Hewlett Packard Enterprise

HPE ProLiant XL450 Gen10 Server Maintenance and Service Guide

Abstract

This guide describes identification and maintenance procedures, diagnostic tools, specifications for hardware components and software for HPE ProLiant servers. This guide is for an experienced service technician. Hewlett Packard Enterprise assumes 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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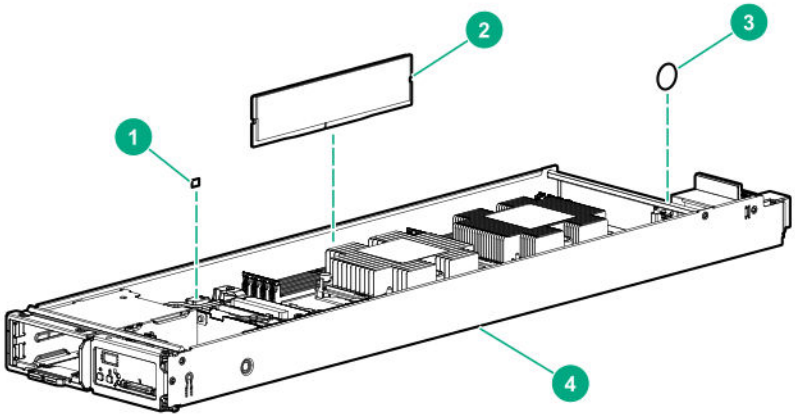
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Illustrated parts catalog

Server system components

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



Item	Description
1	**Trusted Platform Module spare parts**
2	**DIMM spare parts**
3	**System battery spare part**
4	**System board assembly spare part**
5	**Persistent memory module spare parts**[1]
6	**First Generation Intel Xeon Scalable Processor spare parts**[1]
7	**Second Generation Intel Xeon Scalable Processor spare parts**[1]
8	**Heatsink spare parts**[1]

[1] Not shown

For more information, see **Removal and replacement procedures**.

Trusted Platform Module spare parts

Customer self repair: **no**

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

DIMM spare parts

Customer self repair: **mandatory**

Table 1: 2666 MT/s DIMMs

Description	Spare part number
8GB PC4-2666V-R 1Gx8 DIMM	850879-001
16GB PC4-2666V-R 1Gx8 DIMM	868846-001
16GB PC4-2666V 1Rx4 DIMM	850880-001
32GB PC4-2666V-R DIMM	850881-001
64GB PC4-2666V-R DIMM	850882-001

Table 2: 2933 MT/s DIMMs

Description	Spare part number
8GB PC4-2933Y-R, 1Gx8 DIMM	P06186-001
16GB PC4-2933Y-R, 2Gx4 DIMM	P06187-001
16GB PC4-2933Y-R, 1Gx8 DIMM	P06188-001
32GB PC4-2933Y-R, 2Gx4 DIMM	P06189-001
64GB PC4-2933Y-L, 2Gx4 DIMM	P06190-001
64GB PC4-2933Y-R, 4Gx4 DIMM	P06192-001

Persistent memory module spare parts

Customer self repair: **mandatory**

Description	Spare part number
Intel Optane 128GB PMEM 100 for HPE	844071-001
Intel Optane 256GB PMEM 100 for HPE	844072-001
Intel Optane 512GB PMEM 100 for HPE	844073-001

System battery spare part

Customer self repair: **mandatory**

Description	Spare part number
System battery MC 96 W V3	319603-001

System board assembly spare part

Customer self repair: **no**

Description	Spare part number
System board assembly (with tray, Smart Array (Type -a) Controller board, and M.2 SSD riser board, drive backplane), compatible with First Generation Intel Xeon Scalable Processors	880998-001
System board assembly (with tray, Smart Array (Type -a) Controller board, and M.2 SSD riser board), compatible with Second Generation Intel Xeon Scalable Processors	880998-002

First Generation Intel Xeon Scalable Processor spare parts

Customer self repair: **no**

Table 3: 41xx processors

Description	Spare part number
Xeon-S 4108 1.8-GHz 8c 85W	875712-001
Xeon-S 4110 2.1-GHz 8c 85W	875711-001
Xeon-S 4114 2.2-GHz 10c 85W	875713-001
Xeon-S 4114 2.6-GHz 4c 85W	875714-001
Xeon-S 4116 2.1-GHz 12c 85W	857716-001

Table 4: 51xx processors

Description	Spare part number
Xeon-G 5115 2.4-GHz10c 85W	875715-001
Xeon-G 5118 2.3-GHz 12c 105W	875717-001
Xeon-G 5120 2.2-GHz 14c 105W	875718-001
Xeon-G 5122 3.6-GHz 4c 105W	875719-001

Table 5: 61xx processors

Description	Spare part number
Xeon-G 6132 2.6-GHz 14c 133W	875722-001
Xeon-G 6138 2.0-GHz 20c 125W	874735-001
Xeon-G 6126 2.6-GHz 12c 125W	875720-001
Xeon-G 6128 3.4-GHz 6c 115W	875721-001
Xeon-G 6130 2.1-GHz 16c 125W	874736-001
Xeon-G 6134 3.2-GHz 8c 130W	875723-001
Xeon-G 6136 3.0-GHz 12c 150W	875724-001
Xeon-G 6140 2.3-GHz 18c 140W	874734-001
Xeon-G 6142 2.6-GHz 16c 150W	874733-001

Table Continued

Description	Spare part number
Xeon-G 6148 2.4-GHz 20c 150W	874732-001
Xeon-G 6152 2.1-GHz 22c 140W	874730-001

Table 6: 81xx processors

Description	Spare part number
Xeon-P 8153 2.0-GHz 16c 125W	875728-001
Xeon-P 8156 3.6-GHz 4c 105W	875732-001
Xeon-P 8158 12c 3.0-GHz 150W	875733-001
Xeon-P 8160 2.1-GHz 24c 150W	874729-001
Xeon-P 8164 2.0-GHz 26c 150W	875729-001

Second Generation Intel Xeon Scalable Processor spare parts

Customer self repair: **no**

Table 7: 42xx processors

Description	Spare part number
Xeon-S 4208 2.1-GHz 8c 85W	P11605-001
Xeon-S 4210 2.2-GHz 10c 85W	P11606-001
Xeon-S 4210R 2.4-GHz 10c 100W	P19246-001
Xeon-S 4214 2.2-GHz 12c 85W	P11607-001
Xeon-S 4214R 2.4-GHz 12c 100W	P19245-001
Xeon-S 4215 2.5-GHz 8c 85W	P11608-001
Xeon-S 4215R 3.2-GHz 8c 130W	P25089-001
Xeon-S 4216 2.1-GHz 16c 100W	P11609-001

Table 8: 52xx processors

Description	Spare part number
Xeon-G 5215 2.5-GHz 10c 85W	P11610-001
Xeon-G 5218 2.3-GHz 16c 125W	P11612-001
Xeon-G 5218R 2.1-GHz 20c 125W	P25090-001
Xeon-G 5220 2.2-GHz 18c 125W	P11613-001
Xeon-G 5220R 2.2-GHz 24c 150W	P19241-001

Table 9: 62xx processors

Description	Spare part number
Xeon-G 6226 2.8-GHz 12c 125W	P12008-001
Xeon-G 6226R 2.9-GHz 16c 150W	P25094-001
Xeon-G 6230 2.1-GHz 20c 125W	P11614-001
Xeon-G 6230R 2.1-GHz 26c 150W	P25095-001
Xeon-G 6234 3.4-GHz 8c 130W	P12009-001
Xeon-G 6240 2.6-GHz 18c 150W	P11615-001
Xeon-G 6242 2.8-GHz 16c 150W	P11616-001
Xeon-G 6248 2.5-GHz 20c 150W	P11618-001
Xeon-G 6252 2.1-GHz 24c 150W	P11619-001

