Hewlett Packard Enterprise

HPE Apollo 2000 Gen10 Chassis Maintenance and Service Guide

Abstract

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

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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**.
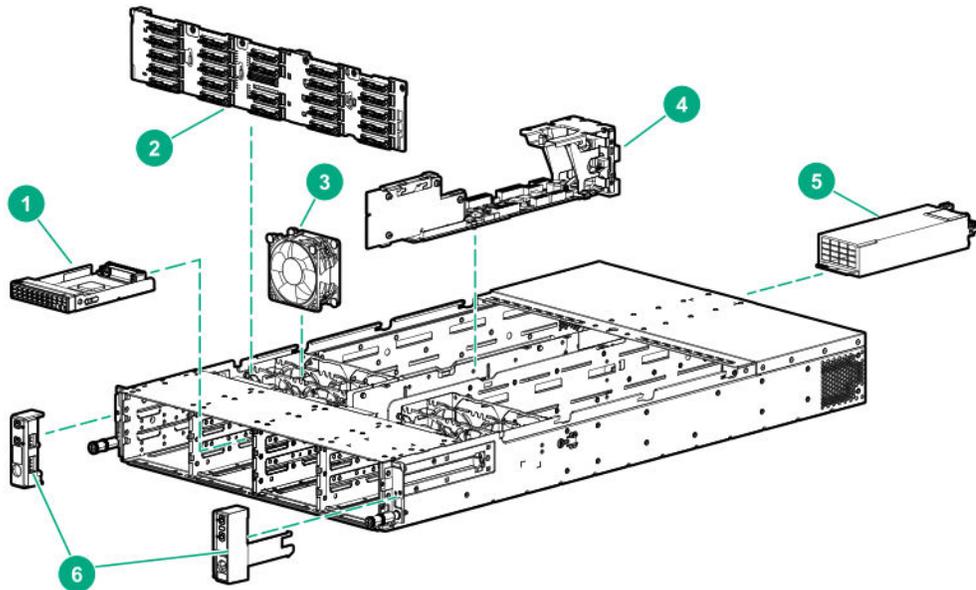
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[1] Not shown

SAS expander module spare part

Customer self repair on page 11: **Optional**

Description	Spare part number
SAS expander module	879843-001

Drive backplane spare parts

Customer self repair on page 11: **Optional**

Description	Spare part number
12 LFF drive backplane	879837-001
16 NVMe drive backplane	879841-001
16 SFF + 8 NVMe drive backplane	879839-001
24 SFF drive backplane	879842-001

Fan spare parts

Customer self repair on page 11: **Optional**

Description	Spare part number
Fan for fan bays 1 to 8	879832-001
Dual-rotor fan 9–10 for the 1800 W–2200 W power supply	882107-001

PDB assembly spare part

Customer self repair on page 11: **Optional**

Description	Spare part number
PDB assembly – Includes the RPS link, power distribution, and PDB pass-through boards	879834-001

Flexible Slot power supply spare parts

Customer self repair on page 11: **Mandatory**

Description	Spare part number
HPE 800 W Flex Slot Platinum Hot-plug Low Halogen Power Supply	866730-001
HPE 800 W Flex Slot Universal Hot-plug Low Halogen Power Supply	866727-001
HPE 800 W Flex Slot -48VDC Hot-plug Low Halogen Power Supply	866728-001
HPE 1600 W Flex Slot Platinum Plus Hot-plug Low Halogen Power Supply	863373-001
HPE 1800 W–2200 W Flex Slot Platinum Hot-plug Power Supply	882135-001

Chassis ear assembly spare parts

Customer self repair on page 11: **Optional**

Chassis ear assemblies for the Apollo r2200 Gen10 Chassis[1]

Description	Spare part number
Right ear	879826-001
Left ear	879827-001

Chassis ear assemblies for the Apollo r2600 Gen10 Chassis[1]

Description	Spare part number
Right ear	879828-001
Left ear	879829-001

Chassis ear assemblies for the Apollo r2800 Gen10 Chassis[1]

Description	Spare part number
Right ear	879830-001
Left ear	879831-001

[1]The chassis ear assembly spare includes the front I/O cable.

