



**Hewlett Packard
Enterprise**

HPE ProLiant DL20 Gen9 Server Maintenance and Service Guide

Abstract

This guide describes identification and maintenance procedures, diagnostic tools, specifications and requirements for hardware components and software. This guide is for an experienced service technician.

Part Number: 826317-002
Published: May 2017
Edition: 2

Notices

The information contained herein is subject to change without notice. The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Hewlett Packard Enterprise shall not be liable for technical or editorial errors or omissions contained herein.

Links to third-party websites take you outside the Hewlett Packard Enterprise website. Hewlett Packard Enterprise has no control over and is not responsible for information outside the Hewlett Packard Enterprise website.

Acknowledgments

Microsoft® and Windows® are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Linux® is the registered trademark of Linus Torvalds in the U.S. and other countries.

Intel® and Xeon® are trademarks of Intel Corporation in the U.S. and other countries.

microSD® is a trademark or a registered trademark of SD-3C in the United States, other countries or both.

Red Hat® is a registered trademark of Red Hat, Inc. in the United States and other countries.

VMware® is a registered trademark or trademark of VMware, Inc. in the United States and/or other jurisdictions.

Contents

| | |
|---|-----------|
| Customer self repair..... | 6 |
| Illustrated parts catalog..... | 15 |
| Mechanical components..... | 15 |
| System components..... | 17 |
| Removal and replacement procedures..... | 23 |
| Required tools..... | 23 |
| Safety considerations..... | 23 |
| Preventing electrostatic discharge..... | 23 |
| Symbols on equipment..... | 23 |
| Server warnings and cautions..... | 24 |
| Rack warnings..... | 25 |
| Preparation procedures..... | 25 |
| Removing the security bezel..... | 26 |
| Power down the server | 26 |
| Extending the server from the rack..... | 27 |
| Removing the server from the rack..... | 29 |
| Removing the access panel..... | 29 |
| Removing the PCI riser cage..... | 30 |
| Removing the air baffle..... | 31 |
| Replacing the non-hot-plug drive carrier..... | 32 |
| Replacing the non-hot-plug drive..... | 33 |
| Replacing the hot-plug drive blanks..... | 34 |
| Replacing the hot-plug drive..... | 34 |
| Replacing the two-bay LFF and four-bay SFF hot-plug drive backplanes..... | 35 |
| Replacing the two-bay LFF non-hot-plug drive backplane..... | 37 |
| Replacing the HPE Smart Storage Battery holders..... | 38 |
| Replacing the FBWC module..... | 40 |
| Replacing the fan module..... | 41 |
| Replacing the DIMM..... | 46 |
| Memory and processor information..... | 46 |
| Removing the DIMM..... | 48 |
| Replacing the heatsink..... | 49 |
| Replacing the processor..... | 51 |
| Replacing the FlexibleLOM riser board..... | 55 |
| Replacing the GPU riser board..... | 56 |
| Replacing the two-slot PCIe riser board..... | 58 |
| Replacing the system battery..... | 60 |
| Replacing the front I/O assembly..... | 62 |
| Replacing the system board..... | 63 |
| Replacing the HPE DL20 Gen9 290-W Non-hot plug power supply..... | 69 |
| Replacing the RPS backplane..... | 70 |
| HP Trusted Platform Module..... | 71 |
| Troubleshooting..... | 72 |

| | |
|--------------------------------|----|
| Troubleshooting resources..... | 72 |
|--------------------------------|----|

Diagnostic tools.....73

| | |
|--|----|
| HPE iLO..... | 73 |
| Product QuickSpecs..... | 73 |
| Active Health System..... | 73 |
| HPE ProLiant Pre-boot Health Summary..... | 73 |
| Integrated Management Log..... | 73 |
| HPE Insight Remote Support..... | 74 |
| HPE Insight Remote Support central connect..... | 74 |
| HPE Insight Online direct connect..... | 74 |
| Insight Online..... | 74 |
| UEFI System Utilities..... | 74 |
| Using UEFI System Utilities..... | 75 |
| Embedded Diagnostics option..... | 75 |
| iLO RESTful API support for UEFI..... | 75 |
| Re-entering the server serial number and product ID..... | 76 |
| Insight Diagnostics..... | 76 |
| HPE Smart Storage Administrator..... | 76 |
| USB support..... | 77 |
| External USB functionality..... | 77 |
| Automatic Server Recovery..... | 77 |

Component identification.....78

| | |
|--|----|
| Front panel components..... | 78 |
| Front panel LEDs and buttons..... | 80 |
| Power fault LEDs..... | 81 |
| Rear panel components..... | 81 |
| Rear panel LEDs..... | 82 |
| System board components..... | 83 |
| DIMM slot locations..... | 84 |
| PCIe riser board slot definitions..... | 84 |
| System maintenance switch..... | 85 |
| NMI functionality..... | 86 |
| Drive numbering..... | 86 |
| Hot-plug drive LED definitions..... | 87 |
| Fan locations..... | 89 |

Cabling.....90

| | |
|---|-----|
| Cabling overview..... | 90 |
| Storage cabling..... | 90 |
| Two-bay LFF non-hot-plug drive cabling..... | 90 |
| Two-bay LFF hot-plug drive cabling..... | 91 |
| Four-bay SFF hot-plug drive cabling..... | 91 |
| M.2 SSD cabling..... | 91 |
| FBWC cabling..... | 94 |
| Smart Storage Battery cabling..... | 95 |
| H240 Hot Bust Adapter cabling..... | 95 |
| P440 Smart Array Controller cabling..... | 97 |
| Optical drive cabling..... | 98 |
| Fan cabling..... | 99 |
| Front I/O cabling..... | 100 |
| Power supply cabling..... | 100 |

| | |
|---|------------|
| HPE 290W non-hot-plug power supply cabling..... | 100 |
| Redundant power supply backplane cabling..... | 101 |
| Specifications..... | 102 |
| Environmental specifications..... | 102 |
| Mechanical specifications..... | 102 |
| Power supply specifications..... | 102 |
| Support and other resources..... | 104 |
| Accessing Hewlett Packard Enterprise Support..... | 104 |
| Accessing updates..... | 104 |
| Customer self repair..... | 104 |
| Remote support..... | 105 |
| Websites..... | 105 |
| Documentation feedback..... | 105 |
| Acronyms and abbreviations..... | 106 |

Customer self repair

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

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

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

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

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

Parts only warranty service

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

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

Réparation par le client (CSR)

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

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

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

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

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

Service de garantie "pièces seules"

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

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

Riparazione da parte del cliente

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

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

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

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

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

Servizio di garanzia per i soli componenti

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

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

Customer Self Repair

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

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

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

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

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

Parts-only Warranty Service (Garantieservice ausschließlich für Teile)

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

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

Reparaciones del propio cliente

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

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

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

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

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

Servicio de garantía exclusivo de componentes

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

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

Customer Self Repair

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

- **Verplicht**—Onderdelen waarvoor reparatie door de klant verplicht is. Als u Hewlett Packard Enterprise verzoekt deze onderdelen voor u te vervangen, worden u voor deze service reiskosten en arbeidsloon in rekening gebracht.
- **Optioneel**—Onderdelen waarvoor reparatie door de klant optioneel is. Ook deze onderdelen zijn ontworpen voor reparatie door de klant. Als u echter Hewlett Packard Enterprise verzoekt deze onderdelen voor u te vervangen, kunnen daarvoor extra kosten in rekening worden gebracht, afhankelijk van het type 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. Informatie over Service Partners vindt u op de [**Hewlett Packard Enterprise website**](#).

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. Para o programa norte-americano, [visite o site da Hewlett Packard Enterprise](#).

Serviço de garantia apenas para peças

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

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

カスタマーセルフリペア

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

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

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

部品供給が可能な場合、地域によっては、CSR部品を翌営業日に届くように発送します。また、地域によっては、追加費用を負担いただくことにより同日または4時間以内に届くように発送することも可能な場合があります。サポートが必要なときは、Hewlett Packard Enterpriseサポートセンターに電話していただければ、技術者が電話でアドバイスします。交換用のCSR部品または同梱物には、故障部品をHewlett Packard Enterpriseに返送する必要があるかどうかが表示されています。故障部品をHewlett Packard Enterpriseに返送する必要がある場合は、指定期限内（通常は5営業日以内）に故障部品をHewlett Packard Enterpriseに返送してください。故障部品を返送する場合は、届いた時の梱装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。如果要求您将缺陷的部件返还给 Hewlett Packard Enterprise，那么您必须在规定的期限内（通常是五 (5) 个工作日）将缺陷部件发给 Hewlett Packard Enterprise。有缺陷的部件必须随所提供的发运材料中的相关文件一起返还。如果未能送还有缺陷的部件，Hewlett Packard Enterprise 可能会要求您支付更换费用。客户自行维修时，Hewlett Packard Enterprise 将承担所有相关运输和部件返回费用，并指定快递商/承运商。

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

仅部件保修服务

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

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

客戶自行維修

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

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

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

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

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

僅限零件的保固服務

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

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

고객 셀프 수리

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

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

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

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

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

부품 제공 보증 서비스

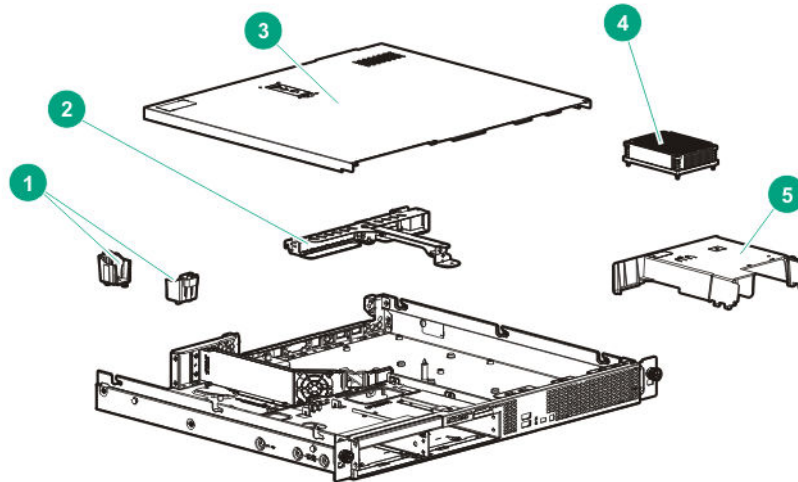
Hewlett Packard Enterprise 제한 보증에는 부품 제공 보증 서비스가 포함될 수 있습니다. 이러한 경우 Hewlett Packard Enterprise는 부품 제공 보증 서비스의 조건에 따라 교체 부품만을 무료로 제공합니다.

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

Illustrated parts catalog

Mechanical components

Hewlett Packard Enterprise continually improves and changes product parts. For complete and current supported parts information, see the [Hewlett Packard Enterprise PartSurfer website](#).



| Item | Description | Spare part number | Customer self repair |
|------|-----------------------------------|-------------------|------------------------|
| 1 | HPE Smart Storage Battery holders | 823806-001 | Mandatory ¹ |
| 2 | PCIe riser cage | — | — |
| 3 | Access panel | — | — |
| 4 | Heatsink | 687242-001 | Optional ² |
| 5 | Air baffle | 823800-001 | Mandatory ¹ |

¹Mandatory—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.

²Optional—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.

³No—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.

¹Obligatoire—Pièces pour lesquelles le client doit procéder lui-même aux réparations. Si vous demandez à Hewlett Packard Enterprise de procéder au remplacement de ces pièces, les frais de transport et de main d'œuvre pour ce service vous seront facturés.

²Facultatif—Pièces pour lesquelles une réparation par le client est facultative. Ces pièces sont également conçues pour que le client puisse procéder lui-même aux réparations. Cependant, les frais supplémentaires engendrés par le remplacement de ces pièces par Hewlett Packard Enterprise dépendent du type de service de garantie désigné pour votre produit.

³Non—Certaines pièces Hewlett Packard Enterprise ne sont pas conçues pour être remplacées par le client. Afin de se conformer aux exigences de la garantie la garantie du client, Hewlett Packard Enterprise demande à un fournisseur de services agréé de procéder au remplacement de la pièce. Ces pièces sont signalées par le mot « Non » dans le Catalogue de pièces illustré.

¹Obbligatorio—Parti per le quali il cliente è tenuto a effettuare autonomamente la riparazione. Se si richiede l'intervento di Hewlett Packard Enterprise per la sostituzione di queste parti, al cliente verranno addebitate le spese di viaggio e manodopera dell'operazione.

²Facoltativo—Parti per le quali la riparazione in autonomia da parte del cliente è facoltativa. Queste parti sono progettate per consentire anche la riparazione da parte del cliente. Tuttavia, se il cliente richiede l'intervento di Hewlett Packard Enterprise per la sostituzione, potrebbero essere addebitate spese aggiuntive a seconda del tipo di garanzia in assistenza previsto per il prodotto.

³No—Alcune parti Hewlett Packard Enterprise non sono progettate la riparazione in autonomia da parte del cliente. In base a quanto previsto dalla garanzia per il cliente, Hewlett Packard Enterprise richiede l'intervento di un tecnico autorizzato per la sostituzione della parte. Queste parti sono contrassegnate con "No" nel catalogo parti illustrato.

¹Zwingend—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.

²Optional—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.

³Nein—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.

¹Obligatorio—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.

²Opcional—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.

³No—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.

¹Verplicht—Onderdelen die de klant zelf moet vervangen. Als u Hewlett Packard Enterprise vraagt deze onderdelen te vervangen, worden er reis- en arbeidskosten voor deze service in rekening gebracht.

²Optioneel—Onderdelen die de klant zelf kan vervangen. Deze onderdelen zijn ook ontworpen om door de klant zelf te worden vervangen. Als u Hewlett Packard Enterprise verzoekt om deze te vervangen, kan het zijn dat hiervoor extra kosten in rekening worden gebracht, afhankelijk van het soort garantie dat op uw product van toepassing is.

³Geen—Sommige onderdelen van Hewlett Packard Enterprise zijn niet ontworpen om door de klant zelf te worden vervangen. Om te voldoen aan de garantievoorwaarden eist Hewlett Packard Enterprise dat een geautoriseerde serviceverlener het onderdeel vervangt. Deze onderdelen worden aangeduid met 'Geen' in de geïllustreerde onderdelencatalogus.

¹Obrigatório—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.

²Opcional—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.

³Não—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.

¹Mandatory : 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。

²Optional : 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。

³No : 除外 — 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。

¹Mandatory — 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。

²Optional — 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。

³No — 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”。

¹Mandatory — 客户自行维修所使用的零件是强制性的。如果您要求 Hewlett Packard Enterprise 更换这些零件，Hewlett Packard Enterprise 将会向您收取此服务所需的外出费用与劳动成本。

²Optional — 客户自行维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。

³No — 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」。

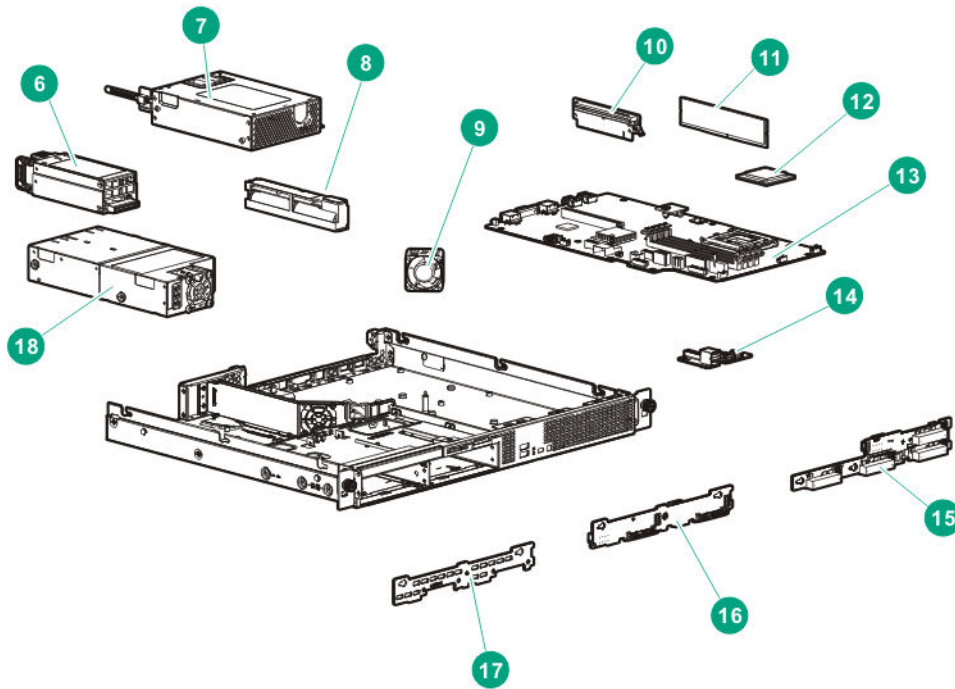
¹Mandatory — 고객 셀프 수리가 의무 사항인 필수 부품. 사용자가 Hewlett Packard Enterprise에 이 부품의 교체를 요청할 경우 해당 서비스에 대한 출장비 및 작업비가 청구됩니다.

²Optional — 고객 셀프 수리가 선택 사항인 부품. 이러한 부품들도 고객 셀프 수리가 가능하도록 설계되었습니다. 하지만 사용자가 Hewlett Packard Enterprise에 이러한 부품의 교체를 요청할 경우 사용자가 구입한 제품에 해당하는 보증 서비스 유형에 따라 추가 비용 없이 교체가 가능할 수 있습니다.

³No — 일부 Hewlett Packard Enterprise 부품은 고객 셀프 수리가 불가능하도록 설계되었습니다. Hewlett Packard Enterprise는 만족스러운 고객 보증을 위해 공인 서비스 제공업체를 통해 부품을 교체하도록 요구하고 있습니다. 이러한 부품들은 Illustrated Parts Catalog에 "No"라고 표시되어 있습니다.

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](#).



| Item | Description | Spare part number | Customer self repair |
|------|--|-------------------|------------------------|
| 6 | HPE 900-W AC 240VDC Power Input Module | 830219-001 | Mandatory ¹ |
| 7 | HPE DL20 Gen9 290-W Non-hot Plug Power Supply | 823805-001 | Mandatory ¹ |
| 8 | HPE Smart Storage Battery | 815983-001 | Mandatory ¹ |
| 9 | Fan module kit | 725264-001 | Mandatory ¹ |
| | a) Fan module* | — | — |
| | b) Fan 3 extension cable* | — | — |
| 10 | Riser boards | — | — |
| | a) GPU riser board | 823799-001 | Mandatory ¹ |
| | b) FlexibleLOM riser board* | 823797-001 | Mandatory ¹ |
| | c) Two-slot PCIe x8 riser board* | 823798-001 | Mandatory ¹ |
| 11 | DIMMs | — | — |
| | DIMMs designed for Intel Xeon E3-1200 v5 processors, the 3.30-GHz Intel Pentium G4400 processor, the 3.50-GHz Intel Pentium G4500 processor, the 3.70-GHz Intel Core i3-6100 processor, and the 3.80-GHz Intel Core i3-6300 processor | — | — |
| | a) 4 GB, single-rank x8 PC4-2133P-E-15 | 819799-001 | Mandatory ¹ |
| | b) 8 GB, single-rank x8 PC4-2133P-E-15* | 823170-001 | Mandatory ¹ |
| | c) 8 GB, dual-rank x8 PC4-2133P-E-15* | 819800-001 | Mandatory ¹ |
| | d) 16 GB, dual-rank x8 PC4-2133P-E-15* | 819801-001 | Mandatory ¹ |

Table Continued

| Item | Description | Spare part number | Customer self repair |
|------|--|-------------------|------------------------|
| | DIMMs designed for Intel Xeon E3-1200 v6 processors, the 3.50-GHz Intel Pentium G4560 processor, the 3.60-GHz Intel Pentium G4600 processor, the 3.90-GHz Intel Core i3-7100 processor, and the 4.00-GHz Intel Core i3-7300 processor | — | — |
| | a) 8 GB, single-rank x8 PC4-2400T-E* | 869537-001 | Mandatory ¹ |
| | b) 16 GB, dual-rank x8 PC4-2400T-E* | 869538-001 | Mandatory ¹ |
| 12 | Processors (include alcohol pad and thermal compound) | — | — |
| | Intel Xeon E3-1200 v5 processors | — | — |
| | a) 2.10-Ghz Intel Xeon E3-1240L v5 processor, 4C, 8 MB, 25 W | 830102-001 | Optional ² |
| | b) 2.90-Ghz Intel Xeon E3-1260L v5 processor, 4C, 8 MB, 45 W* | 830104-001 | Optional ² |
| | c) 3.00-Ghz Intel Xeon E3-1220 v5 processor, 4C, 8 MB, 80 W* | 830100-001 | Optional ² |
| | d) 3.30-Ghz Intel Xeon E3-1225 v5 processor, 4C, 8 MB, 80 W* | 839316-001 | Optional ² |
| | e) 3.40-Ghz Intel Xeon E3-1230 v5 processor, 4C, 8 MB, 80 W* | 830101-001 | Optional ² |
| | f) 3.50-Ghz Intel Xeon E3-1240 v5 processor, 4C, 8 MB, 80 W* | 830103-001 | Optional ² |
| | g) 3.60-Ghz Intel Xeon E3-1270 v5 processor, 4C, 8 MB, 80 W* | 830105-001 | Optional ² |
| | h) 3.70-Ghz Intel Xeon E3-1280 v5 processor, 4C, 8 MB, 80 W* | 830106-001 | Optional ² |
| | Intel Xeon E3-1200 v6 processors | — | — |
| | a) 3.00-Ghz Intel Xeon E3-1220 v6 processor, 4C, 6 MB, 72 W* | 871809-001 | Optional ² |
| | b) 3.30-Ghz Intel Xeon E3-1225 v6 processor, 4C, 6 MB, 73 W* | 872751-001 | Optional ² |
| | c) 3.50-Ghz Intel Xeon E3-1230 v6 processor, 4C, 6 MB, 72 W* | 871810-001 | Optional ² |
| | d) 3.70-Ghz Intel Xeon E3-1240 v6 processor, 4C, 6 MB, 72 W* | 871811-001 | Optional ² |
| | e) 3.80-Ghz Intel Xeon E3-1270 v6 processor, 4C, 6 MB, 72 W* | 871812-001 | Optional ² |
| | f) 3.90-Ghz Intel Xeon E3-1280 v6 processor, 4C, 6 MB, 72 W* | 871813-001 | Optional ² |
| | Intel Pentium processors | — | — |
| | a) 3.30-Ghz Intel Pentium G4400 processor, 2C, 3 MB, 54 W* | 842933-001 | Optional ² |
| | b) 3.50-Ghz Intel Pentium G4500 processor, 2C, 3 MB, 51 W* | 842934-001 | Optional ² |
| | c) 3.50-Ghz Intel Pentium G4560 processor, 2C, 3 MB, 54 W* | 872754-001 | Optional ² |
| | d) 3.60-Ghz Intel Pentium G4600 processor, 2C, 3 MB, 51 W* | 872755-001 | Optional ² |
| | Intel Core processors | — | — |
| | a) 3.70-Ghz Intel Core i3-6100 processor, 2C, 3 MB, 51 W* | 842931-001 | Optional ² |
| | b) 3.80-Ghz Intel Core i3-6300 processor, 2C, 4 MB, 51 W* | 842932-001 | Optional ² |
| | c) 3.90-Ghz Intel Core i3-7100 processor, 2C, 3 MB, 51 W* | 872752-001 | Optional ² |
| | d) 4.00-Ghz Intel Core i3-7300 processor, 2C, 4 MB, 51 W* | 872753-001 | Optional ² |
| 13 | System board (include alcohol pad and thermal compound) | 873609-001 | Optional ² |

Table Continued

| Item | Description | Spare part number | Customer self repair |
|------|---|-------------------|------------------------|
| 14 | Front I/O module assembly | 823804-001 | Mandatory ¹ |
| 15 | Four-bay SFF hot-plug drive backplane | 823795-001 | Mandatory ¹ |
| 16 | Two-bay LFF hot-plug drive backplane | 823794-001 | Mandatory ¹ |
| 17 | Two-bay LFF non-hot-plug drive backplane | 823796-001 | Mandatory ¹ |
| 18 | HPE 900-W AC 240VDC RPS Power Backplane | 830022-001 | Mandatory ¹ |
| 19 | GPU accelerators | | |
| | a) NVIDIA Quadro K2200 GPU Module* | 765148-002 | Optional ² |
| | b) NVIDIA Quadro M2000 GPU Module* | 855180-001 | Optional ² |
| 20 | Mini-SAS cable kit* | 823801-001 | Mandatory ¹ |
| | a) 190-mm Mini-SAS cable* | — | — |
| | b) 150-mm Mini-SAS cable* | — | — |
| 21 | Two-bay LFF hot-plug drive backplane cable kit* | 823802-001 | Mandatory ¹ |
| | a) Two-bay LFF drive backplane power cable cable* | — | — |
| | b) Two-bay LFF mini-SAS cable* | — | — |
| 22 | Four-bay SFF hot-plug drive backplane cable kit* | 823803-001 | Mandatory ¹ |
| | a) Four-bay SFF drive backplane power cable cable* | — | — |
| | b) Four-bay SFF mini-SAS cable* | — | — |
| 23 | Spare cable kit* | 823807-001 | Mandatory ¹ |
| | a) M.2 SSD SATA cable* | — | — |
| | b) RPS backplane 24-pin to 14-pin power extension cable* | — | — |
| | c) RPS backplane 16-pin power supply sideband signal cable* | — | — |
| | d) Optical disk drive 4-pin to 4-pin power extension cable* | — | — |

*Not shown

¹Mandatory—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.

