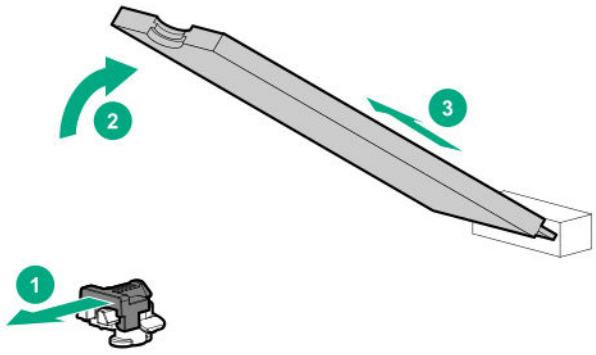
   CAUTION: The boot device and the drives installed on the boot device are not hot-pluggable. To remove the boot device, or a drive from the boot device, you must first power down the server.

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

2. Back up all server data.
3. **Power down the server**.
4. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
5. Disconnect all peripheral cables from the server.
6. Do one of the following:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
7. **Remove the access panel**.
8. Remove the PCIe riser cage, if necessary.
9. Remove the boot device.



10. Remove the failed drive from the boot device.

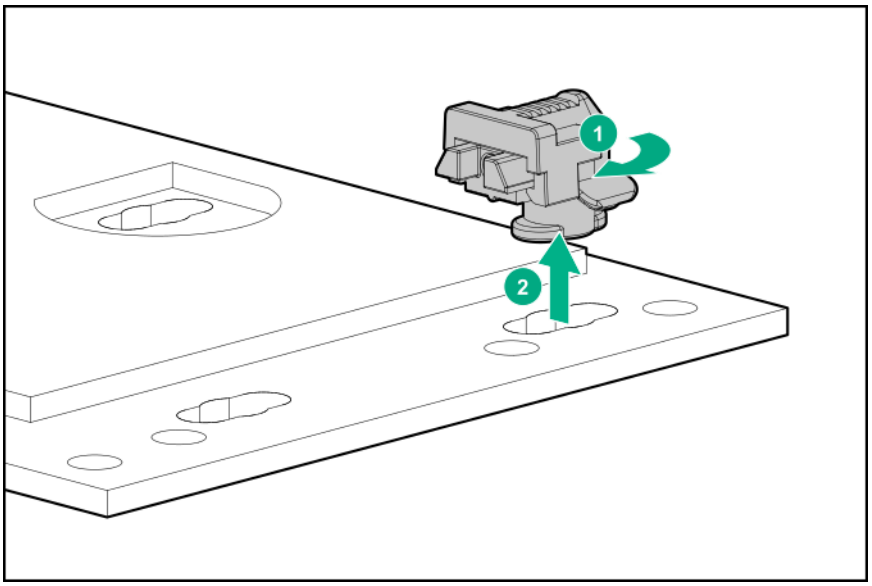


To replace the component, reverse the removal procedure.

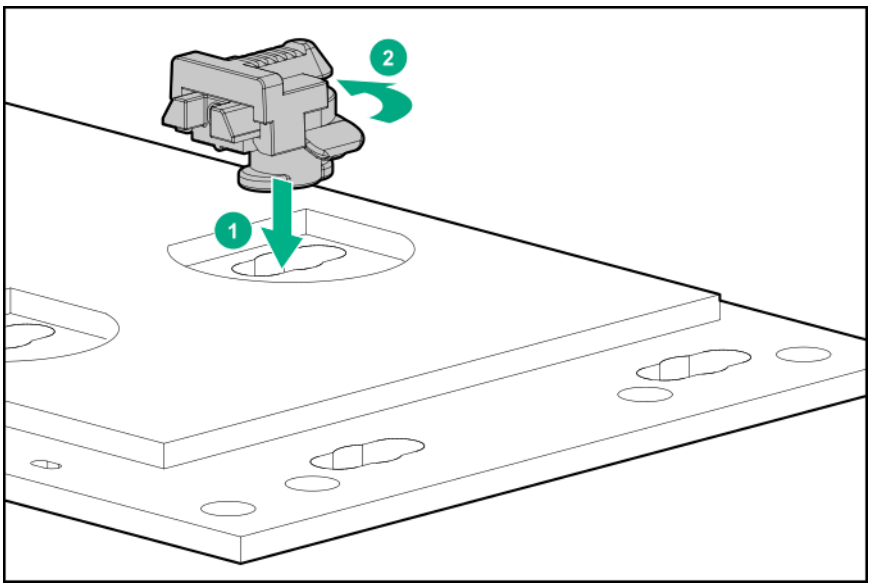
Relocating the M.2 drive retaining latches

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 expansion board

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

CAUTION: Before replacing a DIMM, expansion board, 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

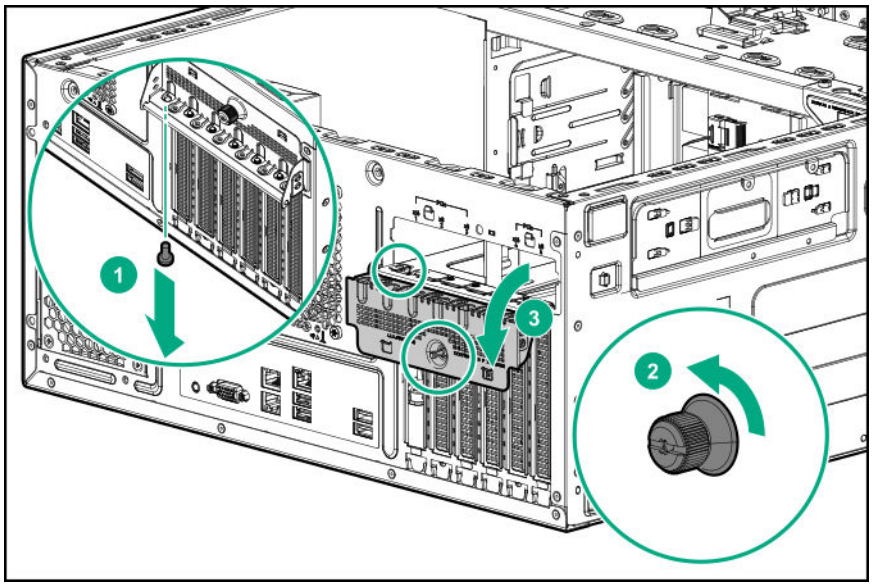
Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

Procedure

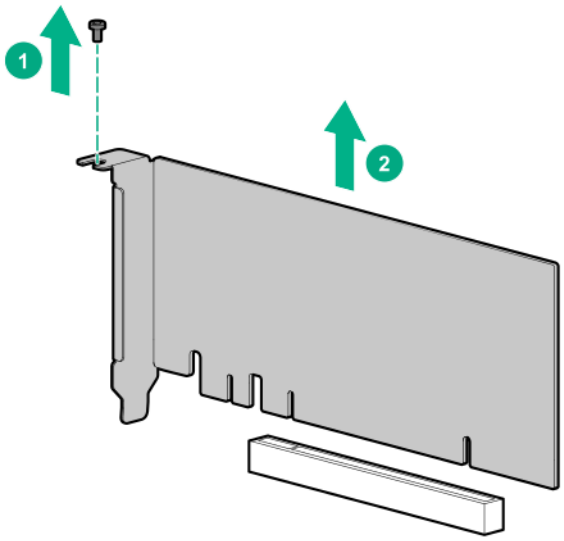
1. **Power down the server**.
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Disconnect all peripheral cables from the server.
4. Do one of the following:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.
6. **Remove the PCI air baffle**.
7. **Remove the system air baffle**.

8. Remove the expansion board:

   a. Open the PCI slot retainer.

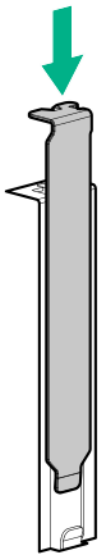


   b. Remove the expansion board.



9. Disconnect any internal cables that are connected to the expansion board.

10. If you do not intend to replace the expansion board, install the PCI slot retainer.



To replace the component, reverse the removal procedure.

Removing and replacing a Smart Array storage controller

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

CAUTION: Before replacing a DIMM, expansion board, 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.

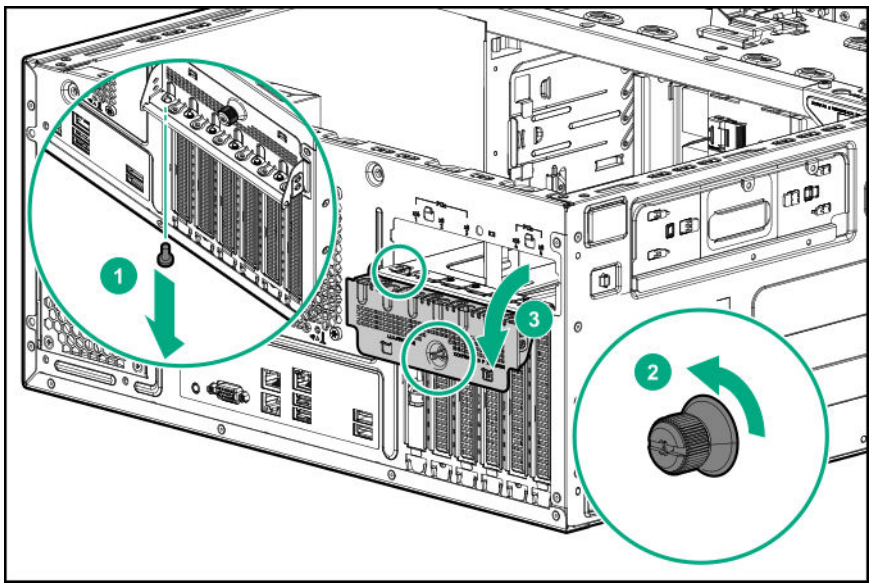
Prerequisites

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

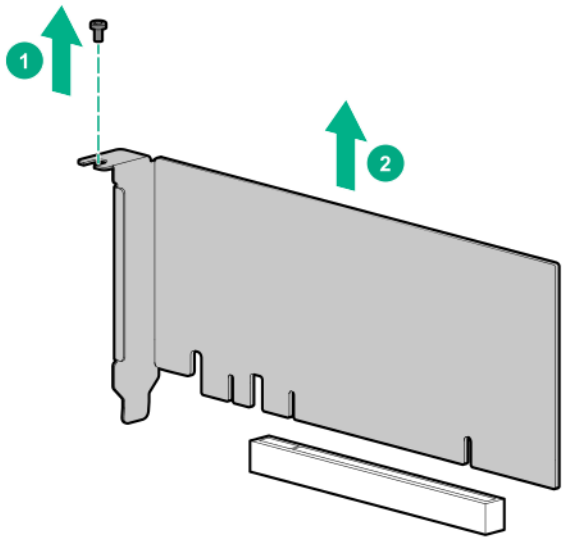
Procedure

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:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.
6. **Remove the PCI air baffle**.

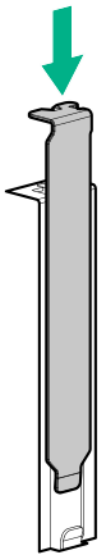
7. **Remove the system air baffle**.
8. Remove the storage controller:
   a. Open the PCI slot retainer.



   b. Remove the storage controller.



9. Disconnect all cables from the storage controller.
10. If you do not intend to replace the storage controller, install the PCI slot retainer.



To replace the component, reverse the removal procedure.

Removing and replacing the HPE 12G SAS Expander Card

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

CAUTION: Before replacing a DIMM, expansion board, 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.

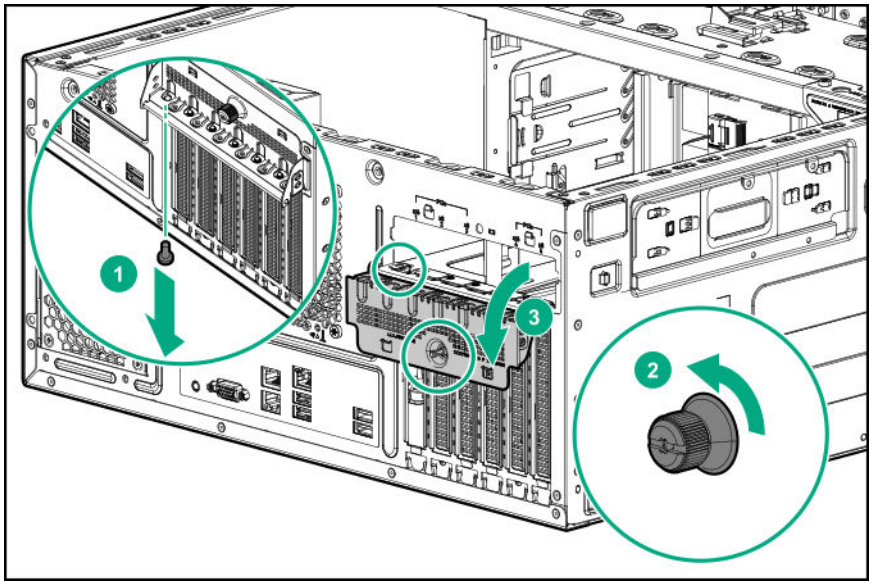
Prerequisites

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

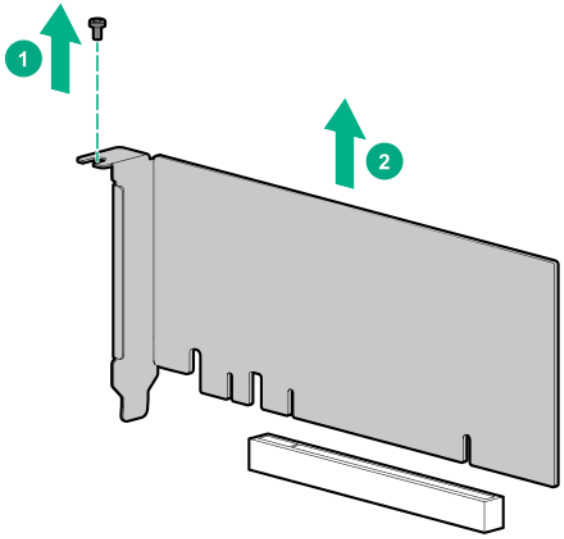
Procedure

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:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.
6. **Remove the PCI air baffle**.

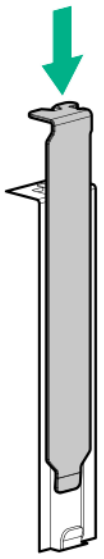
7. **Remove the system air baffle**.
8. Disconnect all SAS expander card cables from the storage controller.
9. Remove the SAS expander card:
   a. Open the PCI slot retainer.



   b. Remove the SAS expander card.



10. Disconnect all cables from the SAS expander card.
11. If you do not intend to replace the SAS expander card, install the PCI slot retainer.



To replace the component, reverse the removal procedure.

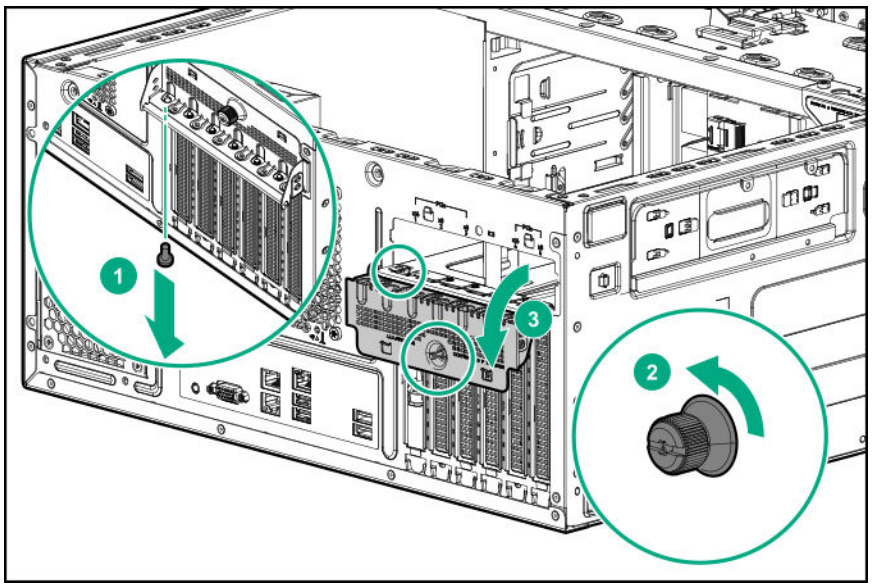
Removing and replacing the GPU

Prerequisites

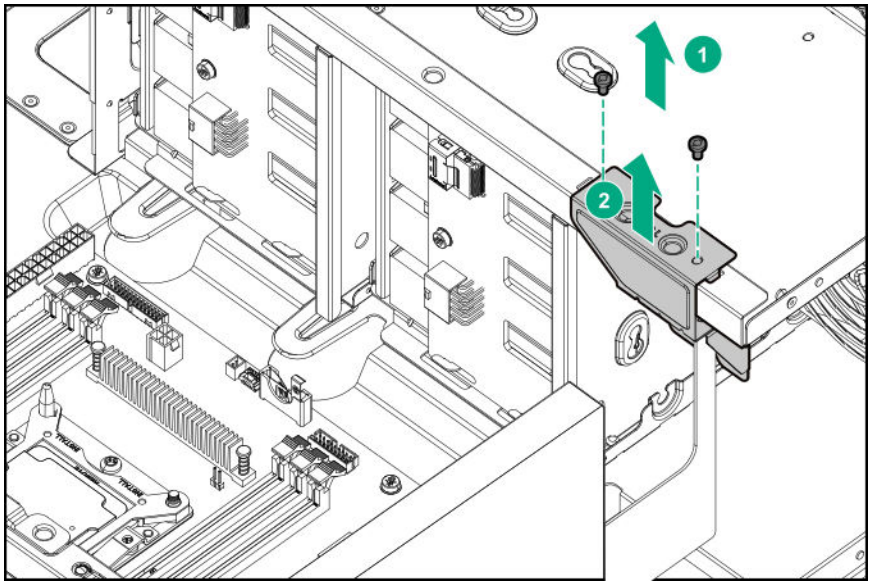
Before performing this procedure, make sure you have the T-15 Torx screwdriver available.