System cable spare parts

Customer self repair on page 11: **Optional**

Description	Spare part number
Apollo 2000 System cable kit, includes: • Power cables for hot-plug drives • Power cable for servers 3 and 4 • Fan power cable assembly for fans 1, 2, 5, and 6 • Fan power cable assembly for fans 3, 4, 7, and 8	879835-001
Fan power cable assembly for fans 9 and 10	882172-001
Power cable for servers 1 and 2 in the Apollo r2200 Gen10 Chassis	879836-001
Apollo r2600 Gen10 Chassis/Apollo r2800 Gen10 Chassis power cable and server NVMe cable kit includes: • Power cable for servers 1 and 2 in the Apollo r2600 Gen10 Chassis/Apollo r2800 Gen10 Chassis • 1U server NVMe cable • 2U server NVMe cable	879840-001
PDB pass-through board cable	P01291-001
RCM FFC (flexible flat cable)	P01292-001

Server options

Hewlett Packard Enterprise continually improves and changes product parts. For complete and current supported parts information, see the **Hewlett Packard Enterprise PartSurfer website**.
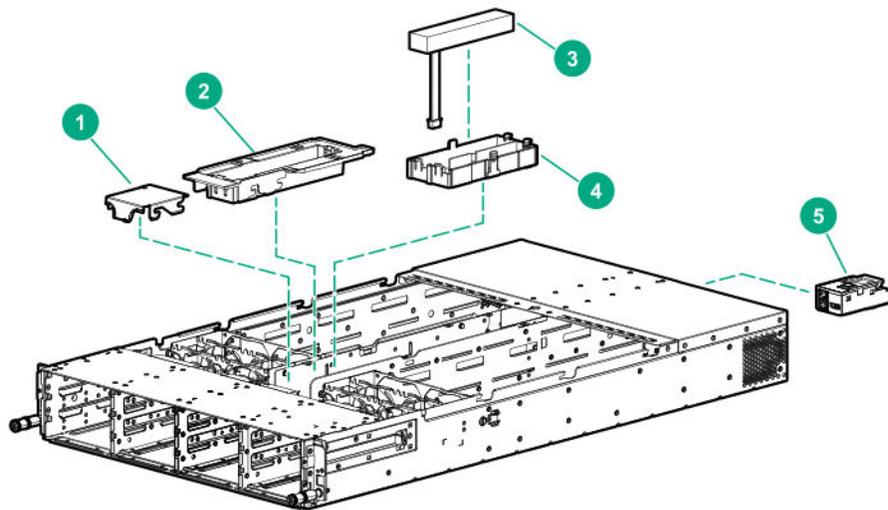
Item	Description
1	**PDB cover spare part**
2	**Energy pack holder for a chassis using the 1800 W-2200 W power supply**
3	**Energy pack spare part** on page 9
4	**Energy pack holder for a chassis using an 800 W or 1600 W power supply**
5	**RCM module spare part** on page 9

PDB cover and energy pack holder spare parts

Customer self repair on page 11: **Mandatory**

Description	Spare part number
• PDB cover • Energy pack holder for a chassis using an 800 W or 1600 W power supply	P05648-001
Energy pack holder for a chassis using the 1800 W–2200 W power supply	P10258-001

Energy pack spare part

Customer self repair on page 11: **Mandatory**

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

RCM module spare part

Customer self repair on page 11: **Optional**

Description	Spare part number
RCM module	800361-001

Customer self repair

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

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

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

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

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

For more information about the Hewlett Packard Enterprise CSR program, contact your local service provider. 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 Agrée 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 spedirà direttamente al cliente per la sostituzione. Vi sono due categorie di parti CSR:

- **Obbligatorie**—Parti che devono essere necessariamente riparate dal cliente. Se il cliente ne affida la riparazione ad Hewlett Packard Enterprise, deve sostenere le spese di spedizione e di manodopera per il servizio.

- **Opzionali**—Parti la cui riparazione da parte del cliente è facoltativa. Si tratta comunque di componenti progettati per questo scopo. Se tuttavia il cliente ne richiede la sostituzione ad Hewlett Packard Enterprise, potrebbe dover sostenere spese addizionali a seconda del tipo di garanzia previsto per il prodotto.