²Optional—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.

³No—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.

¹Obligatoire—Pièces pour lesquelles le client doit procéder lui-même aux réparations. Si vous demandez à Hewlett Packard Enterprise de procéder au remplacement de ces pièces, les frais de transport et de main d'œuvre pour ce service vous seront facturés.

²Facultatif—Pièces pour lesquelles une réparation par le client est facultative. Ces pièces sont également conçues pour que le client puisse procéder lui-même aux réparations. Cependant, les frais supplémentaires engendrés par le remplacement de ces pièces par Hewlett Packard Enterprise dépendent du type de service de garantie désigné pour votre produit.

³Non—Certaines pièces Hewlett Packard Enterprise ne sont pas conçues pour être remplacées par le client. Afin de se conformer aux exigences de la garantie la garantie du client, Hewlett Packard Enterprise demande à un fournisseur de services agréé de procéder au remplacement de la pièce. Ces pièces sont signalées par le mot « Non » dans le Catalogue de pièces illustré.

¹Obbligatorio—Parti per le quali il cliente è tenuto a effettuare autonomamente la riparazione. Se si richiede l'intervento di Hewlett Packard Enterprise per la sostituzione di queste parti, al cliente verranno addebitate le spese di viaggio e manodopera dell'operazione.

²Facoltativo—Parti per le quali la riparazione in autonomia da parte del cliente è facoltativa. Queste parti sono progettate per consentire anche la riparazione da parte del cliente. Tuttavia, se il cliente richiede l'intervento di Hewlett Packard Enterprise per la sostituzione, potrebbero essere addebitate spese aggiuntive a seconda del tipo di garanzia in assistenza previsto per il prodotto.

³No—Alcune parti Hewlett Packard Enterprise non sono progettate la riparazione in autonomia da parte del cliente. In base a quanto previsto dalla garanzia per il cliente, Hewlett Packard Enterprise richiede l'intervento di un tecnico autorizzato per la sostituzione della parte. Queste parti sono contrassegnate con "No" nel catalogo parti illustrato.

¹Zwingend—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.

²Optional—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.

³Nein—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.

¹Obligatorio—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.

²Opcional—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.

³No—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.

¹Verplicht—Onderdelen die de klant zelf moet vervangen. Als u Hewlett Packard Enterprise vraagt deze onderdelen te vervangen, worden er reis- en arbeidskosten voor deze service in rekening gebracht.

²Optioneel—Onderdelen die de klant zelf kan vervangen. Deze onderdelen zijn ook ontworpen om door de klant zelf te worden vervangen. Als u Hewlett Packard Enterprise verzoekt om deze te vervangen, kan het zijn dat hiervoor extra kosten in rekening worden gebracht, afhankelijk van het soort garantie dat op uw product van toepassing is.

³Geen—Sommige onderdelen van Hewlett Packard Enterprise zijn niet ontworpen om door de klant zelf te worden vervangen. Om te voldoen aan de garantievoorwaarden eist Hewlett Packard Enterprise dat een geautoriseerde serviceverlener het onderdeel vervangt. Deze onderdelen worden aangeduid met 'Geen' in de geïllustreerde onderdelencatalogus.

¹Obrigatório—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.

²Opcional—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.

³Não—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.

¹Mandatory : 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。

²Optional : 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。

³No : 除外 — 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。

¹Mandatory — 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。

²Optional — 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。

³No — 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”。

¹Mandatory — 客户自行维修所使用的零件是强制性的。如果您要求 Hewlett Packard Enterprise 更换这些零件，Hewlett Packard Enterprise 将向您收取此服务所需的外出费用与劳动成本。

²Optional — 客户自行维修所使用的零件是选购的。这些零件也设计用于客户自行维修之用。不过，如果您要求 Hewlett Packard Enterprise 为您更换，则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。

³No — 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」。

¹Mandatory — 고객 셀프 수리가 의무 사항인 필수 부품. 사용자가 Hewlett Packard Enterprise에 이 부품의 교체를 요청할 경우 해당 서비스에 대한 출장비 및 작업비가 청구됩니다.

²Optional — 고객 셀프 수리가 선택 사항인 부품. 이러한 부품들도 고객 셀프 수리가 가능하도록 설계되었습니다. 하지만 사용자가 Hewlett Packard Enterprise에 이러한 부품의 교체를 요청할 경우 사용자가 구입한 제품에 해당하는 보증 서비스 유형에 따라 추가 비용 없이 교체가 가능할 수 있습니다.

³No — 일부 Hewlett Packard Enterprise 부품은 고객 셀프 수리가 불가능하도록 설계되었습니다. Hewlett Packard Enterprise는 만족스러운 고객 보증을 위해 공인 서비스 제공업체를 통해 부품을 교체하도록 요구하고 있습니다. 이러한 부품들은 Illustrated Parts Catalog에 "No"라고 표시되어 있습니다.

Removal and replacement procedures

Required tools

You need the following items for some procedures:

- T-10/T-15 Torx screwdriver
- T-25 Torx screwdriver (for screws located inside the front panel quick-release levers)
- Flathead screwdriver
- **HPE Insight Diagnostics software**

Safety considerations

Before performing service procedures, review all the safety information.

Preventing electrostatic discharge

About this task

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

Procedure

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.

Symbols on equipment

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



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

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



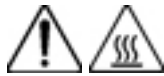
This symbol indicates the presence of electric shock hazards. The area contains no user or field serviceable parts. Do not open for any reason.

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



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

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



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

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



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

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



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

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

Server warnings and cautions



WARNING:

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

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



WARNING:

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



WARNING:

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



CAUTION:

Protect the server from power fluctuations and temporary interruptions with a regulating uninterruptible power supply. This device protects the hardware from damage caused by power surges and voltage spikes and keeps the system in operation during a power failure.

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

Rack warnings

- ⚠ WARNING:**
To reduce the risk of personal injury or damage to the equipment, be sure that:
- The leveling jacks are extended to the floor.
 - The full weight of the rack rests on the leveling jacks.
 - The stabilizing feet are attached to the rack if it is a single-rack installation.
 - The racks are coupled together in multiple-rack installations.
 - Only one component is extended at a time. A rack may become unstable if more than one component is extended for any reason.
-

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

- ⚠ WARNING:**
To reduce the risk of personal injury or damage to the equipment, adequately stabilize the rack before extending a component outside the rack. Extend only one component at a time. A rack may become unstable if more than one component is extended.
-

- ⚠ WARNING:**
When installing a server in a telco rack, be sure that the rack frame is adequately secured at the top and bottom to the building structure.
-

Preparation procedures

Prerequisites

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

- **Access the product front panel.**
- **Power down the server.**

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

- **Extend the server from the rack.**

If you are performing service procedures in an Hewlett Packard Enterprise, Compaq branded, Telco, or third-party rack cabinet, you can use the locking feature of the rack rails to support the server and gain access to internal components.

For more information about Telco rack solutions, see the **RackSolutions website**.

- **Remove the server from the rack.**

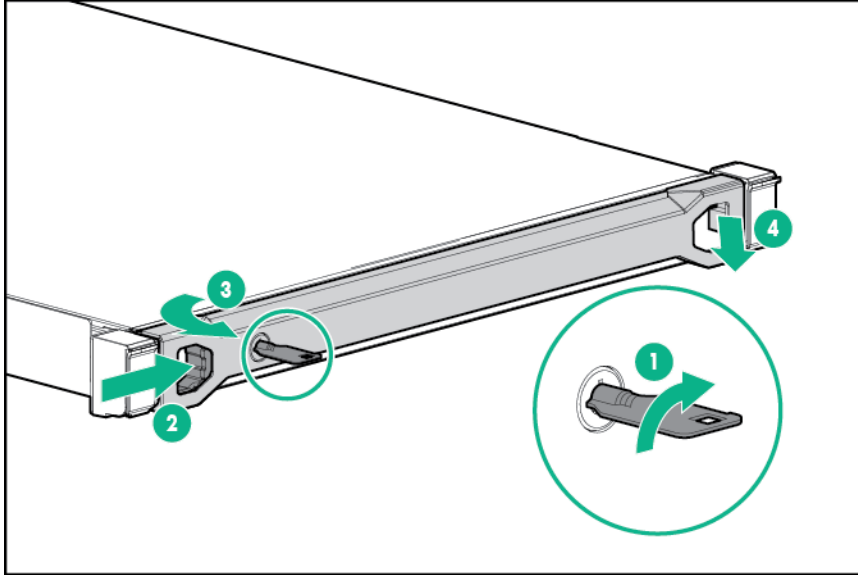
If the rack environment, cabling configuration, or the server location in the rack creates awkward conditions, remove the server from the rack.

- **Remove the access panel.**
- **Remove the PCI riser cages.**
- **Remove the air baffle.**

Removing the security bezel

About this task

To access the front panel components, unlock and remove the security bezel.



Power down the server

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

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

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

- Press and release the Power On/Standby button.
This method initiates a controlled shutdown of applications and the OS before the server enters standby mode.
- Press and hold the Power On/Standby button for more than 4 seconds to force the server to enter standby mode.
This method forces the server to enter standby mode without properly exiting applications and the OS. If an application stops responding, you can use this method to force a shutdown.
- Use a virtual power button selection through iLO.
This method initiates a controlled remote shutdown of applications and the OS before the server enters standby mode.

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

Extending the server from the rack

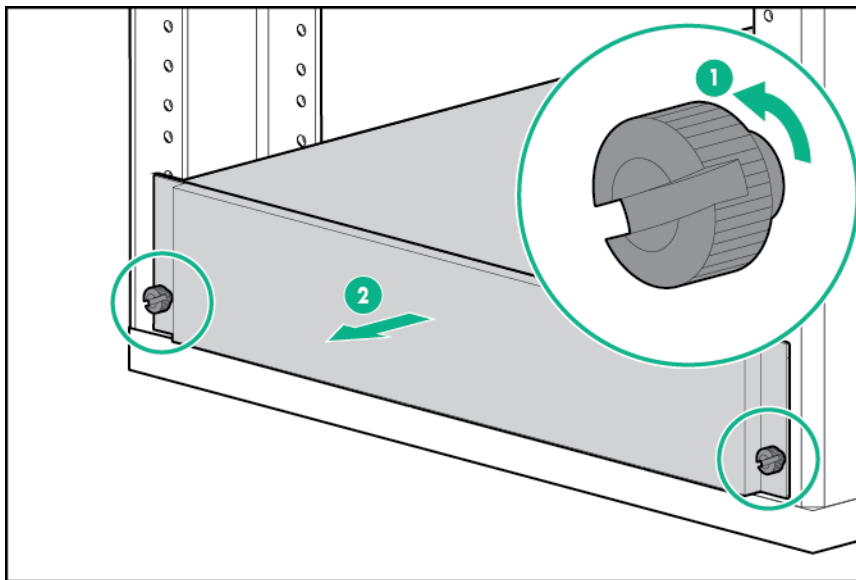
About this task

⚠ CAUTION:

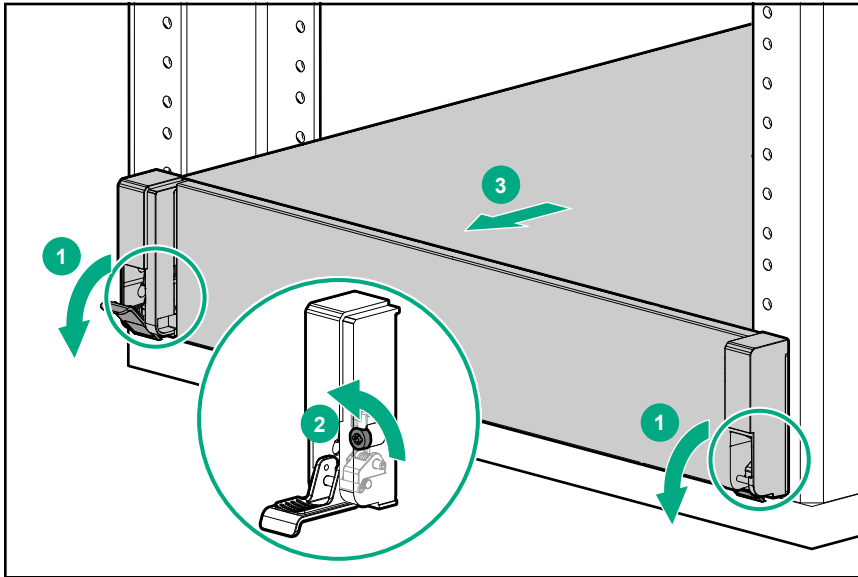
To reduce the risk of personal injury or equipment damage, be sure that the rack is adequately stabilized before extending a component from the rack.

Procedure

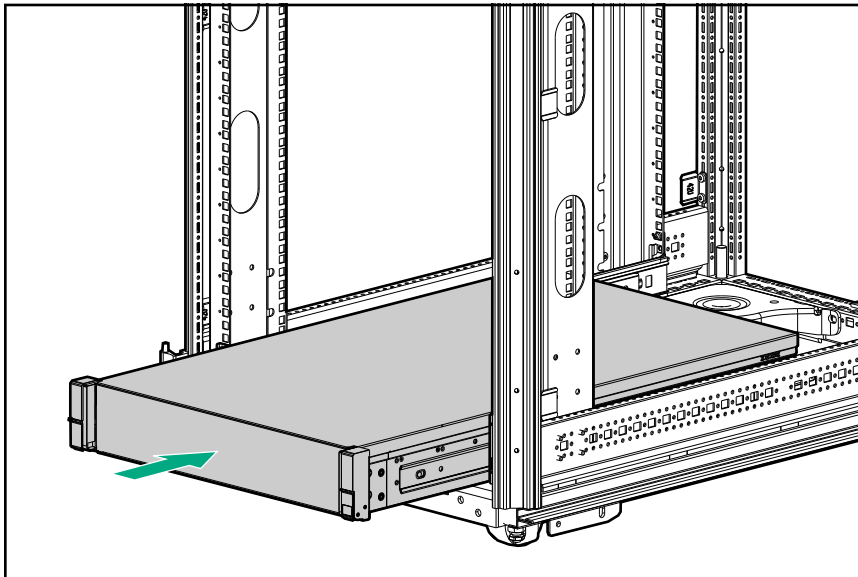
1. **Power down the server.**
2. Disconnect all peripheral cables from the server.
3. Disconnect each power cord from the server.
4. In a server that uses thumbscrew rack ears, loosen the captive thumbscrews that secure the server faceplate to the front of the rack, then slide the server out of the rack.



5. In a server that uses quick-release latch rack ears:
 - a. Open the latches on both sides of the server.
 - b. If necessary, use a T-25 Torx screwdriver to loosen the shipping screws.
 - c. Slide the server out of the rack.



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



7. Do one of the following:
 - In a server that uses thumbscrew rack ears, tighten the captive thumbscrews.
 - In a server that uses quick-release latch rack ears, if necessary, tighten the shipping screws.
8. Connect each power cord to the server.
9. Connect all peripheral cables to the server.
10. Power up the server.

Removing the server from the rack

About this task



WARNING:

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

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

Procedure

1. **Power down the server.**
2. Extend the server on the rack rails until the server rail-release latches engage.
3. Disconnect all peripheral cables from the server.
4. Disconnect each power cord from the server.
5. Remove the server from the rack.

For instructions on how to extend or remove the server from the rack, see the documentation that ships with the rack rail system.

6. Place the server on a sturdy and level surface.

Removing the access panel

About this task



WARNING:

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



CAUTION:

To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.



CAUTION:

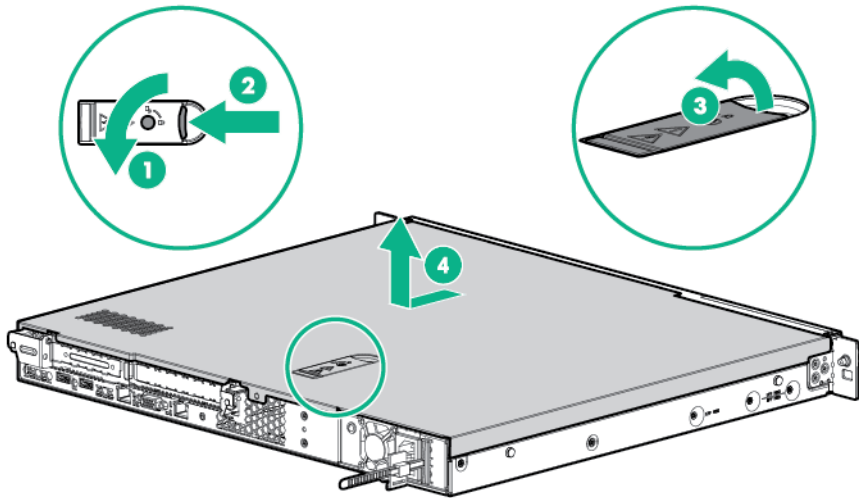
Do not operate the server for long periods with the access panel open or removed. Operating the server in this manner results in improper airflow and improper cooling that can lead to thermal damage.

Procedure

1. If installed, **remove the security bezel.**
2. **Power down the server.**
3. If you are performing a non-hot-plug procedure, remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.

4. Do one of the following:
 - **Extend the server from the rack.**
 - **Remove the server from the rack.**
5. If the locking latch is locked, use a T-15 Torx screwdriver to unlock the latch.
6. Open the locking latch.

The access panel slides back, releasing it from the chassis.
7. Lift and remove the access panel.



Turn the access panel over to locate the server hood label. This label provides convenient access to component identification, LED status indicators, and system maintenance switch settings information.

Removing the PCI riser cage

About this task



WARNING:

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



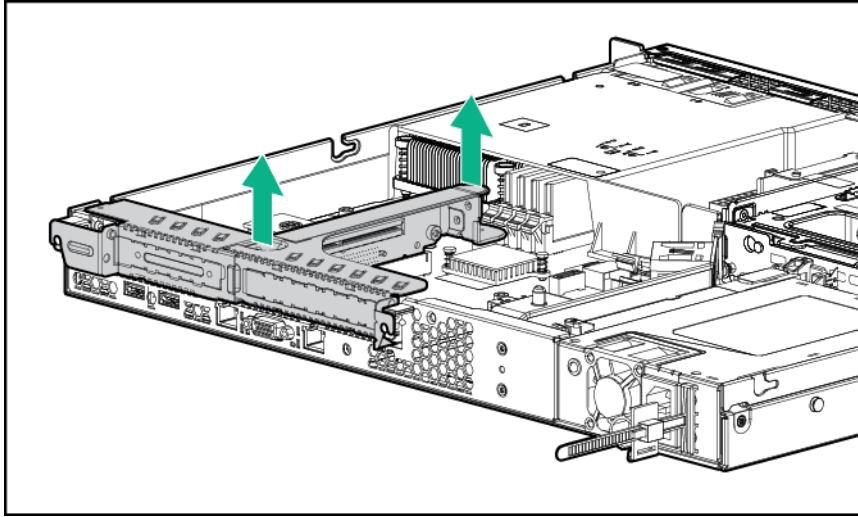
CAUTION:

To prevent damage to the server or expansion boards, power down the server, and disconnect all power cords before removing or installing the PCI riser cage.

Procedure

1. If installed, **remove the security bezel.**
2. **Power down the server.**
3. If you are performing a non-hot-plug procedure, remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
4. Do one of the following:

- **Extend the server from the rack.**
 - **Remove the server from the rack.**
5. **Remove the access panel.**
 6. Disconnect all cables connected to existing expansion boards.
 7. Remove the existing PCI riser cage.



Retain the cage for future use.

Removing the air baffle

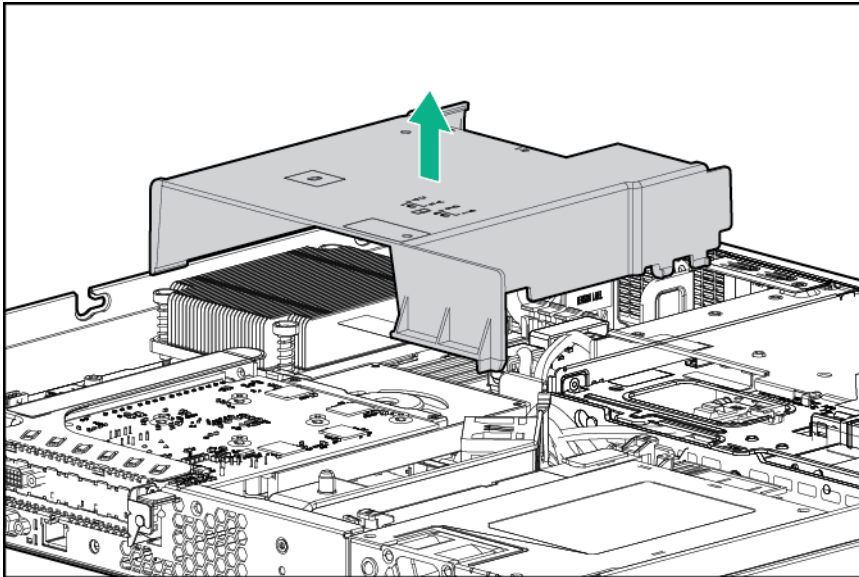
About this task

⚠ CAUTION:

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

Procedure

1. If installed, **remove the security bezel.**
2. **Power down the server.**
3. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
4. Do one of the following:
 - **Extend the server from the rack.**
 - **Remove the server from the rack.**
5. **Remove the access panel.**
6. Remove the air baffle.



Replacing the non-hot-plug drive carrier

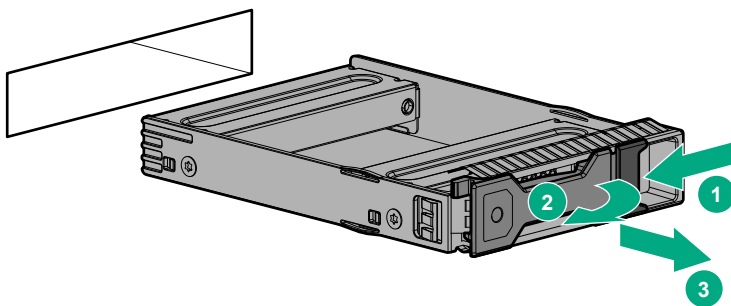
About this task

CAUTION:

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

Procedure

1. If installed, **remove the security bezel**.
2. **Power down the server**.
3. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
4. Remove the drive carrier.



To replace the component, slide the component into the bay until it clicks.

Replacing the non-hot-plug drive

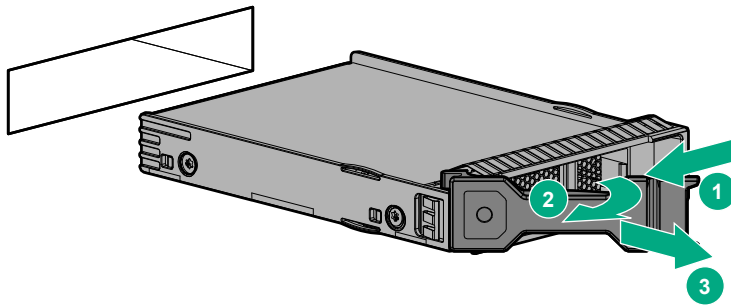
About this task

⚠ CAUTION:

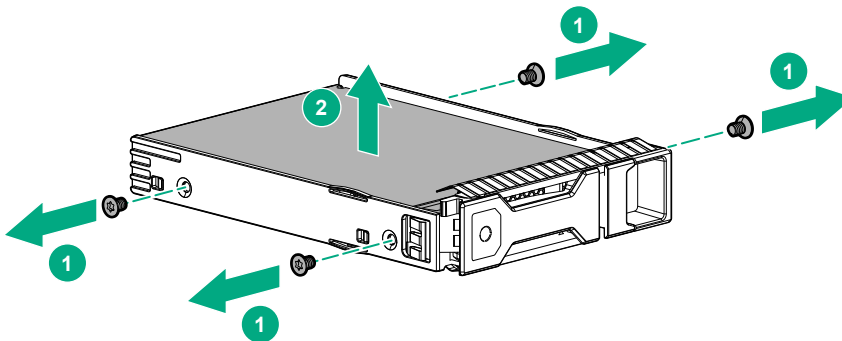
To prevent improper cooling and thermal damage, do not operate the server unless all bays are populated with either a component or a blank.