Procedure

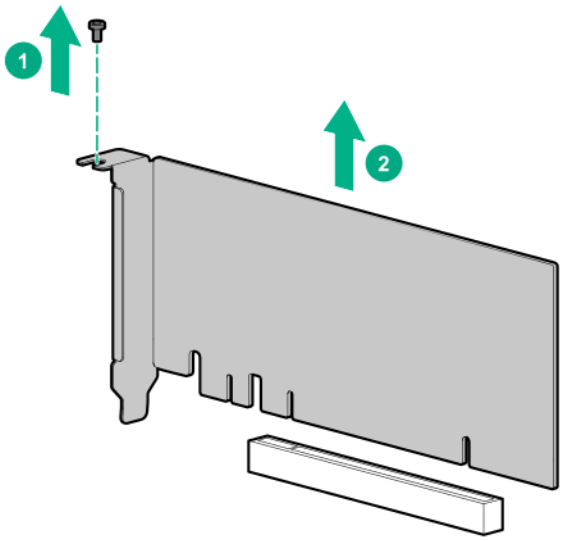
1. **Power down the server**.
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Disconnect all peripheral cables from the server.
4. Do one of the following:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.
6. **Remove the PCI air baffle**.
7. **Remove the system air baffle**.
8. Open the PCI slot retainer.



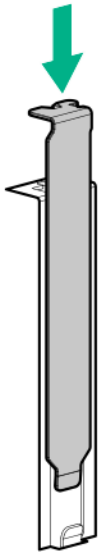
9. If replacing the full-length GPU in slot 4, remove the GPU holder.



10. Remove the GPU.



11. Disconnect any internal cables that are connected to the GPU.
12. If you do not intend to replace the GPU, install the PCI slot retainer.



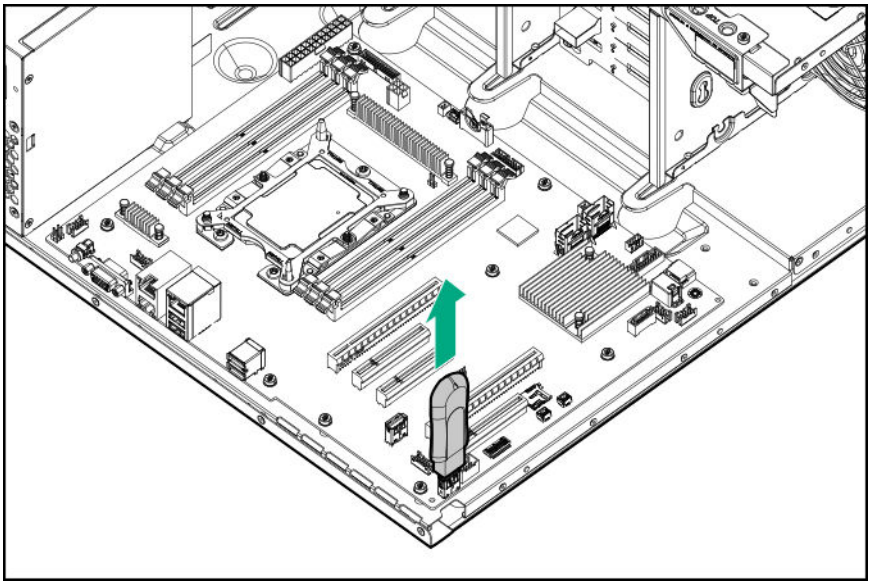
To replace the component, reverse the removal procedure.

Removing and replacing the 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:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.
6. **Remove the PCI air baffle**.
7. **Remove the system air baffle**.
8. Remove the USB device from the internal USB port.



To replace the component, reverse the removal procedure.

Removing and replacing the non-hot-plug power supply

Prerequisites

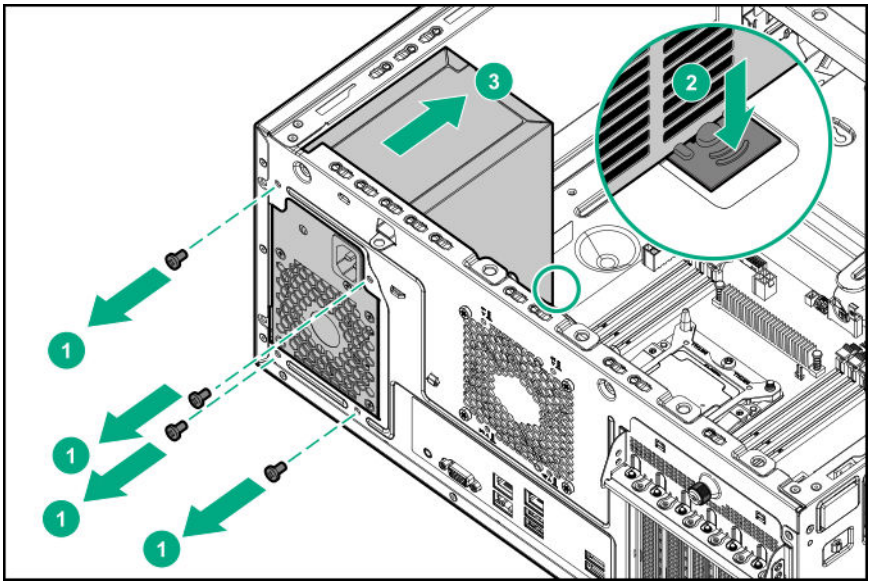
Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

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:

- Server in rack mode: **Remove the server from the rack**.
- Server in tower mode: **Position the tower server for hardware configuration**.

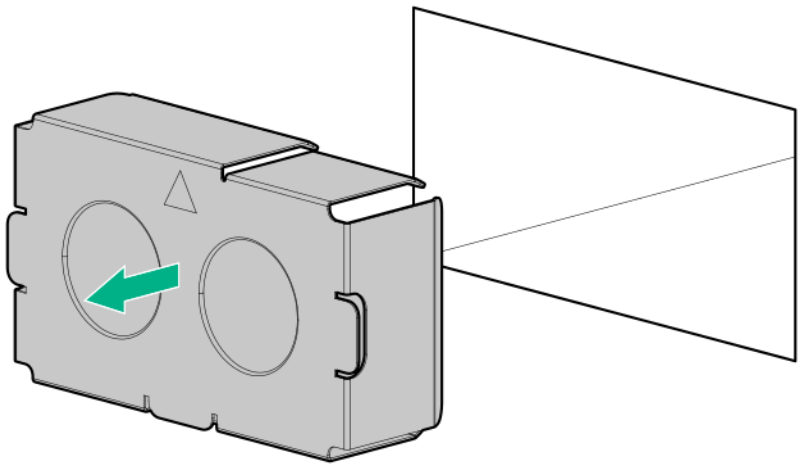
5. **Remove the access panel**.
6. **Remove the PCI air baffle**.
7. **Remove the system air baffle**.
8. Disconnect all power supply cables from the system board, drive cages, and devices
9. Remove the power supply.



To replace the component, reverse the removal procedure.

Removing and replacing the power supply 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.

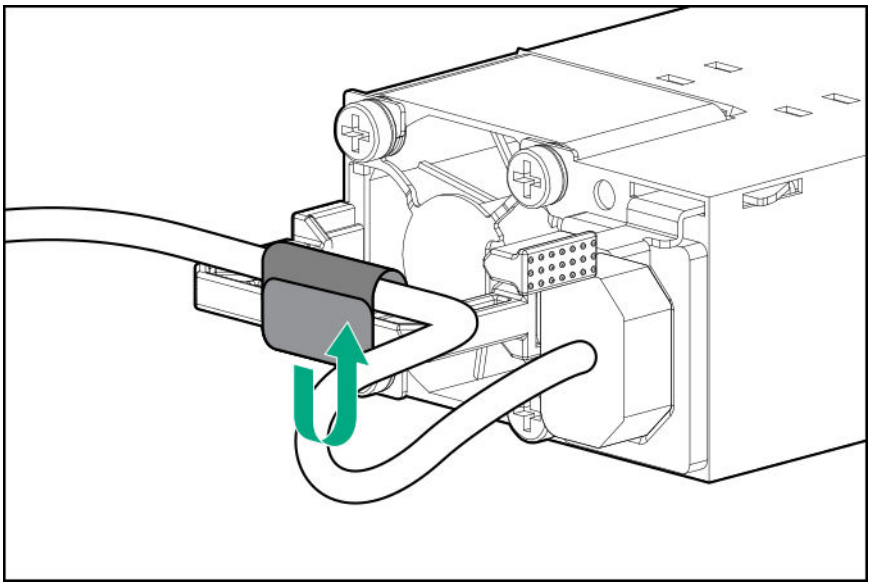


To replace the component, reverse the removal procedure.

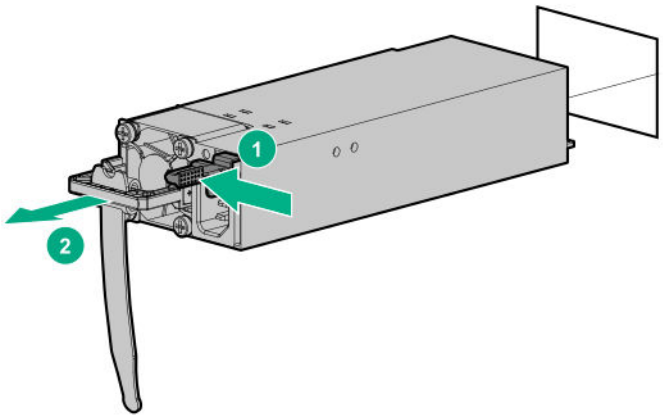
Removing and replacing a Flexible Slot power supply

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. Release the strain relief strap.



4. Remove the power supply.



To replace the component, reverse the removal procedure.

Removing and replacing the redundant power supply backplane module

Prerequisites

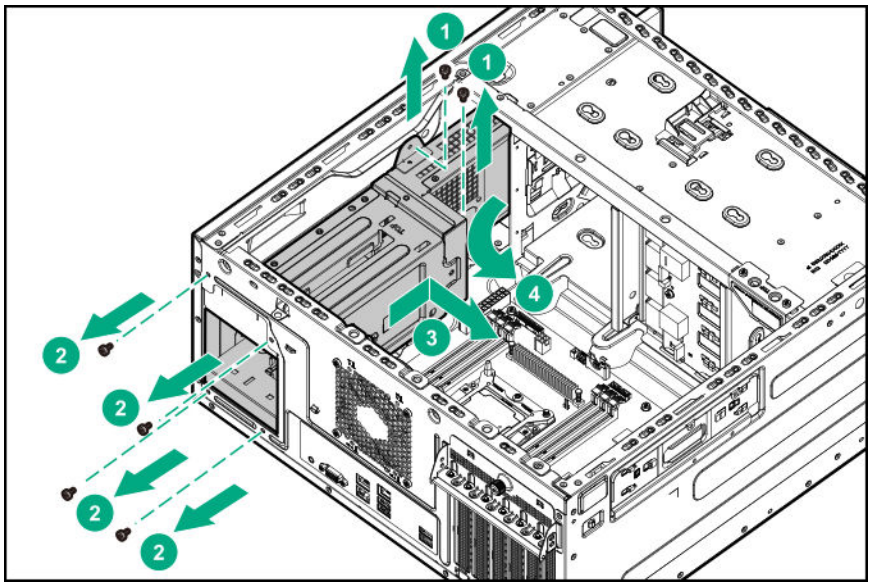
Before you perform this procedure, make sure that you have the following items available:

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

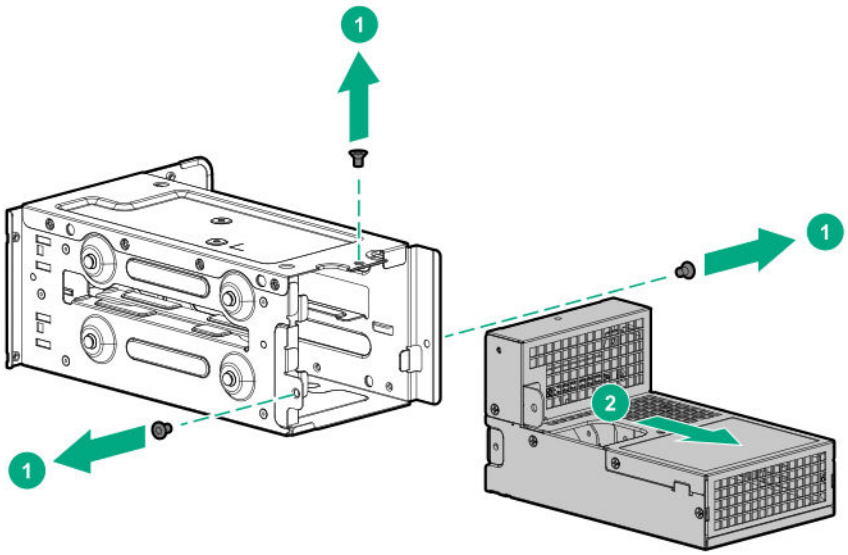
Procedure

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:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.
6. **Remove the PCI air baffle**.
7. **Remove the system air baffle**.
8. If installed, **remove the Flexible Slot power supply**.
9. Disconnect all cables from the system board, drive cages, and optical drive.

10. Remove the RPS backplane assembly from the bay.



11. Remove the RPS backplane module from the bracket.



To replace the component, reverse the removal procedure.

Fan replacement

Removing and replacing the default PCI fan

Prerequisites

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

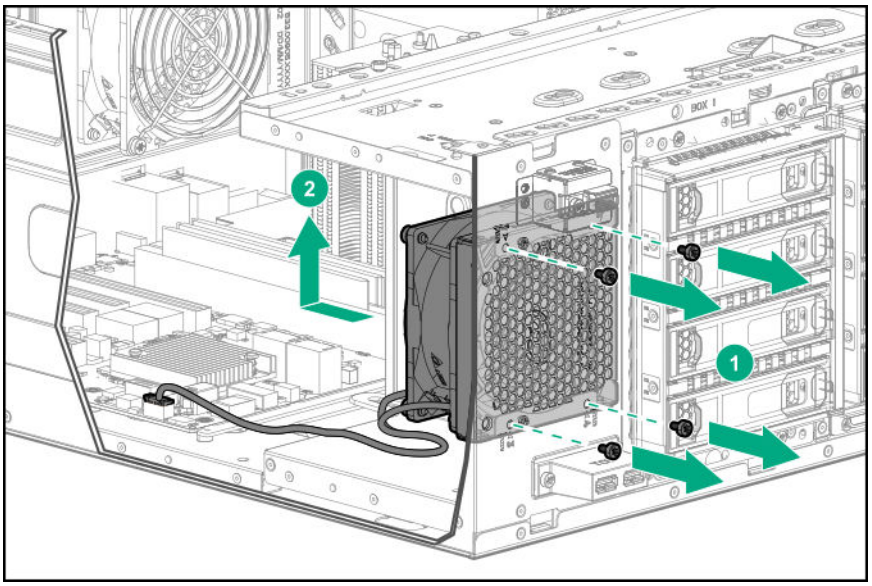
Procedure

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:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.
6. **Remove the PCI air baffle**.
7. **Remove the system air baffle**.
8. Disconnect the fan cable from the system board.
9. Remove the default PCI fan.