NOTA: alcuni componenti Hewlett Packard Enterprise non sono progettati per la riparazione da parte del cliente. Per rispettare la garanzia, Hewlett Packard Enterprise richiede che queste parti siano sostituite da

un centro di assistenza autorizzato. Tali parti sono identificate da un "No" nel Catalogo illustrato dei componenti.

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

Per ulteriori informazioni sul programma CSR di Hewlett Packard Enterprise, contattare il centro di assistenza di zona. 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、届いた時の梱包箱に関連書類とともに入れてください。故障部品を返送しない場合、Hewlett Packard Enterpriseから部品費用が請求されます。カスタマーセルフリペアの際には、Hewlett Packard Enterpriseは送料および部品返送費を全額負担し、使用する宅配便会社や運送会社を指定します。

部品のみ保証サービス

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

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

客户自行维修

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

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

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

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

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

Removal and replacement procedures

Required tools

The following tools might be required to perform some procedures:

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

Safety considerations

Before performing service procedures, review all the safety information.

Electrostatic discharge

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

To prevent electrostatic damage:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:
  ◦ Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm ±10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
  ◦ Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
  ◦ Use conductive field service tools.
  ◦ Use a portable field service kit with a folding static-dissipating work mat.

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

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

Server warnings and cautions

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

- Observe local occupational health and safety requirements and guidelines for manual material handling.

- Get help to lift and stabilize the product during installation or removal, especially when the product is not fastened to the rails. Hewlett Packard Enterprise recommends that a minimum of two people are required for all rack server installations. If the server is installed higher than chest level, a third person may be required to help align the server.

- 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/DC power is removed.

⚠️ **WARNING:** To reduce the risk of fire or burns after removing the energy pack:

- Do not disassemble, crush, or puncture the energy pack.

- Do not short external contacts.

- Do not dispose of the energy pack in fire or water.

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

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

- N'essayez pas de démonter, d'écraser ou de percer le module batterie.

- Ne court-circuitez pas ses contacts externes.

- Ne jetez pas le module batterie dans le feu ou dans l'eau.

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

⚠️ **CAUTION:** Protect the server from power fluctuations and temporary interruptions with a regulating 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 panel open or removed. Operating the server in this manner results in improper airflow and improper cooling that can lead to thermal damage.

Rack warnings

⚠ **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

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

- **Power down the server** on page 23.

- **Remove the front bezel** on page 23.

- **Remove the hot-plug drives**.

- **Remove the RCM module**.

- **Remove the server blank** on page 24.

- **Remove the server** on page 24.

- **Remove the chassis from the rack** on page 25.

- **Remove the access panel** on page 27.

- **Move the fan cages** on page 29

- **Remove the 1800 W–2200 W power supply fan assembly** on page 30

- **Power up the server** on page 31.

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 5.

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

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

Remove the front bezel

Procedure

1. If installed, unlock and remove the bezel lock or Kensington security lock.

   For more information, see the lock documentation.

2. Remove the front bezel.
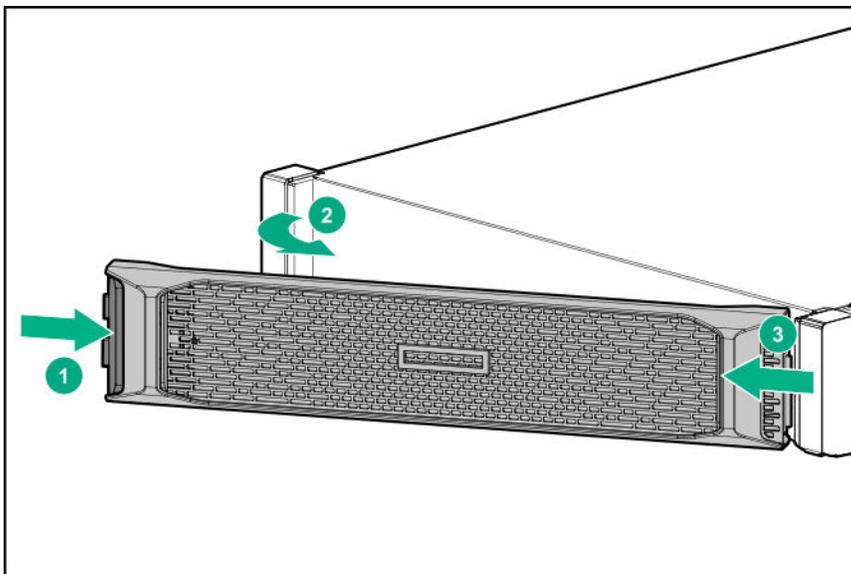
Remove the server blank

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

**△ CAUTION:** To avoid damage to the server or server blank:

- Always support the bottom of the server or server blank when removing it from the chassis.