Procedure

1. Back up all server data on the drive.
2. If installed, **remove the security bezel.**
3. **Power down the server.**
4. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
5. Remove the non-hot-plug drive.



6. Remove the drive from the carrier.



To replace the component, reverse the removal procedures.

Replacing the hot-plug drive blanks

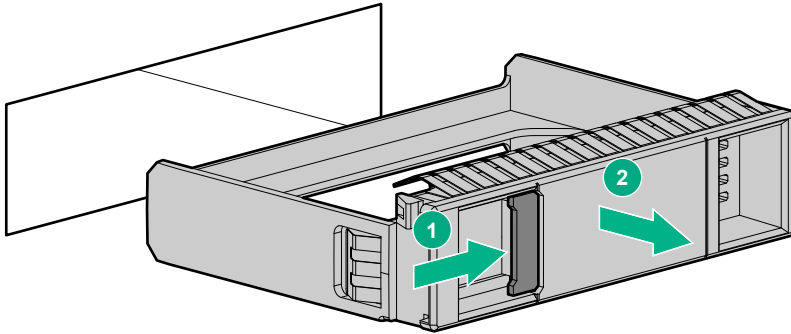
About this task

CAUTION:

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

Procedure

1. If installed, **remove the security bezel**.
2. Remove the drive blank.



To replace the drive blank, slide the component into the bay until it clicks.

Replacing the hot-plug drive

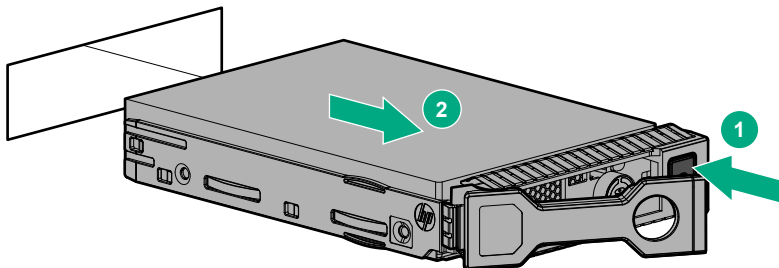
About this task

CAUTION:

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

Procedure

1. Back up all server data on the drive.
2. If installed, **remove the security bezel**.
3. **Determine the status of the drive from the drive LED definitions.**
4. Remove the hot-plug drive.



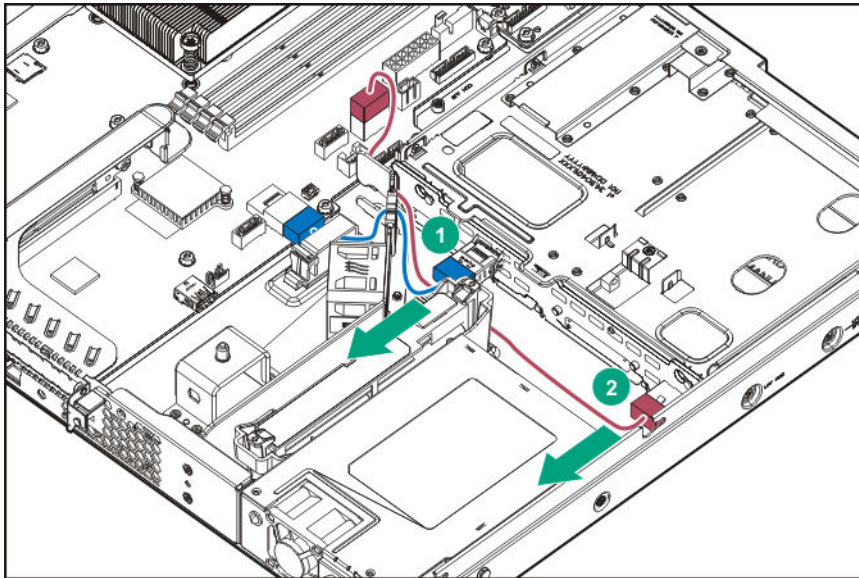
To replace the component, reverse the removal procedure.

Replacing the two-bay LFF and four-bay SFF hot-plug drive backplanes

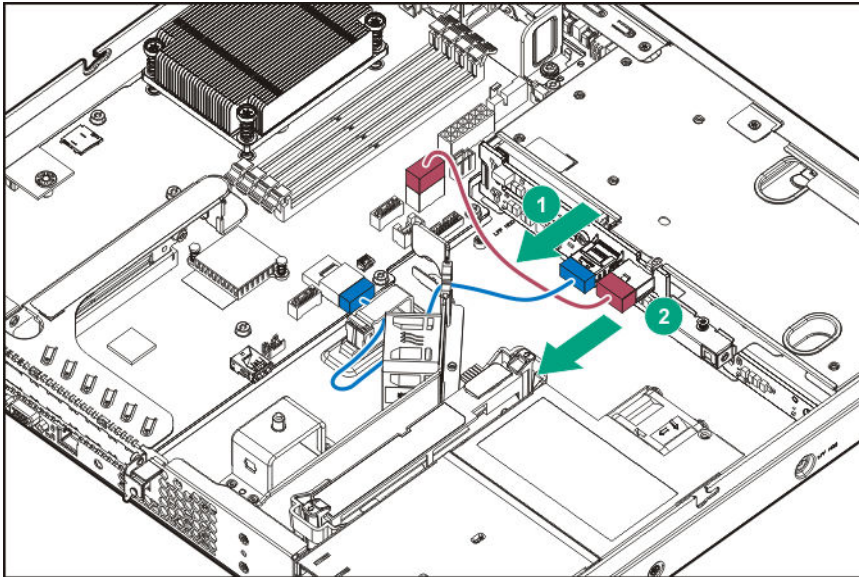
About this task

Procedure

1. Back up all data.
2. If installed, **remove the security bezel**.
3. **Power down the server**.
4. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
5. **Remove all drives**.
6. Do one of the following:
 - **Extend the server from the rack**
 - **Remove the server from the rack**
7. **Remove the access panel**.
8. Disconnect all cables from the drive backplane.
 - Two-bay LFF hot-plug configuration

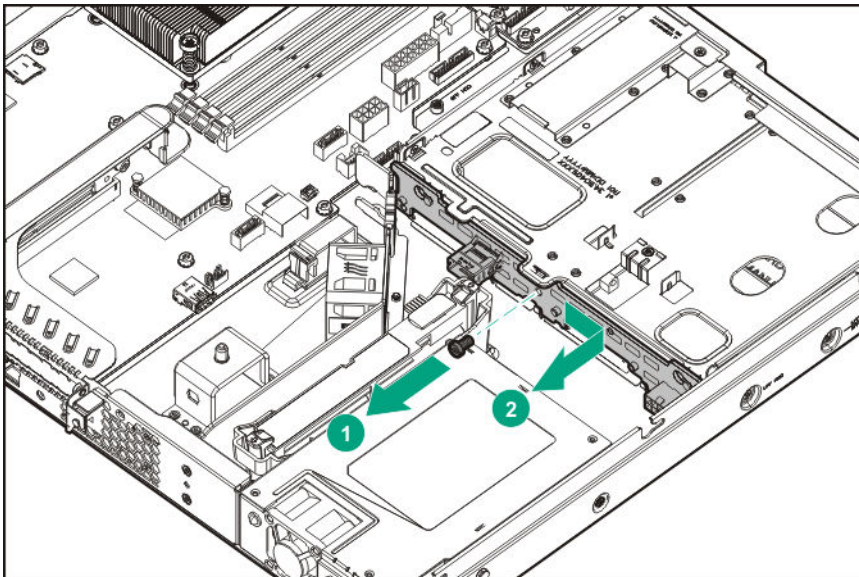


- Four-bay SFF hot-plug configuration

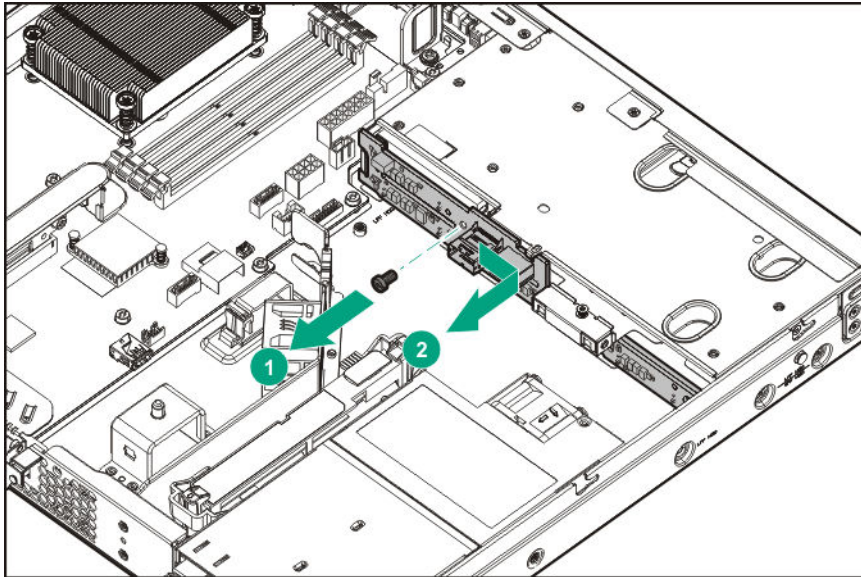


9. Remove the drive backplane.

- Two-bay LFF hot-plug drive backplane



- Four-bay SFF hot-plug drive backplane



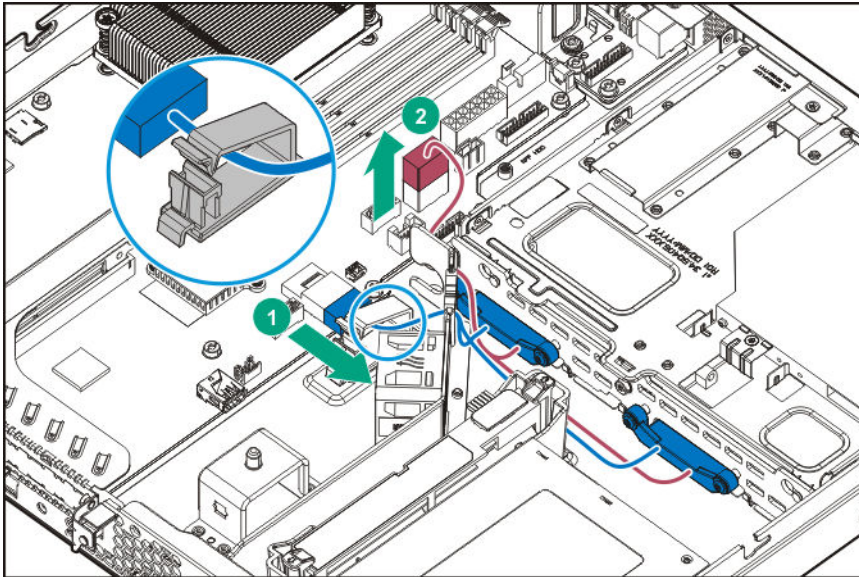
To replace the component, reverse the removal procedure.

Replacing the two-bay LFF non-hot-plug drive backplane

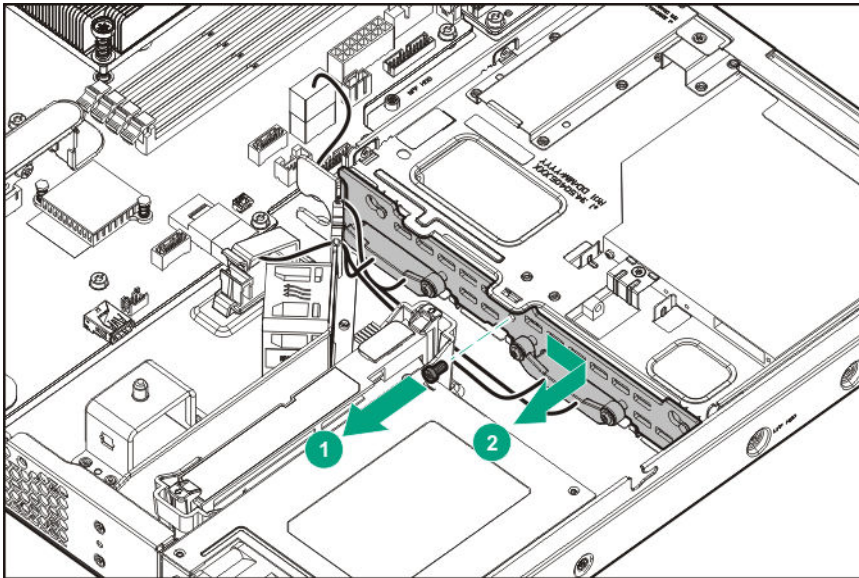
About this task

Procedure

1. Back up all data.
2. If installed, **remove the security bezel**.
3. **Power down the server**.
4. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
5. **Remove all non-hot-plug drives**.
6. Do one of the following:
 - **Extend the server from the rack**
 - **Remove the server from the rack**
7. **Remove the access panel**.
8. Disconnect the cables from the system board.



9. Remove the drive backplane.



To replace the component, reverse the removal procedure.

Replacing the HPE Smart Storage Battery holders

About this task



WARNING:

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

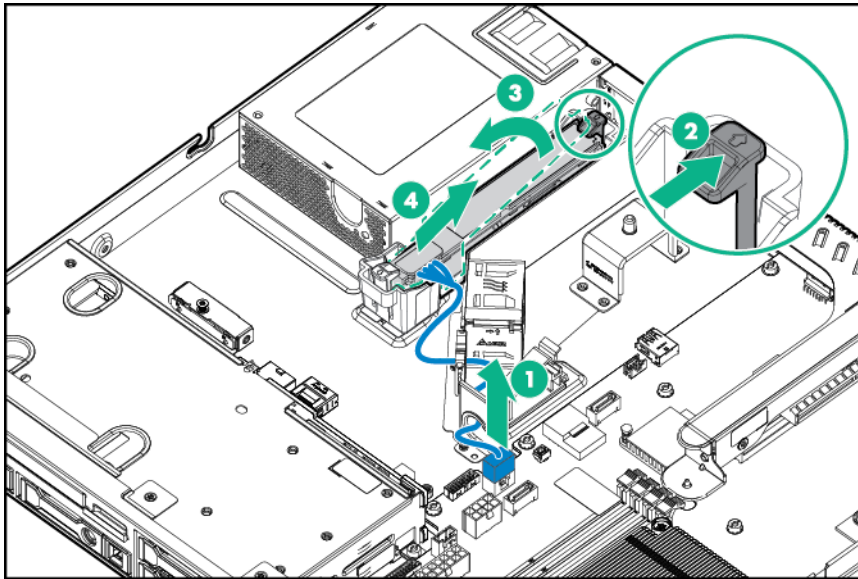


CAUTION:

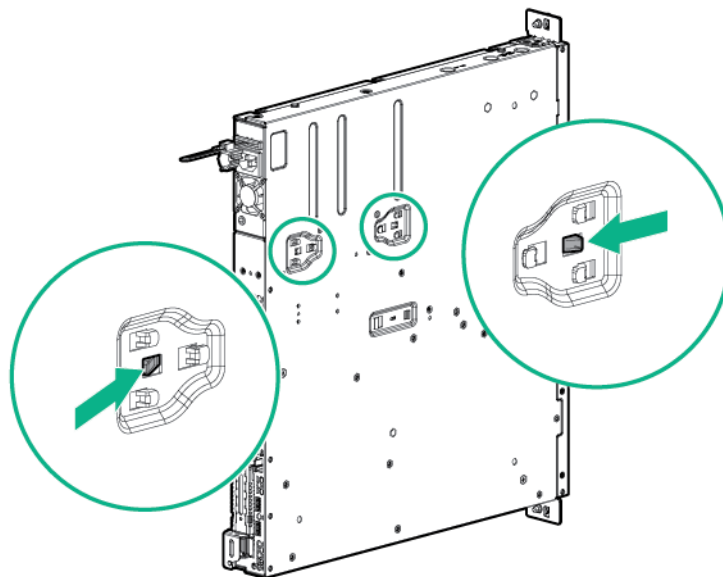
To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

Procedure

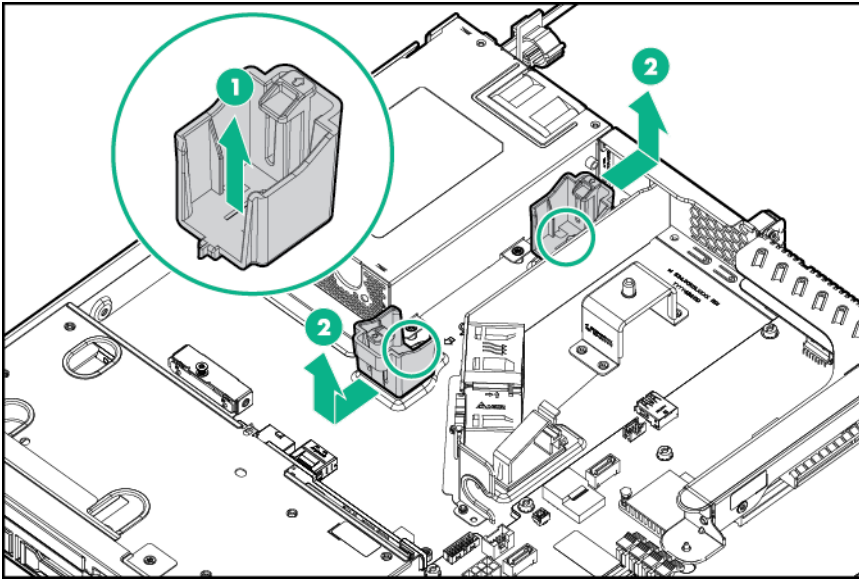
1. If installed, **remove the security bezel.**
2. **Power down the server.**
3. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
4. Do one of the following:
 - **Extend the server from the rack**
 - **Remove the server from the rack**
5. **Remove the access panel.**
6. **Remove the air baffle.**
7. Disconnect the battery cable from the system board connector and remove the HPE Smart Storage Battery.



8. Remove the holders:
 - a. Lift the chassis to access the bottom and push the latch of each holder.



- b. Remove the HPE Smart Storage Battery holders.



To replace the component, reverse the removal procedure.

Replacing the FBWC module

About this task



WARNING:

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



CAUTION:

In systems that use external data storage, be sure that the server is the first unit to be powered down and the last to be powered back up. Taking this precaution ensures that the system does not erroneously mark the drives as failed when the server is powered up.



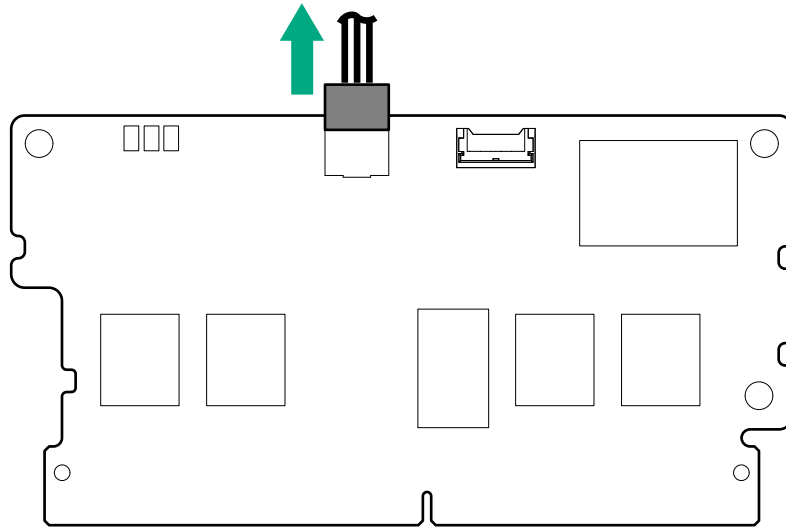
CAUTION:

To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

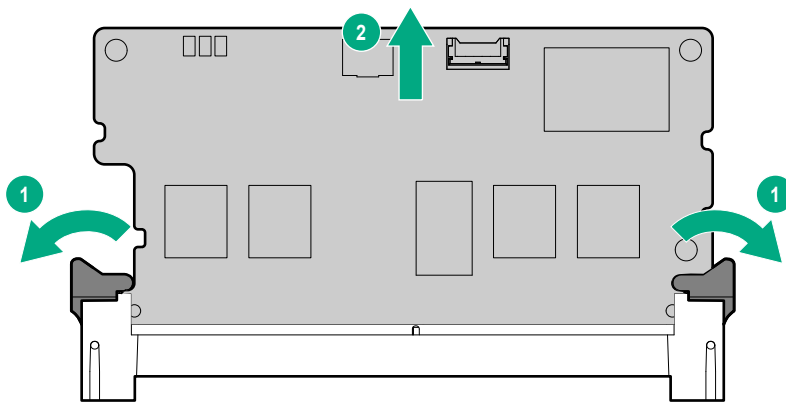
Procedure

1. If installed, **remove the security bezel.**
2. **Power down the server.**
3. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
4. Do one of the following:
 - **Extend the server from the rack**
 - **Remove the server from the rack**
5. **Remove the access panel.**
6. If necessary for easier access to the cache module connector and/or removal of an air scoop, remove the storage controller from the PCI riser cage or from the system board.

7. If the cache module is covered by an air scoop, remove the air scoop.
8. Disconnect the cache module backup power cable from the cache module.



9. Remove the cache module.



To replace the component, reverse the removal procedure.

Replacing the fan module

About this task

⚠ CAUTION:

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

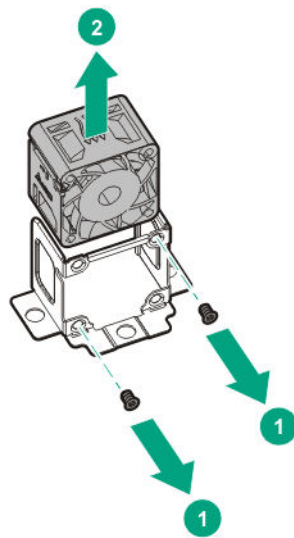
Procedure

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

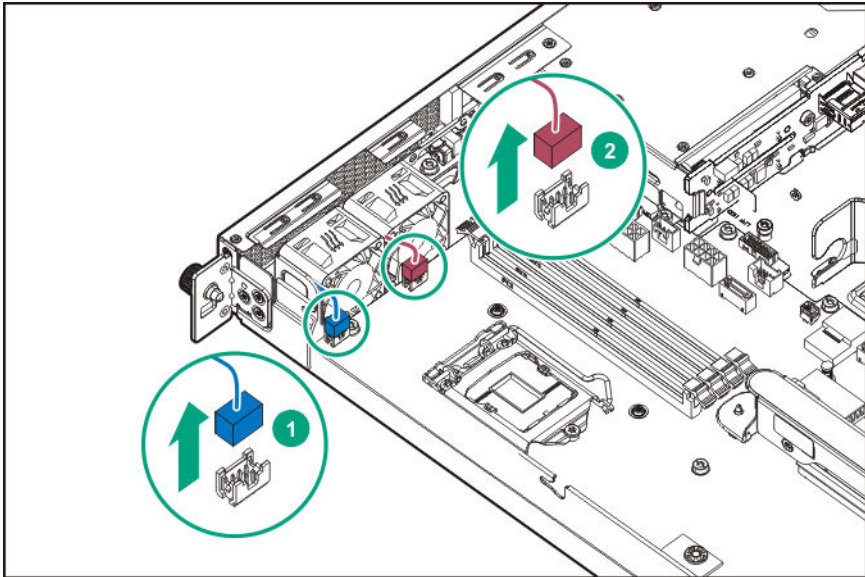
- a. Disconnect each power cord from the power source.
- b. Disconnect each power cord from the server.
4. Do one of the following:
 - **Extend the server from the rack**
 - **Remove the server from the rack**
5. **Remove the access panel.**
6. **Remove the air baffle.**
7. Prepare the replacement fan module.
 - a. If replacing the fan module only, disconnect the spare fan 3 power extension cable from the replacement fan module. Retain the spare cable for future use.
 - b. Remove the screws.
 - c. Remove the replacement fan module from the assembly.