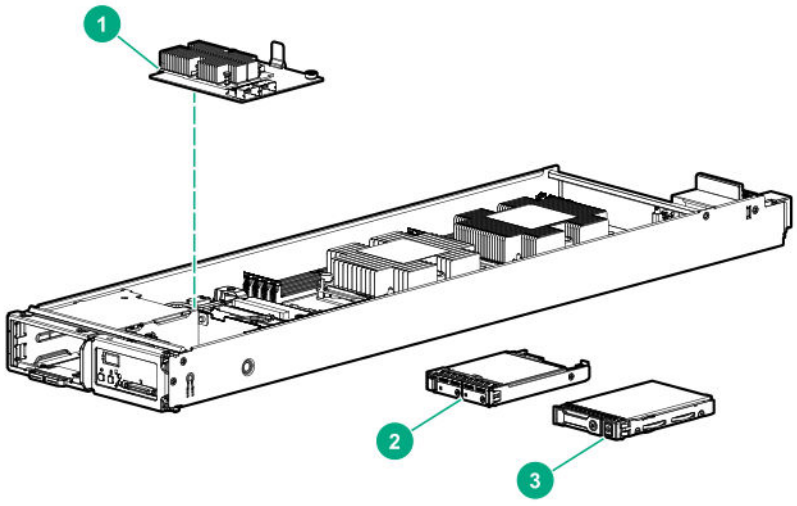
Heatsink spare parts

Customer self repair: **no**

Description	Spare part number
Front processor heatsink (26 fin)	880996-001
Rear processor heatsink (53 fin)	880997-001

Server options

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



Item	Description
1	**Storage Controller spare parts**
2	**SFF Flash Adapter spare parts**
3	**Hot-plug SFF drive spare parts**
4	**microSD spare parts**[1]
5	**Cable kit spare parts**[1]

[1] Not shown

For more information, see **Removal and replacement procedures**.

Storage Controller spare parts

Customer self repair: **optional**

Description	Spare part number
HPE Smart Array E208i-a SR Gen10 Controller	836259-001
HPE Smart Array P408i-a SR Gen10 Controller	836260-001
HPE Smart Array P824i-p MR Gen10 Controller	871043-001

SFF Flash Adapter spare parts

Customer self repair: **mandatory**

Description	Spare part number
HPE 340 GB SATA RI UFF Dual M.2 Kit	781566-001
HPE 120 GB SATA RI UFF Dual M.2 Kit	831995-001

Hot-plug SFF drive spare parts

Customer self repair: **mandatory**

Table 10: SATA hard drives

Description	Spare part number
HPE 1 TB SATA 7.2K SFF SC 512e DS HDD	765868-001
HPE 1 TB SATA 7.2K SFF SC DS HDD	656108-001
HPE 2 TB SATA 7.2K SFF SC 512e DS HDD	765869-001

Table 11: SAS hard drives

Description	Spare part number
HPE 300 GB SAS 15K SFF SC DS HDD	870792-001
HPE 300 GB SAS 10K SFF SC DS HDD	872735-001

Table Continued

Description	Spare part number
HPE 600 GB SAS 15K SFF SC DS HDD	870794-001
HPE 600 GB SAS 10K SFF SC DS HDD	872736-001
HPE 600 GB SAS 15K SFF SC 512e DS HDD	870797-001
HPE 900 GB SAS 15K SFF SC DS HDD	870795-001
HPE 900 GB SAS 15K SFF SC 512e DS HDD	870798-001
HPE 1 TB SAS 7.2K SFF SC DS HDD	832984-001
HPE 1 TB SAS 7.2K SFF SC 512e DS HDD	765872-001
HPE 1.2 TB SAS 10K SFF SC DS HDD	872737-001
HPE 1.8 TB SAS 10K SFF SC 512e DS HDD	872738-001
HPE 2 TB SAS 7.2K SFF SC 512e DS HDD	765873-001
HPE 2.4 TB SAS 12G 10K SFF SC 512e DS HDD	881507-001

Table 12: SATA solid-state drives

Description	Spare part number
HPE 240 GB SATA RI SFF SC DS SSD	878844-001
HPE 240 GB SATA MU SFF SC DS SSD	882219-001
HPE 240 GB SATA 6G MIXED USE SFF (2.5 in) SC	875703-001
HPE 240 GB SATA RI SFF SC DS SSD	875652-001
HPE 240 GB SATA RI SFF SC MV SSD	P18481-001
HPE 400 GB SATA 6G WI SFF SC DS SSD	872512-001
HPE 480 GB SATA RI SFF SC DS SSD	878846-001
HPE 480 GB SATA RI SFF SC MV SSD	P18482-001
HPE 480 GB SATA 6G MIXED USE SFF (2.5 in) SC	875863-001
HPE 480 GB SATA MU SFF SC DS SSD	879013-001
HPE 480 GB SATA MU SFF SC MV SSD	P18477-001
HPE 480 GB SATA 6G RI SFF SC DS SSD	868926-001
HPE 480 GB SATA 6G MU SFF SC DS SSD	872518-001
HPE 480 GB SATA RI SFF SC DS SSD	875655-001
HPE 800 GB SATA 6G WI SFF SC DS SSD	872514-001
HPE 960 GB SATA 6G READ INTENSIVE SFF (2.5 in)	875656-001
HPE 960 GB SATA 6G MU SFF (2.5 in)	875865-001
HPE 960 GB SATA MU SFF SC DS SSD	879016-001
HPE 960 GB SATA MU SFF SC MV SSD	P18478-001
HPE 960 GB SATA 6G RI SFF SC DS SSD	868928-001

Table Continued

Description	Spare part number
HPE 960 GB SATA 6G MU SFF SC DS SSD	872520-001
HPE 960 GB SATA RI SFF SC DS SSD	878849-001
HPE 960 GB SATA RI SFF SC MV SSD	P18483-001
HPE 1.6 TB SATA 6G WI SFF SC DS SSD	872516-001
HPE 1.92 TB SATA 6G READ INTENSIVE SFF (2.5 in) SC	875657-001
HPE 1.92 TB SATA RI SFF SC DS SSD	878852-001
HPE 1.92 TB SATA RI SFF SC MV SSD	P18484-001
HPE 1.92 TB SATA MU SFF SC DS SSD	879019-001
HPE 1.92 TB SATA MU SFF SC DS SSD	875867-001
HPE 1.92 TB SATA MU SFF SC MV SSD	P18479-001
HPE 1.92 TB SATA 6G MU SFF SC DS SSD	872522-001
HPE 1.92 TB SATA 6G RI SFF SC DS SSD	868930-001
HPE 3.84 TB SATA 6G RI SFF SC DS SSD	868932-001
HPE 3.84 TB SATA RI SFF SC DS SSD	878855-001
HPE 3.84 TB SATA RI SFF SC MV SSD	P18485-001
HPE 3.84 TB SATA MU SFF SC MV SSD	P18480-001
HPE 7.68 TB SAS 12G RI SFF SC DS SSD	870460-001
HPE 7.68 TB SATA RI SFF SC MV SSD	P18486-001