To replace the component, reverse the removal procedure.

Removing and replacing the default system fan

Prerequisites

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

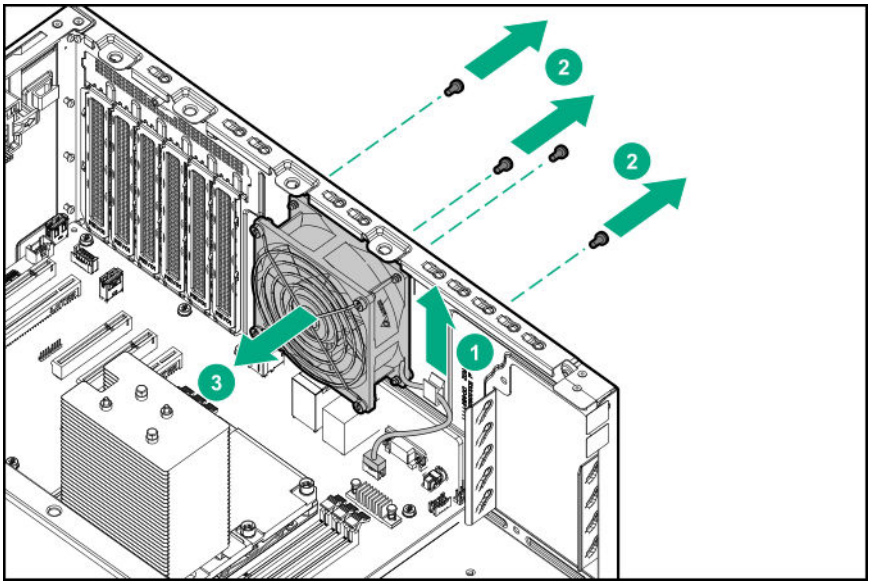
Procedure

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:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.
6. **Remove the PCI air baffle**.
7. **Remove the system air baffle**.
8. Disconnect the fan cable from the system board.
9. Remove the fan cable from the cable clip and then remove the default system fan.



To replace the component, reverse the removal procedure.

Removing and replacing the redundant fans

Prerequisites

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

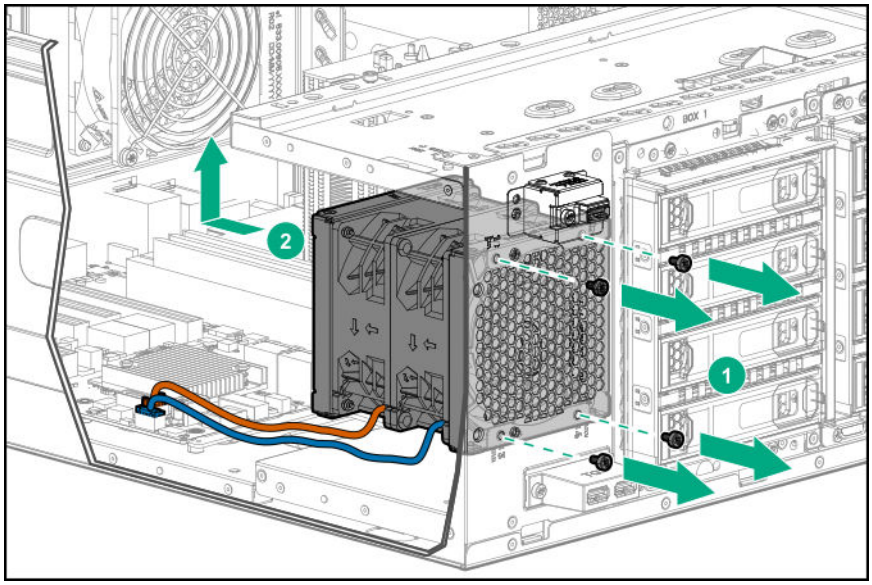
Procedure

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:

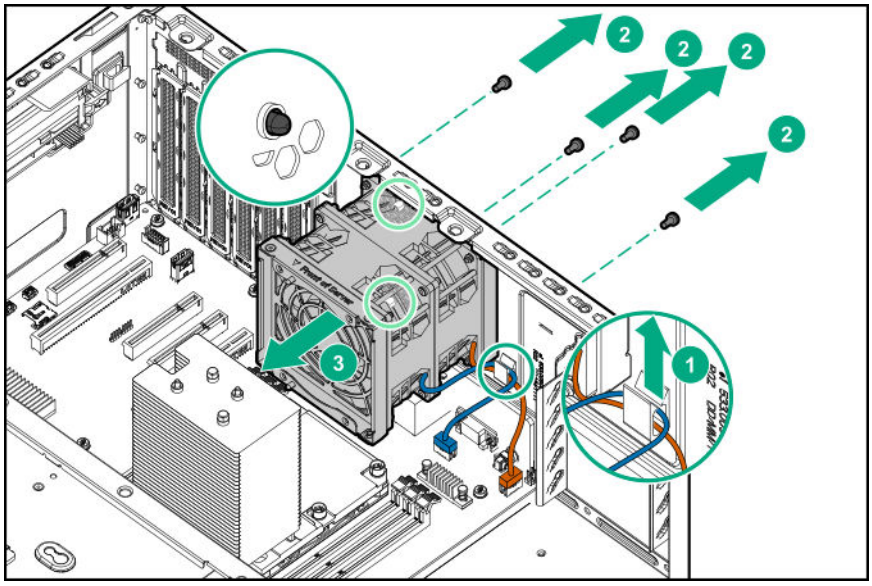
- Server in rack mode: **Remove the server from the rack**.
- Server in tower mode: **Position the tower server for hardware configuration**.

5. **Remove the access panel**.
6. **Remove the PCI air baffle**.
7. **Remove the system air baffle**.
8. Disconnect all fan cables from the system board.
9. Remove the redundant fan:

- Redundant PCI fan



- Redundant system fan



To replace the component, reverse the removal procedure.

System battery replacement

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. 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.
- 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 to 10 years.

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:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.
6. **Remove the PCI air baffle**.
7. **Remove the system air baffle**.
8. **Replace the system battery**.
9. **Install the system air baffle**.
10. **Install the PCI air baffle**.
11. **Install the access panel**.
12. Do one of the following:

- Server in rack mode: **Install the server into the rack**.
- Server in tower mode: Return the server to an upright position.

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**.

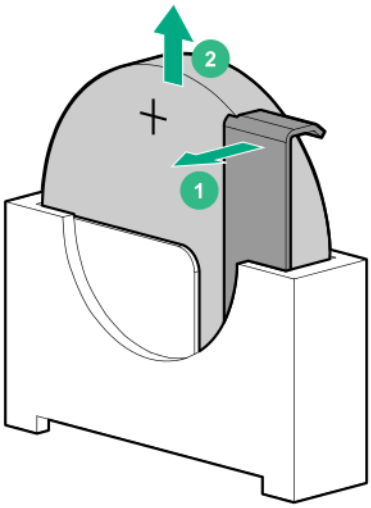
Replace the system battery

Prerequisites

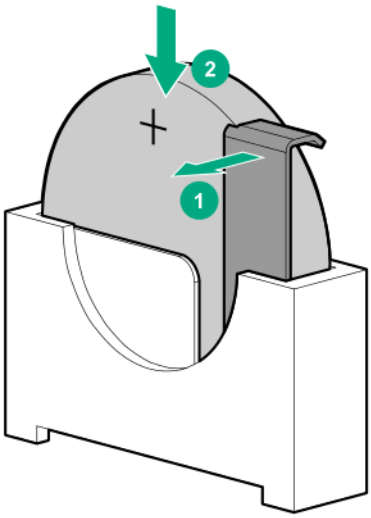
Before you perform this procedure make sure you have a small flat-bladed, nonconductive tool available.

Procedure

1. **Locate the battery on the system board**.
2. Use a small flat-bladed, nonconductive tool to carefully lift the front of the battery from the socket.
3. Remove the battery.



4. Install the system battery.

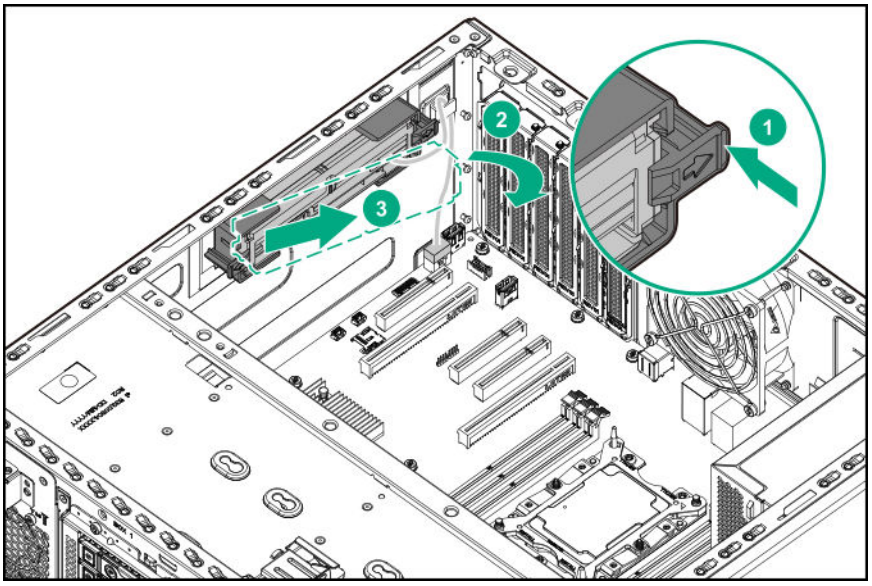


For more information about battery replacement or proper disposal, contact an authorized reseller or an authorized service provider.

Removing and replacing an 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:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.
6. **Remove the PCI air baffle**.
7. **Remove the system air baffle**.
8. Remove the energy pack.



9. Disconnect the energy pack cable from the system board connector, and then remove the energy cable from the cable clip.

To replace the component, reverse the removal procedure.

Removing and replacing the system board

Removing the system board assembly

Prerequisites

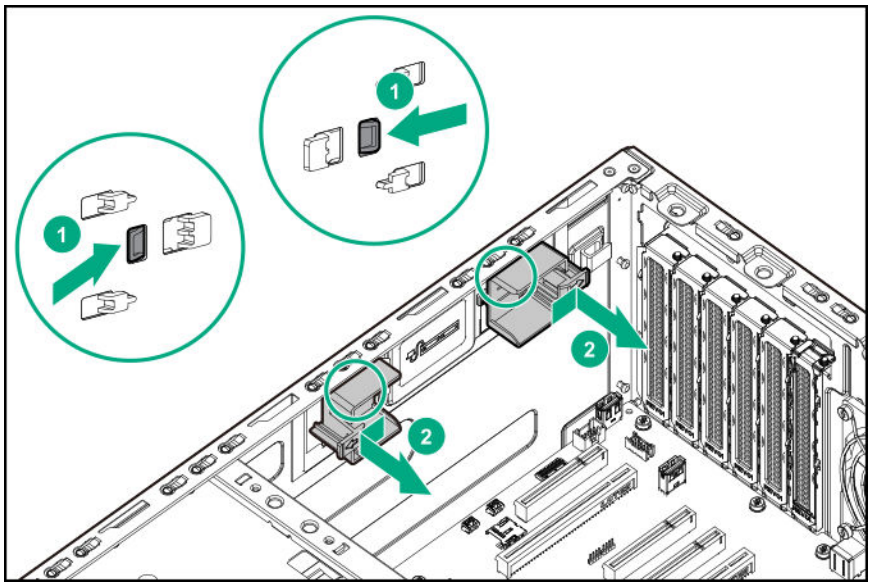
Before you perform this procedure, make sure that you have the following items available:

- T-30 Torx screwdriver
- T-15 Torx 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:
   - Server in rack mode: **Remove the server from the rack**.
   - Server in tower mode: **Position the tower server for hardware configuration**.
5. **Remove the access panel**.

6. **Remove the PCI air baffle**.
7. **Remove the system air baffle**.
8. **Remove all DIMMs**.
9. Do one of the following:
   - **Remove the default system fan**
   - **Remove the redundant system fan**
10. If installed, **remove the energy pack**
11. Remove the energy pack holder.



12. If installed, remove these server options from the PCIe slot:
    - **M.2 SSD enablement board**
    - **Smart Array storage controller**
    - **GPU**
    - **SAS expander card**
13. **Remove the internal USB device**.
14. Disconnect all cables connected to the system board assembly.
15. Observe the following cautions.

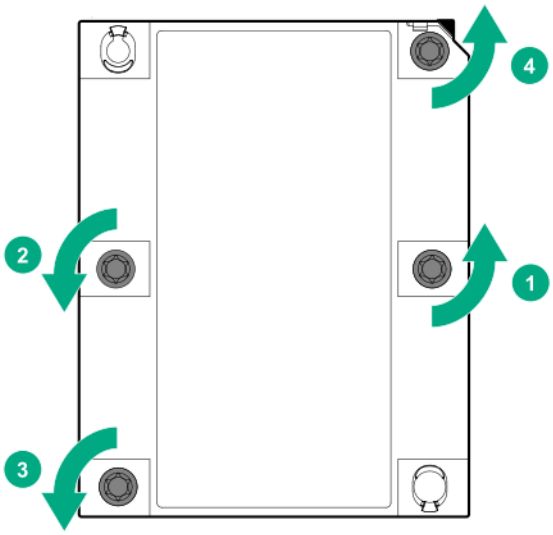
CAUTION: Be sure to loosen each heatsink nut in the order indicated. Otherwise, damage might occur to the heatsink or processor.

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

16. Remove the processor heatsink assembly:

a. Allow the heatsink to cool.

b. Loosen the heatsink nuts in the order specified by the label on the heatsink.

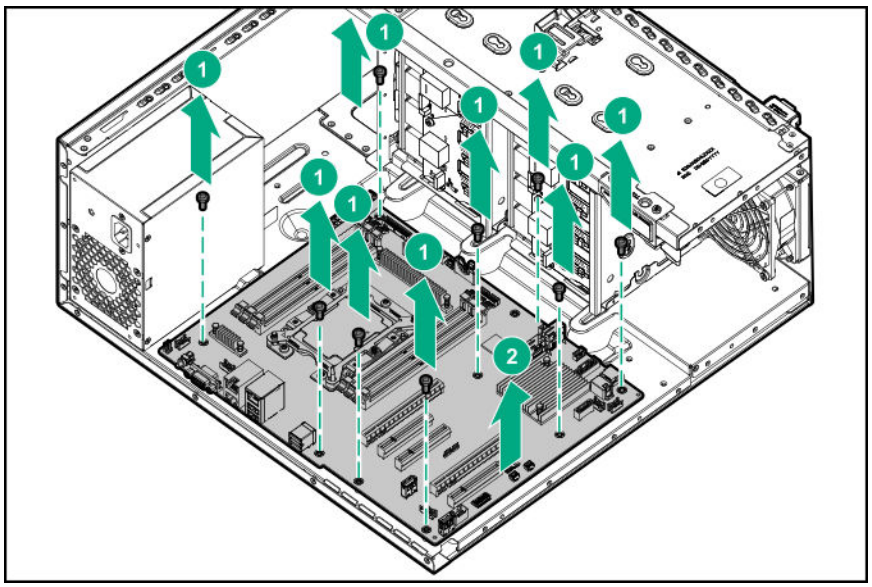


c. Lift the processor heatsink assembly and move it away from the system board.

d. Turn the assembly over and place it on a work surface with the processor facing up.

e. Install the dust cover.