NOTE:

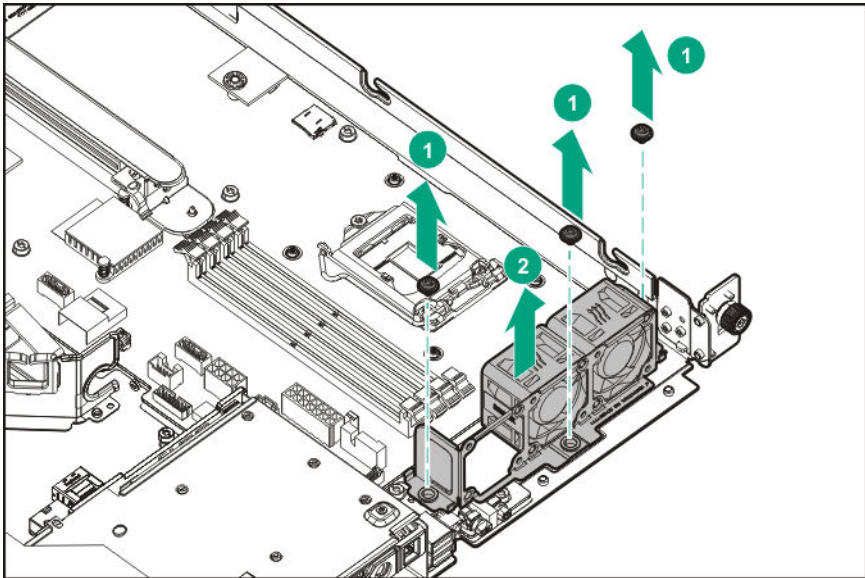
The assembly that comes in the spare fan kit is not supported in the server.



8. If replacing fan 1 or fan 2, do the following:
 - a. Disconnect the fan cables.

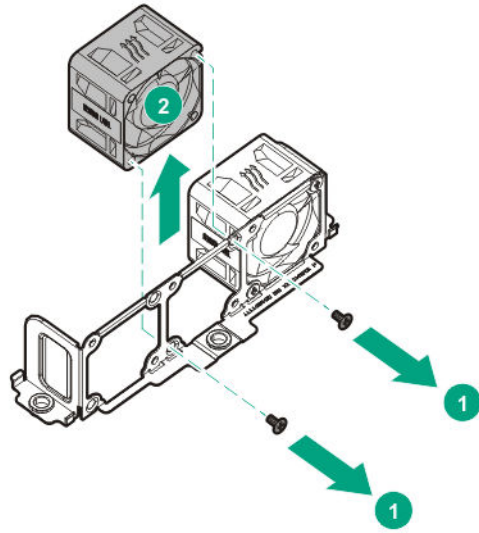


b. Remove the fan cage.

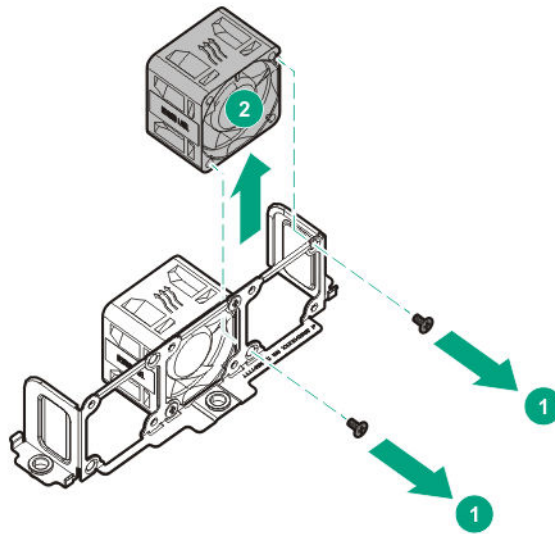


c. Remove the fan module.

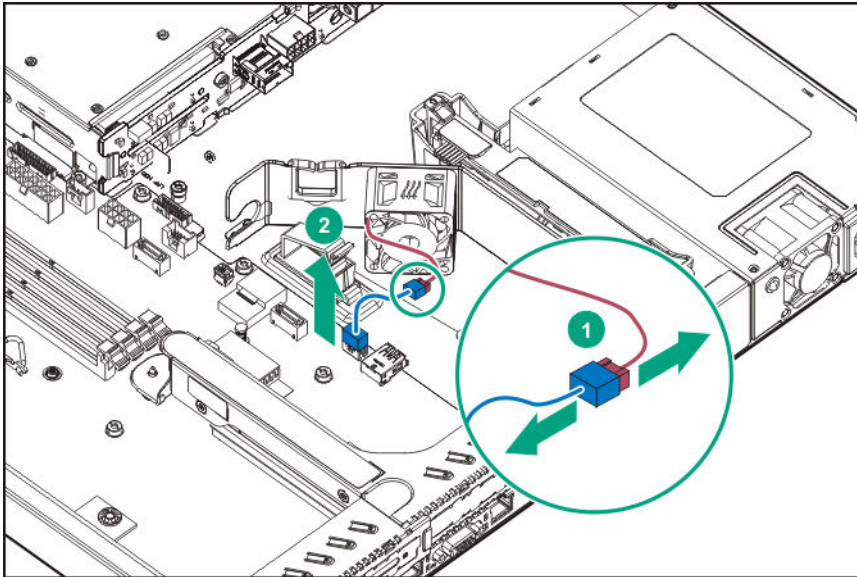
- Fan 1



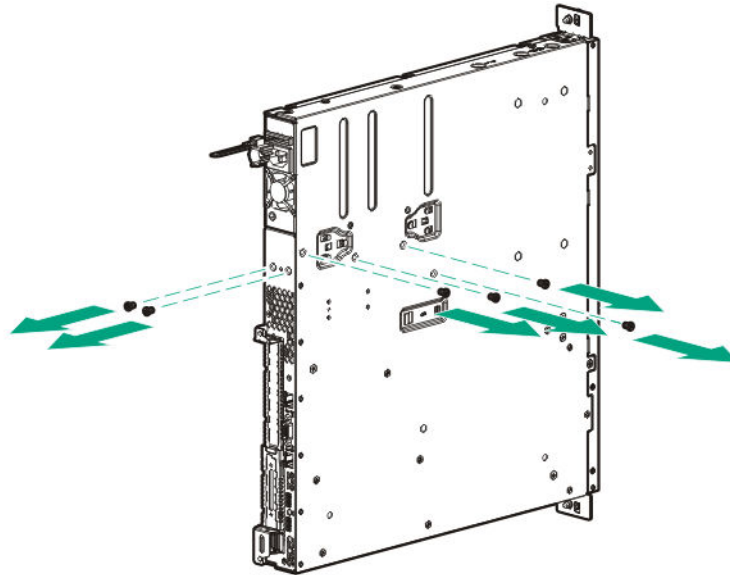
- Fan 2



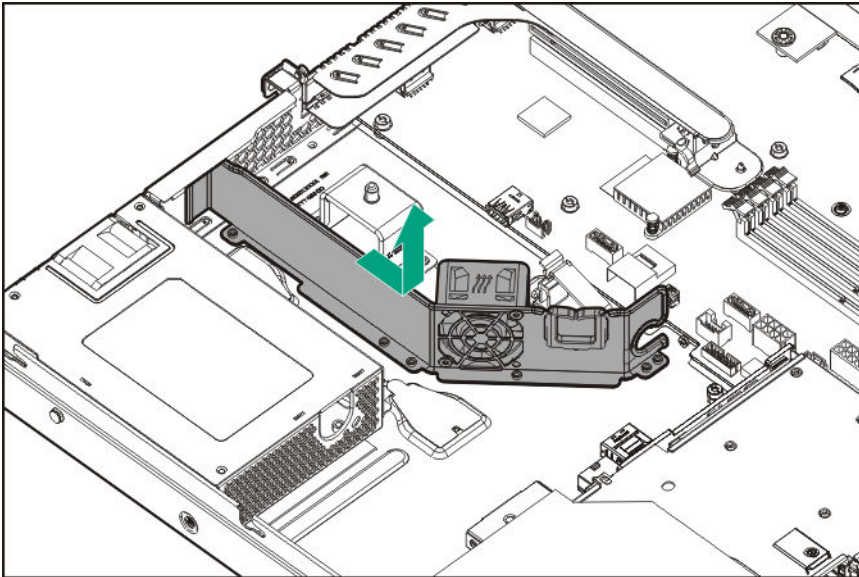
9. If replacing fan 3, do the following:
 - a. Disconnect the fan cables.



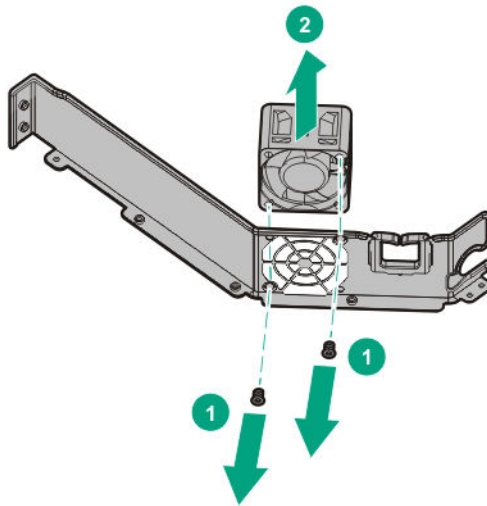
- b. Disconnect all system cables secured in the cable clip from the system board or controller board, then release them from the clip and fan wall.
- c. Lift the chassis to access the bottom and remove the screws.



- d. Remove the fan wall.



e. Remove the failed fan module from the fan wall.



To replace the component, reverse the removal procedure.

Replacing the DIMM

This section provides guidelines to help make informed decisions about replacing a DIMM.

Memory and processor information

The memory subsystem in this server supports UDIMMs only.

The following processors are optimized for single-rank and dual-rank PC4-2133 (DDR4-2133) UDIMMs operating at up to 2133 MT/s:

- Intel Xeon E3-1200 v5 processors
- 3.30-GHz Intel Pentium G4400 processor and 3.50-GHz Intel Pentium G4500 processor
- 3.70-GHz Intel Core i3-6100 processor and 3.80-GHz Intel Core i3-6300 processor

The following processors are optimized for single-rank and dual-rank PC4-2400T (DDR4-2400) UDIMMs operating at up to 2400 MT/s:

- Intel Xeon E3-1200 v6 processors
- 3.50-GHz Intel Pentium G4560 processor and 3.60-GHz Intel Pentium G4600 processor
- 3.90-GHz Intel Core i3-7100 processor and 4.00-GHz Intel Core i3-7300 processor

For the latest memory configuration information, see the product QuickSpecs on the [Hewlett Packard Enterprise website](#).

DIMM specifications

Intel Xeon E3-1200 v5 processor, 3.30-GHz Intel Pentium G4400 processor, 3.50-GHz Intel Pentium G4500 processor, 3.70-GHz Intel Core i3-6100 processor, or 3.80-GHz Intel Core i3-6300 processor:

| Type | Rank | Capacity | Native speed | Voltage |
|-------|--------|----------|--------------|---------|
| UDIMM | Single | 4 GB | 2133 MT/s | STD |
| UDIMM | Single | 8 GB | 2133 MT/s | STD |
| UDIMM | Dual | 8 GB | 2133 MT/s | STD |
| UDIMM | Dual | 16 GB | 2133 MT/s | STD |

Intel Xeon E3-1200 v6 processor, 3.50-GHz Intel Pentium G4560 processor, 3.60-GHz Intel Pentium G4600 processor, 3.90-GHz Intel Core i3-7100 processor, or 4.00-GHz Intel Core i3-7300 processor:

| Type | Rank | Capacity | Native speed | Voltage |
|-------|--------|----------|--------------|---------|
| UDIMM | Single | 8 GB | 2400 MT/s | STD |
| UDIMM | Dual | 16 GB | 2400 MT/s | STD |

Populated DIMM speed (MT/s)

Operating memory speed is a function of rated DIMM speed, the number of DIMMs installed per channel, processor model, and the speed selected in the BIOS/Platform Configuration (RBSU) of the [UEFI System Utilities](#).

Intel Xeon E3-1200 v5 processor, 3.30-GHz Intel Pentium G4400 processor, 3.50-GHz Intel Pentium G4500 processor, 3.70-GHz Intel Core i3-6100 processor, or 3.80-GHz Intel Core i3-6300 processor:

| Type | Rank | 1 DIMM per channel | 2 DIMM per channel |
|-------|--------|--------------------|--------------------|
| UDIMM | Single | 2133 MT/s | 2133 MT/s |
| UDIMM | Dual | 2133 MT/s | 2133 MT/s |

Intel Xeon E3-1200 v6 processor, 3.50-GHz Intel Pentium G4560 processor, 3.60-GHz Intel Pentium G4600 processor, 3.90-GHz Intel Core i3-7100 processor, or 4.00-GHz Intel Core i3-7300 processor:

| Type | Rank | 1 DIMM per channel | 2 DIMM per channel |
|-------|--------|--------------------|--------------------|
| UDIMM | Single | 2400 MT/s | 2400 MT/s |
| UDIMM | Dual | 2400 MT/s | 2400 MT/s |

Maximum memory capacity

Maximum memory capacity is a function of DIMM capacity, number of installed DIMMs, and memory type.

Intel Xeon E3-1200 v5 processor, 3.30-GHz Intel Pentium G4400 processor, 3.50-GHz Intel Pentium G4500 processor, 3.70-GHz Intel Core i3-6100 processor, or 3.80-GHz Intel Core i3-6300 processor:

| DIMM type | DIMM rank | Maximm capacity |
|-----------|--------------------|-----------------|
| UDIMM | Single-rank (4 GB) | 16 |
| UDIMM | Single-rank (8 GB) | 32 |
| UDIMM | Dual-rank (8 GB) | 32 |
| UDIMM | Dual-rank (16 GB) | 64 |

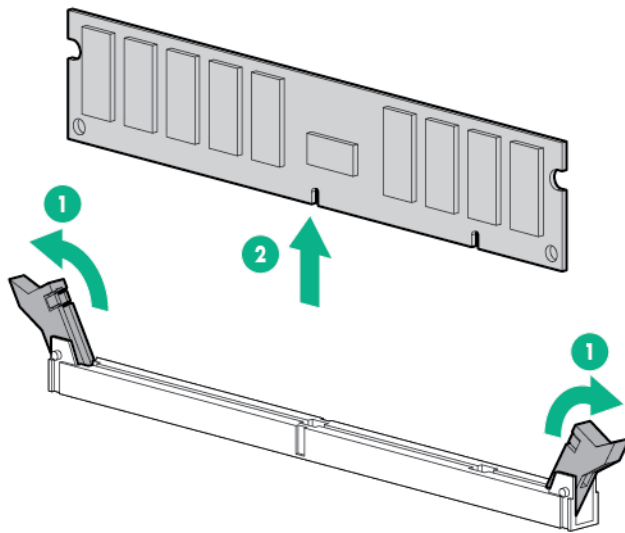
Intel Xeon E3-1200 v6 processor, 3.50-GHz Intel Pentium G4560 processor, 3.60-GHz Intel Pentium G4600 processor, 3.90-GHz Intel Core i3-7100 processor, or 4.00-GHz Intel Core i3-7300 processor:

| DIMM type | DIMM rank | Maximm capacity |
|-----------|--------------------|-----------------|
| UDIMM | Single-rank (8 GB) | 32 |
| UDIMM | Dual-rank (16 GB) | 64 |

Removing the DIMM

Procedure

1. If installed, **remove the security bezel**.
2. **Power down the server**.
3. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
4. Do one of the following:
 - **Extend the server from the rack**
 - **Remove the server from the rack**
5. **Remove the access panel**.
6. **Remove the air baffle**.
7. Open the DIMM slot latches.
8. Remove the DIMM.



To replace the component, reverse the removal procedure.

Replacing the heatsink

About this task



WARNING:

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

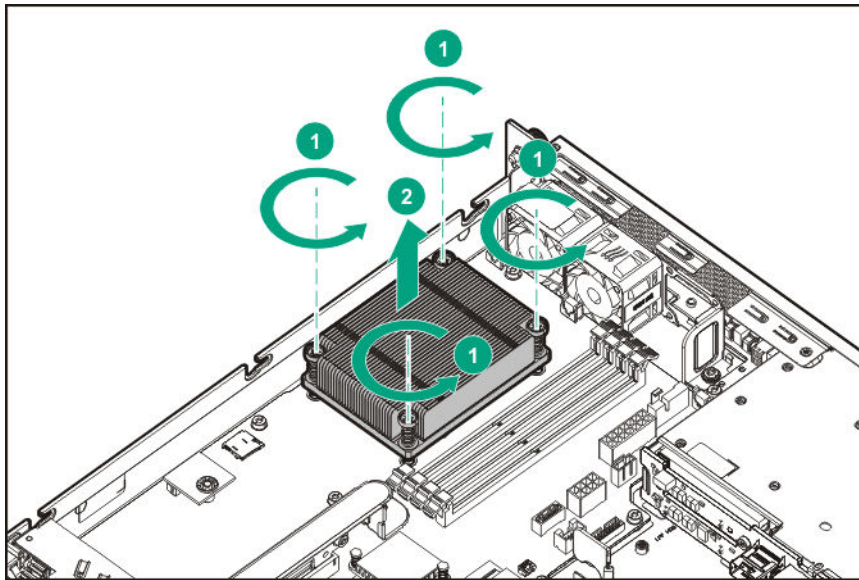


CAUTION:

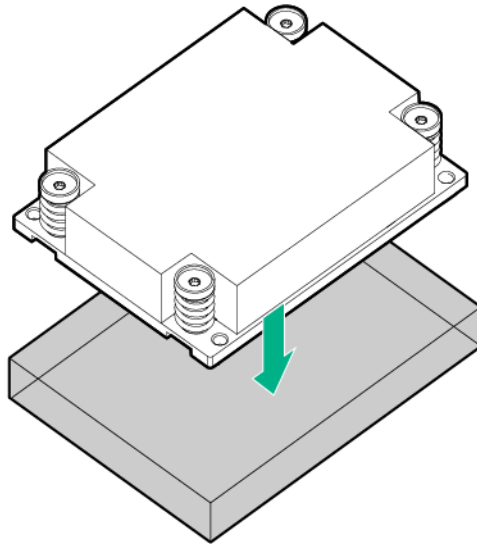
To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

Procedure

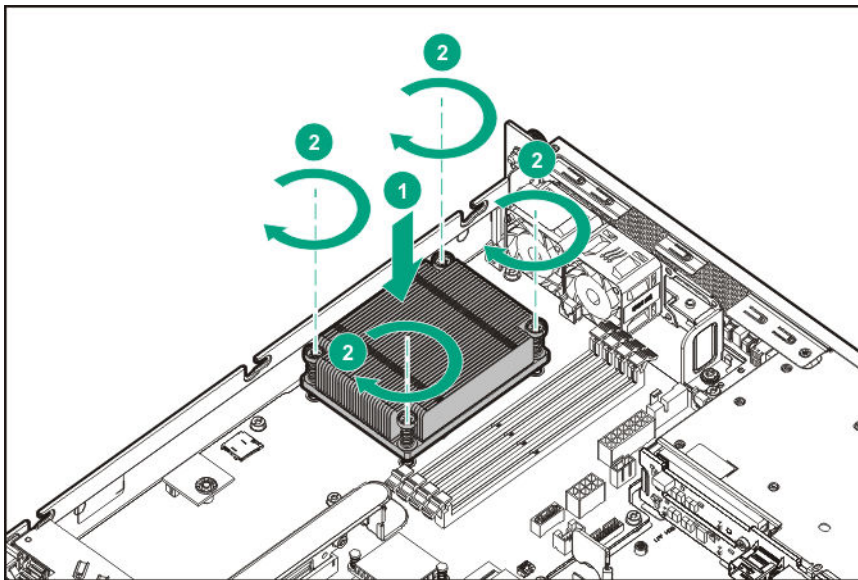
1. If installed, **remove the security bezel.**
2. **Power down the server.**
3. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
4. Do one of the following:
 - **Extend the server from the rack**
 - **Remove the server from the rack**
5. **Remove the access panel.**
6. **Remove the air baffle.**
7. Remove the heatsink.
 - a. Loosen one pair of diagonally opposite screws halfway, then loosen the other pair of screws.
 - b. Completely loosen all screws in the same sequence.
 - c. Remove the heatsink from the processor backplate.



8. Replace the component.
 - a. Clean the old thermal grease from the processor with the alcohol swab.
 - b. Remove the thermal interface protective cover from the heatsink.



9. Install the heatsink:
 - a. Position the heatsink on the processor backplate.
 - b. Tighten one pair of diagonally opposite screws halfway, then tighten the other pair of screws.
 - c. Finish the installation by completely tightening the screws in the same sequence.



10. Install the air baffle.
11. Install the access panel.
12. Do one of the following:
 - Slide the server into the rack.
 - Install the server into the rack.
13. Connect each power cord to the server.
14. Connect each power cord to the power source.
15. Power up the server.
16. If removed, install the security bezel.

Replacing the processor

About this task



WARNING:

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



CAUTION:

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



CAUTION:

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



CAUTION:

To prevent possible server overheating, always populate processor socket 2 with a processor and a heatsink or a processor socket cover and a heatsink blank.



CAUTION:

To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.



IMPORTANT:

If installing a processor with a faster speed, update the system ROM before installing the processor.

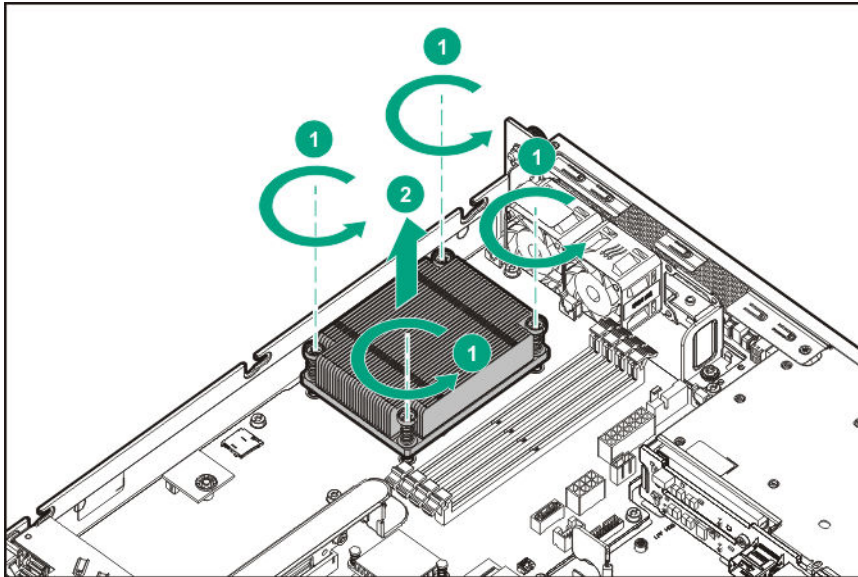


IMPORTANT:

Processor socket 1 must be populated at all times or the server does not function.

Procedure

1. If installed, **remove the security bezel.**
2. **Power down the server.**
3. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
4. Do one of the following:
 - **Extend the server from the rack**
 - **Remove the server from the rack**
5. **Remove the access panel.**
6. **Remove the air baffle.**
7. Remove the heatsink.
 - a. Loosen one pair of diagonally opposite screws halfway, then loosen the other pair of screws.
 - b. Completely loosen all screws in the same sequence.
 - c. Remove the heatsink from the processor backplate.



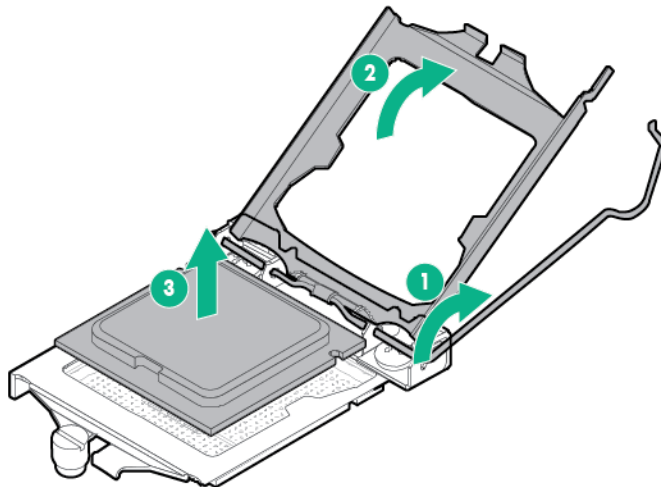
⚠ CAUTION:

To avoid damage to the processor, do not touch the bottom of the processor, especially the contact area.

⚠ CAUTION:

The pins on the processor socket are very fragile. Any damage to them may require replacing the system board.

8. Open the processor locking lever, then open the processor retaining bracket.
9. Grasp the processor by the edges, then lift it out of the socket.



10. Replace the processor.

⚠ CAUTION:

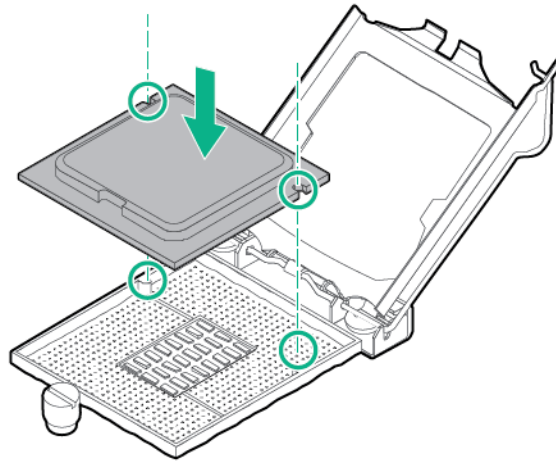
The pins on the system board are easily damaged. To avoid damage to the system board:

- Do not touch the processor socket contacts.
- Do not tilt or slide the processor when lowering the processor into the socket.