Table 13: SAS solid-state drives

Description	Spare part number
HPE 400 GB SAS 12G MU SFF SC DS SSD	872505-001
HPE 400 GB SAS 12G MU SFF SC DS SSD	873566-001
HPE 400 GB SAS WI SFF SC SSD	780432-001
HPE 400 GB SAS 12G WI SFF SC DS SSD	873563-001
HPE 480GB SAS RI SFF SC DS SSD	875681-001
HPE 800 GB SAS 12G MU SFF SC DS SSD	872506-001
HPE 800 GB SAS 12G WI SFF SC DS SSD	873564-001
HPE 800 GB SAS 12G MU SFF SC DS SSD	873569-001
HPE 800 GB SAS WI SFF SC SSD	780434-001
HPE 960 GB SAS 12G RI SFF SC DS SSD	872432-001
HPE 960 GB SAS RI SFF SC DS SSD	875682-001
HPE 1.6 TB SAS 12G MIXED USE SFF (2.5 in) SC	872509-001
HPE 1.6 TB SAS 12G MU SFF SC DS SSD	873570-001

Table Continued

Description	Spare part number
HPE 1.6 TB SAS 12G WI SFF SC DS SSD	873565-001
HPE 1.92 TB SAS 12G RI SFF SC DS SSD	872433-001
HPE 1.92 TB SAS RI SFF SC DS SSD	875684-001
HPE 3.2 TB SAS 12G MIXED USE SFF (2.5 in) SC	872511-001
HPE 3.2 TB SAS 12G MU SFF SC DS SSD	873571-001
HPE 3.84 TB SAS 12G RI SFF SC DS SSD	872434-001
HPE 3.84 TB SAS RI SFF SC DS SSD	875686-001
HPE 7.68 TB SAS 12G RI SFF SC DS SSD	870460-001

Table 14: NVMe solid-state drives

Description	Spare part number
HPE 400 GB NVMe x4 MU SFF SCN SSD	765063-001
HPE 400 GB NVMe x4 RI SFF SCN SSD	765067-001
HPE 400 GB NVMe x4 MU SFF SCN DS SSD	875874-001
HPE 400 GB NVMe x4 WI SFF SC SSD	765059-001
HPE 480 GB NVMe x4 RI SFF Scn DS SSD	875871-001
HPE 800 GB NVMe x4 MU SFF SCN SSD	765064-001
HPE 800 GB NVMe x4 MU SFF SCN DS SSD	875875-001
HPE 800 GB NVMe x4 WI SFF SCN SSD	765060-001
HPE 960 GB NVMe x4 RI SFF SCN DS SSD	875872-001
HPE 1.2 TB NVMe x4 RI SFF SCN SSD	765068-001
HPE 1.6 TB NVMe x4 MU SFF SCN SSD	765065-001
HPE 1.6 TB NVMe x4 MU SFF SCN DS SSD	875876-001
HPE 1.6 TB NVMe x4 WI SFF SCN SSD	765061-001
HPE 1.92 TB NVMe x4 RI SFF SCN DS SSD	875873-001
HPE 2 TB NVMe x4 MU SFF SCN SSD	765066-001
HPE 2 TB NVMe x4 RI SFF SCN SSD	765069-001
HPE 2 TB NVMe x4 WI SFF SCN SSD	765062-001

microSD spare parts

Customer self repair: **mandatory**

Description	Spare part number
HPE 32 GB microSD Flash Media Kit	704502-001

Cable kit spare parts

Customer self repair: **mandatory**

Description	Spare part number
Front I/O to front USB board cable kit	879510-001
HPE SUV 36 pin cable kit	416003-001

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

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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 T-15 and T-30 Torx screwdrivers for performing procedures listed in this document.

Preparation procedures

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

- **Power down the server**.

  If you must remove the chassis from a rack or a non-hot-plug component from the chassis or server, then you must power down the servers.

- **Remove the server from the chassis**.

  If the rack environment, cabling configuration, or the chassis location in the rack creates unstable conditions, then remove the server from the chassis.

Power down the server

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

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.

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.

Remove the server from the chassis

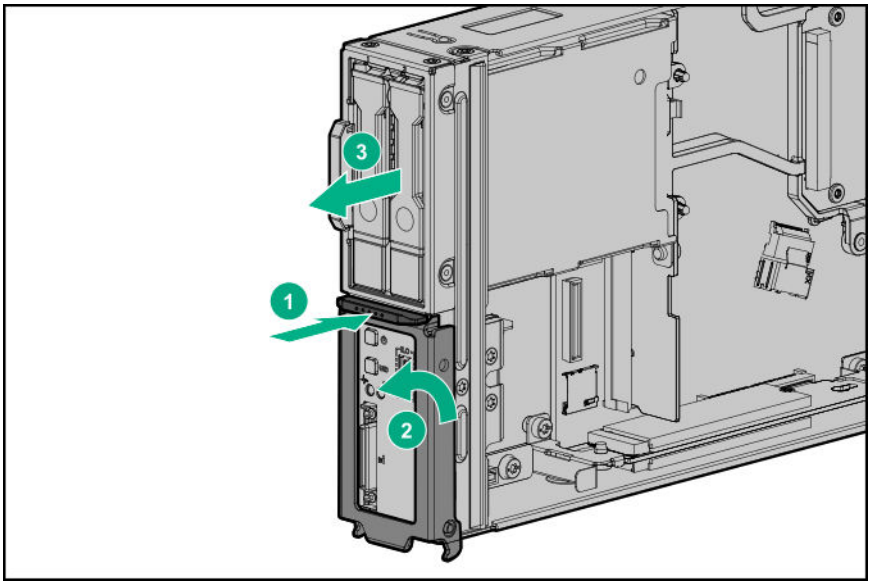
CAUTION: Before removing the server, verify that the server backup LED is not flashing.

Procedure

1. **Power down the server**.

   CAUTION: To avoid damage to the server, always support the bottom of the server when removing it from the chassis.

2. Remove the server from the chassis.



   NOTE: To avoid damage to the device, do not use the removal handle to carry it.

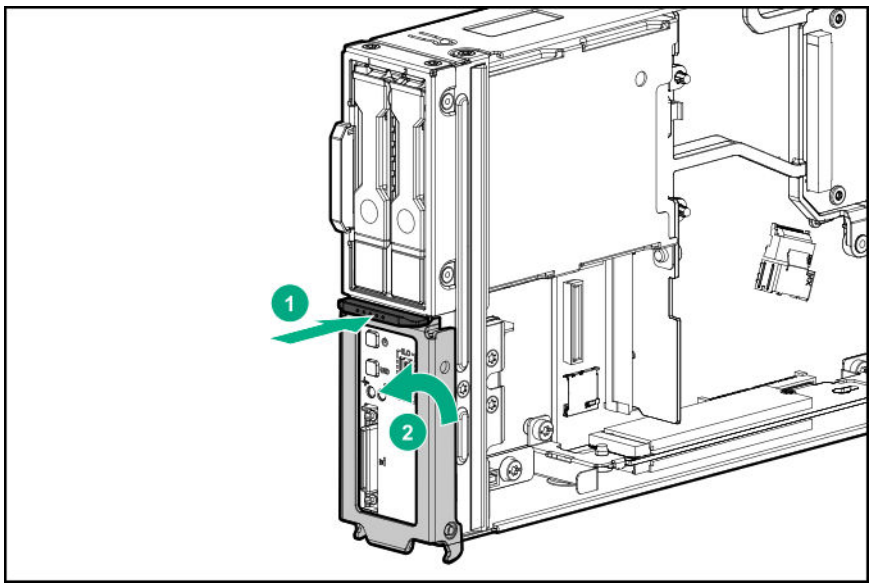
3. Place the server on a flat, level work surface.