17. Remove the screws securing the system board on the server tray, and then remove the system board.



Replacing the system board assembly

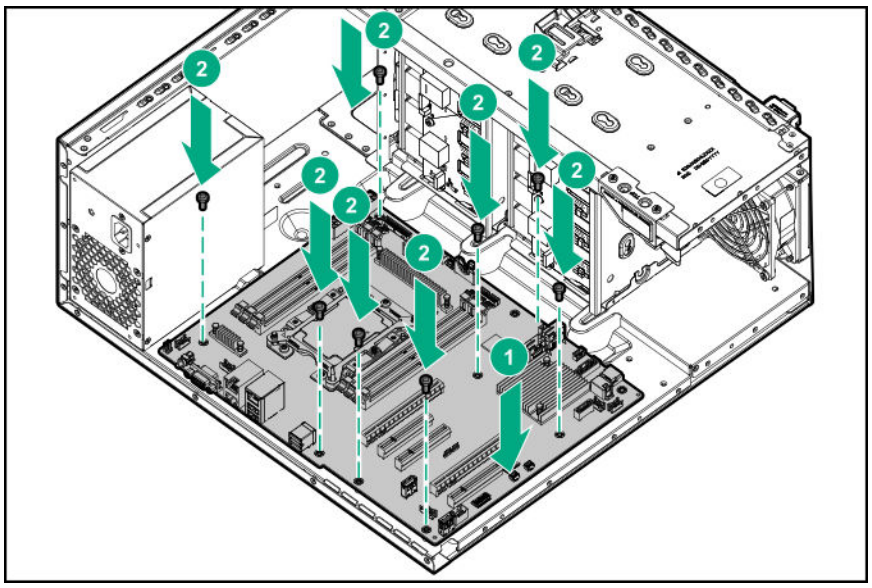
Prerequisites

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

- T-30 Torx screwdriver
- T-15 Torx screwdriver

Procedure

1. Install the spare system board.



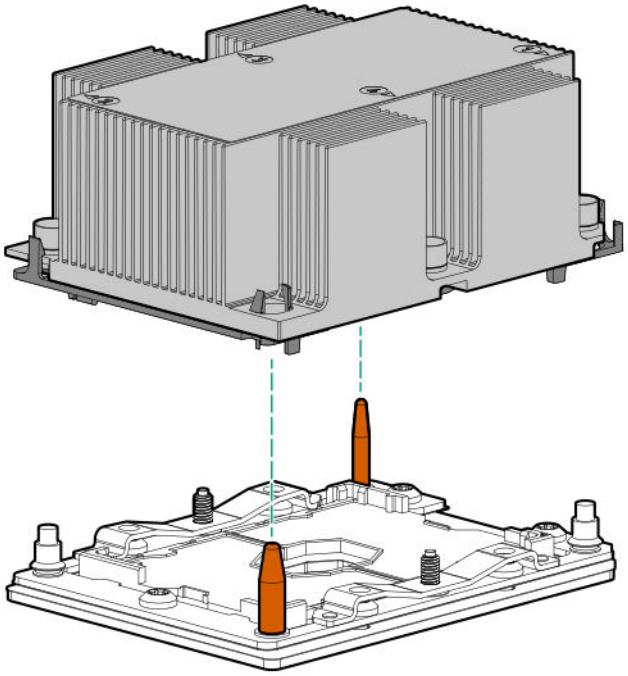
2. Install the processor heatsink assembly:

   a. Locate and align the Pin 1 indicator on the processor frame and the socket.

   b. Align the processor heatsink assembly with the heatsink alignment posts and gently lower it down until it sits evenly on the socket.

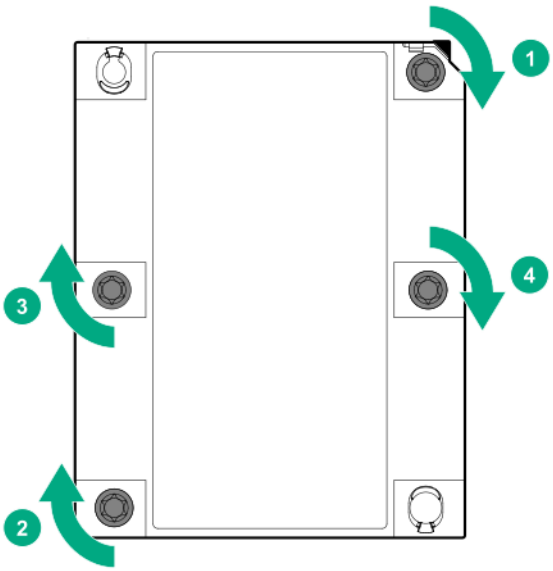
      The heatsink alignment posts are keyed. The processor will only install one way.

      A standard heatsink is shown, your heatsink might look different.



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

c. Using a T-30 Torx screwdriver, tighten the nuts until they stop.



3. Install all components removed from the replacement system board.
4. Install the system air baffle.
5. Install the PCI air baffle.
6. Install the access panel.
7. Do one of the following:

- Server in tower mode: Position the tower server for operation.
- Server in rack mode: Slide the server into the rack.

8. Connect all peripherals 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.
12. Ensure all firmware, including option cards and embedded devices, is updated to the same versions to ensure that the latest drivers are being used.
13. Re-enter any Secure Boot Keys that were previously added in the Secure Boot configuration.
14. **Re-enter the server serial number and the product ID**.

Re-entering the server serial number and product ID

After you replace the system board, the server serial number and the product ID must be configured:

Procedure

1. Access System Utilities. During POST, press **F9**.
2. On the System Utilities home screen, select **System Configuration** > **BIOS/Platform Configuration (RBSU)** > **Advanced Options** > **Advanced Service Options**.
3. Select the Serial Number field and press **Enter**.

   The following alert 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 press **Enter**.
6. Select the Product ID field and press **Enter**.

   The following alert appears:

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

7. Type the product ID and press **Enter**.
8. Press **F10** to save the configuration.

The procedure is complete.

HPE Trusted Platform Module 2.0 Gen10 Option

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

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

If you suspect a TPM board failure, leave the TPM installed and remove the system board (**Replacing the system board assembly**). Contact a Hewlett Packard Enterprise authorized service provider for a replacement system board and TPM board.

Troubleshooting

Troubleshooting resources

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

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

To access troubleshooting resources for your product, see the Hewlett Packard Enterprise Information Library:

- For Gen10 servers, see **https://www.hpe.com/info/gen10-troubleshooting**.
- For Gen10 Plus servers, see **https://www.hpe.com/info/gen10plus-troubleshooting**.

Diagnostic tools

Product QuickSpecs

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

UEFI System Utilities

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

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

HPE servers with UEFI can provide:

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

Selecting the boot mode

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

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

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

Prerequisite

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

Procedure

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

Secure Boot

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

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

When Secure Boot is enabled:

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

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

You can configure Secure Boot:

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

Launching the Embedded UEFI Shell

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

Prerequisites

Embedded UEFI Shell is set to **Enabled**.

Procedure

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

   The **Embedded UEFI Shell** screen appears.

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

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

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

   The `Shell>` prompt appears.

4. Enter the commands required to complete your task.

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

iLO Service Port

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

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

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

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

  - iLO web interface
  - Remote console
  - iLO RESTful API
  - CLI

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

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

When you use the iLO Service Port:

- Actions are logged in the iLO event log.
- The server UID flashes to indicate the Service Port status.

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

- You cannot use the Service Port to boot any device within the server, or the server itself.
- You cannot access the server by connecting to the Service Port.
- You cannot access the connected device from the server.

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

Intelligent Provisioning

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

Intelligent Provisioning 3.30 and later includes HPE Rapid Setup Software. When you launch F10 mode from the POST screen, you are prompted to select whether you want to enter the Intelligent Provisioning or HPE Rapid Setup Software mode.

NOTE: After you have selected a mode, you must reprovision the server to change the mode that launches when you boot to F10.

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

IMPORTANT: HPE ProLiant DX/XL servers do not support operating system installation with Intelligent Provisioning, but they do support the maintenance features. For more information, see "Performing Maintenance" in the Intelligent Provisioning user guide and online help.

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

To access Intelligent Provisioning:

- Press **F10** from the POST screen and enter either Intelligent Provisioning or HPE Rapid Setup Software.
- From the iLO web interface using **Always On**. **Always On** allows you to access Intelligent Provisioning without rebooting your server.

Intelligent Provisioning operation

NOTE: Intelligent Provisioning 3.40 and later requires iLO firmware version 2.10.

Intelligent Provisioning includes the following components:

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

IMPORTANT:

- Although your server is preloaded with firmware and drivers, Hewlett Packard Enterprise recommends updating the firmware upon initial setup. Also, downloading and updating the latest version of Intelligent Provisioning ensures the latest supported features are available.
- For ProLiant servers, firmware is updated using the Intelligent Provisioning Firmware Update utility.
- Do not update firmware if the version you are currently running is required for compatibility.

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

Intelligent Provisioning provides installation help for the following operating systems:

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

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

HPE Insight Remote Support

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

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

HPE InfoSight for servers

The HPE InfoSight portal is a secure web interface hosted by HPE that allows you to monitor supported devices through a graphical interface.

HPE InfoSight for servers:

- Combines the machine learning and predictive analytics of HPE InfoSight with the health and performance monitoring of Active Health System (AHS) and HPE iLO to optimize performance and predict and prevent problems
- Provides automatic collection and analysis of the sensor and telemetry data from AHS to derive insights from the behaviors of the install base to provide recommendations to resolve problems and improve performance

For more information on getting started and using HPE InfoSight for servers, go to: **https://www.hpe.com/info/infosight-servers-docs**.

USB support

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

External USB functionality

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

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

HPE Smart Storage Administrator

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

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

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

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

- Accessing HPE SSA in the offline environment

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

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

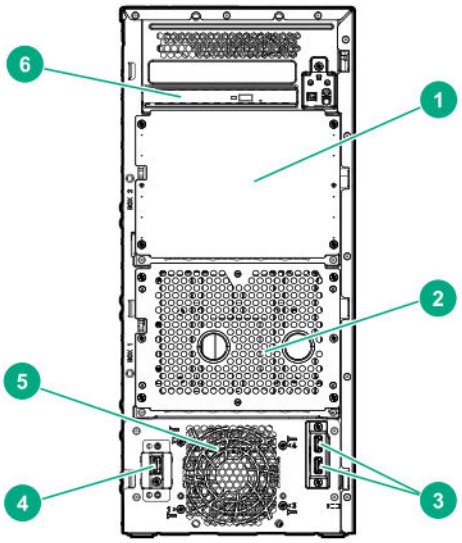
- Accessing HPE SSA in the online environment

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

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

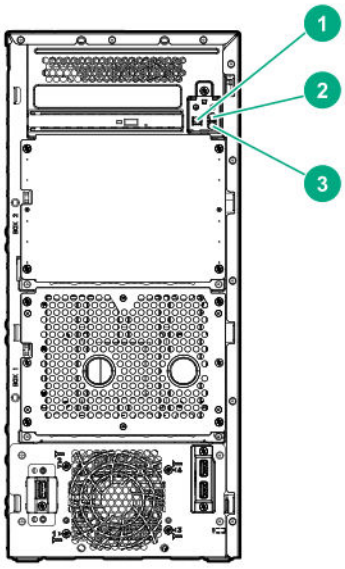
Component identification

Front panel components



Item	Description
1	Box 2
2	Box 1
3	USB 3.0 ports (2)
4	iLO Service Port
5	PCI fan
6	Slim optical drive (optional)

Front panel LEDs and buttons



Item	Description	Status	Definition
1	Power On/Standby button and system power LED[1]	Solid green	Normal
		Flashing green	Performing power-on sequence
		Solid amber	System in standby
		Off	No power present[2]
2	Health LED[1]	Solid green	Normal
		Flashing green	iLO is rebooting.
		Flashing amber	System degraded[3]
		Flashing red	System critical[3]
3	NIC status LED[1]	Solid green	Linked to network
		Flashing green	Network active
		Off	No network activity

1 When all three LEDs described in this table simultaneously, a power fault has occurred. For more information, see **Front panel LED power fault codes**.

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

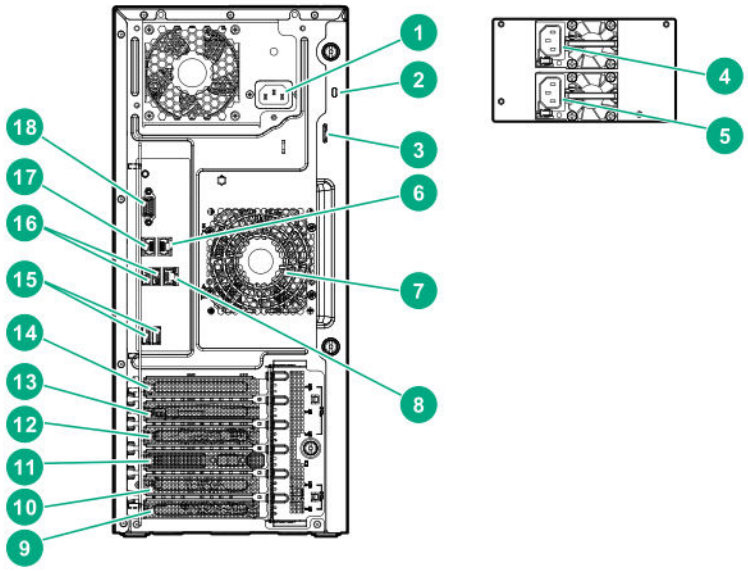
3 If the health LED indicates a degraded or critical state, review the system IML or use iLO to review the system health status.

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 controllers	6 flashes
System board PCIe slots	7 flashes
Power backplane or storage backplane	8 flashes
Power supply	9 flashes

Rear panel components



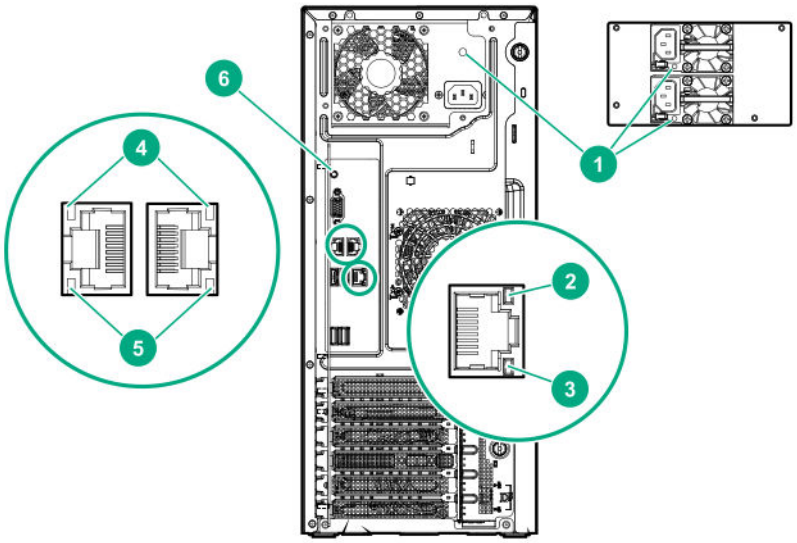
Item	Description
1	Standard power supply (non-hot-plug)
2	Kensington security slot
3	Padlock eye
4	Flexible Slot power supply 1 (hot-plug)
5	Flexible Slot power supply 2 (hot-plug)
6	NIC port 1[1]

Table Continued

Item	Description
7	System fan
8	iLO Management Port
9	Slot 5 PCIe3 x8 (8, 4, 1)
10	Slot 4 PCIe3 x16 (16, 8, 4, 1)
11	Serial port (optional)
12	Slot 3 PCIe3 x8 (8, 4, 1)
13	Slot 2 PCIe3 x8 (4, 1)
14	Slot 1 PCIe3 x16 (16, 8, 4, 1)
15	USB 3.0 ports (2)
16	USB 2.0 ports (2)
17	NIC port 2[1]
18	VGA port

[1] The Broadcom 5720-based embedded HPE 332i Ethernet LAN controller provides a PCIe 2.0 x1 host interface to the onboard NIC ports.