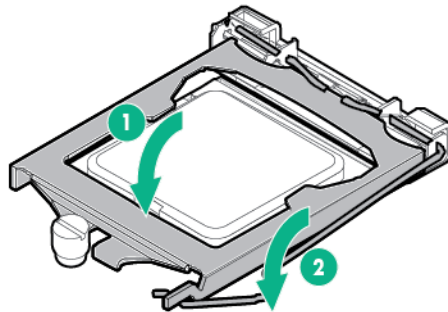
11. Install the processor by using the notches on both sides of the processor to properly align it into the socket.

⚠ CAUTION:

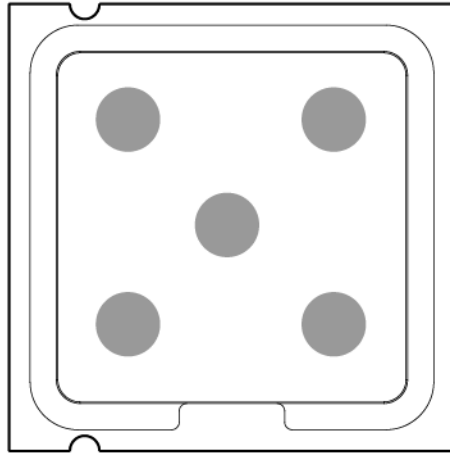
Be sure to close the processor socket retaining bracket before closing the processor locking lever. The lever should close without resistance. Forcing the lever closed can damage the processor and socket, requiring system board replacement.



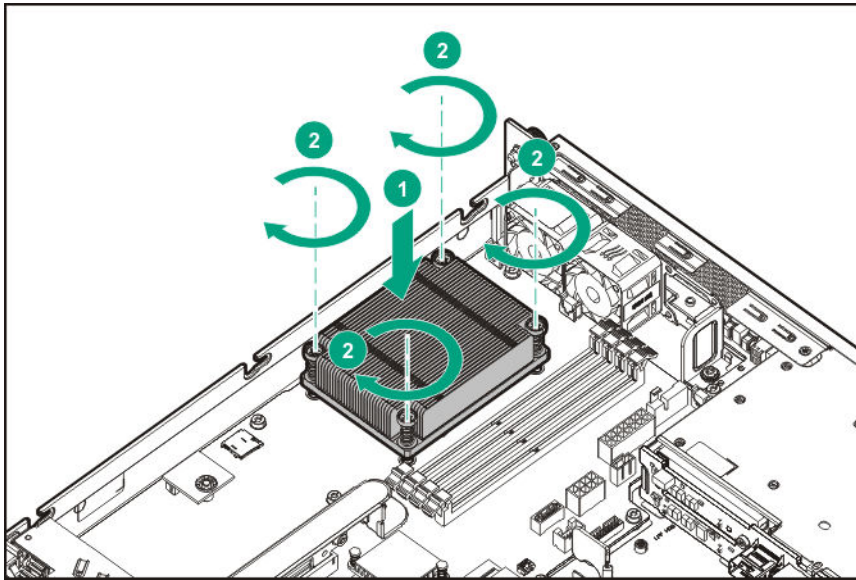
12. Close the processor retaining bracket, then secure the processor locking lever.



13. Clean the old thermal grease from the heatsink with the alcohol swab. Allow the alcohol to evaporate before continuing.
14. Apply all the grease to the top of the processor in the following pattern to ensure even distribution.



15. Install the heatsink:
 - a. Position the heatsink on the processor backplate.
 - b. Tighten one pair of diagonally opposite screws halfway, then tighten the other pair of screws.
 - c. Finish the installation by completely tightening the screws in the same sequence.



16. Install the air baffle.
17. Install the access panel.
18. Do one of the following:
 - Slide the server into the rack.
 - Install the server into the rack.
19. Connect each power cord to the server.
20. Connect each power cord to the power source.
21. Power up the server.
22. If removed, install the security bezel.

Replacing the FlexibleLOM riser board

About this task



WARNING:

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

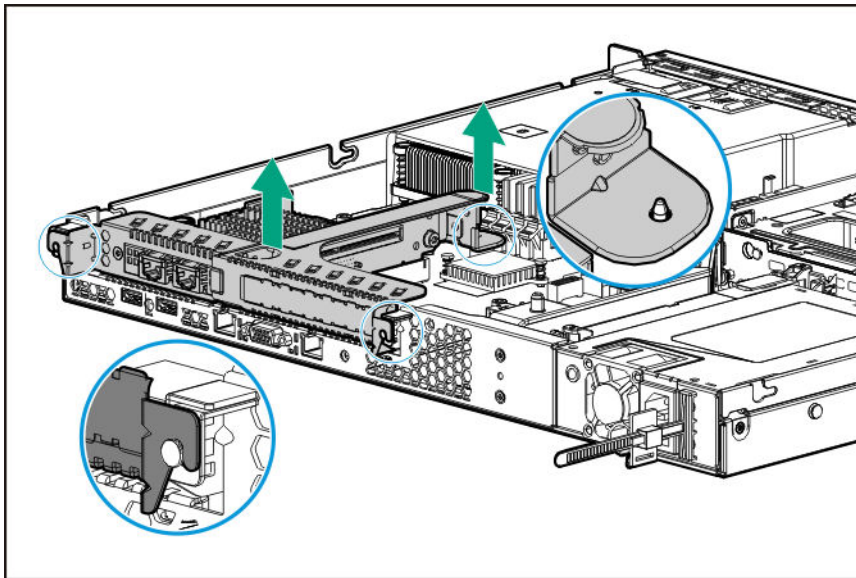


CAUTION:

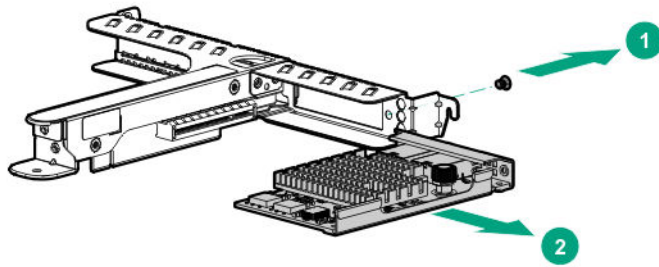
To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

Procedure

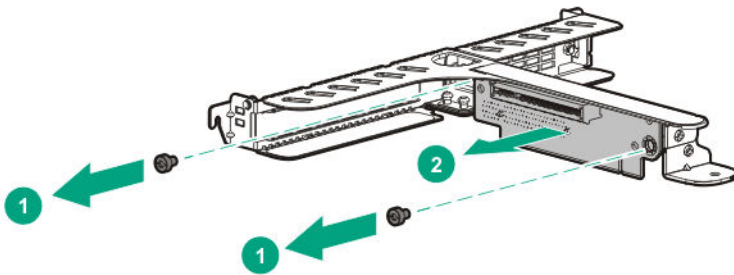
1. If installed, **remove the security bezel.**
2. **Power down the server.**
3. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
4. Disconnect all cables from the FlexibleLOM.
5. Do one of the following:
 - **Extend the server from the rack**
 - **Remove the server from the rack**
6. **Remove the access panel.**
7. Remove the FlexibleLOM riser cage.



8. Remove the FlexibleLOM adapter.



9. Remove the FlexibleLOM riser board.



To replace the component, reverse the removal procedure.

Replacing the GPU riser board

About this task



WARNING:

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

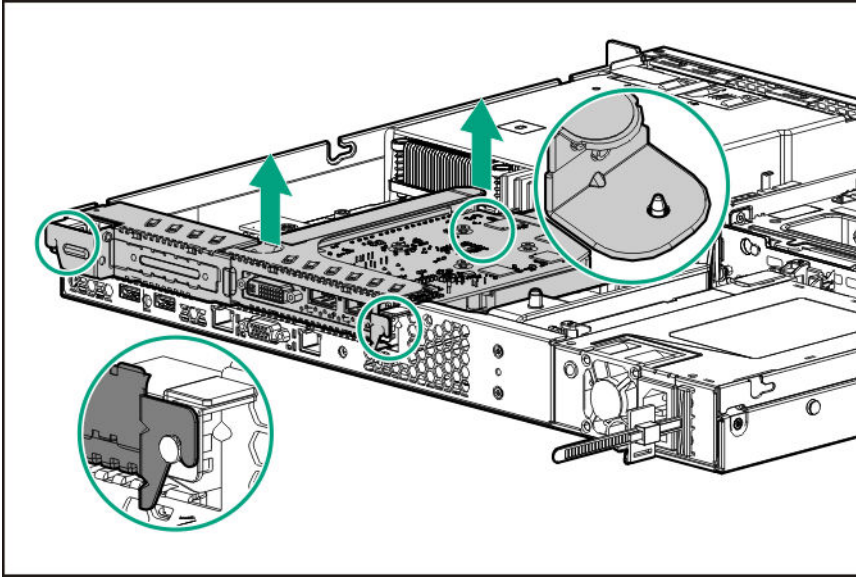


CAUTION:

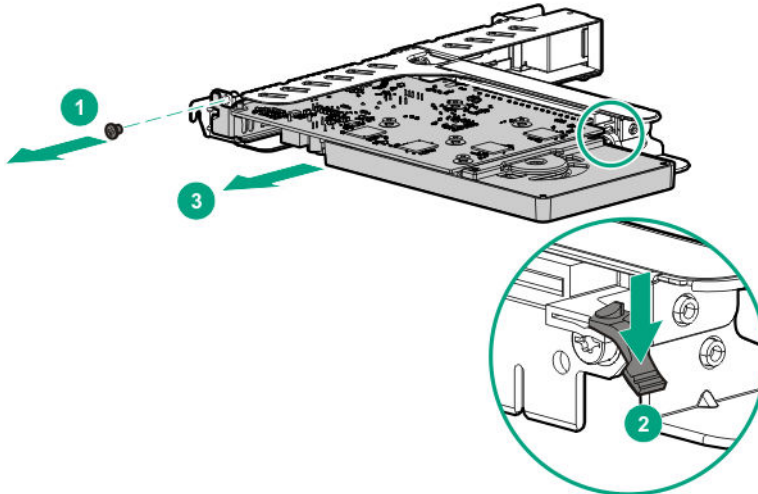
To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

Procedure

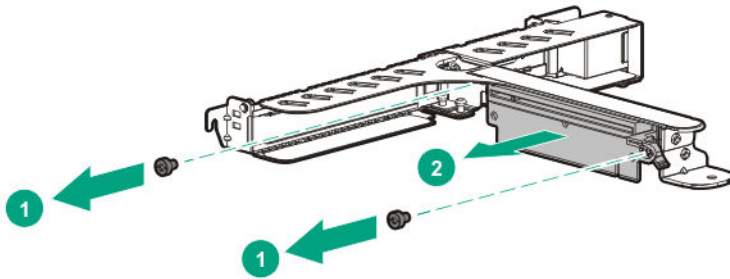
1. If installed, **remove the security bezel.**
2. **Power down the server.**
3. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
4. Disconnect all cables from the GPU.
5. Do one of the following:
 - **Extend the server from the rack**
 - **Remove the server from the rack**
6. **Remove the access panel.**
7. Remove the GPU cage.



8. Remove the GPU.



9. Remove the GPU riser board.



To replace the component, reverse the removal procedure.

Replacing the two-slot PCIe riser board

About this task



WARNING:

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

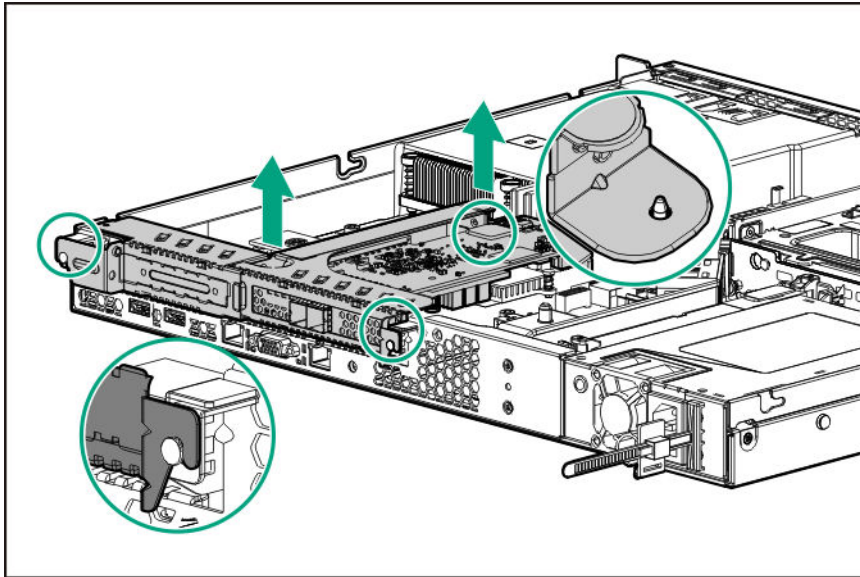


CAUTION:

To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

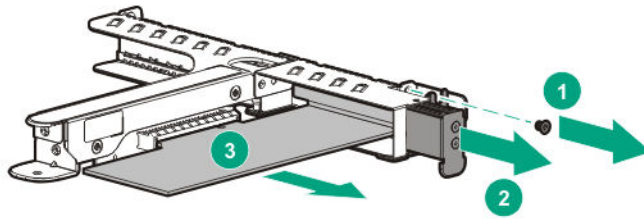
Procedure

1. If installed, **remove the security bezel.**
2. **Power down the server.**
3. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
4. Do one of the following:
 - **Extend the server from the rack**
 - **Remove the server from the rack**
5. **Remove the access panel.**
6. Disconnect any internal cables that are connected to the expansion board.
7. Remove the PCI riser cage.

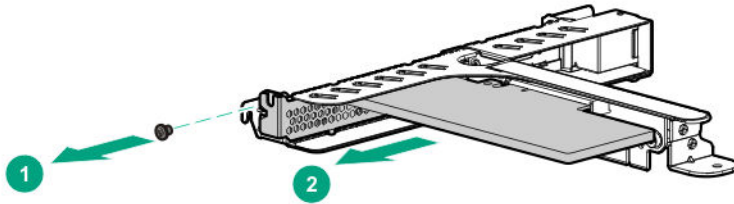


8. Remove the expansion board.

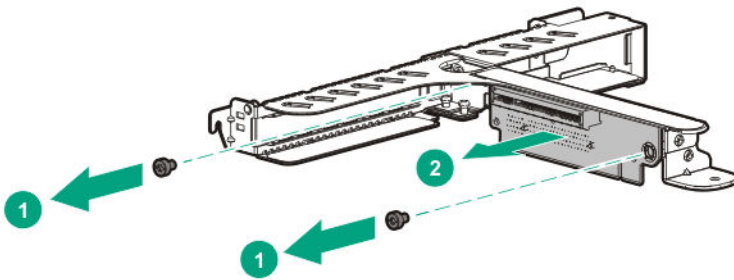
- Slot 1



- Slot 2



9. Remove the two-slot PCIe riser board.



To replace the component, reverse the removal procedure.

Replacing the system battery

About this task

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:

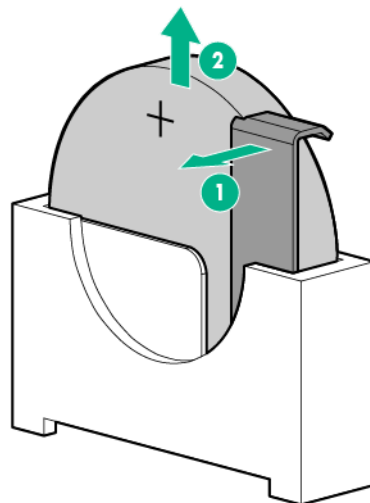
- Do not attempt to recharge the battery.
 - Do not expose the battery to temperatures higher than 60°C (140°F).
 - Do not disassemble, crush, puncture, short external contacts, or dispose of in fire or water.
 - Replace only with the spare designated for this product.
-

**IMPORTANT:**

Replacing the system board battery resets the system ROM to its default configuration. After replacing the battery, reconfigure the system through RBSU.

Procedure

1. If installed, **remove the security bezel.**
2. **Power down the server.**
3. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
4. Do one of the following:
 - **Extend the server from the rack.**
 - **Remove the server from the rack.**
5. **Remove the access panel.**
6. **Locate the battery on the system board.**
7. 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 RBSU.

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.

Replacing the front I/O assembly

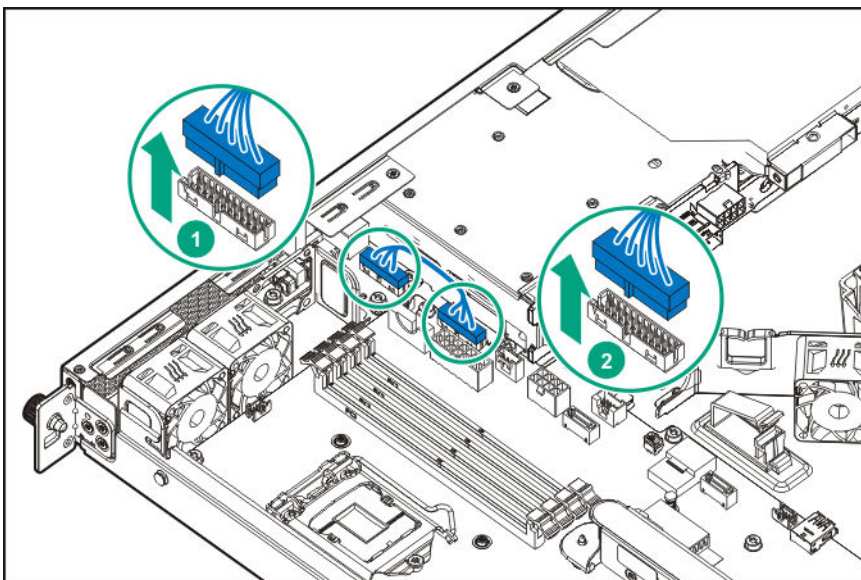
About this task

⚠ CAUTION:

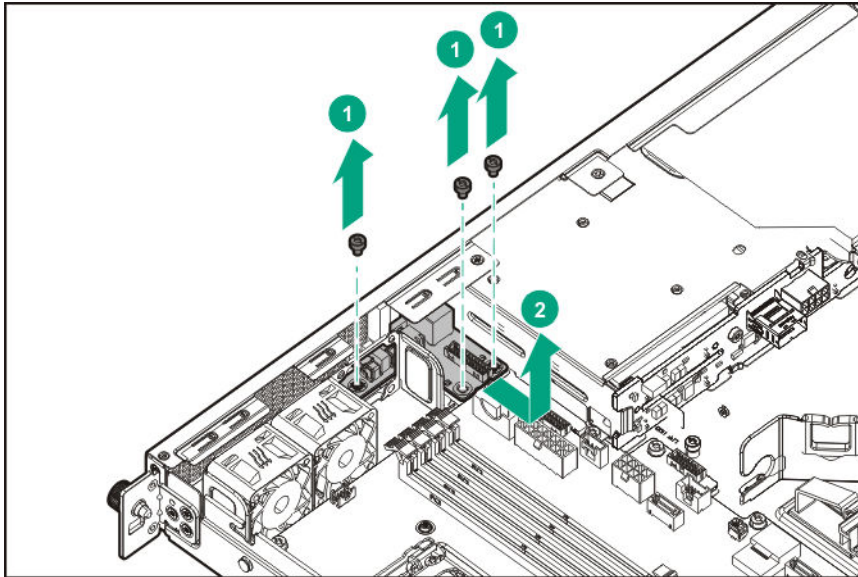
To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

Procedure

1. If installed, **remove the security bezel.**
2. **Power down the server.**
3. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
4. Remove all USB devices from the front I/O assembly.
5. Do one of the following:
 - **Extend the server from the rack**
 - **Remove the server from the rack**
6. **Remove the access panel.**
7. **Remove the air baffle.**
8. Disconnect the front I/O assembly cable.



9. Remove the front I/O board.



To replace the component, reverse the removal procedure.

Replacing the system board

About this task



WARNING:

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



CAUTION:

To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.



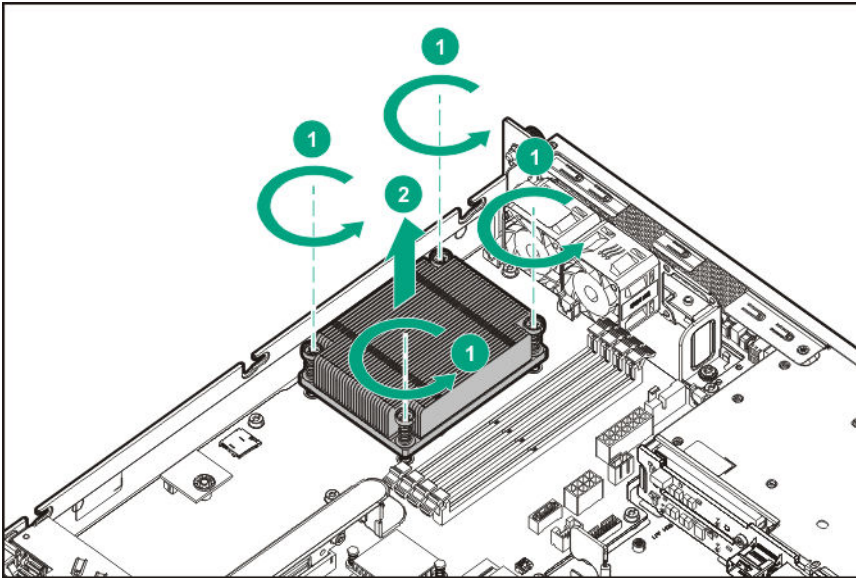
CAUTION:

To avoid ESD damage, when removing electrostatic-sensitive components from the failed system board, place the components on a static-dissipating work surface or inside separate antistatic bags.

Procedure

1. If installed, **remove the security bezel.**
2. **Power down the server.**
3. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
4. Do one of the following:
 - **Extend the server from the rack**
 - **Remove the server from the rack**
5. **Remove the access panel.**
6. **Remove the PCI riser cage.**
7. **Remove the air baffle.**

8. **Remove the DIMMs.**
9. Remove the heatsink.
 - a. Loosen one pair of diagonally opposite screws halfway, then loosen the other pair of screws.
 - b. Completely loosen all screws in the same sequence.
 - c. Remove the heatsink from the processor backplate.



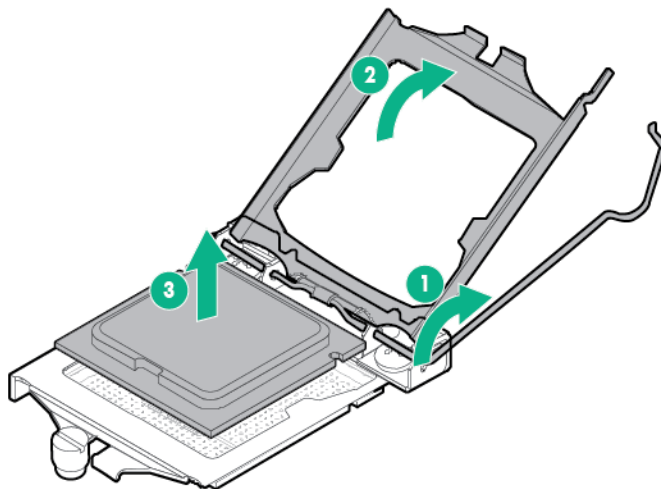
⚠ CAUTION:

To avoid damage to the processor, do not touch the bottom of the processor, especially the contact area.

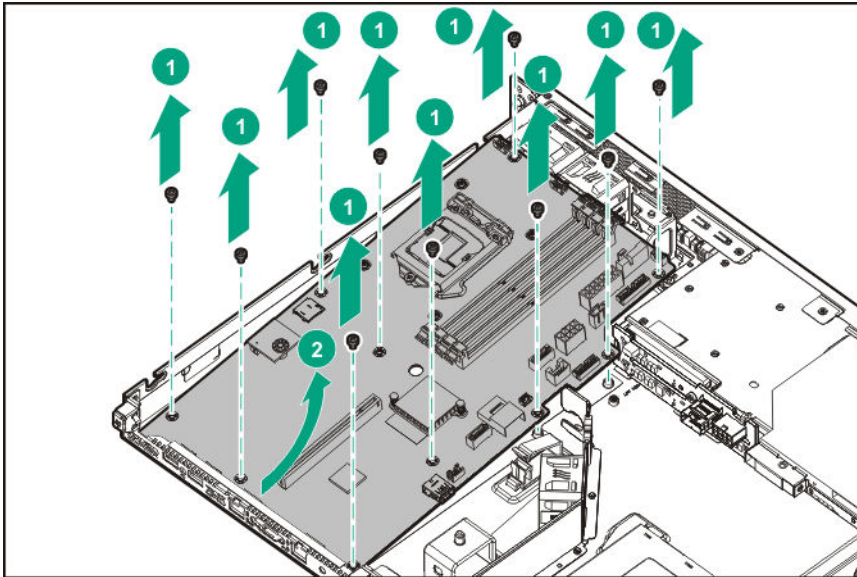
⚠ CAUTION:

The pins on the processor socket are very fragile. Any damage to them may require replacing the system board.