Install a server

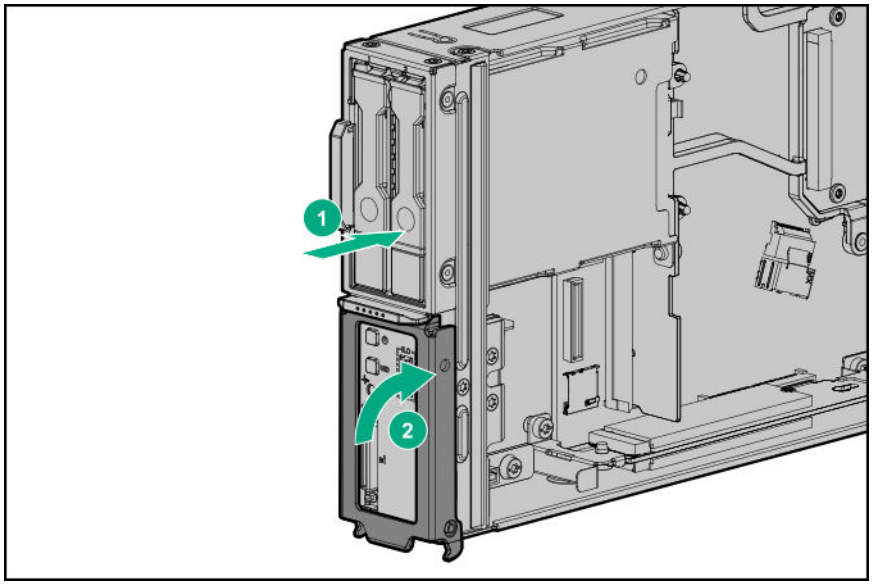
CAUTION: To prevent improper cooling and thermal damage, do not operate the chassis unless all bays are populated with a component or a blank.

Procedure

1. Prepare the server for installation.



2. Install the server. When seated properly, the server will be flush with the front of the chassis and the release lever will close completely without resistance.



Safety considerations

Before performing service procedures, review all the safety information.

Preventing electrostatic discharge

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

Procedure

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.

- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.

Symbols on equipment

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



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

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



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

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



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

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



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

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



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

7.71 kg

17.00 lb

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.

System warnings and cautions

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

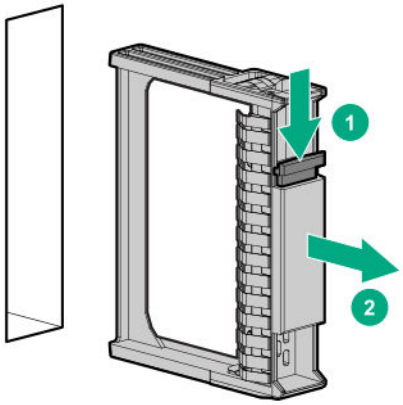
WARNING: To reduce the risk of electric shock or damage to the equipment:

- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
- Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
- Unplug the power cord from the power supply to disconnect power to the equipment.
- Do not route the power cord where it can be walked on or pinched by items placed against it. Pay particular attention to the plug, electrical outlet, and the point where the cord extends from the server.

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

Removing and replacing a drive blank

Remove the component as indicated.



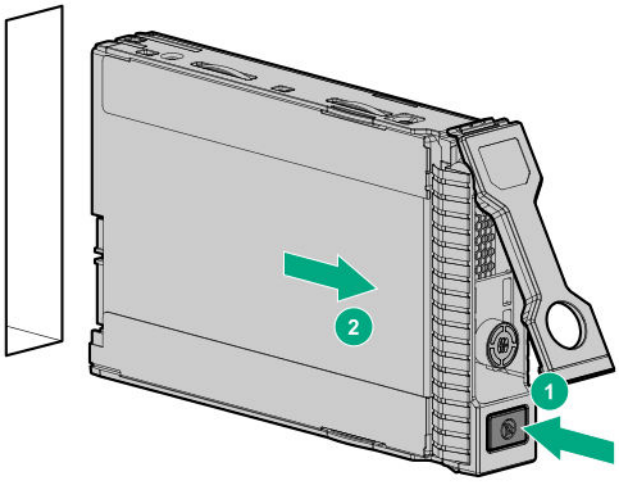
CAUTION: To prevent improper cooling and thermal damage, do not operate the server unless all device bays are populated with either a component or a blank.

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

Removing and replacing an SFF drive

Procedure

1. Determine the status of the drive from the drive LED definitions.
2. Back up all data on the drive.
3. Remove the drive.

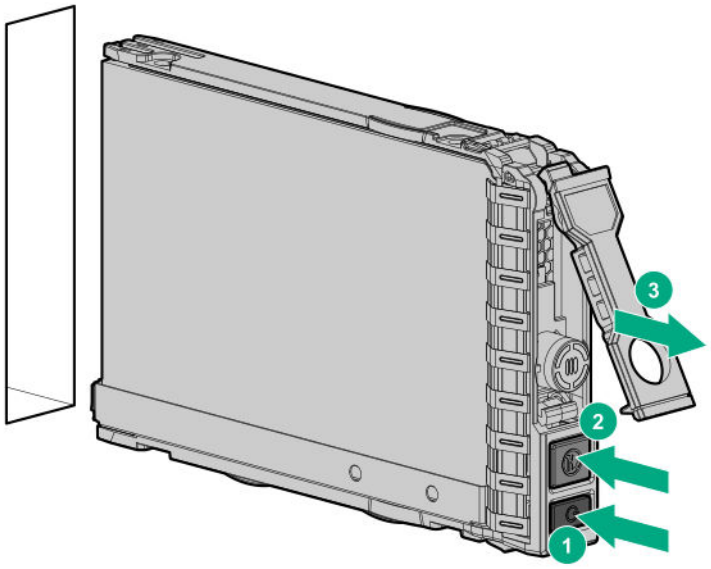


To replace the drive, slide the drive into the bay until it is fully seated, and then close the latch handle to lock the drive in the bay.

Removing and replacing an NVMe drive

Procedure

1. Determine the status of the drive from the drive LED definitions.
2. Back up all data on the drive.
3. Remove the drive.



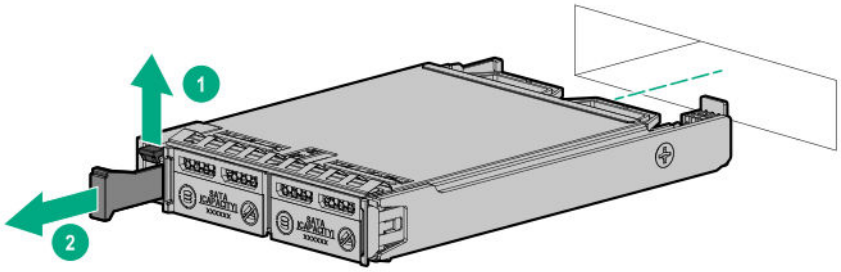
To replace the drive, slide the drive into the bay until it is fully seated, and then close the latch handle to lock the drive in the bay.

Removing and replacing the SFF flash adapter option

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

Procedure

1. **Power down the server**.
2. **Remove the server from the chassis**.
3. Place the server on a flat, level work surface.
4. Remove the SFF flash adapter.



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:

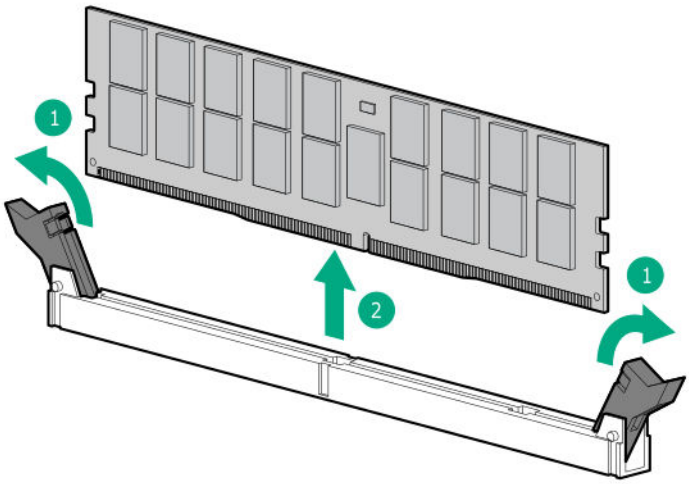
- First-generation Intel Xeon Scalable processors support DDR4-2666 DIMMs.
- Second-generation Intel Xeon Scalable processors support DDR4-2933 DIMMs.