Rear panel LEDs and button

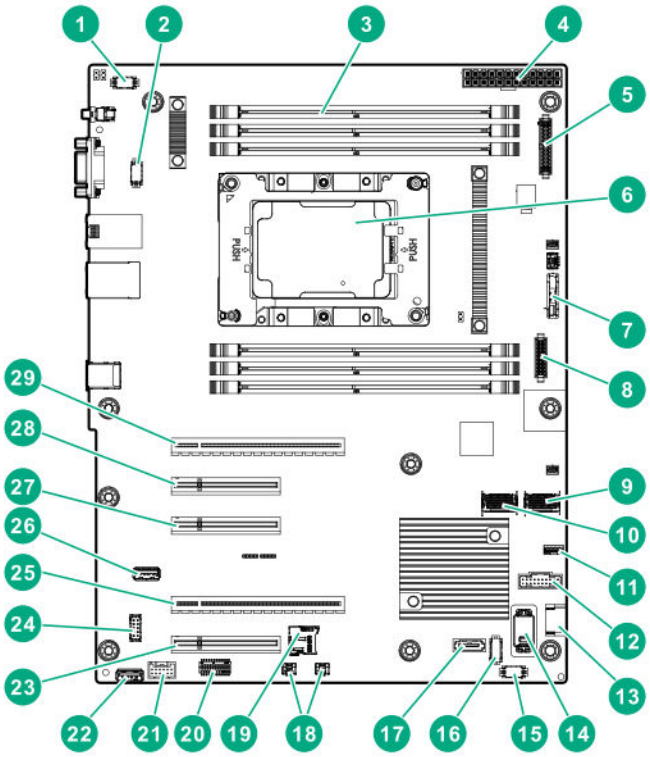


Item	Description	Status	Definition
1	Power supply LED	Solid green	Normal
		Off	One or more of following conditions exists: • Power is unavailable. • Power supply failed • Power supply is in standby mode. • Power supply error
2	iLO link LED	Solid green	Network link
		Off	No network link
3	iLO status LED	Solid green	Linked to network
		Flashing green	Network active
		Off	No network link
4	NIC link LED	Solid green	Network link
		Off	No network link
5	NIC status LED	Solid green	Linked to network
		Flashing green	Network active
		Off	No network link
6	UID button/LED	Solid blue	Activated
		Flashing blue	System is being managed remotely.
		Off	Deactivated

UID button functionality

The UID button can be used to display the Server Health Summary when the server will not power on. For more information, see the iLO user guide on the Hewlett Packard Enterprise website (**https://www.hpe.com/support/ilo-docs**).

System board components



Item	Description
1	Fan connector 4 for the redundant system fan
2	Fan connector 3 for the default and redundant system fans
3	DIMM slots
4	24-pin power supply connector
5	RPSU connector
6	Processor
7	System battery
8	Front I/O cable connector
9	x4 SATA port 1
10	x4 SATA port 2
11	iLO Service Port connector

Table Continued

Item	Description
12	Front USB 3.0 assembly connector
13	x1 SATA port 9
14	TPM connector
15	Fan connector 1 for the default and redundant PCI fans
16	Fan connector 2 for the redundant PCI fan
17	x1 SATA port 10
18	Controller backup power connectors (2)
19	microSD card slot[1]
20	System maintenance switch
21	Energy pack connector
22	Internal USB 2.0 port
23	Slot 5 PCIe3 x8 (4, 1)
24	Serial port connector
25	Slot 4 PCIe3 x16 (16, 8, 4, 1)
26	Internal USB 3.0 port
27	Slot 3 PCIe3 x8 (8, 4, 1)
28	Slot 2 PCIe3 x8 (4, 1)
29	Slot 1 PCIe3 x16 (16, 8, 4, 1)

[1] If the memory card connected to the microSD slot is not visible in Windows Device Manager, in the menu bar, click **View** > **Show hidden device**.

System maintenance switch descriptions

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

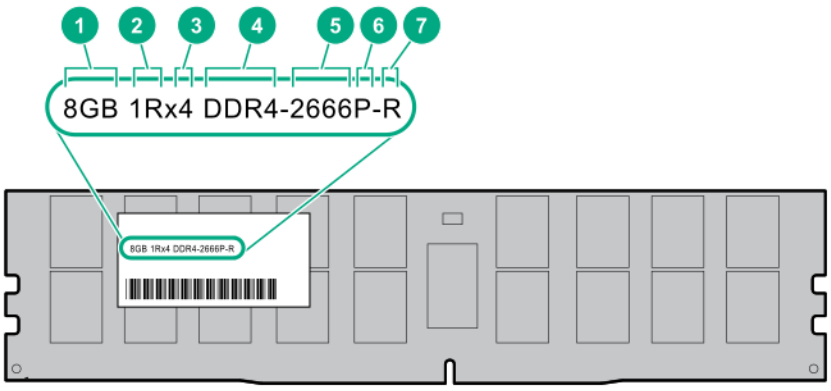
1 To access the redundant ROM, set S1, S5, and S6 to On.

2 When the system maintenance switch position 6 is set to the On position, the system is prepared to restore all configuration settings to their manufacturing defaults.

3 When the system maintenance switch position 6 is set to the On position and Secure Boot is enabled, some configurations cannot be restored. For more information, see **Secure Boot**.

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.

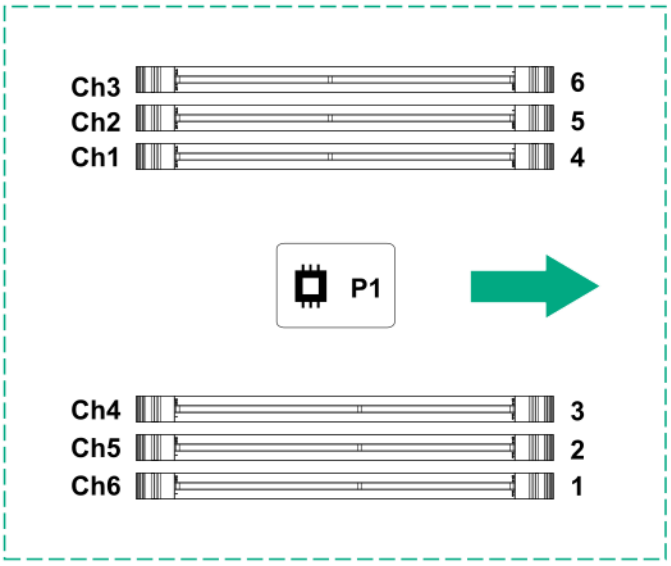


Item	Description	Example
1	Capacity	8 GB 16 GB 32 GB 64 GB 128 GB
2	Rank	1R = Single rank 2R = Dual rank 4R = Quad rank 8R = Octal rank
3	Data width on DRAM	x4 = 4-bit x8 = 8-bit x16 = 16-bit
4	Memory generation	PC4 = DDR4
5	Maximum memory speed	2133 MT/s 2400 MT/s 2666 MT/s 2933 MT/s
6	CAS latency	P = CAS 15-15-15 T = CAS 17-17-17 U = CAS 20-18-18 V = CAS 19-19-19 (for RDIMM, LRDIMM) V = CAS 22-19-19 (for 3DS TSV LRDIMM) Y = CAS 21-21-21 (for RDIMM, LRDIMM) Y = CAS 24-21-21 (for 3DS TSV LRDIMM)
7	DIMM type	R = RDIMM (registered) L = LRDIMM (load reduced) E = Unbuffered ECC (UDIMM)

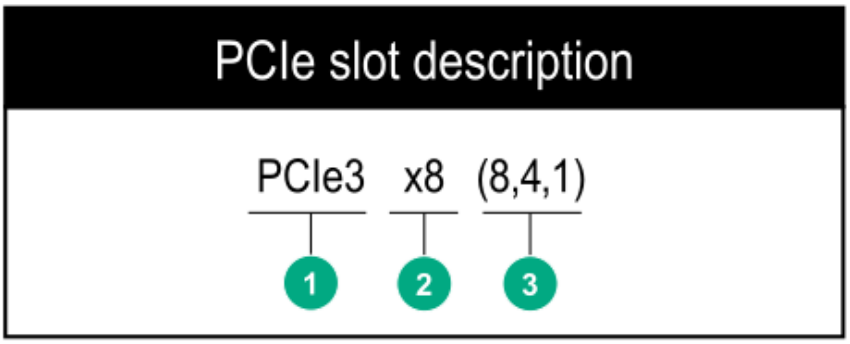
For more information about product features, specifications, options, configurations, and compatibility, see the HPE DDR4 SmartMemory QuickSpecs on the Hewlett Packard Enterprise website (**https://www.hpe.com/support/DDR4SmartMemoryQS**).

DIMM slot locations

The DIMM slots are numbered 1 through 6. The arrow in the following illustration points to the front of the server.



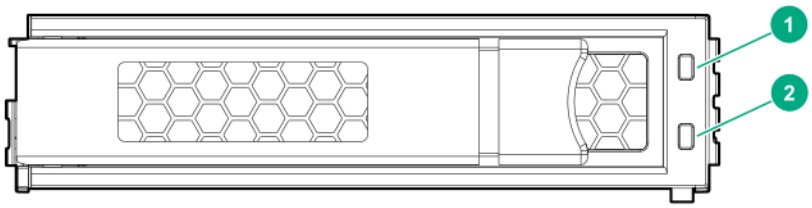
PCIe slot description



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 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 "×" prefix with ×16 being the largest size in common use. • ×1 • ×2 • ×4 • ×8 • ×16
3	Negotiable link width	These numbers correspond to the maximum link bandwidth supported by the slot.

Drives

Low-profile LFF drive LED definitions

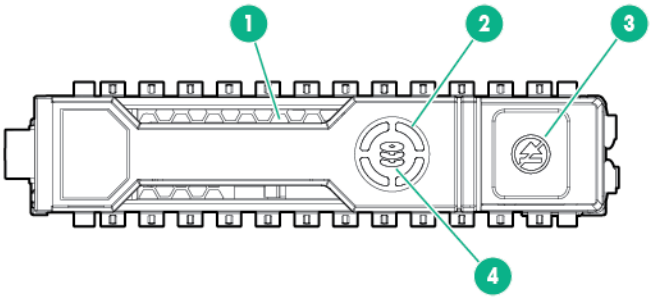


Item	LED	Status	Definition
1	Fault \Locate	Solid amber	The drive has failed.
		Solid blue	The drive is operating normally and being identified by a management application.

Table Continued

Item	LED	Status	Definition
		Flashing amber/blue (1 flash per second)	The drive has failed, or a predictive failure alert has been received for this drive; it also has been identified by a management application.
		Flashing amber (1 flash per second)	A predictive failure alert has been received for this drive. Replace the drive as soon as possible.
2	Online \Activity	Solid green	The drive is online and has no activity.
		Flashing green (4 flashes per second)	The drive is operating normally and has activity.
		Flashing green (1 flash per second)	The drive is doing one of the following: • Rebuilding • Performing a RAID migration • Performing a strip size migration • Performing a capacity expansion • Performing a logical drive extension • Erasing • Spare part activation
		Off	The drive is not configured by a RAID controller or a spare drive.

Hot-plug drive LED definitions



Item	LED	Status	Definition
1	Locate	Solid blue	The drive is being identified by a host application.
		Flashing blue	The drive carrier firmware is being updated or requires an update.
2	Activity ring	Rotating green	Drive activity
		Off	No drive activity
3	Do not remove	Solid white	Do not remove the drive. Removing the drive causes one or more of the logical drives to fail.

Table Continued

Item	LED	Status	Definition
		Off	Removing the drive does not cause a logical drive to fail.
4	Drive status	Solid green	The drive is a member of one or more logical drives.
		Flashing green	The drive is doing one of the following: • Rebuilding • Performing a RAID migration • Performing a strip size migration • Performing a capacity expansion • Performing a logical drive extension • Erasing • Spare part activation
		Flashing amber/ green	The drive is a member of one or more logical drives and predicts the drive will fail.
		Flashing amber	The drive is not configured and predicts the drive will fail.
		Solid amber	The drive has failed.
		Off	The drive is not configured by a RAID controller or a spare drive.

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.

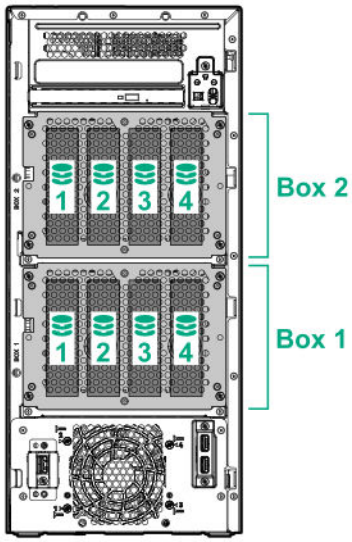
Drive bay numbering depends on how the drive backplane is connected. In this server, the backplane can be connected to the:

- Embedded Smart Array controller through the onboard SATA ports
- Smart Array type-p SR Gen10 controllers
- SAS expander card

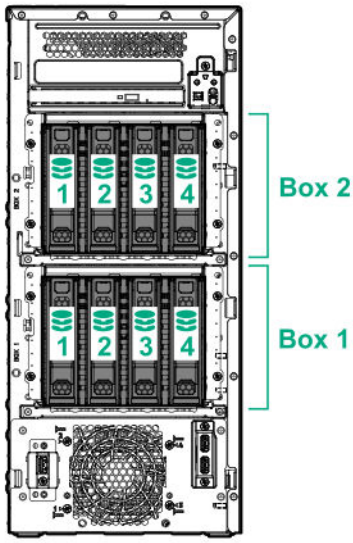
When the backplane is connected to a storage controller, the drive bay numbering for each drive box starts at 1.

When the backplane is connected to a SAS expander, all drive boxes are treated as a single box 1. This means the drive bay numbering is continuous.

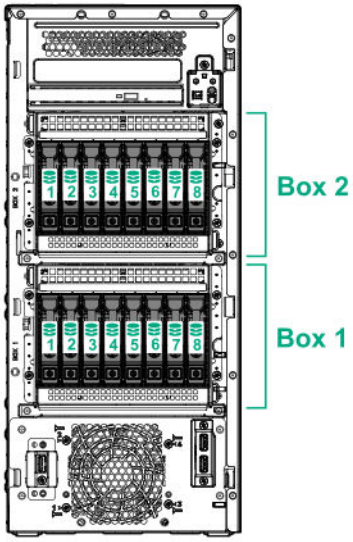
- LFF drive bay numbering: Smart Array controller



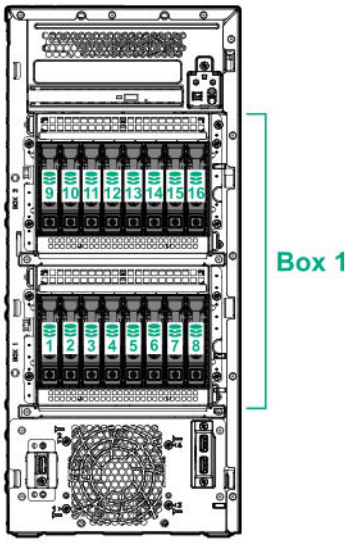
- LFF drive numbering: Smart Array controller



- SFF drive bay numbering: Smart Array controller

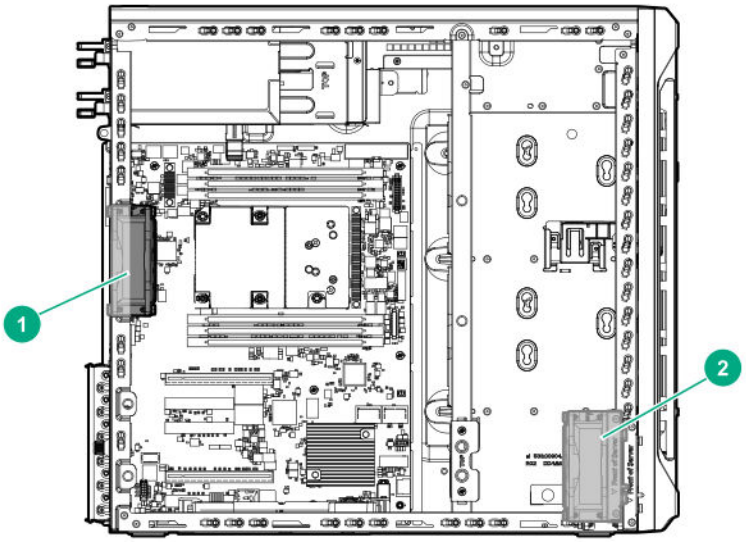


- SFF drive numbering : SAS expander



Fans

Fan locations



Item	Description
1	Default system fan
2	Default PCI fan

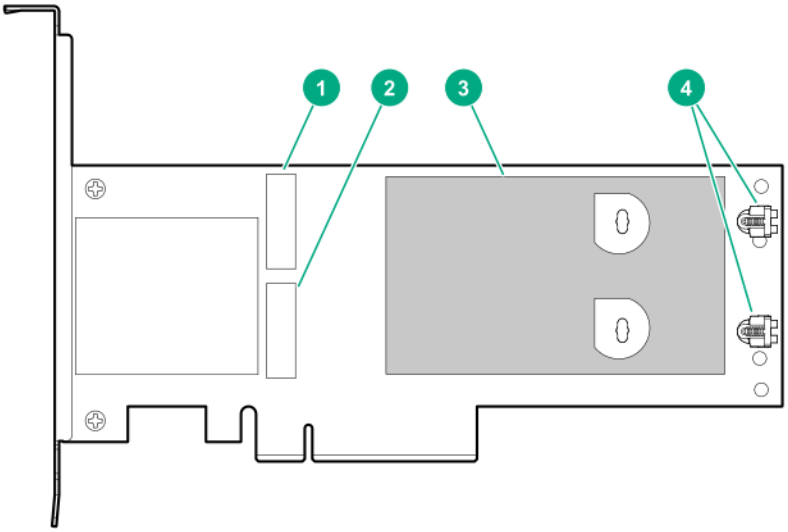
The server also supports the redundant fan options. For more information, see *HPE ProLiant ML110 Gen10 User Guide* on the Hewlett Packard Enterprise website (**https://www.hpe.com/info/ml110gen10-docs**).