- Do not use the release lever to carry the server or server blank.

Procedure

1. Loosen the release lever thumbscrew.

2. Open the release lever.

3. Use the release lever to pull the server blank out of the chassis.
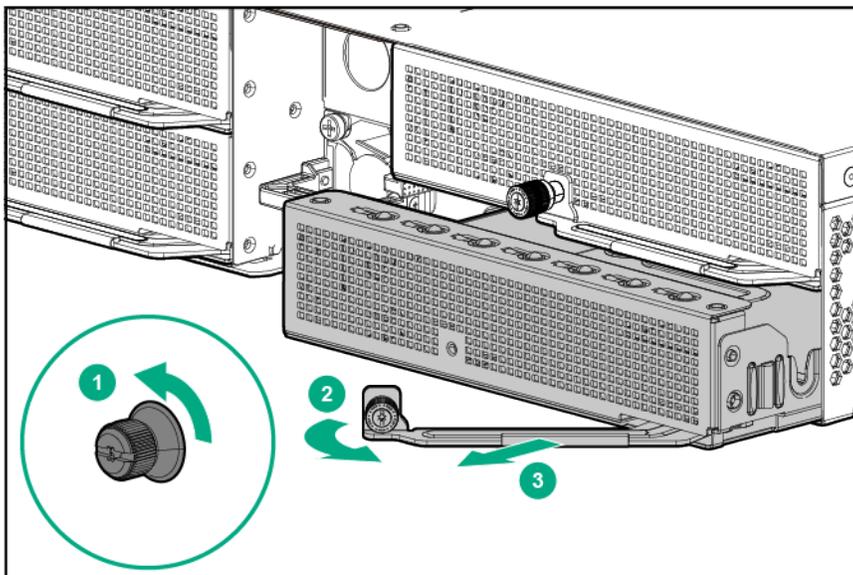
Remove the server

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

△ CAUTION: To avoid damage to the server or server blank:

- Always support the bottom of the server or server blank when removing it from the chassis.

- Do not use the release lever to carry the server or server blank.

Procedure

1. **Power down the server**.