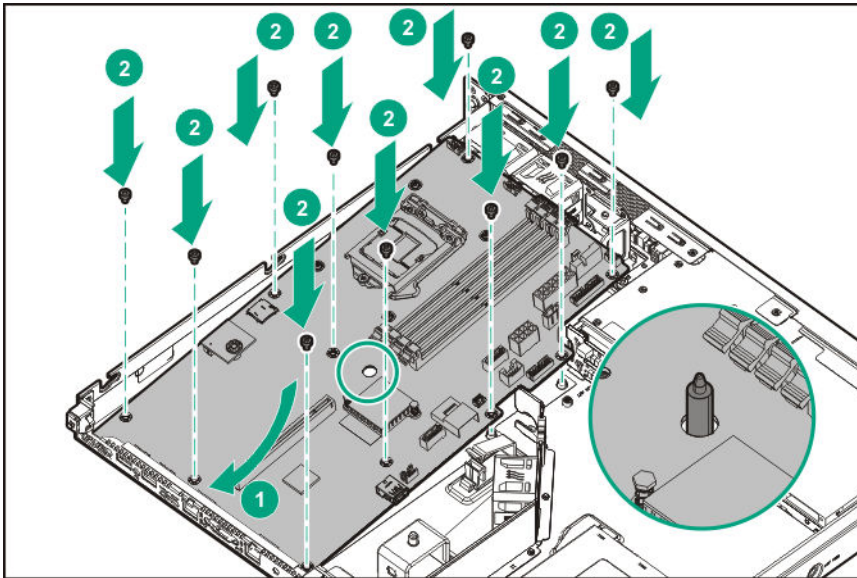
10. Open the processor locking lever, then open the processor retaining bracket.
11. Grasp the processor by the edges, then lift it out of the socket.



12. Disconnect all cables connected to the system board.
13. Remove the failed system board.



14. Replace the system board.

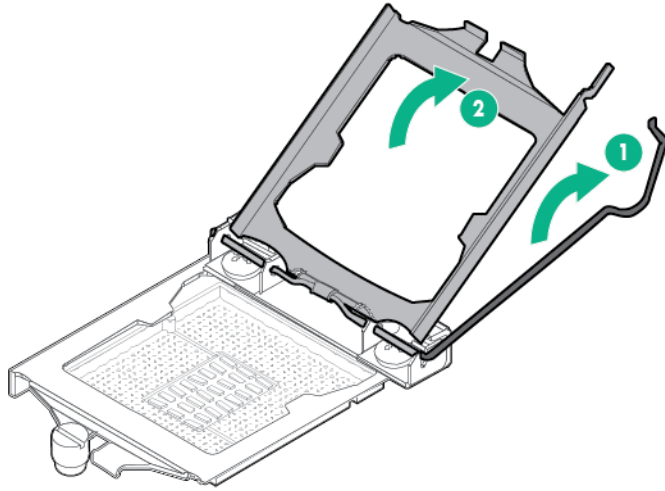


⚠ CAUTION:

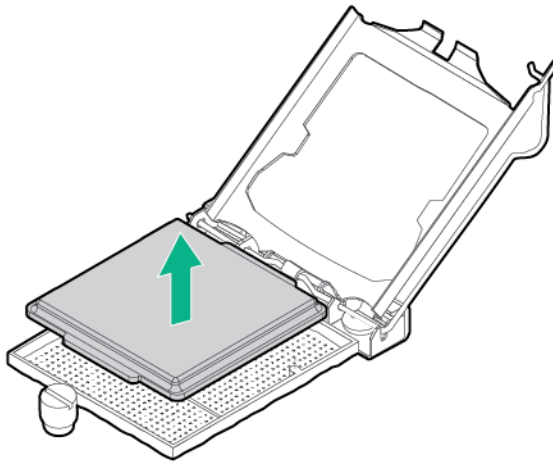
The pins on the system board are easily damaged. To avoid damage to the system board:

- Do not touch the processor socket contacts.
- Do not tilt or slide the processor when lowering the processor into the socket.

15. Open the processor locking lever, and then open the processor retaining bracket.



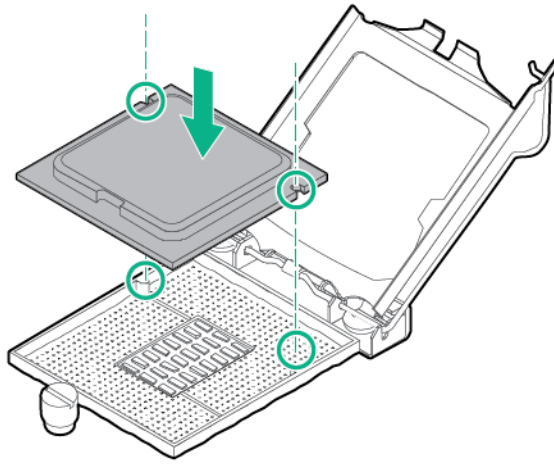
16. Remove the processor socket cover.



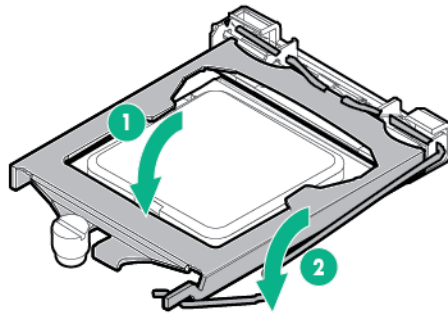
17. Install the processor by using the notches on both sides of the processor to properly align it into the socket.

⚠ CAUTION:

Be sure to close the processor socket retaining bracket before closing the processor locking lever. The lever should close without resistance. Forcing the lever closed can damage the processor and socket, requiring system board replacement.

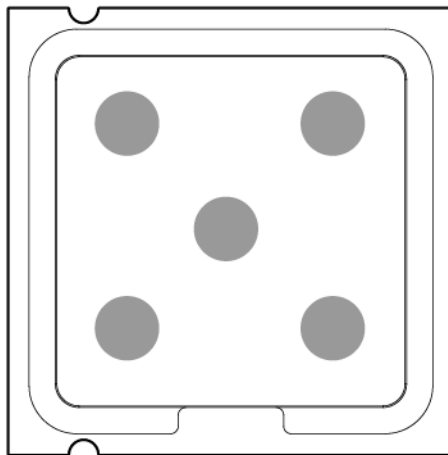


18. Close the processor retaining bracket, then secure the processor locking lever.



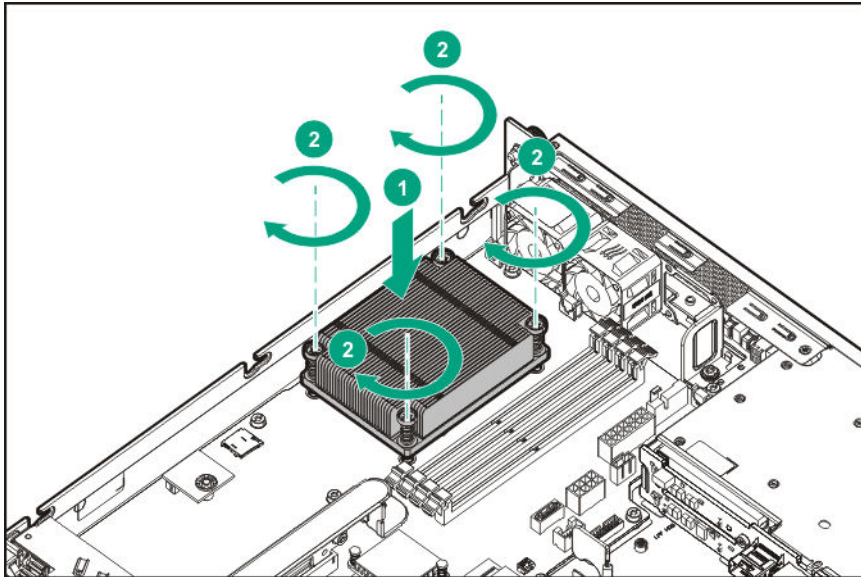
19. Clean the old thermal grease from the heatsink with the alcohol swab. Allow the alcohol to evaporate before continuing.

20. Apply all the grease to the top of the processor in the following pattern to ensure even distribution.



21. Install the heatsink:

- a.** Position the heatsink on the processor backplate.
- b.** Tighten one pair of diagonally opposite screws halfway, then tighten the other pair of screws.
- c.** Finish the installation by completely tightening the screws in the same sequence.



22. Install all components removed from the failed system board.
23. Connect all cables disconnected from the failed system board.
24. Install the air baffle.
25. Install the access panel.
26. Do one of the following:
 - Slide the server into the rack.
 - Install the server into the rack.
27. Connect each power cord to the server.
28. Connect each power cord to the power source.
29. Power up the server.
30. If removed, install the security bezel.

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

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

The serial number should only be modified by qualified service personnel.

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

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

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

The server will automatically reboot.

Replacing the HPE DL20 Gen9 290-W Non-hot plug power supply

About this task



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 equipment



WARNING:

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



WARNING:

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

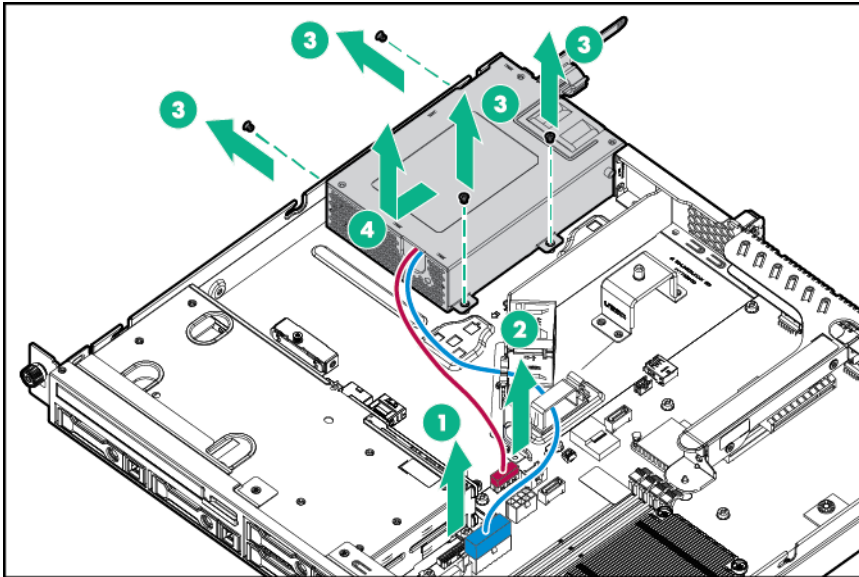


CAUTION:

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

Procedure

1. If installed, **remove the security bezel.**
2. **Power down the server.**
3. Release the power cord from the strain relief clip.
4. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
5. Do one of the following:
 - **Extend the server from the rack**
 - **Remove the server from the rack**
6. **Remove the access panel.**
7. **Remove the air baffle.**
8. **Remove the HPE Smart Storage Battery and holders.**
9. Remove the power supply.



To replace the components, reverse the removal procedure.

Replacing the RPS backplane

About this task



WARNING:

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

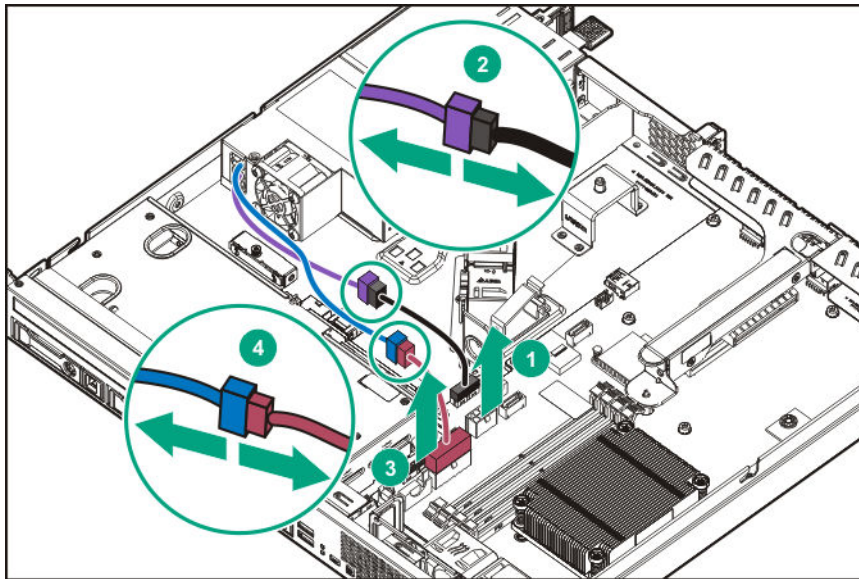


CAUTION:

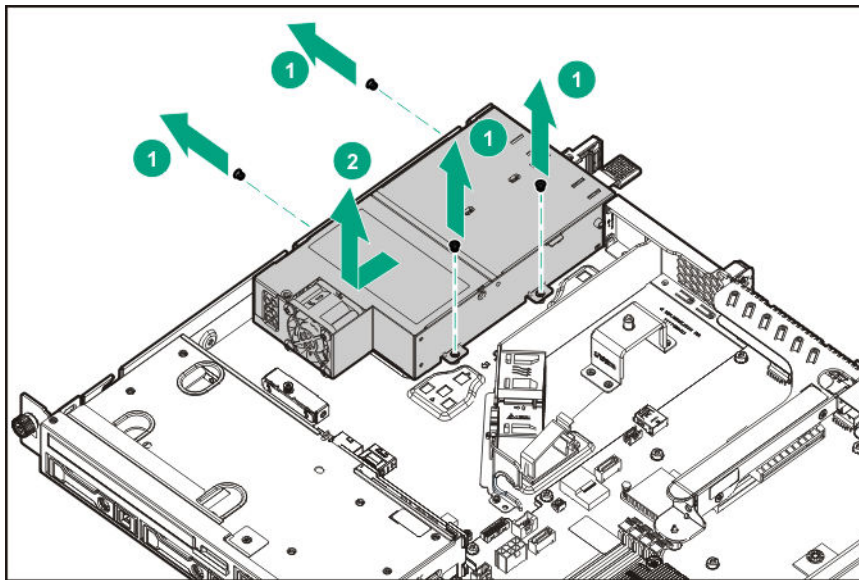
To prevent damage to electrical components, properly ground the server before beginning any installation procedure. Improper grounding can cause ESD.

Procedure

1. If installed, **remove the security bezel.**
2. **Power down the server.**
3. Release the power cord from the strain relief clip.
4. Remove all power:
 - a. Disconnect each power cord from the power source.
 - b. Disconnect each power cord from the server.
5. Do one of the following:
 - **Extend the server from the rack**
 - **Remove the server from the rack**
6. **Remove the access panel.**
7. **Remove the air baffle.**
8. **Remove the HPE Smart Storage Battery and holders.**
9. Disconnect the RPS backplane cables.



10. Remove the RPS backplane.



11. Remove the power input module.

To replace the component, reverse the removal procedure.

HP Trusted Platform Module

About this task

The TPM is not a customer-removable part.

⚠ CAUTION:

Any attempt to remove an installed TPM from the system board breaks or disfigures the TPM security rivet. Upon locating a broken or disfigured rivet on an installed TPM, administrators should consider the system compromised and take appropriate measures to ensure the integrity of the system data.

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

The HPE ProLiant Gen9 Troubleshooting Guide, Volume I: Troubleshooting provides procedures for resolving common problems and comprehensive courses of action for fault isolation and identification, issue resolution, and software maintenance on ProLiant servers and server blades. To view the guide, select a language:

- [English](#)
- [French](#)
- [Spanish](#)
- [German](#)
- [Japanese](#)
- [Simplified Chinese](#)

The HPE ProLiant Gen9 Troubleshooting Guide, Volume II: Error Messages provides a list of error messages and information to assist with interpreting and resolving error messages on ProLiant servers and server blades. To view the guide, select a language:

- [English](#)
- [French](#)
- [Spanish](#)
- [German](#)
- [Japanese](#)
- [Simplified Chinese](#)

Diagnostic tools

HPE iLO

iLO is a remote server management processor embedded on the system boards of HPE ProLiant and Synergy servers. iLO enables the monitoring and controlling of servers from remote locations. HPE iLO management is a powerful tool that provides multiple ways to configure, update, monitor, and repair servers remotely. iLO (Standard) comes preconfigured on HPE servers **without an additional cost or license**.

Features that enhance server administrator productivity are licensed. For more information, see the iLO documentation on the [Hewlett Packard Enterprise website](#).

Product QuickSpecs

For more information about product features, specifications, options, configurations, and compatibility, see the product QuickSpecs on the [Hewlett Packard Enterprise website](#).

Active Health System

The Active Health System monitors and records changes in the server hardware and system configuration.

The Active Health System provides:

- Continuous health monitoring of over 1600 system parameters
- Logging of all configuration changes
- Consolidated health and service alerts with precise time stamps
- Agentless monitoring that does not affect application performance

The Agentless Management Service is available in the SPP, which can be downloaded from the [Hewlett Packard Enterprise website](#). The Active Health System log can be downloaded manually from iLO 4 or Intelligent Provisioning and sent to Hewlett Packard Enterprise.

For more information, see the following documents:

- *iLO User Guide* on the [Hewlett Packard Enterprise website](#)
- *Intelligent Provisioning User Guide* on the [Hewlett Packard Enterprise website](#)

HPE ProLiant Pre-boot Health Summary

If the server will not start up, you can use iLO to display diagnostic information on an external monitor. This feature is supported on servers that support external video and have a UID button or an SUV connector. When power is available to the server but the server is not powered on, iLO runs on auxiliary power and can take control of the server video adapter to display the HPE ProLiant Pre-boot Health Summary.

For additional information, see the following documents:

- *iLO 4 User Guide* — See the [Hewlett Packard Enterprise website](#).
- ProLiant Gen9 Troubleshooting Guide, Volume I: Troubleshooting — See [Troubleshooting resources](#).

Integrated Management Log

The IML records hundreds of events and stores them in an easy-to-view form. The IML timestamps each event with one-minute granularity.

You can view recorded events in the IML in several ways, including the following:

- From within HPE SIM
- From within the UEFI System Utilities
- From within the Embedded UEFI shell

- From within operating system-specific IML viewers:
 - For Windows: IML Viewer
 - For Linux: IML Viewer Application
- From within the iLO web interface
- From within Insight Diagnostics

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 Insight Remote Support central connect

When you use the embedded Remote Support functionality with ProLiant Gen8 and later server models and BladeSystem c-Class enclosures, you can register a server or enclosure to communicate to Hewlett Packard Enterprise through an Insight Remote Support centralized Hosting Device in your local environment. All configuration and service event information is routed through the Hosting Device. This information can be viewed by using the local Insight Remote Support user interface or the web-based view in Insight Online.

For more information, see *Insight Remote Support Release Notes* on the [Hewlett Packard Enterprise website](#).

HPE Insight Online direct connect

When you use the embedded Remote Support functionality with ProLiant Gen8 and later server models and BladeSystem c-Class enclosures, you can register a server or enclosure to communicate directly to Insight Online without the need to set up an Insight Remote Support centralized Hosting Device in your local environment. Insight Online will be your primary interface for remote support information.

For more information, see the product documentation on the [Hewlett Packard Enterprise website](#).

Insight Online

HPE Insight Online is a capability of the Support Center portal. Combined with Insight Remote Support central connect or Insight Online direct connect, it automatically aggregates device health, asset, and support information with contract and warranty information, and then secures it in a single, personalized dashboard that is viewable from anywhere at any time. The dashboard organizes your IT and service data to help you understand and respond to that information more quickly. With specific authorization from you, an authorized Channel Partner can also view your IT environment remotely using Insight Online.

For more information about using Insight Online, see *Insight Online User's Guide* on the [Hewlett Packard Enterprise website](#).

UEFI System Utilities

The UEFI System Utilities is embedded in the system ROM. The UEFI System Utilities 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
- Configuring memory options
- Selecting a language
- Launching other preboot environments such as the Embedded UEFI Shell and Intelligent Provisioning

For more information, see the UEFI System Utilities user guide for your product on the [Hewlett Packard Enterprise website](#).

To access mobile-ready online help for the UEFI System Utilities and UEFI Shell, scan the QR code at the bottom of the screen. For on-screen help, press the **F1** key.

Using UEFI System Utilities

To use the System Utilities, use the following keys.

| Action | Key |
|---|-----------------------|
| Access System Utilities | F9 during server POST |
| Navigate menus | Up and Down arrows |
| Select items | Enter |
| Save selections | F10 |
| Access Help for a highlighted configuration option ¹ | F1 |

¹ Scan the QR code on the screen to access online help for the UEFI System Utilities and UEFI Shell.

Default configuration settings are applied to the server at one of the following times:

- Upon the first system power-up
- After defaults have been restored

Default configuration settings are sufficient for typical server operations; however, you can modify configuration settings as needed. The system prompts you for access to the UEFI System Utilities each time the system is powered up.

Embedded Diagnostics option

The system BIOS in all ProLiant Gen9 servers includes an Embedded Diagnostics option in the ROM. The Embedded Diagnostics option can run comprehensive diagnostics of the server hardware, including processors, memory, drives, and other server components.

For more information on the Embedded Diagnostics option, see the UEFI System Utilities user guide for your server on the [Hewlett Packard Enterprise website](#).

iLO RESTful API support for UEFI

The ProLiant Gen9 servers include support for a UEFI-compliant System BIOS, along with UEFI System Utilities and Embedded UEFI Shell preboot environments. ProLiant Gen9 servers also support configuring the UEFI BIOS settings using the iLO RESTful API, a management interface that server management tools can use to perform configuration, inventory, and monitoring of a ProLiant server. The iLO RESTful API uses basic HTTPS operations (GET, PUT, POST, DELETE, and PATCH) to submit or return JSON-formatted data with iLO web server.

For more information about the iLO RESTful API and the RESTful Interface Tool, see the [Hewlett Packard Enterprise website](#).

Re-entering the server serial number and product ID

About this task

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

Procedure

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

The following message appears:

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

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

The following warning appears:

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

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

The server automatically reboots.

Insight Diagnostics

The Insight Diagnostics is a proactive server management tool, available in both offline and online versions. The tool provides diagnostics and troubleshooting capabilities to assist IT administrators who verify server installations, troubleshoot problems, and perform repair validation.

The Insight Diagnostics Offline Edition performs various in-depth system and component testing while the OS is not running. To run this utility, boot the server using Intelligent Provisioning.

The Insight Diagnostics Online Edition is a web-based application that captures system configuration and other related data needed for effective server management. Available in Microsoft Windows and Linux versions, the utility helps to ensure proper system operation.

For more information or to download the utility, see the [Hewlett Packard Enterprise website](#). The Insight Diagnostics Online Edition is also available in the SPP.

HPE Smart Storage Administrator

The HPE SSA is a configuration and management tool for HPE Smart Array controllers. Starting with HPE ProLiant Gen8 servers, HPE SSA replaces ACU with an enhanced GUI and additional configuration features.

The HPE SSA exists in three interface formats: the HPE SSA GUI, the HPE SSA CLI, and HPE SSA Scripting. Although all formats provide support for configuration tasks, some of the advanced tasks are available in only one format.

Some HPE SSA features include the following:

- Supports online array capacity expansion, logical drive extension, assignment of online spares, and RAID or stripe size migration
- Provides diagnostic and SmartSSD Wear Gauge functionality on the Diagnostics tab
- For supported controllers, provides access to additional features.

For more information about HPE SSA, see the [Hewlett Packard Enterprise website](#).

USB support

Hewlett Packard Enterprise servers support both USB 2.0 ports and USB 3.0 ports. Both port types support installing all types of USB devices (USB 1.0, USB 2.0, and USB 3.0), but might run at lower speeds in specific situations:

- USB 3.0 capable devices operate at USB 2.0 speeds when installed in a USB 2.0 port.
- In UEFI Boot Mode, Hewlett Packard Enterprise provides legacy USB support in the preboot environment before the operating system loading for USB 1.0, USB 2.0, and USB 3.0 speeds.

The pre-OS behavior and default operation of the USB ports is configurable in the UEFI System Utilities. For more information, see the UEFI System Utilities user guide for your product on the [Hewlett Packard Enterprise website](#).

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.