Fan mode behavior

- In nonredundant fan mode, a fan failure or a missing fan causes:
  - The system Health LED to flash amber.
  - The operating system to orderly shutdown.
- In redundant fan mode:
  - A fan rotor failure will switch the system to nonredundant fan mode.

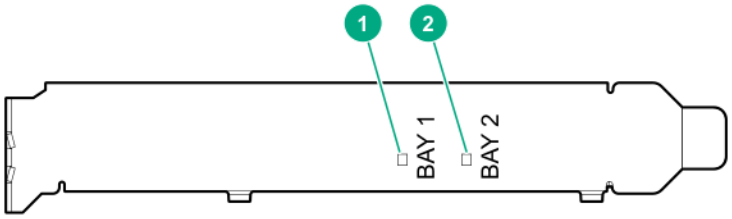
    This change is indicated by the Health LED flashing amber. The system continues to operate normally in this mode.
  - A second fan rotor failure or a missing fan causes the operating system to orderly shutdown.

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

Cabling

Cabling guidelines

The cable colors in the cabling diagrams used in this chapter are for illustration purposes only.

Observe the following guidelines when working with server cables.

Before connecting cables

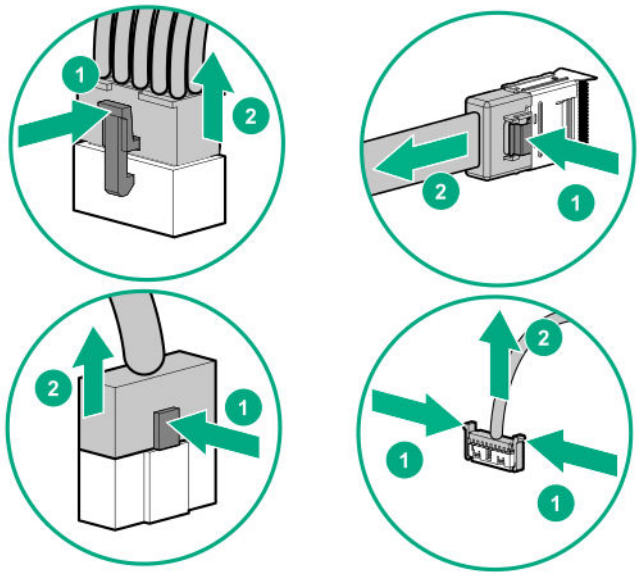
- Note the port labels on the PCA components. Not all these components are used by all servers:
  - System board ports
  - Drive and power supply backplane ports
  - Expansion board ports (controllers, adapters, expanders, risers, and similar boards)
- Note the label near each cable connector. This label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

When connecting cables

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

When disconnecting cables

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

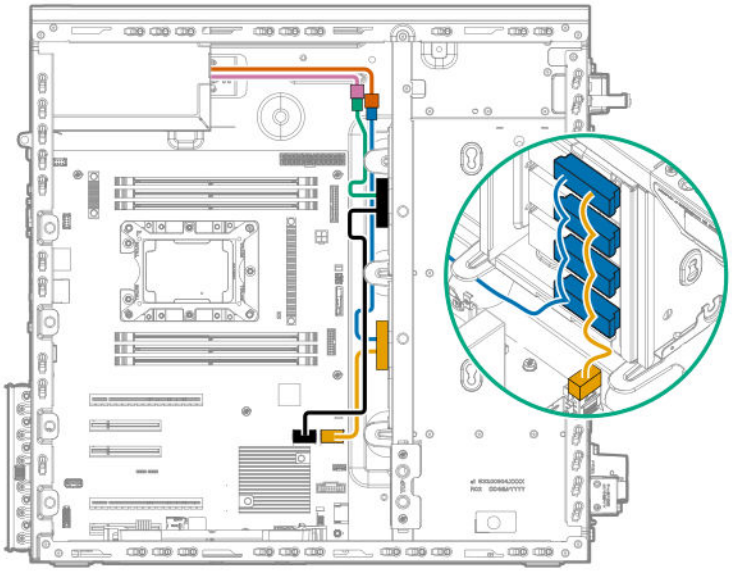


- Remove cables that are no longer being used. Retaining them inside the server can restrict airflow. If you intend to use the removed cables later, label and store them for future use.

Drive cabling

LFF non-hot-plug drive cabling

Eight bay LFF non-hot-plug drive cabling



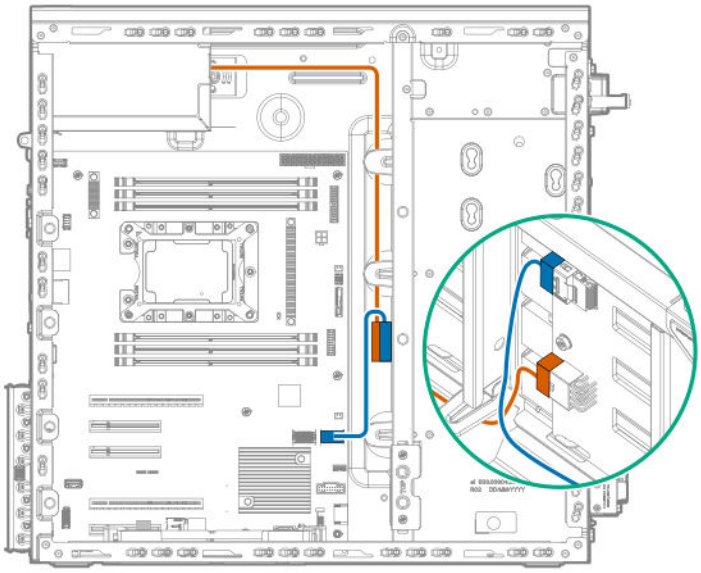
Cable Color	Description
Orange	Power supply cable
Pink	Power supply cable

Table Continued

Cable Color	Description
Green	Box 2 drive power supply cable
Blue	Box 1 drive power supply cable
Black	Box 2 non-hot-plug drive to system board x4 SATA port 2
Gold	Box 1 non-hot-plug drive to system board x4 SATA port 1

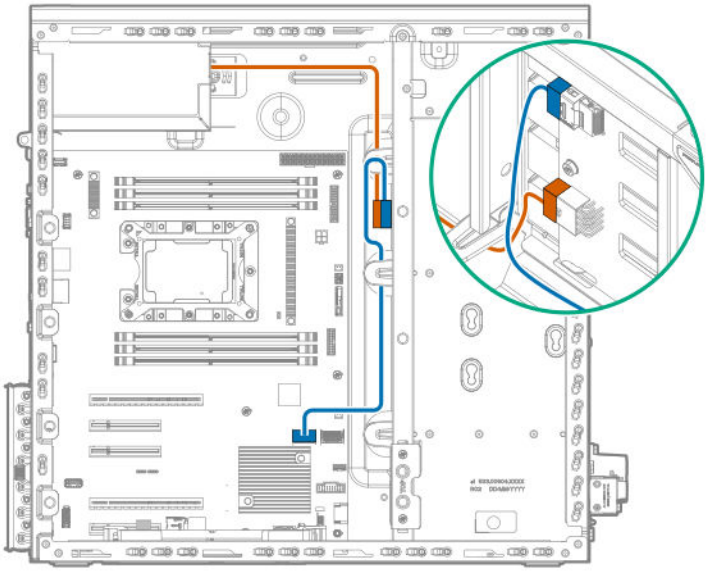
LFF hot-plug drive cabling

Box 1 drive backplane connected to the system board



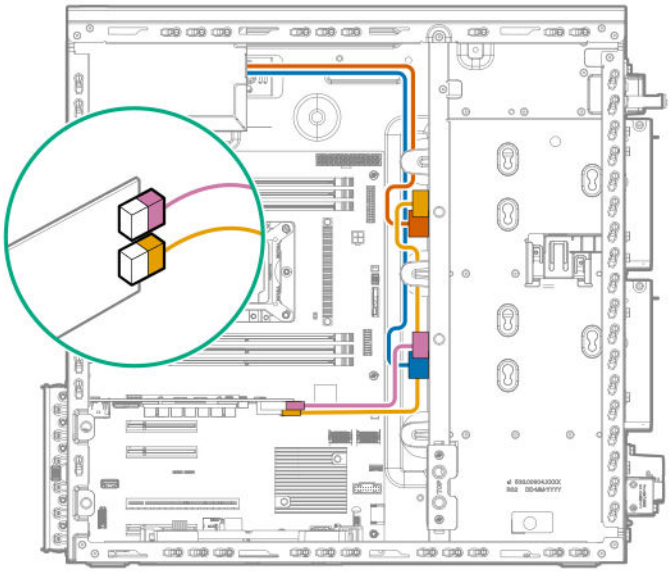
Cable Color	Description
Orange	Drive power supply cable
Blue	Box 1 drive backplane Mini-SAS cable to system board x4 SATA port 1

Box 2 drive backplane connected the system board



Cable Color	Description
Orange	Drive power supply cable
Blue	Box 2 drive backplane Mini-SAS cable to system board x4 SATA port 2

Box 1 and Box 2 drive backplanes connected to a Smart Array controller



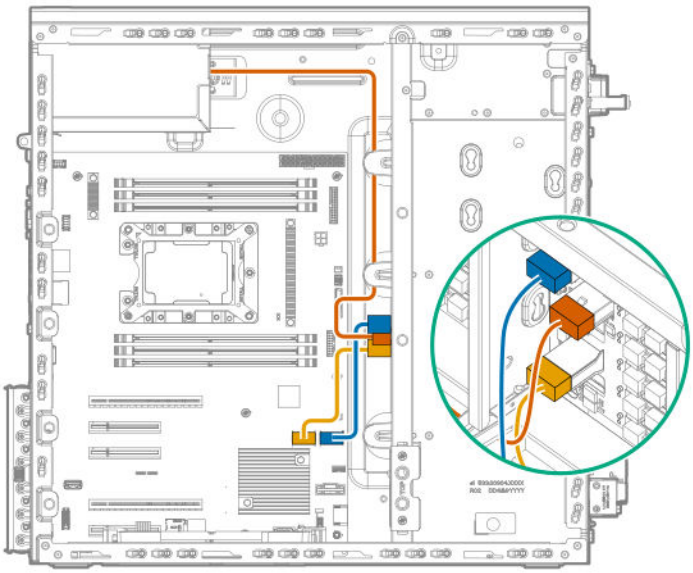
Cable Color	Description
Orange	Box 2 drive power supply cable
Blue	Box 1 drive power supply cable

Table Continued

Cable Color	Description
Gold	Box 2 drive backplane Mini-SAS cable to controller port 2
Pink	Box 1 drive backplane Mini-SAS cable to controller port 1

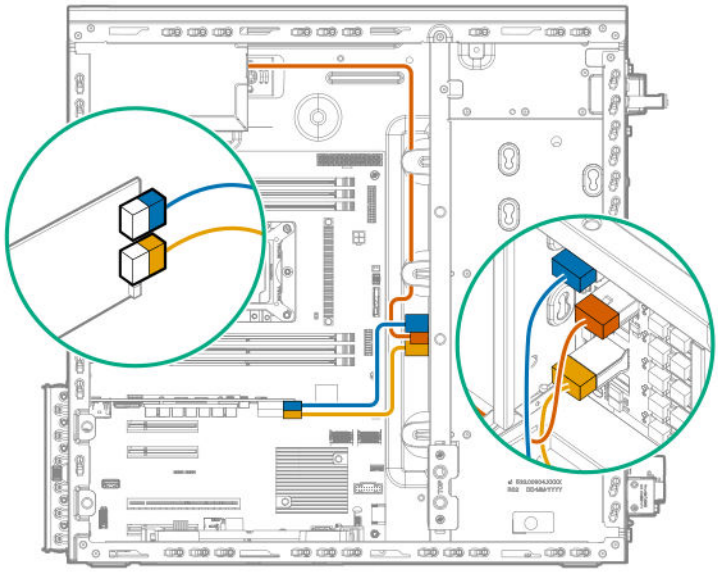
SFF hot-plug drive cabling

Box 1 drive backplane connected to the system board



Cable color	Description
Orange	Drive power supply cable
Blue	Box 1 drive backplane port 1 Mini-SAS cable to system board x4 SATA port 1
Gold	Box 1 drive backplane port 2 Mini-SAS cable to system board x4 SATA port 2

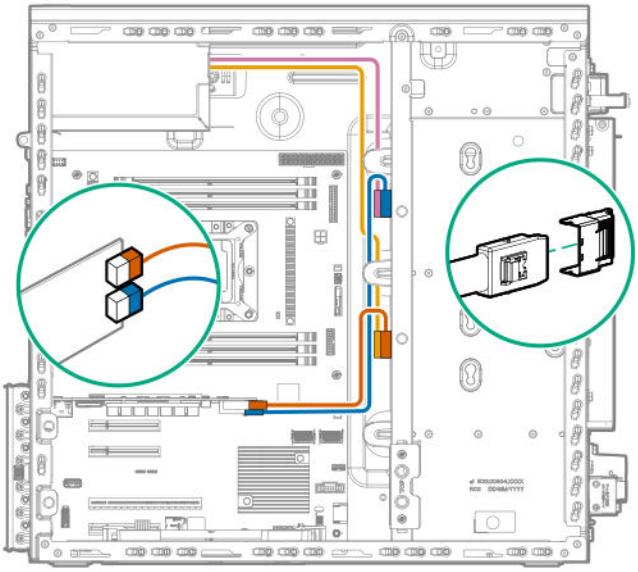
Box 1 drive backplane connected to a Smart Array controller



Cable color	Description
Orange	Drive power supply cable
Blue	Box 1 drive backplane port 1 Mini-SAS cable to type-p controller port 1
Gold	Box 1 drive backplane port 2 Mini-SAS cable to type-p controller port 2

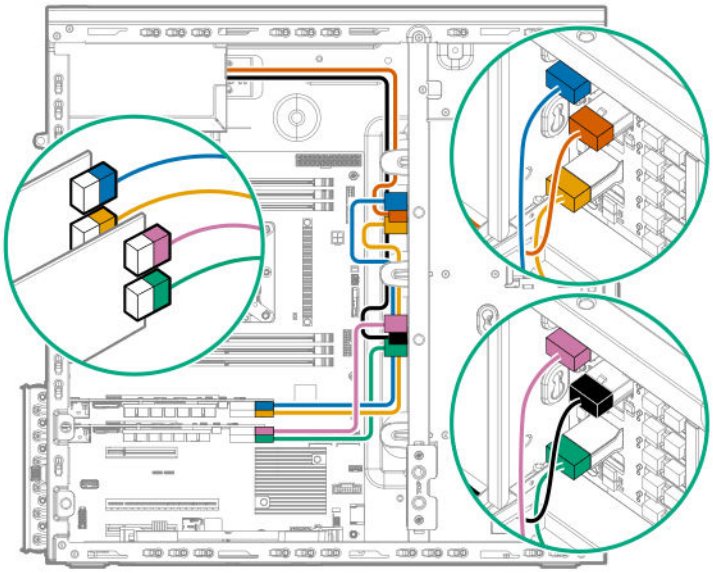
Storage controller cabling

Smart Array controller connected to the two 4-bay LFF hot-plug drive cage



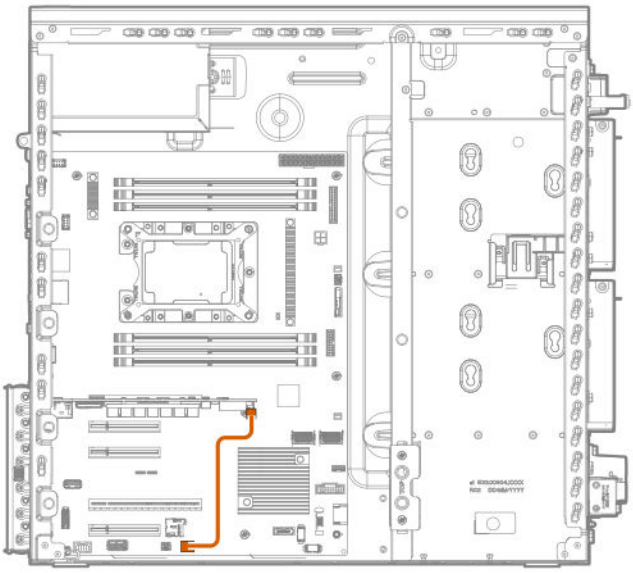
Cable color	Description
Orange	Box 1 drive backplane Mini-SAS cable to type-p controller port 1
Blue	Box 2 drive backplane Mini-SAS cable to type-p controller port 2
Gold	Box 1 drive power supply cable
Pink	Box 2 drive power supply cable