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

Removing and replacing a DIMM

Procedure

1. **Power down the server**.
2. **Remove the server from the chassis**.
3. Remove the DIMM.



To replace the component, reverse the removal procedure.

Removing and replacing a persistent memory module

For specific population and configuration information, see the memory population guidelines on the Hewlett Packard Enterprise website (**http://www.hpe.com/docs/memory-population-rules**).

To identify the persistent memory modules installed in the server, see **Intel Optane persistent memory 100 series for HPE label identification**.

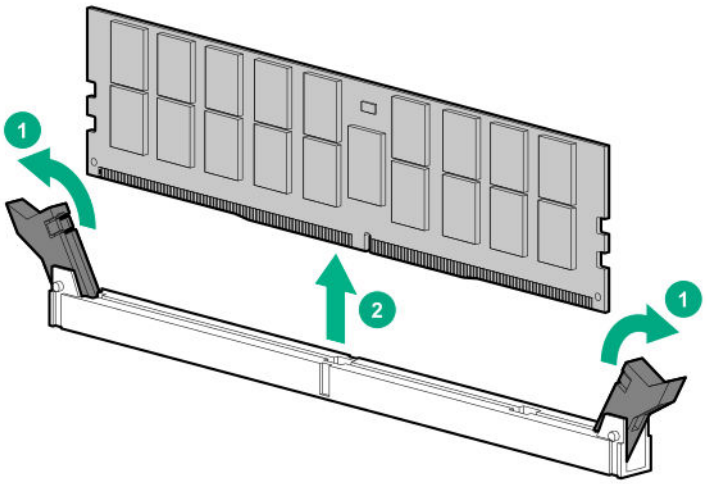
Procedure

1. Observe the following alerts:

   CAUTION: Electrostatic discharge can damage electronic components. Be sure you are properly grounded before beginning this procedure.

   CAUTION: Failure to properly handle persistent memory modules can damage the component and the system board connector.

2. Power down the server (**Power down the server**).
3. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
4. Remove the server from the chassis (**Remove the server from the chassis**).
5. Place the server on a flat, level surface.
6. Remove the persistent memory module.



7. Install the new persistent memory module, and review the persistent memory configuration of the server.

   For more information, see **Configuring the server for Intel Optane persistent memory 100 series for HPE**.

8. If you are relocating the persistent memory module to or from another server, see the **Persistent memory module relocation guidelines**.

Persistent memory module-processor compatibility

Intel Optane persistent memory 100 series for HPE is supported only in servers with second-generation Intel Xeon Scalable processors installed.

Configuring the server for Intel Optane persistent memory 100 series for HPE

After installing persistent memory modules, configure the server for Intel Optane persistent memory for HPE.

IMPORTANT: Always follow recommendations from your software application provider for high-availability best practices to ensure maximum uptime and data protection.

A number of configuration tools are available, including:

- UEFI System Utilities—Access System Utilities through the Remote Console to configure the server by pressing the **F9** key during POST.
- iLO RESTful API—Use the iLO RESTful API through tools such as the RESTful Interface Tool (ilorest) or other third-party tools.
- HPE Persistent Memory Management Utility—The HPE Persistent Memory Management Utility is a desktop application used to configure the server for Intel Optane persistent memory 100 series for HPE, as well as evaluate and monitor the server memory configuration layout.

For more information, see the *Intel Optane persistent memory 100 series for HPE User Guide* on the Hewlett Packard Enterprise website (**https://www.hpe.com/info/persistentmemory-docs**).

Persistent memory module relocation guidelines

Observe the relocation guidelines when doing the following:

- When relocating persistent memory modules to another DIMM slot on the server.
- When relocating persistent memory modules to another server.
- When reinstalling persistent memory modules after replacing the server system board.

IMPORTANT: When data must be preserved, Hewlett Packard Enterprise strongly recommends that you perform a manual backup of all user data on the persistent memory modules before changing the goal configuration or performing relocation procedures.

Requirements for relocating persistent memory modules or a set of persistent memory modules when the data must be preserved

- The destination server hardware must match the original server hardware configuration.
- All System Utilities settings in the destination server must match the original System Utilities settings in the original server.
- If persistent memory modules are used with **Persistent Memory Interleaving** set to Enabled in the original server, do the following:
  - Install the persistent memory modules in the same DIMM slots in the destination server.
  - Install the entire interleaved set (all the DIMMs and persistent memory modules on the processor) on the destination server.

  If any of the requirements cannot be met during relocation, do the following:
  - Manually back up the persistent memory data before relocating persistent memory modules to another server.
  - Relocate the persistent memory modules to another server.
  - Sanitize all persistent memory modules on the new server before using them.

Requirements for relocating encrypted persistent memory modules or a set of persistent memory modules when the data must be preserved

- If persistent memory modules are encrypted with local key management, either manually retrieve the persistent memory module passwords from the server (user-generated passwords only) or export a password file to a USB key.

  Hewlett Packard Enterprise recommends exporting the password file to a USB key.
- Follow the requirements for relocating persistent memory modules or a set of persistent memory modules when the data must be preserved.
- Do one of the following:
  - If persistent memory modules are encrypted with local key management, either manually enter the persistent memory module passwords in the System Utilities or import the password file from the USB key.
  - If persistent memory modules are encrypted with remote key management, enroll the HPE iLO in the key management server to provide access to the data on the persistent memory modules.

  For more information, see the *Intel Optane persistent memory 100 series for HPE User Guide* on the Hewlett Packard Enterprise website (**https://www.hpe.com/info/persistentmemory-docs**).

Requirements for relocating persistent memory modules or a set of persistent memory modules when the data does not have to be preserved

- Move the persistent memory modules to the new location and sanitize all persistent memory modules after installing them to the new location.
- Observe the DIMM and persistent memory module population guidelines.
- Observe the process for removing a persistent memory module.
- Observe the process for installing a persistent memory module.
- Review and configure the system settings for Intel Optane persistent memory for HPE.

For more information, see the *Intel Optane persistent memory 100 series for HPE User Guide* on the Hewlett Packard Enterprise website (**https://www.hpe.com/info/persistentmemory-docs**).

Persistent memory module sanitization

Media sanitization is defined by NIST SP800-88 *Guidelines for Media Sanitization* (Rev 1, Dec 2014) as "a general term referring to the actions taken to render data written on media unrecoverable by both ordinary and extraordinary means."

The specification defines the following levels:

- Clear: Overwrite user-addressable storage space using standard write commands; might not sanitize data in areas not currently user-addressable (such as bad blocks and over-provisioned areas).
- Purge: Overwrite or erase all storage space that might have been used to store data using dedicated device sanitize commands, such that data retrieval is "infeasible using state-of-the-art laboratory techniques."
- Destroy: Ensure that data retrieval is "infeasible using state-of-the-art laboratory techniques" and render the media unable to store data (such as disintegrate, pulverize, melt, incinerate, or shred).

Intel Optane persistent memory for HPE supports the purge level using a cryptographic erase technique and an overwrite technique.

HPE ProLiant and HPE Synergy Gen10 server products support sanitizing persistent memory modules during POST. Use the HPE RESTful Interface Tool or UEFI System Utilities to schedule sanitization on the next boot.