Automatic Server Recovery

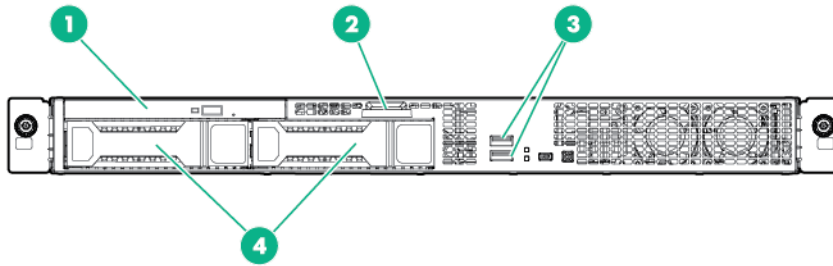
ASR is a feature that causes the system to restart when a catastrophic operating system error occurs, such as a blue screen, ABEND, or panic. A system fail-safe timer, the ASR timer, starts when the System Management driver, also known as the Health Driver, is loaded. When the operating system is functioning properly, the system periodically resets the timer. However, when the operating system fails, the timer expires and restarts the server.

ASR increases server availability by restarting the server within a specified time after a system hang. You can disable ASR from the System Management Homepage or through UEFI System Utilities.

Component identification

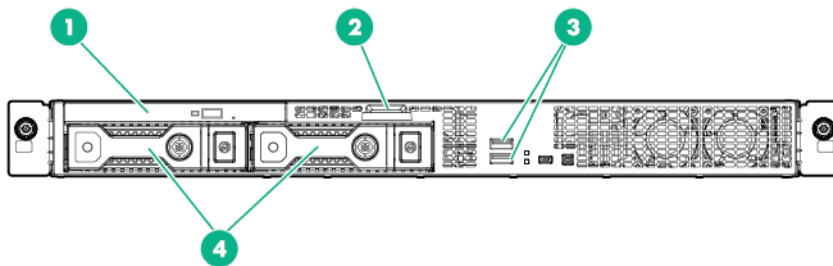
Front panel components

- Two-bay LFF non-hot-plug drive model



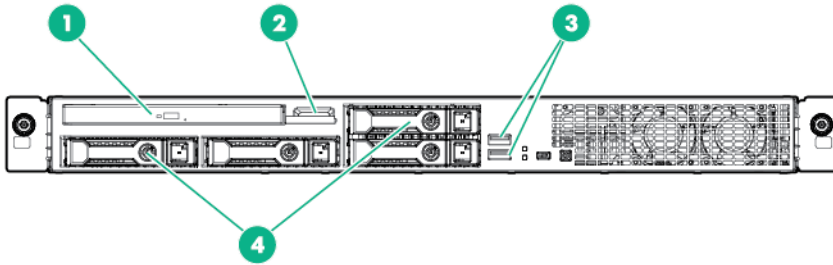
| Item | Description |
|------|--------------------------|
| 1 | Optical drive (optional) |
| 2 | Serial label pull tab |
| 3 | USB 2.0 connectors |
| 4 | Drive bays |

- Two-bay LFF hot-plug drive model



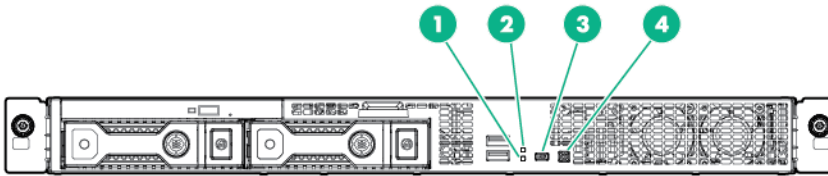
| Item | Description |
|------|--------------------------|
| 1 | Optical drive (optional) |
| 2 | Serial label pull tab |
| 3 | USB 2.0 connectors |
| 4 | Drive bays |

- Four-bay SFF hot-plug drive model



| Item | Description |
|------|--------------------------|
| 1 | Optical drive (optional) |
| 2 | Serial label pull tab |
| 3 | USB 2.0 connectors |
| 4 | Drive bays |

Front panel LEDs and buttons



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

¹ When the LEDs described in this table flash simultaneously, a power fault has occurred. For more information, see "**Power Fault LEDs.**"

| Item | Description | Status |
|------|-------------|--------|
|------|-------------|--------|

² If the health LED indicates a degraded or critical state, review the system IML or use iLO to review the system health status. For more information, see **"Integrated Management Log."**

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

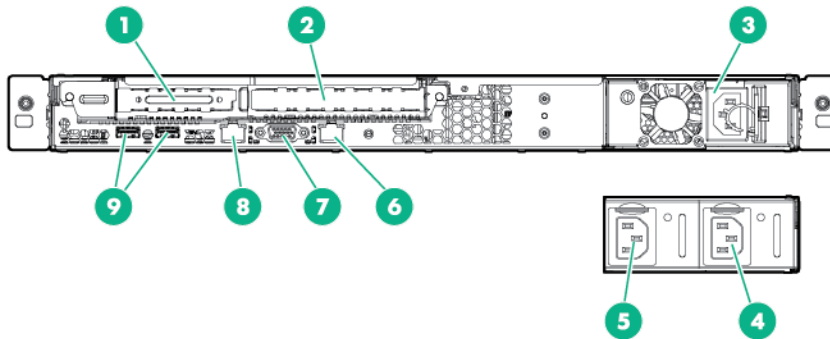
Table Continued

Power fault LEDs

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

| Subsystem | LED behavior |
|--|--------------|
| System board | 1 flash |
| Processor | 2 flashes |
| Memory | 3 flashes |
| Riser board PCIe slots | 4 flashes |
| FlexibleLOM | 5 flashes |
| Removable HPE Flexible Smart Array controller/Smart SAS HBA controller | 6 flashes |
| System board PCIe slots | 7 flashes |
| Power backplane or storage backplane | 8 flashes |
| Power supply | 9 flashes |

Rear panel components

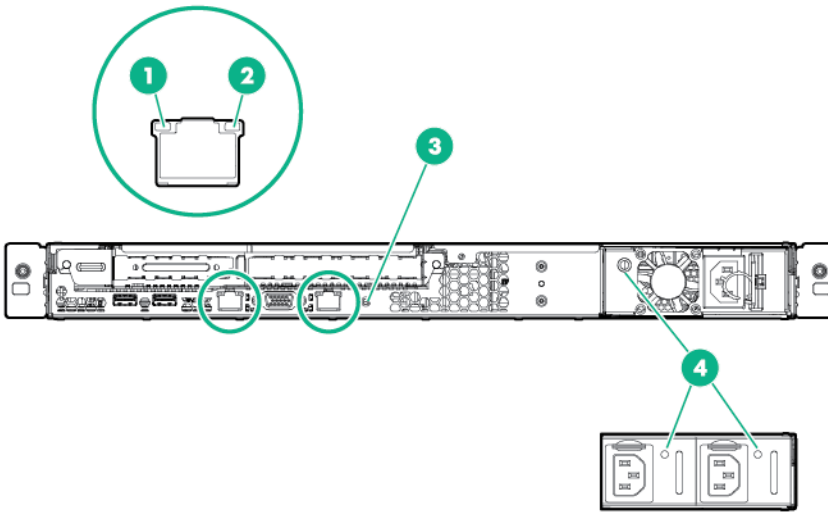


| Item | Description |
|------|---------------------------|
| 1 | Slot 1 PCIe/FlexibleLOM |
| 2 | Slot 2 PCIe |
| 3 | Non-hot-plug power supply |
| 4 | Hot-plug power supply 2 |
| 5 | Hot-plug power supply 1 |

Table Continued

| Item | Description |
|------|--|
| 6 | NIC connector 2 |
| 7 | Video connector |
| 8 | NIC connector 1/iLO management connector |
| 9 | USB 3.0 connectors (2) |

Rear panel LEDs

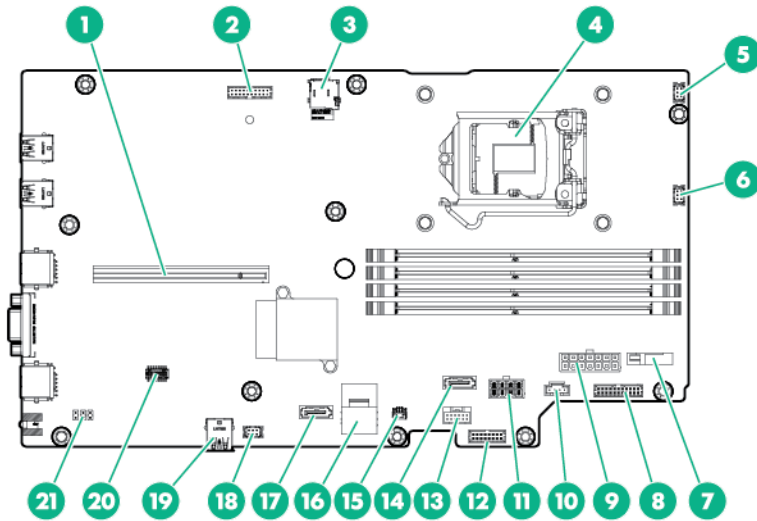


| Item | Description | Status |
|------|------------------|---|
| 1 | NIC link LED | Green = Network link Off = No network link |
| 2 | NIC activity LED | Solid green = Link to network Flashing green = Network active Off = No network activity |

Table Continued

| Item | Description | Status |
|------|------------------|---|
| 3 | UID LED | Solid blue = Activated Flashing blue: <ul style="list-style-type: none"> • 1 flash per second = Remote management or firmware upgrade in progress • 4 flashes per second = iLO manual reboot sequence initiated • 8 flashes per second = iLO manual reboot sequence in progress • Off = deactivated |
| 4 | Power supply LED | Solid green = Normal Off = One or more of the following conditions exists: <ul style="list-style-type: none"> • Power is unavailable • Power supply failed • Power supply is in standby mode • Power supply error |

System board components



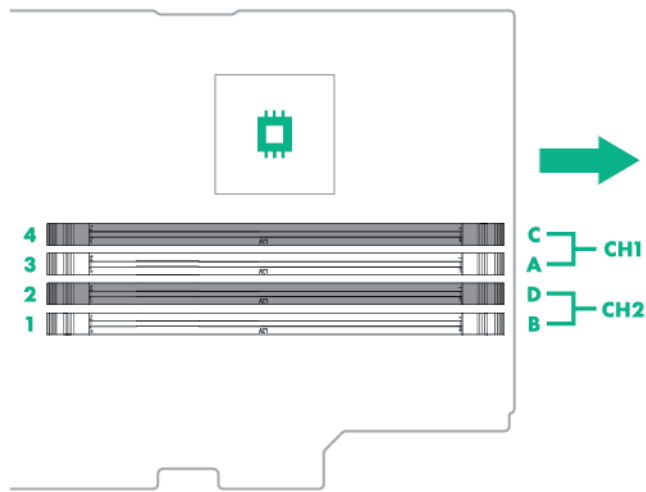
| Item | Description |
|------|--------------------------|
| 1 | PCIe riser connector* |
| 2 | Trusted module connector |
| 3 | microSD slot |
| 4 | Processor |
| 5 | Fan connector 2 |
| 6 | Fan connector 1 |

Table Continued

| Item | Description |
|------|--|
| 7 | System battery |
| 8 | Front I/O connector |
| 9 | 14-pin power connector |
| 10 | 4-pin power connector |
| 11 | 8-pin power connector |
| 12 | Power supply sideband signal connector |
| 13 | Smart Storage Battery connector |
| 14 | SATA connector for M.2 SSD/optical drive |
| 15 | Storage backup power connector |
| 16 | Mini-SAS connector |
| 17 | SATA connector for M.2 SSD |
| 18 | Fan connector 3 |
| 19 | Internal USB 3.0 connector |
| 20 | System maintenance switch |
| 21 | NMI header |

* For more information on the riser board slots supported by the onboard PCI riser connectors, see "[PCIe riser board slot definitions](#)."

DIMM slot locations



The arrow points to the front of the server.

PCIe riser board slot definitions

- FlexibleLOM riser board

| Slot number | Form factor | Slot description |
|------------------|-------------|--------------------|
| FlexibleLOM slot | FlexibleLOM | PCIe x8 |
| 2 | PCIe 3 | PCIe3 x8 (8,4,2,1) |

- Two-slot riser board

| Slot number | Form factor | Slot description |
|-------------|--------------------------|--------------------|
| 1 | Low-profile | PCIe3 x8 (8,4,2,1) |
| 2 | Full-height, half-length | PCIe3 x8 (8,4,2,1) |

- GPU riser board

| Slot number | Form factor | Slot description |
|-------------|--------------------------|------------------------|
| — | — | — |
| 2 | Full-height, half-length | PCIe3 x16 (16,8,4,2,1) |

System maintenance switch

| Position | Default | Function |
|----------|---------|--|
| S1 | Off | Off = iLO security is enabled. On = iLO security is disabled. |
| S2 | Off | Off = System configuration can be changed. On = System configuration is locked. |
| 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. |
| S7 | Off | Off = Set default boot mode to UEFI. On = Set default boot mode to legacy. |
| 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.

⚠ **IMPORTANT:**

Before using the S7 switch to change to Legacy BIOS Boot Mode, be sure the HPE Dynamic Smart Array B140i Controller is disabled. Do not use the B140i controller when the server is in Legacy BIOS Boot Mode.

⚠ **CAUTION:**

Clearing CMOS, NVRAM or both deletes configuration information. Be sure to configure the server properly to prevent data loss.

NMI functionality

An NMI crash dump creates a crash dump log before resetting a system which is not responding.

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

To force the system to invoke the NMI handler and generate a crash dump log, do one of the following:

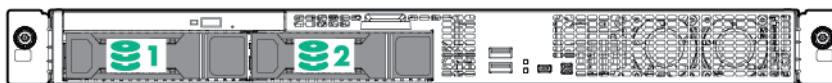
- Use the iLO Virtual NMI feature.
- Short the NMI header.

For more information, see the [Hewlett Packard Enterprise website](#).

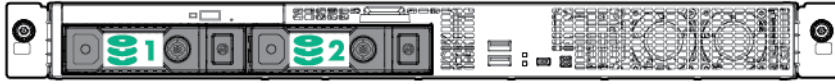
Drive numbering

The following images show the drive numbering for each of the supported drive configurations. For drive box numbering information, see "[Front panel components](#)."

- Two-bay LFF non-hot-plug drive model



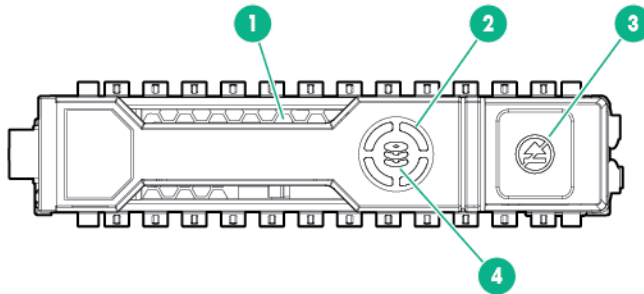
- Two-bay LFF hot-plug drive model



- Four-bay SFF hot-plug drive model



Hot-plug drive LED definitions



| Item | LED | Status | Definition |
|------|---------------|----------------------|--|
| 1 | Locate | Solid blue | The drive is being identified by a host application. |
| | | Flashing blue | The drive carrier firmware is being updated or requires an update. |
| 2 | Activity ring | Rotating green | Drive activity. |
| | | Off | No drive activity. |
| 3 | Do not remove | Solid white | Do not remove the drive. Removing the drive causes one or more of the logical drives to fail. |
| | | Off | Removing the drive does not cause a logical drive to fail. |
| 4 | Drive status | Solid green | The drive is a member of one or more logical drives. |
| | | Flashing green | The drive is rebuilding or performing a RAID migration, strip size migration, capacity expansion, or logical drive extension, or is erasing. |
| | | Flashing amber/green | The drive is a member of one or more logical drives and predicts the drive will fail. |
| | | Flashing amber | The drive is not configured and predicts the drive will fail. |
| | | Solid amber | The drive has failed. |
| | | Off | The drive is not configured by a RAID controller. |

The blue Locate LED is behind the release lever and is visible when illuminated.

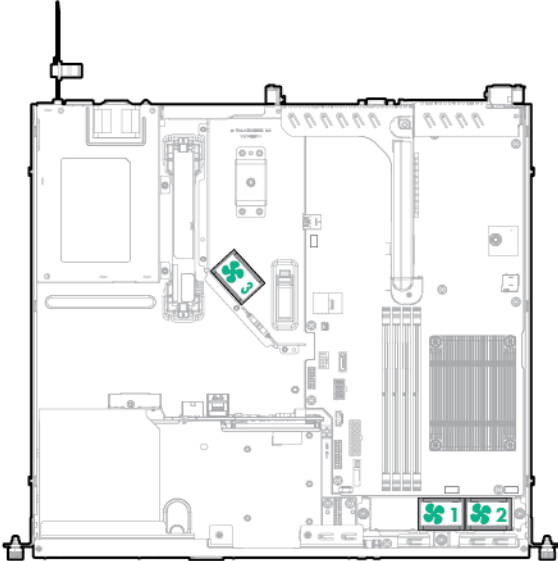
! **IMPORTANT:**

The Dynamic Smart Array B140i Controller is only available in UEFI Boot Mode. It cannot be enabled in Legacy BIOS Boot Mode. If the B140i controller is disabled, drives connected to the system board Mini-SAS connectors operate in AHCI or Legacy mode. Under this condition:

- The drives cannot be a part of a hardware RAID or a logical drive.
- The Locate, Drive status, and Do not remove LEDs of the affected drives are disabled.

Use BIOS/Platform Configuration (RBSU) in the **UEFI System Utilities** to enable or disable the B140i controller (System Configuration, BIOS/Platform Configuration (RBSU), System Options, SATA Controller Options, Embedded SATA Configuration).

Fan locations



Cabling

Cabling overview

This section provides guidelines to help make informed decisions about cabling the server and hardware options to optimize performance.

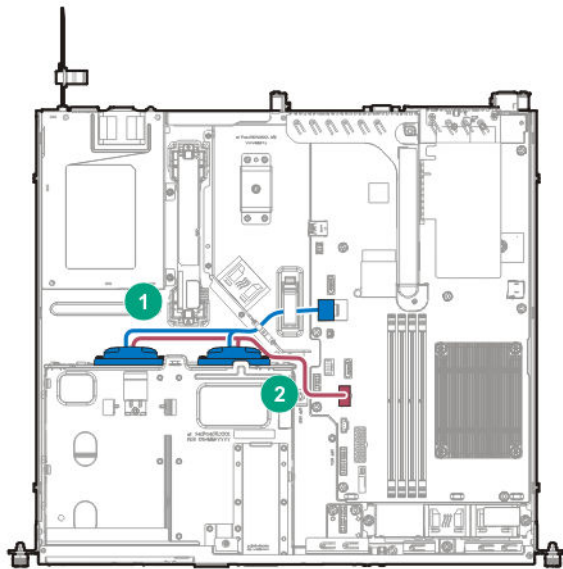
For information on cabling peripheral components, see the white paper on high-density deployment at the [Hewlett Packard Enterprise website](#).

⚠ CAUTION:

When routing cables, always be sure that the cables are not in a position where they can be pinched or crimped.

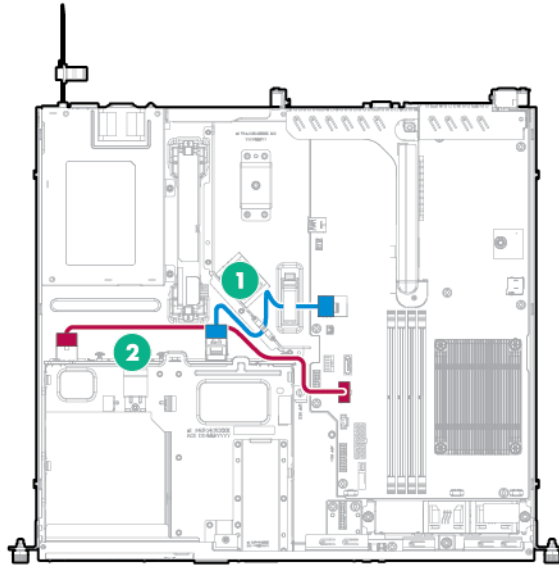
Storage cabling

Two-bay LFF non-hot-plug drive cabling



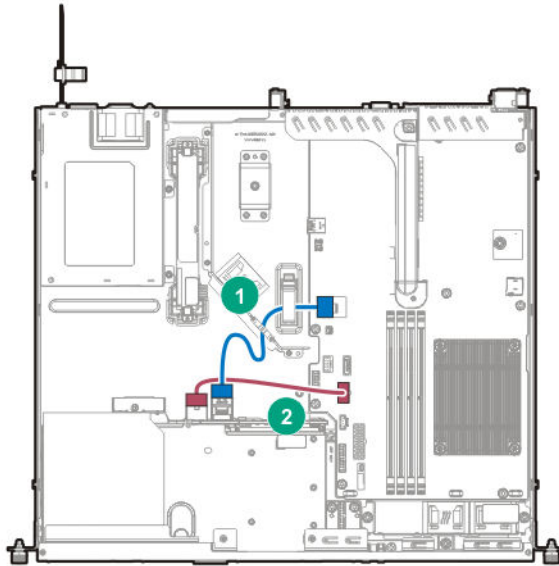
| Item | Description |
|------|-------------------|
| 1 | Mini-SAS cable |
| 2 | Drive power cable |

Two-bay LFF hot-plug drive cabling



| Item | Description |
|------|-------------------|
| 1 | Mini-SAS cable |
| 2 | Drive power cable |

Four-bay SFF hot-plug drive cabling



| Item | Description |
|------|-------------------|
| 1 | Mini-SAS cable |
| 2 | Drive power cable |

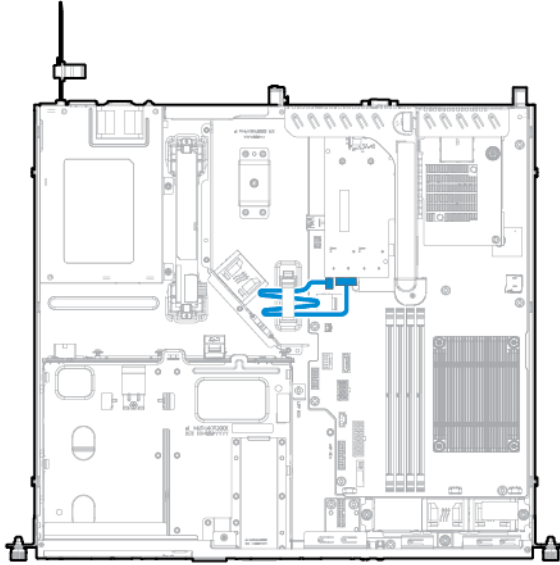
M.2 SSD cabling

- Single M.2 SSD SATA cabling

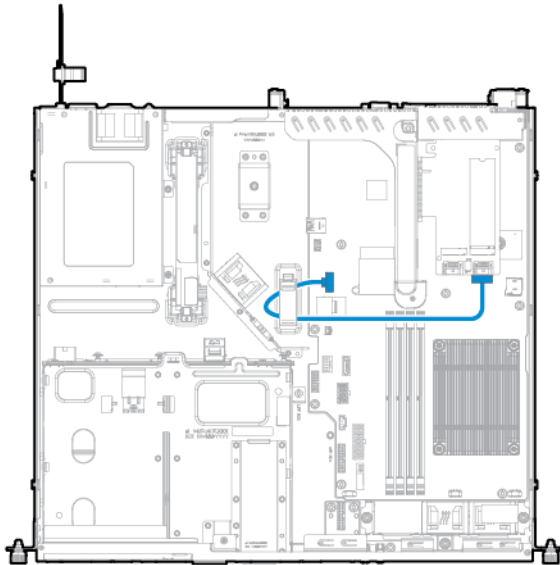
NOTE:

M.2 SSD cabling is the same for both LFF and SFF configurations.