Smart Array controllers connected to the 16-bay SFF hot-plug drive cage

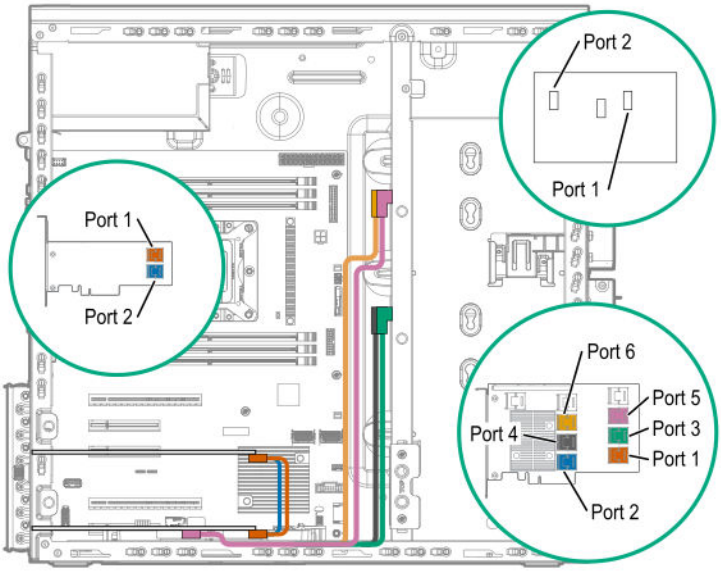


Cable color	Description
Blue	Box 2 drive backplane port 1 Mini-SAS cable to slot 1 type-p controller port 1
Gold	Box 2 drive backplane port 2 Mini-SAS cable to slot 1 type-p controller port 2
Pink	Box 1 drive backplane port 1 Mini-SAS cable to slot 2 type-p controller port 1
Green	Box 1 drive backplane port 2 Mini-SAS cable to slot 2 type-p controller port 2
Black	Box 1 drive power supply cable
Orange	Box 2 drive power supply cable

Storage controller backup power cabling

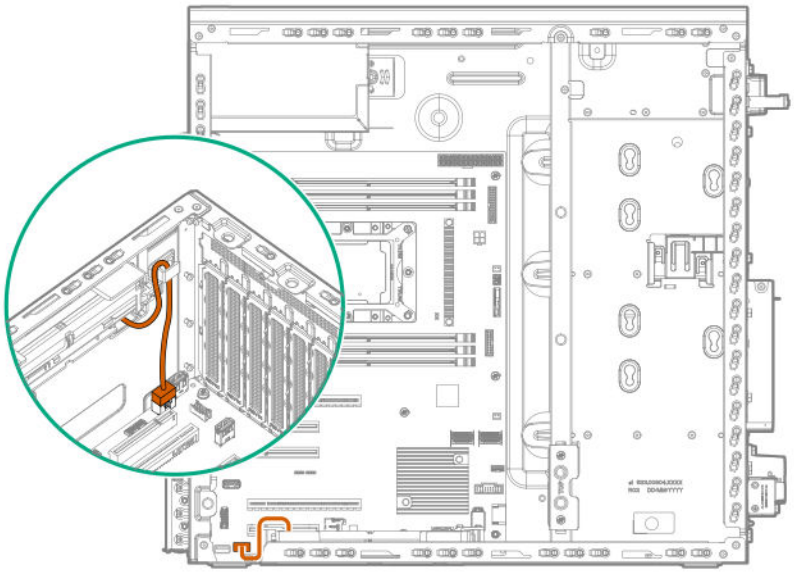


12G SAS expander cabling

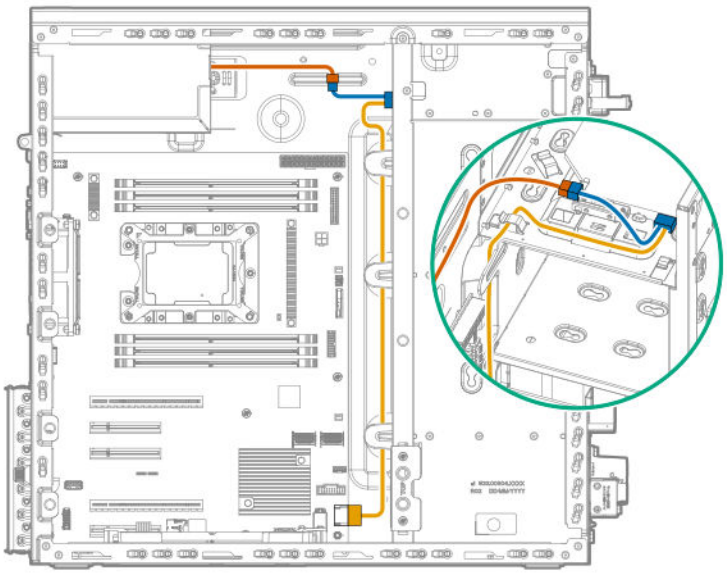


Color	Description
Orange	Controller Mini-SAS X-cable from controller port 1 to SAS expander port 1
Blue	Controller Mini-SAS X-cable from controller port 2 to SAS expander port 2
Gold	Mini-SAS X-cable from SAS expander port 6 to Box 2 drive backplane port 2
Pink	Mini-SAS X-cable from SAS expander port 5 to Box 2 drive backplane port 1
Black	Mini-SAS X cable from SAS expander port 4 to Box 1 drive backplane port 2
Green	Mini-SAS X cable from SAS expander port 3 to Box 1 drive backplane port 1

Energy pack cabling

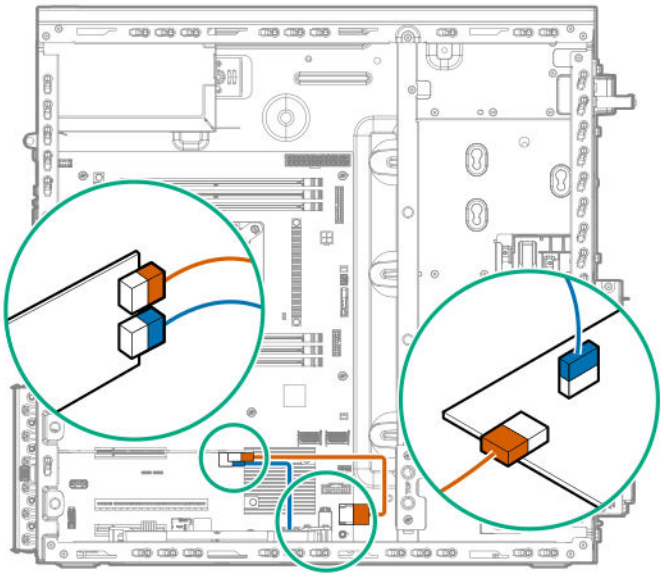


Optical drive cabling



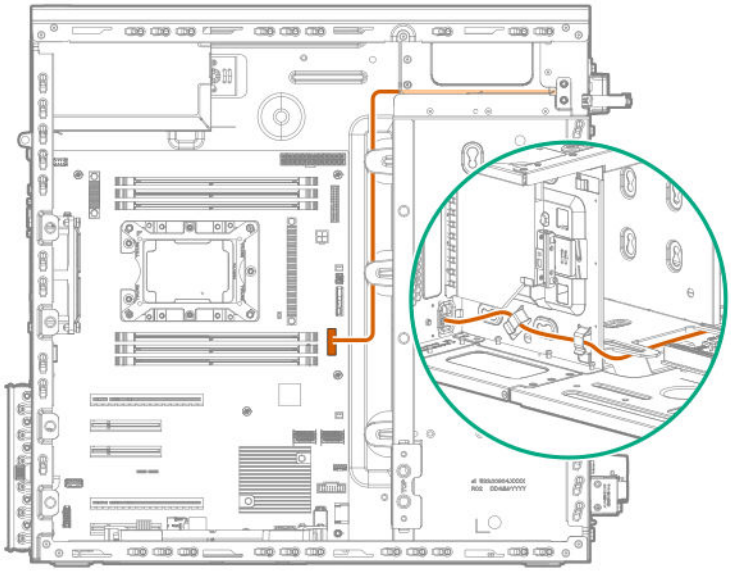
Cable color	Description
Orange	Power supply cable
Blue	Drive power supply cable
Gold	SATA cable

M.2 SSD cabling

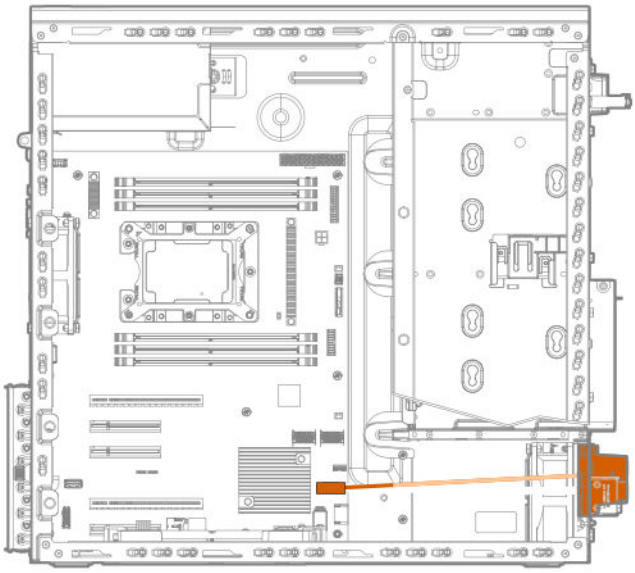


Cable Color	Description
Orange	SATA cable from M.2 SSD enablement board port 1 to system board SATA port 9
Blue	SATA cable from M.2 SSD enablement board port 2 to system board SATA port 10

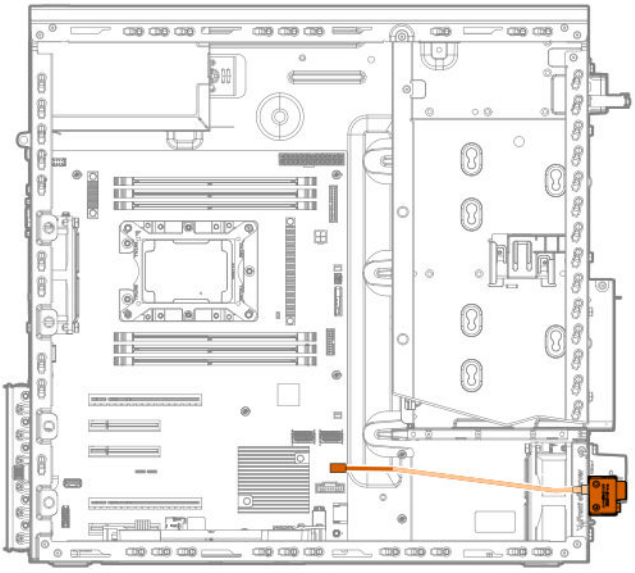
Front I/O cabling



Front USB 3.0 cabling

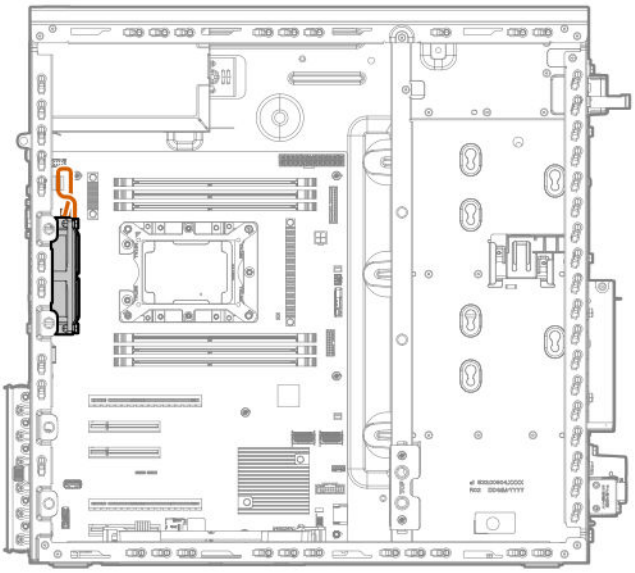


iLO Service Port cabling

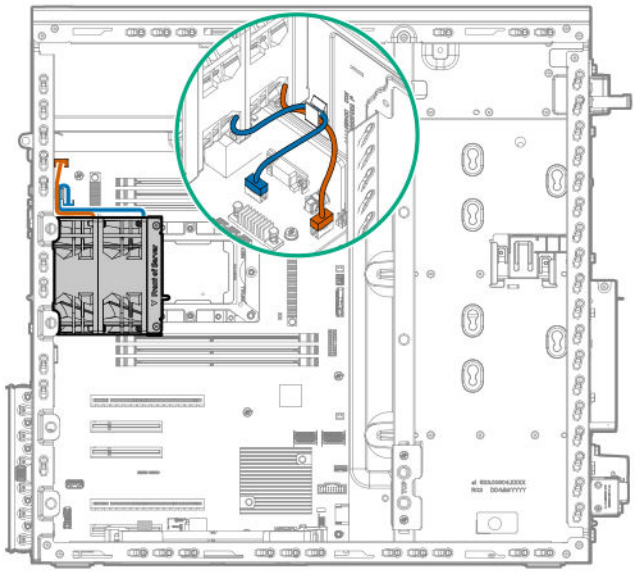


Fan cabling

Default system fan cabling

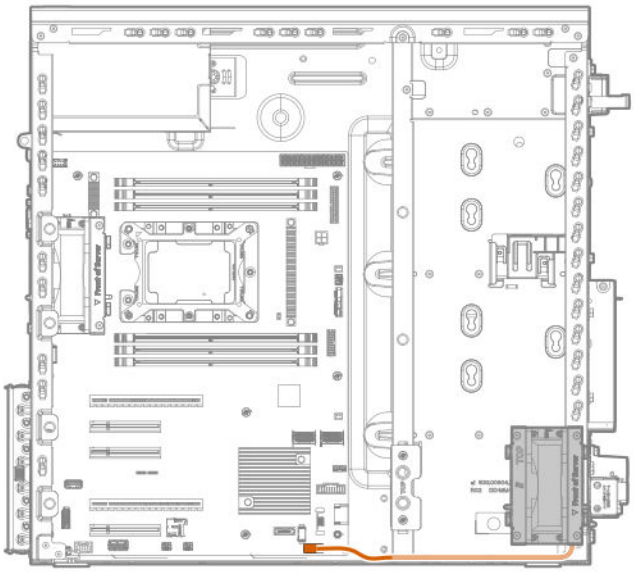


Redundant system fan cabling

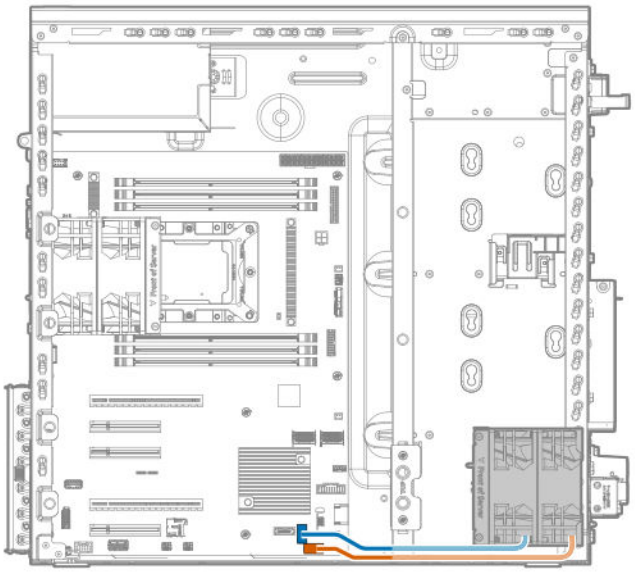


Cable color	Description
Orange	System fan cable to fan connector 4
Blue	System fan cable to fan connector 3