2. Disconnect all peripheral cables from the server.

3. Loosen the release lever thumbscrew.

4. Open the release lever.

5. Use the release lever to pull the server out of the chassis.

- 1U server
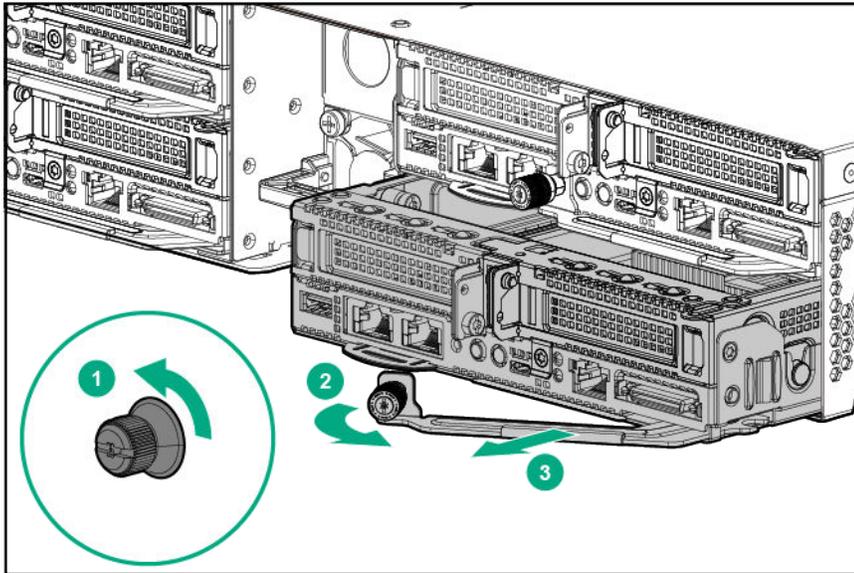

- 2U server
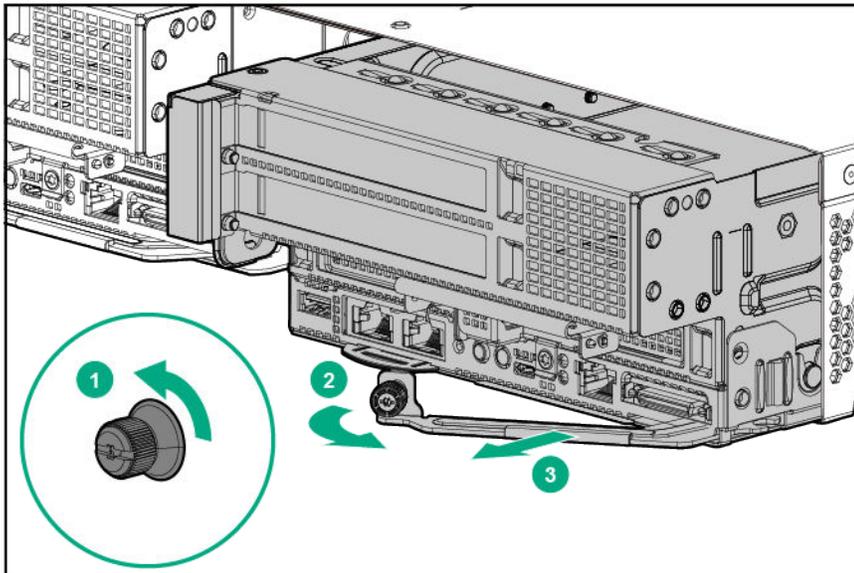
Remove the chassis from the rack

Hewlett Packard Enterprise recommends removing the external chassis components before removing the chassis from the rack as a fully populated chassis is heavy.

Procedure

1. **Power down the servers**.

2. Remove all power:

    a. Disconnect each power cord from the power source.

    b. Disconnect each power cord from the chassis.

3. Disconnect all peripheral cables from the servers and chassis.

4. If installed, **remove the front bezel**.

5. Label the drives before removing them. The drives must be returned to their original location.

6. **Remove the hot-plug drives**.

7. If installed, **remove the RCM module**.

8. **Remove the power supplies**.

9. If installed, **remove the server blanks**.

10. **Remove the servers**.

11. Remove the chassis from the rack:

    a. Loosen the chassis ear thumbscrews.

    b. Pull the thumbscrews to extend the chassis out of the rack until the rack rail lock is engaged.
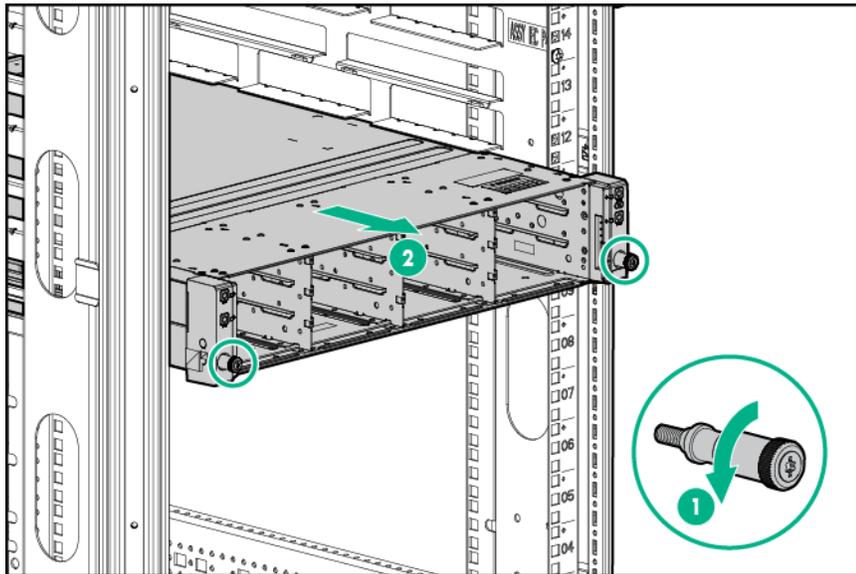
   c. Press the chassis release latches, and then slide the chassis out of the rack.
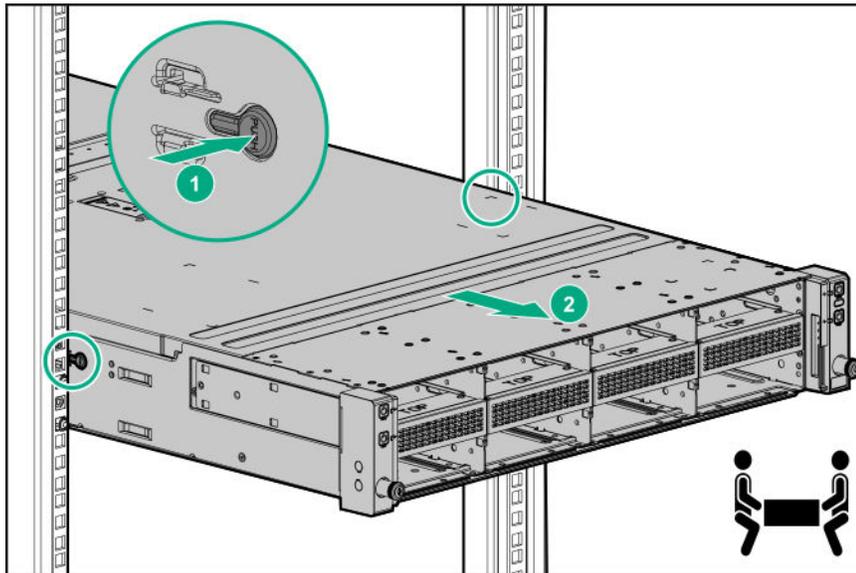
12. Place the chassis on a sturdy, level surface.