For more information, see the sanitization policies and guidelines in the *Intel Optane persistent memory 100 series for HPE User Guide* on the Hewlett Packard Enterprise website (**https://www.hpe.com/info/persistentmemory-docs**).

NIST SP800-88 *Guidelines for Media Sanitization* (Rev 1, Dec 2014) is available for download from the NIST website (**https://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-88r1.pdf**).

Removing and replacing the system battery

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.

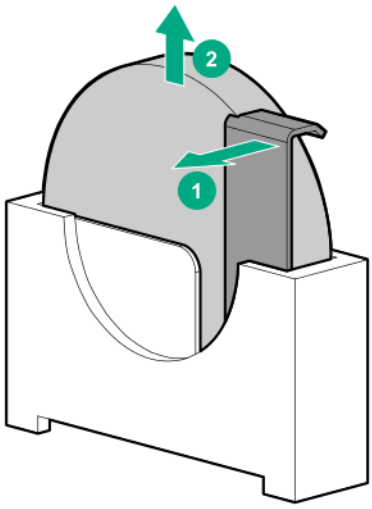
WARNING: The computer contains an internal lithium manganese dioxide, a vanadium pentoxide, or an alkaline battery pack. A risk of fire and burns exists if the battery pack is not properly handled. To reduce the risk of personal injury:

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

Procedure

1. **Power down the server**.
2. **Remove the server from the chassis**.
3. Place the server on a flat, level work surface.
4. Identify the battery location.

   For more information, see **Server components**.
5. Remove the battery.



IMPORTANT: Replacing the system board battery resets the system ROM to its default configuration. After replacing the battery, reconfigure the system through UEFI System Utilities.

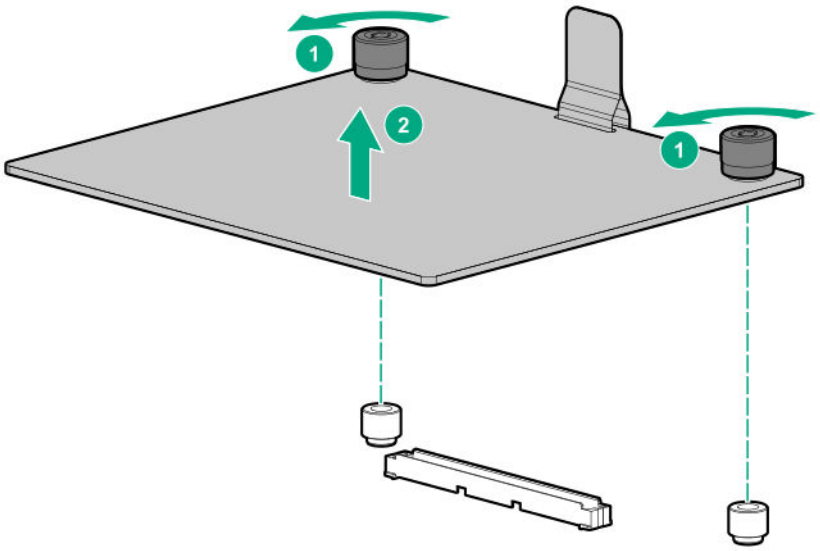
To replace the component, reverse the removal procedure.

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

Removing and replacing a storage controller

Procedure

1. **Power down the server**.
2. **Remove the server from the chassis**.
3. Place the server on a flat, level work surface.
4. Remove the storage controller.

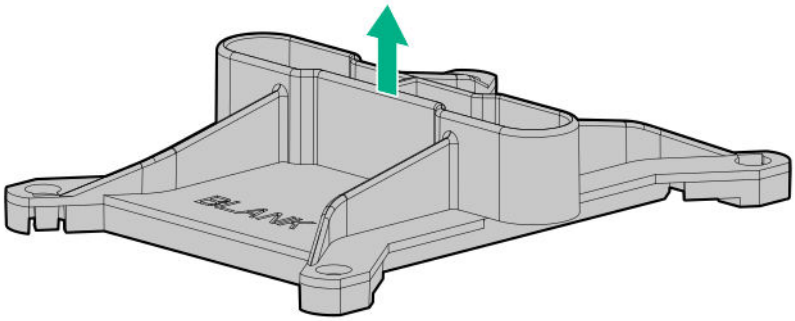


To replace the component, reverse the removal procedure.

Removing and replacing a heatsink blank

Procedure

1. **Power down the server**.
2. **Remove the server from the chassis**.
3. Place the server on a flat, level work surface.
4. Remove the heatsink blank. Retain the heatsink blank for future use.



To replace the component, reverse the removal procedure.

Removing and replacing the system board assembly

Procedure

1. **Power down the server**.
2. **Remove the server from the chassis**.

3. Place the server on a flat, level work surface.
4. Remove any components installed in the drive bay:
   - Remove any drive blanks installed (**Removing and replacing a drive blank**).
   - Remove any SFF drives installed (**Removing and replacing an SFF drive**).
   - Remove any NVMe drives installed (**Removing and replacing an NVMe drive**).
   - Remove any SFF Flash Adapters installed (**Removing and replacing the SFF flash adapter option**).
5. Remove the microSD card, if installed. To locate the microSD card, see **Server components**.
6. Disconnect the front panel/LED board cable from the system board.

   To locate the front panel/LED board cable, see **Server components**.
7. Remove the front panel I/O board.
8. Remove the DIMMs (**Removing and replacing a DIMM**).
9. Remove the storage controller (**Removing and replacing a storage controller**).
10. Disconnect all cables from the system board.
11. Remove the system battery (**Removing and replacing the system battery**).
12. Remove the heatsink blank (**Removing and replacing a heatsink blank**), if installed.
13. Install the new system board assembly.
14. Install the components in the reverse order of removal.
15. Install the server into the chassis.
16. **Power up the server**.
17. Re-enter the server serial number and product ID (**Re-entering the server serial number and 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. 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.

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.

NOTE:

- Rapid Setup Software is only available on the ProLiant 300 Series servers or below. 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.
- 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 **Lifecycle Management**. **Lifecycle Management** allows you to access Intelligent Provisioning without rebooting your server.

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

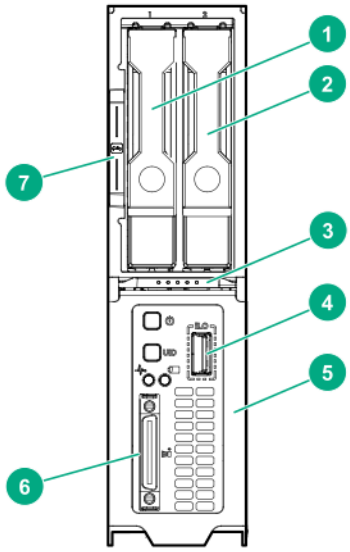
  This method requires an administrator to download the HPE SSA executables and install them. You can run HPE SSA online after launching the host operating system.

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

Component identification

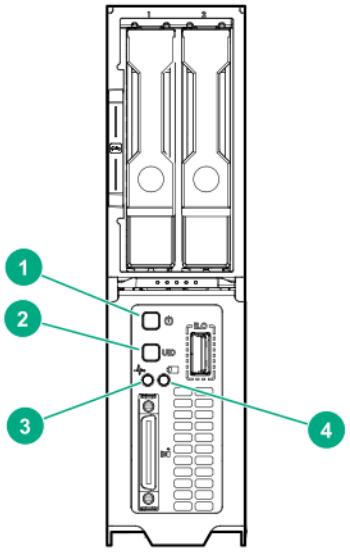
This chapter describes the external and internal server features and components.