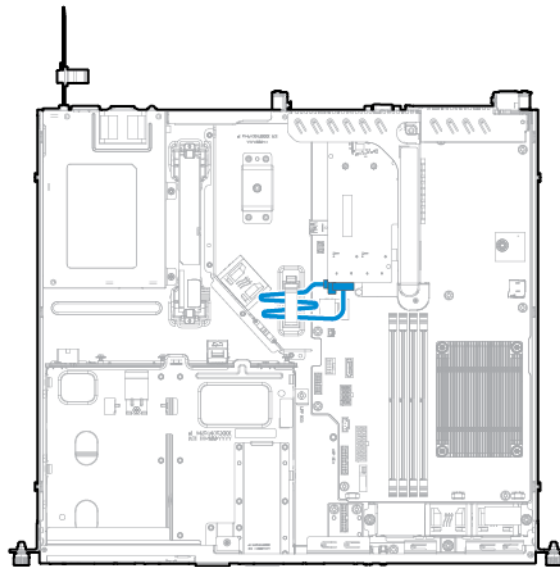
- Slot 2 of the FlexibleLOM riser cage assembly



- Slot 1 of the two-slot PCI riser cage assembly



- Slot 2 of the two-slot PCI riser cage assembly

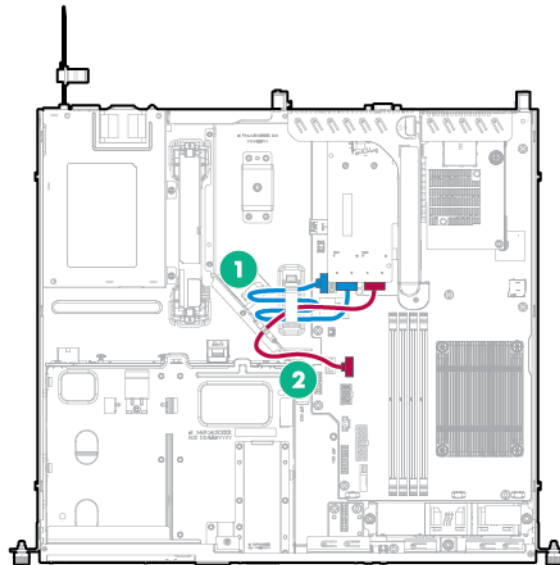


- Dual M.2 SSD SATA cabling

NOTE:

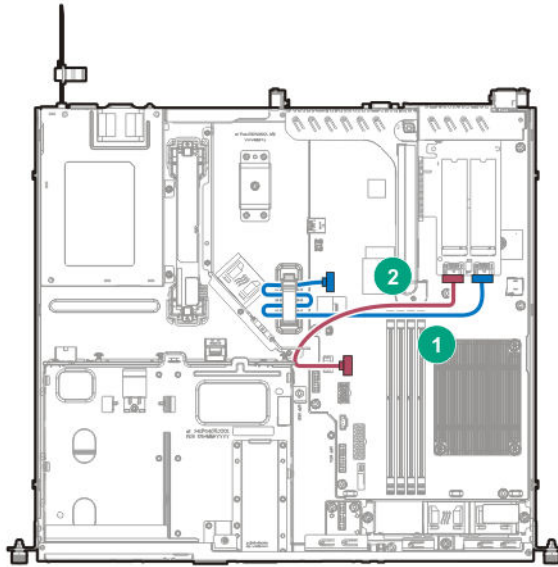
M.2 SSD cabling is the same for both LFF and SFF configurations.

- Slot 2 of the FlexibleLOM riser cage assembly



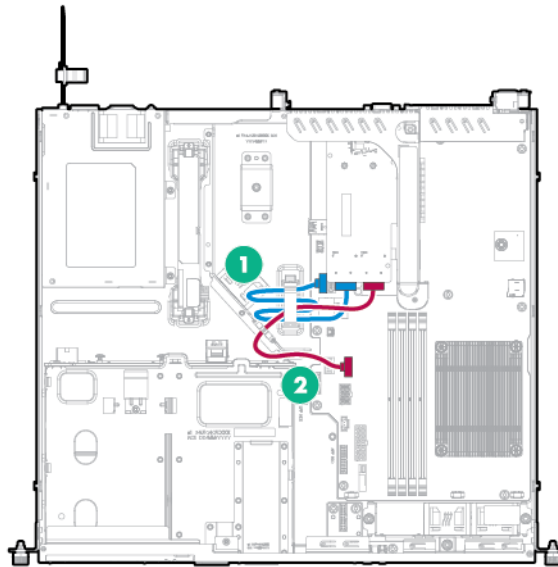
| Item | Description |
|------|----------------------|
| 1 | M.2 SSD 1 SATA cable |
| 2 | M.2 SSD 2 SATA cable |

- Slot 1 of the two-slot PCI riser cage assembly



| Item | Description |
|------|----------------------|
| 1 | M.2 SSD 1 SATA cable |
| 2 | M.2 SSD 2 SATA cable |

- Slot 2 of the two-slot PCI riser cage assembly

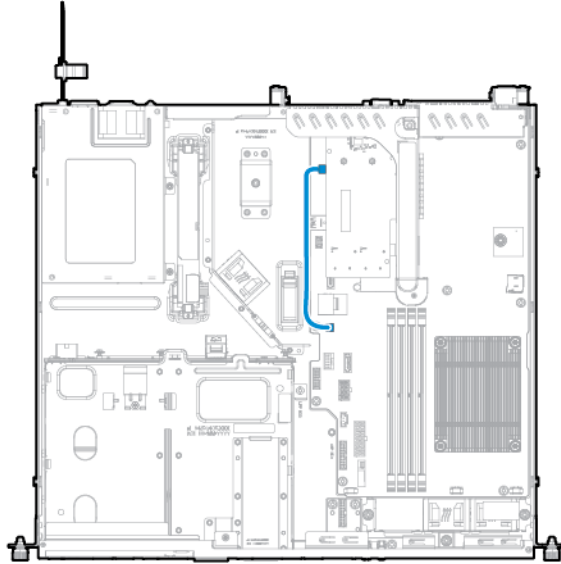


| Item | Description |
|------|----------------------|
| 1 | M.2 SSD 1 SATA cable |
| 2 | M.2 SSD 2 SATA cable |

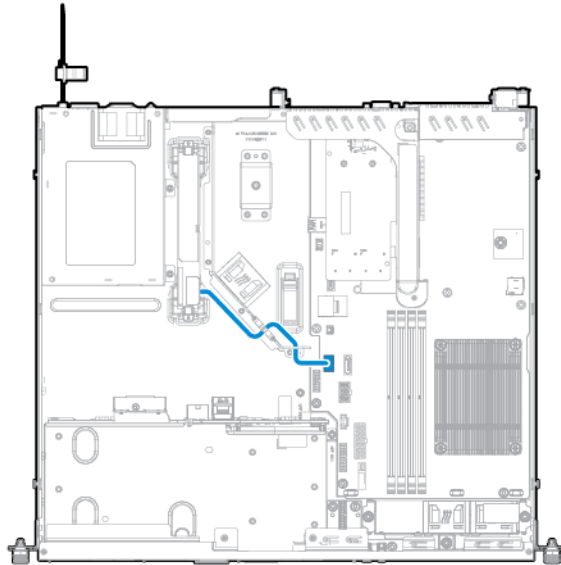
FBWC cabling

The FBWC solution is a separately purchased option. This server only supports FBWC module installation when a Smart Array P-Series controller is installed.

Depending on the controller option installed, the actual storage controller connectors might look different from what is shown in this section.

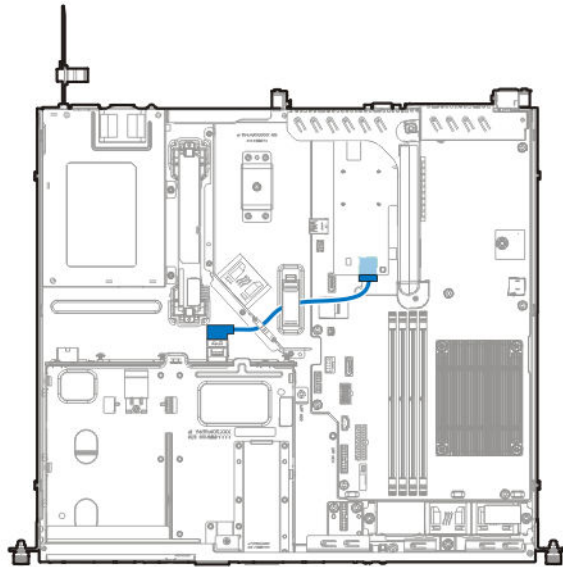


Smart Storage Battery cabling

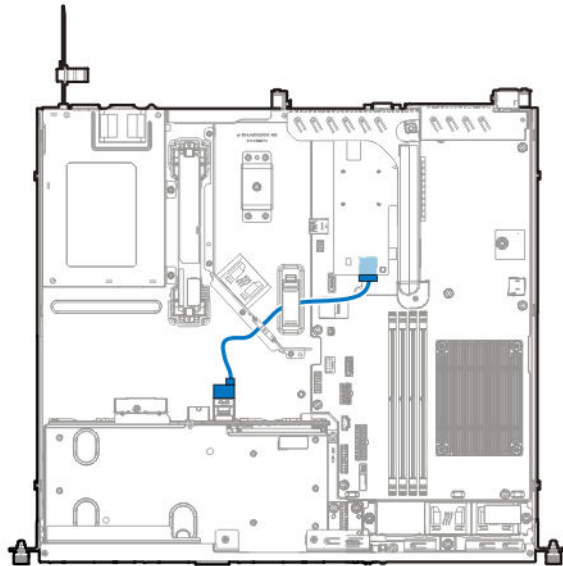


H240 Hot Bust Adapter cabling

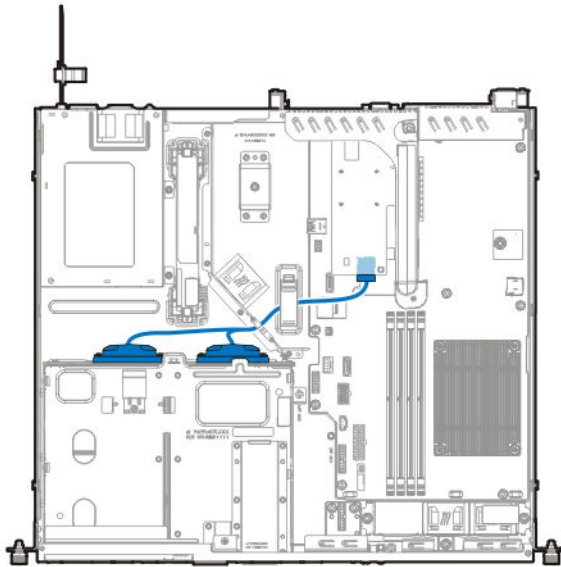
- Two-bay LFF hot-plug configuration



- Four-bay SFF hot-plug configuration

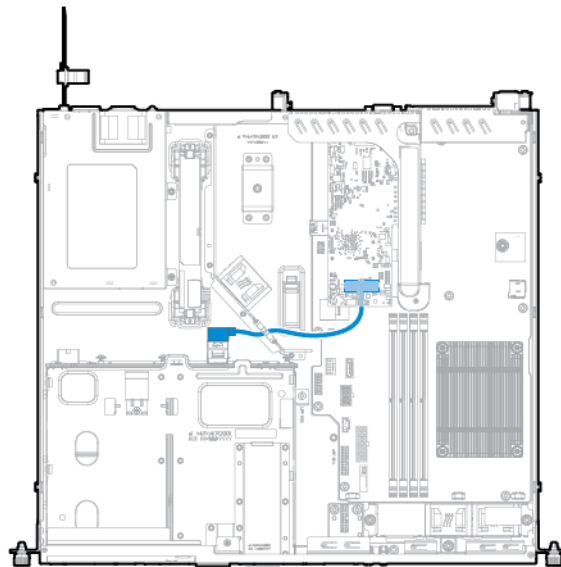


- Two-bay LFF non-hot-plug configuration

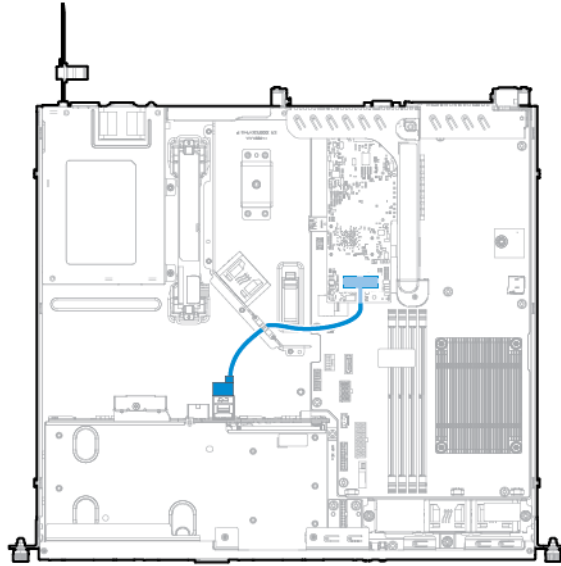


P440 Smart Array Controller cabling

- Two-bay LFF hot-plug drive configuration

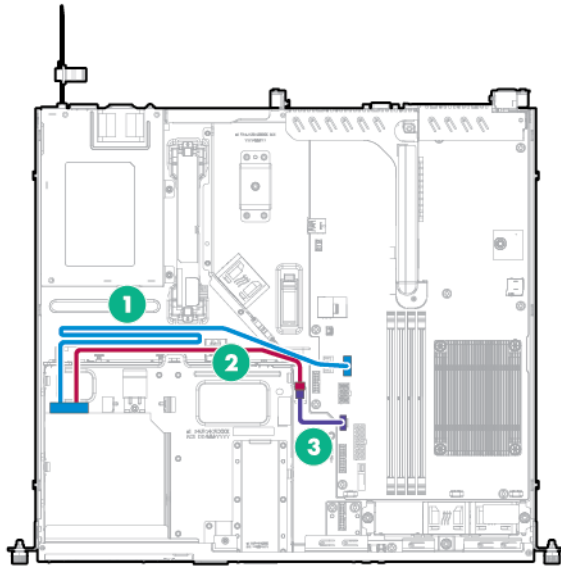


- Four-bay SFF hot-plug drive configuration

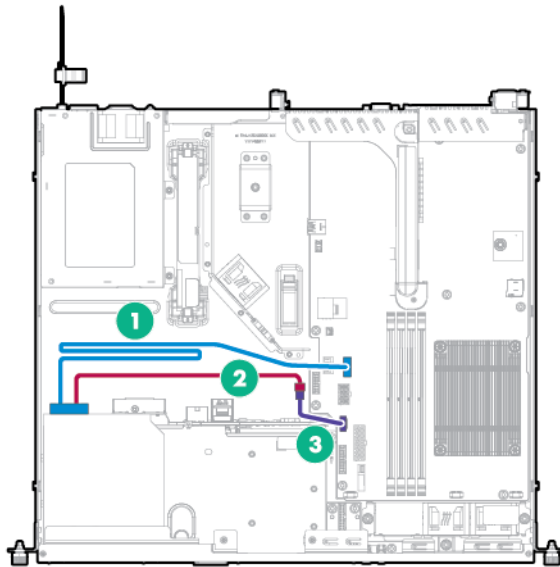


Optical drive cabling

- Two-bay LFF configuration

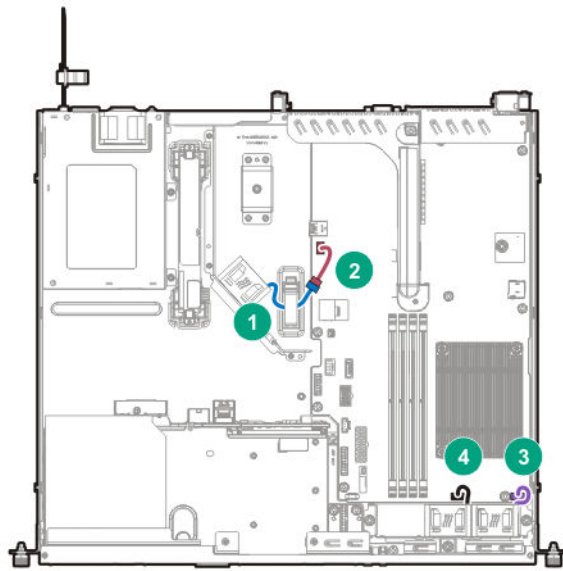


- Four-bay SFF configuration



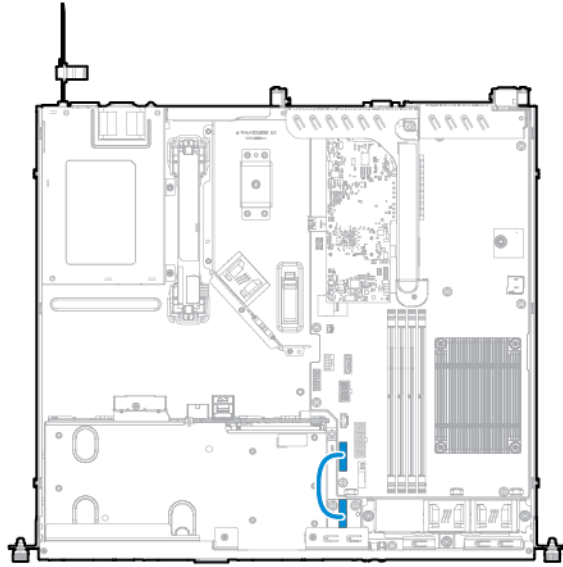
| Item | Description |
|------|--------------------------------------|
| 1 | SATA cable |
| 2 | Power cable |
| 3 | 4-pin to 4-pin power extension cable |

Fan cabling



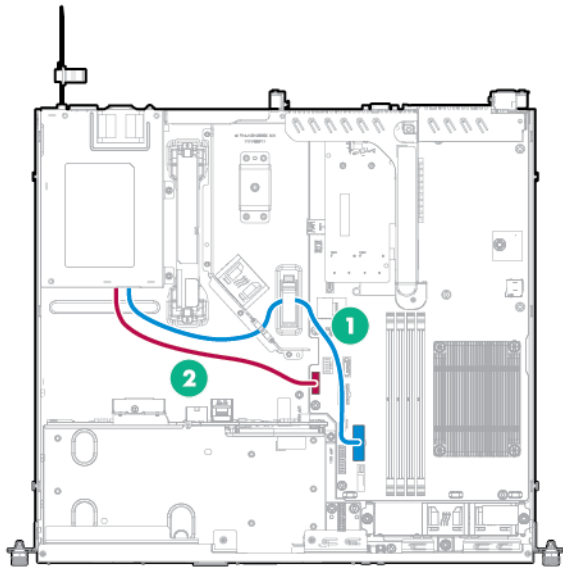
| Item | Description |
|------|-----------------------------|
| 1 | Fan 3 power cable |
| 2 | Fan 3 power extension cable |
| 3 | Fan 2 power cable |
| 4 | Fan 1 power cable |

Front I/O cabling



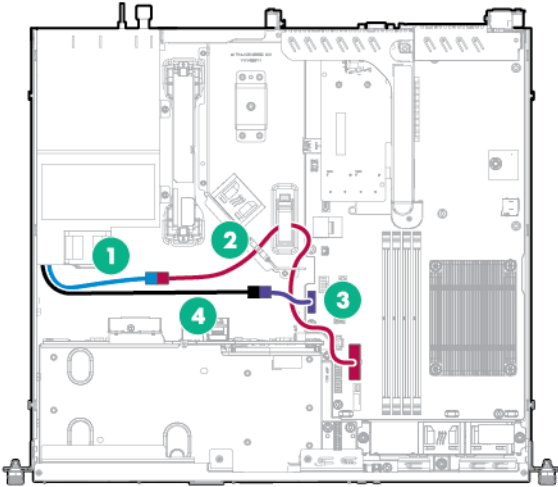
Power supply cabling

HPE 290W non-hot-plug power supply cabling



| Item | Description |
|------|---|
| 1 | 14-pin power cable |
| 2 | 16-pin power supply sideband signal cable |

Redundant power supply backplane cabling



| Item | Description |
|------|---|
| 1 | 24-pin power cable |
| 2 | 24-pin to 14-pin power extension cable |
| 3 | Power supply sideband extension cable |
| 4 | 16-pin power supply sideband signal cable |

Specifications

Environmental specifications

| Specification | Value |
|--|------------------------------------|
| Temperature range* | |
| Operating | 0° C to 40° C (32° F to 104° F) |
| Nonoperating | -30° C to 65° C (-22° F to 149° F) |
| Relative humidity (noncondensing) | |
| Operating, maximum wet bulb temperature of 28°C (82.4°F) | 10% to 90% |
| Nonoperating, maximum wet bulb temperature of 38.7°C (101.7°F) | 5% to 95% |

* All temperature ratings shown are for sea level. An altitude derating of 1.0° per 304.8 m (1.8°F per 1000 ft) to 3048 m (10,000 ft) is applicable. No direct sunlight allowed.

Mechanical specifications

| Specification | Value |
|--|---------------------|
| Height | 4.32 cm (1.70 in) |
| Depth | 38.22 cm (15.05 in) |
| Width | 43.46 cm (17.11 in) |
| Weight (full load, approximate values) | — |
| Maximum | 8.7 kg (19.14 lb) |
| Minimum | 6.9 kg (15.09 lb) |

Power supply specifications

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

- HPE DL20 Gen9 290W Non-hot Plug Power Supply
- HPE 900-W AC 240VDC Power Input Module (PN 775595-B21)

This is supported when the two-bay HPE 900-W AC 240VDC RPS Power Backplane option (PN 814835-B21) is installed.

These are Entry Level Power Supply products for ProLiant servers. For more information about the power supply features, specifications, and compatibility, see the [Hewlett Packard Enterprise website](#).

CAUTION:

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

Hot-plug power supply calculations

For hot-plug power supply specifications and calculators to determine electrical and heat loading for the server, see the [**Hewlett Packard Enterprise Power Advisor website**](#).

Support and other resources

Accessing Hewlett Packard Enterprise Support

- For live assistance, go to the Contact Hewlett Packard Enterprise Worldwide website:
<http://www.hpe.com/assistance>
- To access documentation and support services, go to the Hewlett Packard Enterprise Support Center website:
<http://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

www.hpe.com/support/hpesc

Hewlett Packard Enterprise Support Center: Software downloads

www.hpe.com/support/downloads

Software Depot

www.hpe.com/support/softwaredepot

- To subscribe to eNewsletters and alerts:
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:
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.

Customer self repair

Hewlett Packard Enterprise customer self repair (CSR) programs allow you to repair your product. If a CSR part needs to be replaced, it will be shipped directly to you so that you can install it at your convenience.

Some parts do not qualify for CSR. Your Hewlett Packard Enterprise authorized service provider will determine whether a repair can be accomplished by CSR.

For more information about CSR, contact your local service provider or go to the CSR website:

<http://www.hpe.com/support/selfrepair>

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

www.hpe.com/services/getconnected

HPE Proactive Care services

www.hpe.com/services/proactivecare

HPE Proactive Care service: Supported products list

www.hpe.com/services/proactivecaresupportedproducts

HPE Proactive Care advanced service: Supported products list

www.hpe.com/services/proactivecareadvancedsupportedproducts

Proactive Care customer information

Proactive Care central

www.hpe.com/services/proactivecarecentral

Proactive Care service activation

www.hpe.com/services/proactivecarecentralgetstarted

Websites

General websites

Hewlett Packard Enterprise Information Library

www.hpe.com/info/EIL

Single Point of Connectivity Knowledge (SPOCK) Storage compatibility matrix

www.hpe.com/storage/spock

Storage white papers and analyst reports

www.hpe.com/storage/whitepapers

For additional websites, see [Support and other resources](#).

Documentation feedback

Hewlett Packard Enterprise is committed to providing documentation that meets your needs. To help us improve the documentation, send any errors, suggestions, or comments to Documentation Feedback (docsfeedback@hpe.com). When submitting your feedback, include the document title, part number, edition, and publication date located on the front cover of the document. For online help content, include the product name, product version, help edition, and publication date located on the legal notices page.

Acronyms and abbreviations

ABEND

abnormal end

ACU

Array Configuration Utility

AMP

Advanced Memory Protection

API

application program interface

ASHRAE

American Society of Heating, Refrigerating and Air-Conditioning Engineers

ASR

Automatic Server Recovery

AWG

American wire gauge

CAS

column address strobe

CSA

Canadian Standards Association

CSR

Customer Self Repair

DDR3

double data rate-3

DDR4

double data rate-4

FAT

file allocation table

FBWC

flash-backed write cache

HBA

host bus adapter

HPE SIM

HPE Systems Insight Manager

HPE SSA

HPE Smart Storage Administrator

IEC

International Electrotechnical Commission

iLO

Integrated Lights-Out

IML

Integrated Management Log

ISO

International Organization for Standardization

JBOD

just a bunch of disks

JSON

JavaScript Object Notation

LFF

large form factor

LOM

Lights-Out Management

LRDIMM

load reduced dual in-line memory module

NAND

Not AND

NMI

nonmaskable interrupt

NVDIMM

non-volatile dual in-line memory module

NVRAM

nonvolatile memory

OA

Onboard Administrator

PCIe

Peripheral Component Interconnect Express

PDU

power distribution unit

POST

Power-On Self-Test

QR code

quick response code

RBSU

ROM-Based Setup Utility

RDIMM

registered dual in-line memory module

REST

representational state transfer

RoHS

Restriction of Hazardous Substances

SAS

serial attached SCSI

SATA

serial ATA

SD

Secure Digital

SELV

separated extra low voltage

SFF

small form factor

SPP

Service Pack for ProLiant

SSD

solid-state device

STD

standard (DIMM voltage)

TMRA

recommended ambient operating temperature

TNV

telephone network voltage

TPM

Trusted Platform Module

UEFI

Unified Extensible Firmware Interface

UID

unit identification

VC

Virtual Connect

VCA

Version Control Agent

VCRM

Version Control Repository Manager