Remove the access panel

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

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

Procedure

1. **Power down the servers**.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the chassis.

3. Disconnect all peripheral cables from the servers and chassis.

4. **Remove the servers**.

5. **Remove the chassis from the rack** on page 25.

6. Remove the access panel:

   a. If necessary, use a T-15 Torx screwdriver to unlock the access panel latch.

   b. Press the release button and pull up the latch to disengage the access panel from the chassis.

   c. Lift up the rear side of the access panel to remove the panel from the chassis.
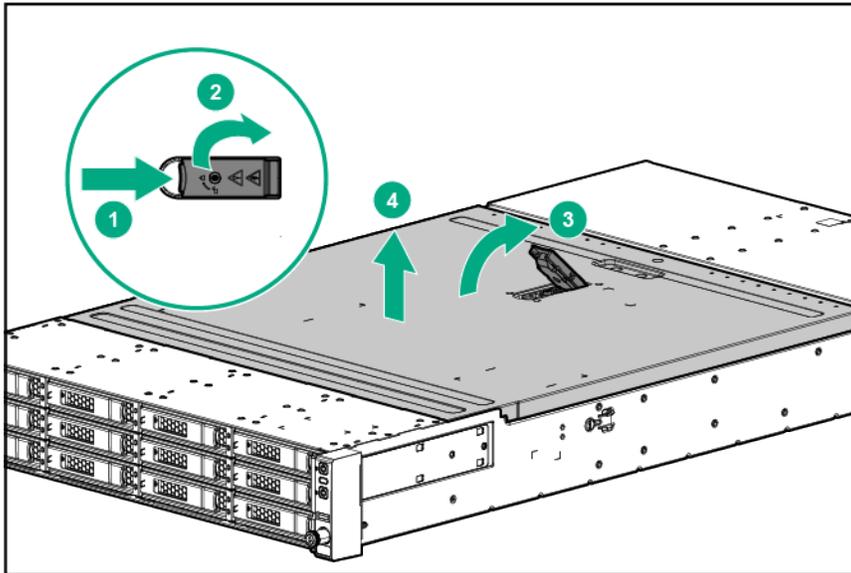
Removing and replacing the PDB cover

Prerequisites

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

Procedure

1. **Power down the servers**.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the chassis.

3. Disconnect all peripheral cables from the servers and chassis.

4. **Remove the servers**.

5. **Remove the chassis from the rack** on page 25.

6. **Remove the access panel** on page 27.