Front panel components



Item	Description
1	Drive bay 1
2	Drive bay 2
3	Server ejector button
4	iLO Service port
5	Server release lever
6	SUV cable connector
7	Serial label pull tab

Front panel LEDs and buttons

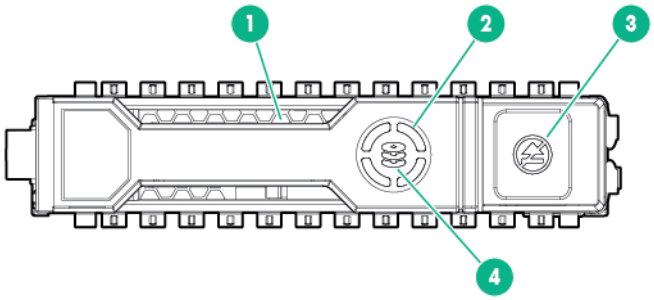


Item	Description	Status
1	Power On/Standby button and system power LED	Solid green = System on Flashing green (1 Hz/cycle per sec) = Performing power on sequence Solid amber = System in standby Off = No power present
2	UID LED/button	Solid blue = Activated Flashing blue: • 1 Hz/cycle per sec = Remote management or firmware upgrade in progress • 4 Hz/cycle per sec = iLO manual reboot sequence initiated • 8 Hz/cycle per sec = iLO manual reboot sequence in progress • 1 fast flash and then off for 3 seconds = iLO Service Port status is Complete • 4 medium flashes and then off for 1 second = iLO Service Port status is Busy • 8 fast flashes and then off for 1 second = iLO Service Port status is Error Off = Deactivated

Table Continued

Item	Description	Status
3	Server health LED	Solid green = Normal Flashing green (1 Hz/cycle per sec) = iLO is rebooting Flashing amber = System degraded Flashing red (1 Hz/cycle per sec) = System critical
4	Server backup LED	Off = Normal operations. No backup in progress. Flashing white = Backup in progress. Do not remove drives, nodes, or associated system components, and do not power down the server.

Smart Carrier (SC) 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.
		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.

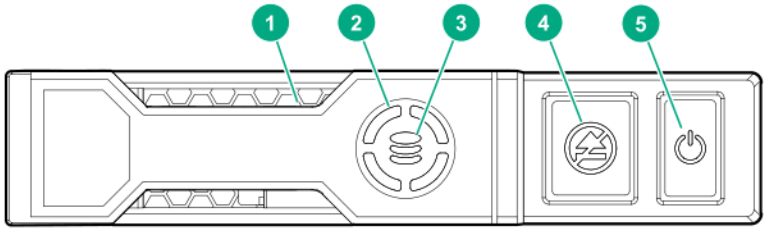
Table Continued

Item	LED	Status	Definition
		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.

Smart Carrier NVMe (SCN) drive LED definitions

The NVMe drive is a PCIe bus device. A device attached to a PCIe bus cannot be removed without allowing the device and bus to complete and cease the signal/traffic flow.

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

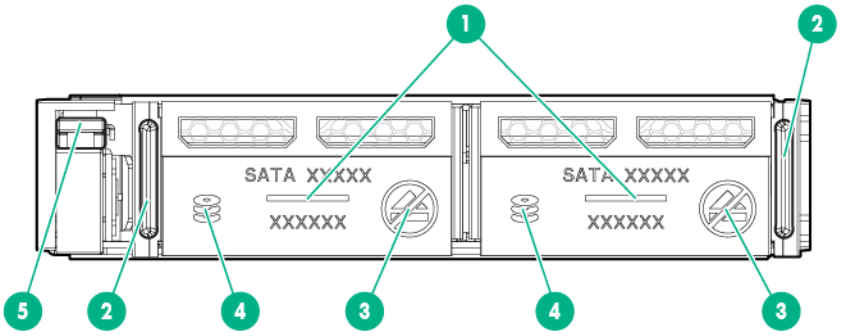


Item	LED	Status	Definition
1	Locate	Solid blue	The drive is being identified by a host application.
		Flashing blue	The drive carrier firmware is being updated or requires an update.
2	Activity ring	Rotating green	Drive activity
		Off	No drive activity
3	Drive status	Solid green	The drive is a member of one or more logical drives.

Table Continued

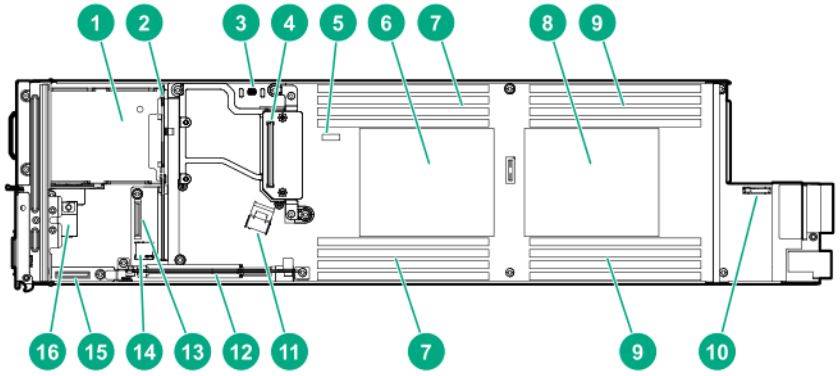
Item	LED	Status	Definition
		Flashing green	The drive is doing one of the following: • Rebuilding • Performing a RAID migration • Performing a stripe size migration • Performing a capacity expansion • Performing a logical drive extension • Erasing
		Flashing amber/ green	The drive is a member of one or more logical drives and predicts the drive will fail.
		Flashing amber	The drive is not configured and predicts the drive will fail.
		Solid amber	The drive has failed.
		Off	The drive is not configured by a RAID controller.
4	Do not remove	Solid white	Do not remove the drive. The drive must be ejected from the PCIe bus prior to removal.
		Flashing white	The drive ejection request is pending.
		Off	The drive has been ejected.
5	Power	Solid green	Do not remove the drive. The drive must be ejected from the PCIe bus prior to removal.
		Flashing green	The drive ejection request is pending.
		Off	The drive has been ejected.

SFF flash adapter components and LED definitions



Item	Component	Description
1	Locate	• Off—Normal • Solid blue—The drive is being identified by a host application. • Flashing blue—The drive firmware is being updated or requires an update.
2	uFF drive ejection latch	Removes the uFF drive when released.
3	Do not remove LED	• Off—OK to remove the drive. Removing the drive does not cause a logical drive to fail. • Solid white—Do not remove the drive. Removing the drive causes one or more of the logical drives to fail.
4	Drive status LED	• Off—The drive is not configured by a RAID controller or a spare drive. • Solid green—The drive is a member of one or more logical drives. • Flashing green (4 Hz)—The drive is operating normally and has activity. • Flashing green (1 Hz)—The drive is rebuilding, erasing, or performing a RAID migration, stripe size migration, capacity expansion, logical drive extension, or spare activation. • Flashing amber/green (1 Hz)—The drive is a member of one or more logical drives that predicts the drive will fail. • Solid amber—The drive has failed. • Flashing amber (1 Hz)—The drive is not configured and predicts the drive will fail.
5	Adapter ejection release latch and handle	Removes the SFF flash adapter when released.