Default PCI fan cabling

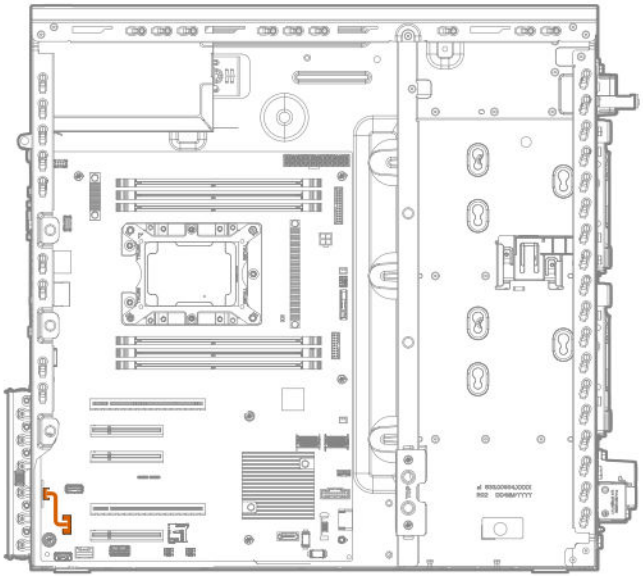


Redundant PCI fan cabling



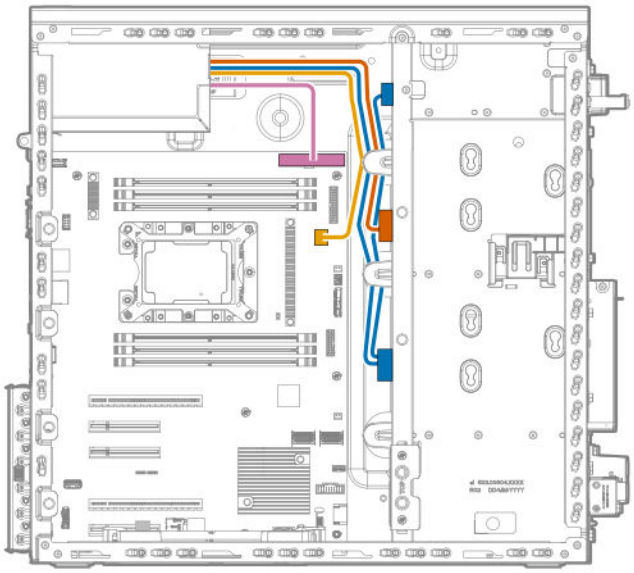
Cable color	Description
Orange	PCI fan cable to fan connector 1
Blue	PCI fan cable to fan connector 2

Serial port cabling



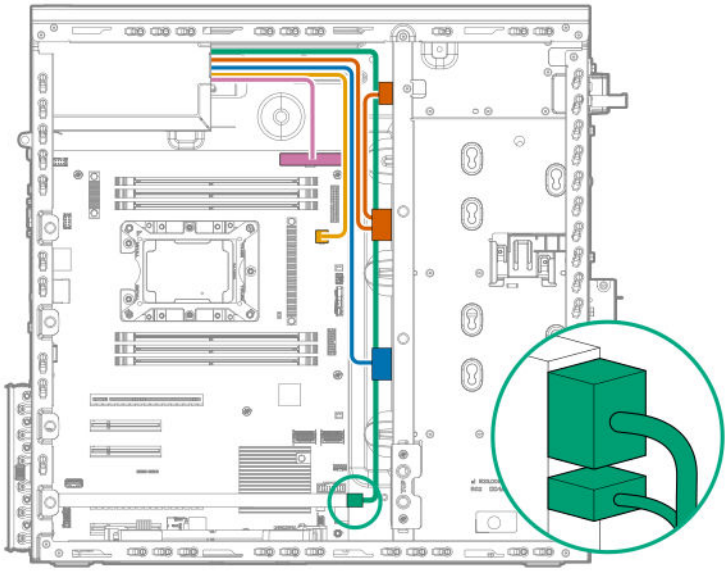
Power supply cabling

ATX 350W non-hot-plug power supply



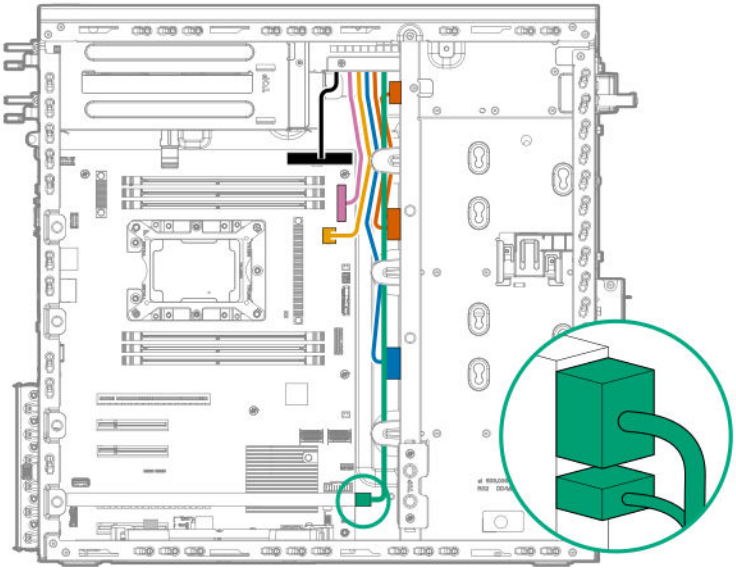
Cable Color	Description
Orange	8-pin power supply cable to box 2 drive backplane
Blue	8-pin power supply cable to box 1 drive backplane and optical drive
Gold	4-pin power supply cable to system board
Pink	24-pin power supply cable

ATX 550W non-hot-plug power supply



Cable Color	Description
Orange	8-pin power supply cable to box 2 drive backplane and optical drive
Blue	8-pin power supply cable to box 1 drive backplane
Gold	4-pin power supply cable to system board
Pink	24-pin power supply cable
Green	GPU auxiliary power cable

Flexible slot power supply (hot-plug)



Cable Color	Description
Pink	Power supply cable
Blue	Box 1 drive backplane power supply cable
Gold	4-pin power supply cable to system board
Orange	Box 2 drive backplane and optical drive power cable
Black	24-pin power supply cable
Green	GPU auxiliary power cable

Specifications

Environmental specifications

Specification	Value
Temperature range[1]	—
Operating	10°C to 35°C (41°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
Nonoperating	5% to 95% 38.7°C (101.7°F), maximum wet bulb temperature

[1] All temperature ratings shown are for sea level. An altitude derating of 1.0°C per 305 m (1.8°F per 1000 ft) to 3050 m (10,000 ft) is applicable. No direct sunlight allowed. Maximum rate of change is 20°C per hour (36°F per hour). The upper limit and rate of change might be limited by the type and number of options installed.

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

- 5°C to 10°C (41°F to 50°F) and 35°C to 40°C (95°F to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft)
- Redundant fans are required when the ambient temperature reaches 35°C (95°F) to 40°C (104°F).

The approved hardware configurations for this system are listed on the Hewlett Packard Enterprise website (**http://www.hpe.com/servers/ASHRAE**).

Mechanical specifications

Dimension (with feet/bezel)	Value
Height	44.00 cm (17.32 in)
Depth	48.05 cm (18.92 in)
Width	19.50 cm (7.68 in)
Weight (approximate)	
Minimum (one drive, power supply, and processor installed)	13.5 kg (29.82 lb)
Maximum (all drives, power supplies, and processors installed)	25.0 kg (55.00 lb)

Power supply specifications

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

- **ATX 350W non-hot-plug power supply**
- **ATX 550W non-hot-plug power supply (88% efficiency)**
- **ATX 550W non-hot-plug power supply (92% efficiency)**
- **HPE 500W Flex Slot Platinum Hot-plug Low Halogen Power Supply**
- **HPE 800W Flex Slot Platinum Hot-plug Low Halogen Power Supply**

CAUTION: Check the system and power supply input ratings before powering up the server.

ATX 350W non-hot-plug power supply

Specification	Value
Input requirements	
Rated input voltage	100 VAC to 240 VAC
Rated input frequency	50 Hz to 60 Hz
Rated input current	4.5 A at 100 VAC 1.9 A at 240 VAC
Maximum rated input power	437 W at 100 VAC 416 W at 240 VAC
BTUs per hour	1491 at 100 VAC 1419 at 240 VAC
Power supply output	
Rated steady-state power	350 W at 100VAC to 240VAC
Maximum peak power	385 W at 100VAC to 240VAC

ATX 550W non-hot-plug power supply (88% efficiency)

Specification	Value
Input requirements	
Rated input voltage	100 VAC to 240 VAC
Rated input frequency	50 Hz to 60 Hz

Table Continued

Specification	Value
Rated input current	6.4 A at 100 VAC 2.62 A at 240 VAC
Maximum rated input power	634 W at 100 VAC 613 W at 240 VAC
BTUs per hour	1876 at 100 VAC 1876 at 240 VAC
Power supply output	
Rated steady-state power	550 W at 100VAC to 240VAC
Maximum peak power	575 W at 100VAC to 240VAC

ATX 550W non-hot-plug power supply (92% efficiency)

Specification	Value
Input requirements	
Rated input voltage	100 VAC to 240 VAC
Rated input frequency	50 Hz to 60 Hz
Rated input current	6.5 A at 100 VAC 2.64 A at 240 VAC
Maximum rated input power	650 W at 100 VAC 617 W at 240 VAC
BTUs per hour	1876 at 100 VAC 1876 at 240 VAC
Power supply output	
Rated steady-state power	550 W at 100VAC to 240VAC
Maximum peak power	575 W at 100VAC to 240VAC

HPE 500W Flex Slot Platinum Hot-plug Low Halogen Power Supply

Specification	Value
Input requirements	—
Rated input voltage	100 VAC to 240 VAC 240 VDC for China only
Rated input frequency	50 Hz to 60 Hz Not applicable to 240 VDC
Rated input current	5.6 A at 100 VAC 2.7 A at 200 VAC 2.3 A at 240 VDC for China only
Maximum rated input power	557 W at 100 VAC 539 W at 200 VAC 537 W at 240 VDC for China only
BTUs per hour	1902 at 100 VAC 1840 at 200 VAC 1832 at 240 VDC for China only
Power supply output	—
Rated steady-state power	500 W at 100 VAC to 127 VAC input 500 W at 100 VAC to 240 VAC input 500 W at 240 VDC input for China only
Maximum peak power	500 W at 100 VAC to 127 VAC input 500 W at 100 VAC to 240 VAC input 500 W at 240 VDC input for China only

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

Specification	Value
Input requirements	—
Rated input voltage	100 VAC to 127 VAC 200 VAC to 240 VAC 240 VDC for China only
Rated input frequency	50 Hz to 60 Hz Not applicable to 240 VDC
Rated input current	9.1 A at 100 VAC 4.4 A at 200 VAC 3.6 A at 240 VDC for China only
Maximum rated input power	899 W at 100 VAC 867 W at 200 VAC 864 W at 240 VDC for China only
BTUs per hour	3067 at 100 VAC 2958 at 200 VAC 2949 at 240 VAC for China only
Power supply output	—
Rated steady-state power	800 W at 100 VAC to 127 VAC input 800 W at 100 VAC to 240 VAC input 800 W at 240 VDC input for China only
Maximum peak power	800 W at 100 VAC to 127 VAC input 800 W at 100 VAC to 240 VAC input 800 W at 240 VDC input for China only

Safety, warranty, and regulatory information

Safety and regulatory compliance

For important safety, environmental, and regulatory information, see *Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products*, available at the Hewlett Packard Enterprise website (**http://www.hpe.com/support/Safety-Compliance-EnterpriseProducts**).

Warranty information

HPE ProLiant and x86 Servers and Options

HPE Enterprise Servers

HPE Storage Products

HPE Networking Products

Belarus Kazakhstan Russia marking

EAC

Manufacturer and Local Representative Information

Manufacturer information:

Hewlett Packard Enterprise Company, 3000 Hanover Street, Palo Alto, CA 94304 U.S.

Local representative information Russian:

- Russia:

  ООО «Хьюлетт Паккард Энтерпрайз», Российская Федерация, 125171, г. Москва, Ленинградское шоссе, 16А, стр.3, Телефон/факс: +7 495 797 35 00

- Belarus:

  ИООО «Хьюлетт-Паккард Бел», Республика Беларусь, 220030, г. Минск, ул. Интернациональная, 36-1, Телефон/факс: +375 17 392 28 20

- Kazakhstan:

  ТОО «Хьюлетт-Паккард (К)», Республика Казахстан, 050040, г. Алматы, Бостандыкский район, проспект Аль-Фараби, 77/7, Телефон/факс: + 7 727 355 35 52

Local representative information Kazakh:

- Russia:

ЖШС "Хьюлетт Паккард Энтерпрайз", Ресей Федерациясы, 125171,
Мәскеу, Ленинград тас жолы, 16А блок 3, Телефон/факс: +7 495 797 35 00

- Belarus:

  «HEWLETT-PACKARD Bel» ЖШС, Беларусь Республикасы, 220030, Минск қ.,
  Интернациональная көшесі, 36/1, Телефон/факс: +375 17 392 28 20

- Kazakhstan:

  ЖШС «Хьюлетт-Паккард (К)», Қазақстан Республикасы, 050040, Алматы к.,
  Бостандық ауданы, Әл-Фараби даңғ ылы, 77/7, Телефон/факс: +7 727 355 35 52

Manufacturing date:

The manufacturing date is defined by the serial number.

CCSYWWZZZZ (serial number format for this product)

Valid date formats include:

- YWW, where Y indicates the year counting from within each new decade, with 2000 as the starting point; for example, 238: 2 for 2002 and 38 for the week of September 9. In addition, 2010 is indicated by 0, 2011 by 1, 2012 by 2, 2013 by 3, and so forth.
- YYWW, where YY indicates the year, using a base year of 2000; for example, 0238: 02 for 2002 and 38 for the week of September 9.

Turkey RoHS material content declaration

Türkiye Cumhuriyeti: AEEE Yönetmeliğine Uygundur

Ukraine RoHS material content declaration

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

Websites

General websites

Hewlett Packard Enterprise Information Library

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

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 110 Gen10 Server product page

https://www.hpe.com/servers/ml110-gen10

HPE ProLiant 110 Gen10 Server support page

https://www.hpe.com/support/ml110gen10

HPE ProLiant 110 Gen10 Server user documents

https://www.hpe.com/info/ml110gen10-docs

Support and other resources

Accessing Hewlett Packard Enterprise Support

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

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

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

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

Information to collect

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

ClearCARE technical support

Support for ClearOS and ClearVM is not provided by Hewlett Packard Enterprise. Support for ClearOS and ClearVM is purchased and delivered by ClearCenter. You can purchase single support incidents by submitting a support ticket to ClearCenter, or you can purchase a Bronze, Silver, Gold, or Platinum ClearCARE subscription. For more information, go to the ClearOS website:

https://www.clearos.com/

Several levels of professional technical support are available to licensed users. For more information, go to the ClearCARE support website:

https://www.clearos.com/products/support/clearcare-overview

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 will initiate a fast and accurate resolution based on your product's service level. 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.

Remote support and Proactive Care information

HPE Get Connected

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

HPE Proactive Care services

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

HPE Datacenter Care services

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

HPE Proactive Care service: Supported products list

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

HPE Proactive Care advanced service: Supported products list

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

Proactive Care customer information

Proactive Care central

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

Proactive Care service activation

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

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Acronyms and abbreviations

3DS TSV

three-dimensional stacked through-silicon via (integrated circuit packaging technology)

AHS

Active Health System

API

application program interface

ASHRAE

American Society of Heating, Refrigerating and Air-Conditioning Engineers

CSR

customer self repair

DDR4

double data rate-4

FCoE

Fibre Channel over Ethernet

GPU

graphics processing unit

HPE SSA

HPE Smart Storage Administrator

iLO

Integrated Lights-Out

IML

Integrated Management Log

LFF

large form factor

LRDIMM

load reduced dual in-line memory module

PCA

printed circuit assembly

PCI

Peripheral Component Interconnect

PCIe

Peripheral Component Interconnect Express

POST

Power-On Self-Test

PXE

Preboot eXecution Environment

RBSU

ROM-Based Setup Utility

RDIMM

registered dual in-line memory module

RoHS

Restriction of Hazardous Substances

RPS

redundant power supply

SAS

serial attached SCSI

SATA

serial ATA

SFF

small form factor

SMB

small and medium business

SPP

Service Pack for ProLiant

SSD

solid state drive

TPM

Trusted Platform Module

UDIMM

unregistered dual in-line memory module

UEFI

Unified Extensible Firmware Interface

UID

unit identification

UPS

uninterruptible power supply