7. Remove the PDB cover.
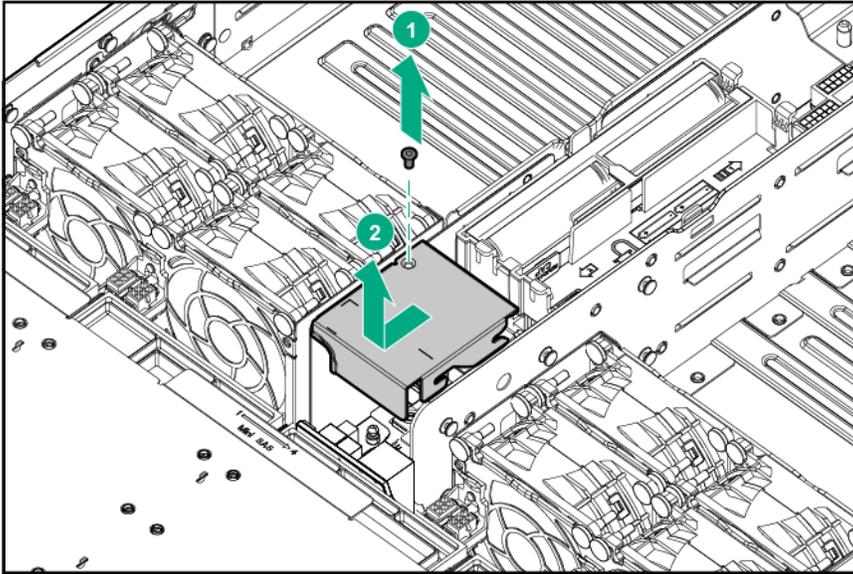
To replace the component, reverse the removal procedure.

Move the fan cages

Procedure

1. **Power down the servers**.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the chassis.

3. Disconnect all peripheral cables from the servers and chassis.

4. **Remove the servers**.

5. **Remove the chassis from the rack** on page 25.

6. **Remove the access panel** on page 27.

7. Move the fan cages away from the drive backplane.
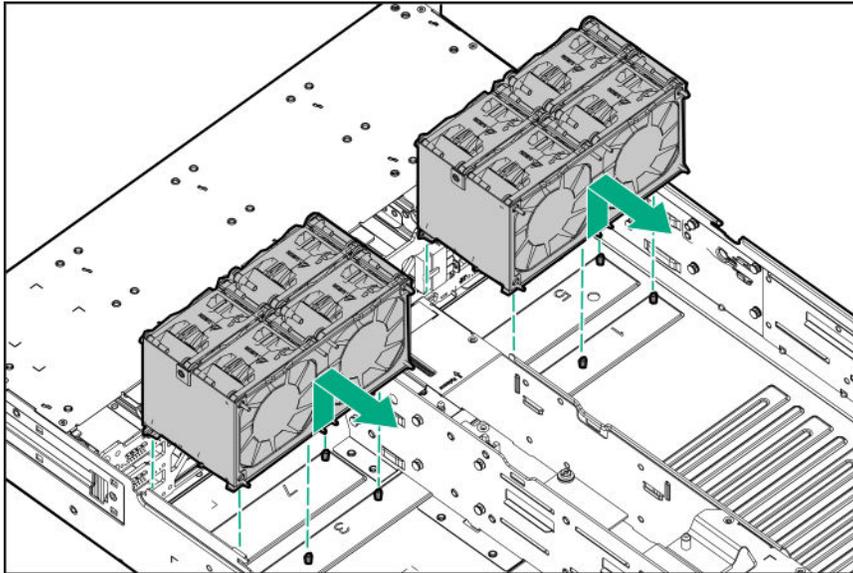
Remove the 1800 W–2200 W power supply fan assembly

Procedure

1. **Power down the servers**.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the chassis.

3. Disconnect all peripheral cables from the servers and chassis.

4. **Remove the servers**.

5. **Remove the chassis from the rack** on page 25.

6. **Remove the access panel** on page 27.