Server components

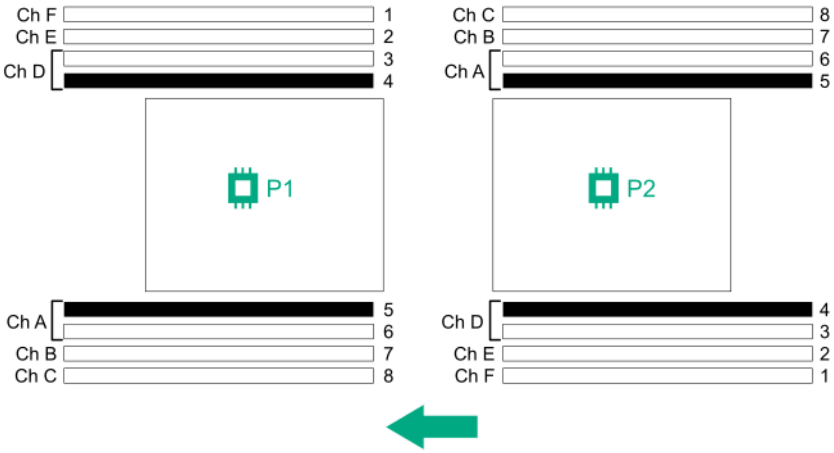


Item	Description
1	Drive cage
2	Drive backplane
3	TPM 2.0 connector
4	Controller connector
5	System maintenance switch
6	Processor 1
7	Processor 1 DIMMs (8)
8	Processor 2
9	Processor 2 DIMMs (8)
10	System battery
11	SFF drive cage data cable connector
12	M.2 riser board
13	Front panel I/O board cable connector
14	microSD card slot
15	Front panel I/O board
16	iLO Service Port board

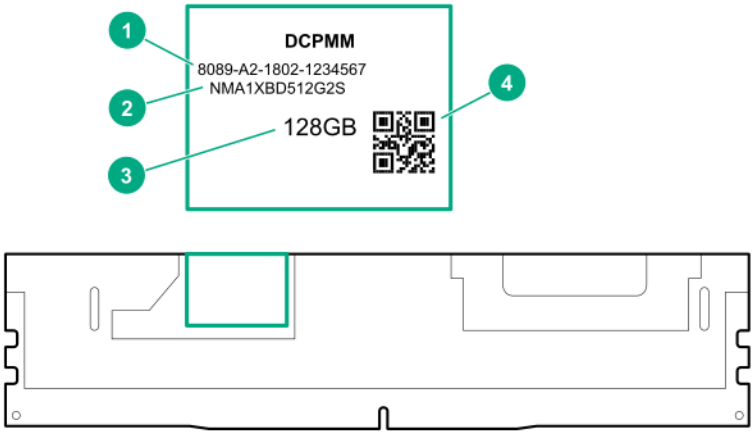
DIMM slot locations

The arrow points to the front of the server.

DIMM slots closest to the processors support NVDIMMs.



Intel Optane persistent memory 100 series for HPE label identification



Item	Description	Example
1	Unique ID number	8089-A2-1802-1234567
2	Model number	NMA1XBD512G2S
3	Capacity	128 GB 256 GB 512 GB
4	QR code	Includes part number and serial number

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/support/persistentmemoryQS**).

System maintenance switch

Position	Default	Function
S1	Off	Off = iLO security is enabled. On = iLO security is disabled.
S2	Off	Reserved
S3	Off	Reserved
S4	Off	Reserved
S5	Off	Off = Power-on password is enabled. On = Power-on password is disabled.
S6	Off	Off = No function On = ROM reads system configuration as invalid.

Table Continued

Position	Default	Function
S7	Off	Reserved
S8	—	Reserved
S9	—	Reserved
S10	—	Reserved
S11	—	Reserved
S12	—	Reserved

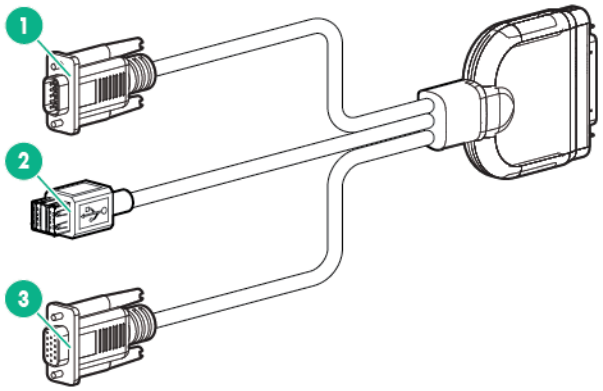
To access the redundant ROM, set S1, S5, and S6 to On.

When system maintenance switch S6 is set to the On position, the system is prepared to erase all system configuration settings from both CMOS and NVRAM.

Cabling

SUV cable connectors

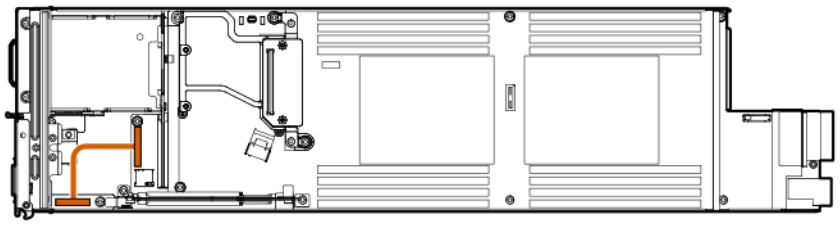
CAUTION: Before disconnecting the SUV cable from the connector, always squeeze the release buttons on the sides of the connector. Failure to do so can result in damage to the equipment.



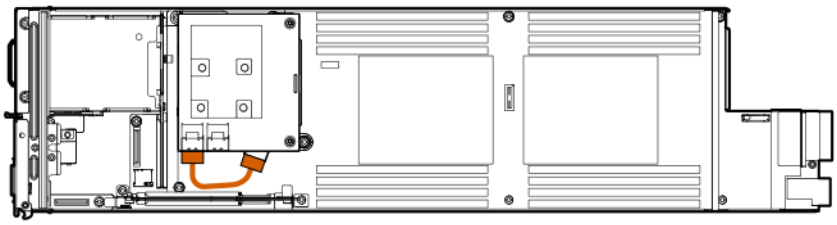
Item	Connector	Description
1	Serial	For trained personnel to connect a null modem serial cable and perform advanced diagnostic procedures
2	USB[1]	For connecting up to two USB 2.0 devices
3	Video	For connecting a video monitor

[1] The USB connectors on the SUV cable do not support devices that require greater than a 500mA power source.

Front I/O and USB board cabling



Controller cabling



For more information about controller cabling, see the *HPE Apollo 4510 Gen10 Chassis Maintenance and Service Guide* in the **Hewlett Packard Enterprise Information Library**.

Specifications

Environmental specifications

Specification	Value
Temperature range[1]	
Operating	10°C to 35°C (50°F to 95°F)
Shipping	-40°C to 70°C (-40°F to 158°F)
Maximum wet bulb temperature	28°C (82.4°F)
Relative humidity (noncondensing)[2]	
Operating	10% to 90%
Nonoperating	5% to 95%

1 All temperature ratings shown are for sea level. An altitude derating of 1°C per 300 m (1.8°F per 1,000 ft) to 3,048 m (10,000 ft) is applicable. No direct sunlight allowed.

2 Storage maximum humidity of 95% is based on a maximum temperature of 45°C (113°F). Altitude maximum for storage corresponds to a pressure minimum of 70 kPa.

Server specifications

Specification	Value
Height	4.36 cm (1.72 in)
Depth	66.89 cm (26.34 in)
Width	16.56 cm (6.52 in)
Weight (fully loaded)	4.92 kg (10.85 lbs)
Weight (empty)	3.62 kg (7.9 lbs)

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

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

Warranty information

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

HPE ProLiant and IA-32 Servers and Options

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

HPE Enterprise and Cloudline Servers

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

HPE Storage Products

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

HPE Networking Products

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

Regulatory information

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

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

Additional regulatory information

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

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

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

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

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

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

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