7. Remove the 1800 W–2200 W power supply fan assembly:

   ⚠ **CAUTION:** The latches on the fan holder are flexible. However, to avoid damaging the holder, do not apply too much pressure on these latches when installing or removing the fan assembly from the chassis.

   a. While carefully pressing the latches, pull the fan holder up to disengage it from the chassis.

   b. Disconnect the fan signal cable from the PDB.
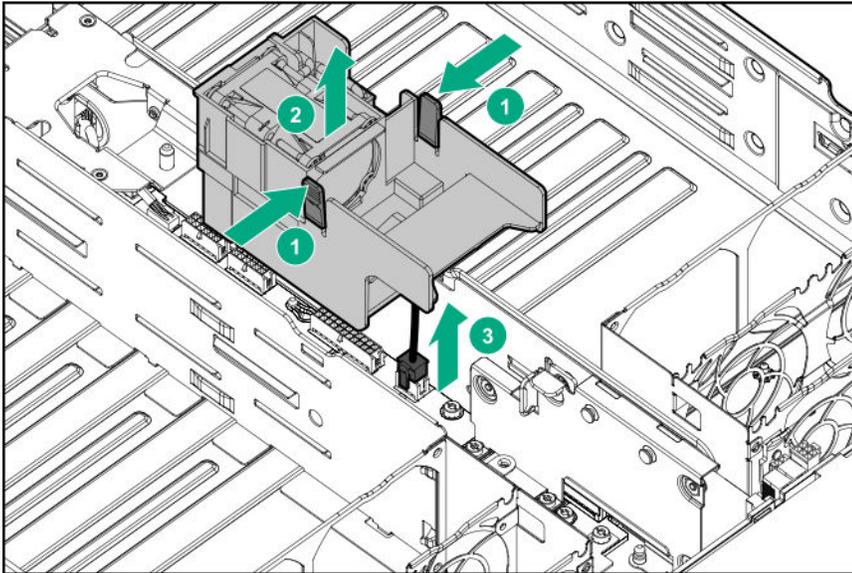
To replace the component, reverse the removal procedure.

Power up the server

The SL/XL chassis firmware initiates an automatic power-up sequence when the servers are installed. If the default setting is changed, use one of the following methods to power up each server:

- Use a virtual power button selection through iLO 5.

- Press and release the Power On/Standby button.

When the server goes from standby mode to full power mode, the server power LED changes from amber to green.

Removing and replacing a hot-plug drive

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

Procedure

1. Back up all server data on the drive.

2. If installed, **remove the front bezel**.

3. **Determine the status of the drive from the drive LED definitions**.

4. To remove an LFF hot-plug drive, do the following:

    a. Press the latch to open the release lever.

    b. Pull the release lever to disengage the drive from the backplane, and then slide the drive out of the bay.
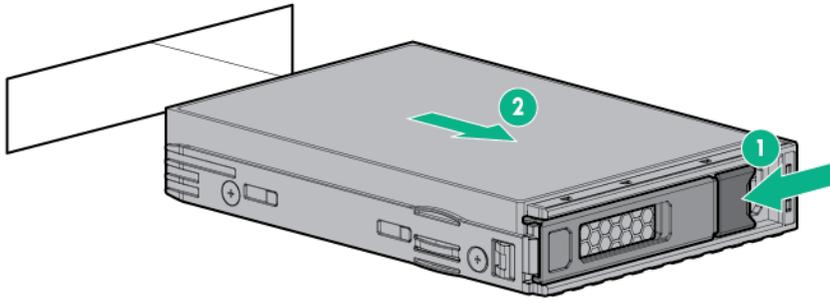
5. To remove an SFF hot-plug drive, do the following:

   a. Press the Do Not Remove button.

   b. Slide the drive out of the bay.
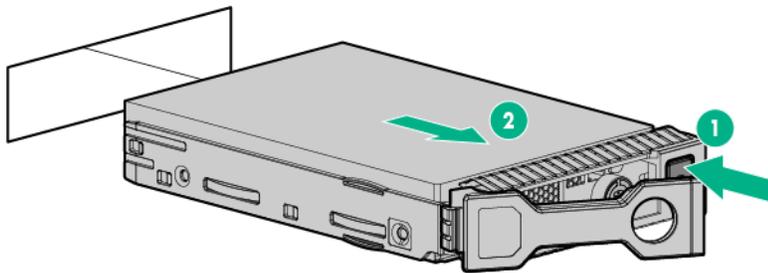
6. To remove an NVMe hot-plug drive, do the following:

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

   a. Press the Power button.

      The Do Not Remove LED flashes white. Wait until the flashing stops and the Do Not Remove button is no longer illuminated.

   b. Press the Do Not Remove button.

   c. Slide the drive out of the bay.
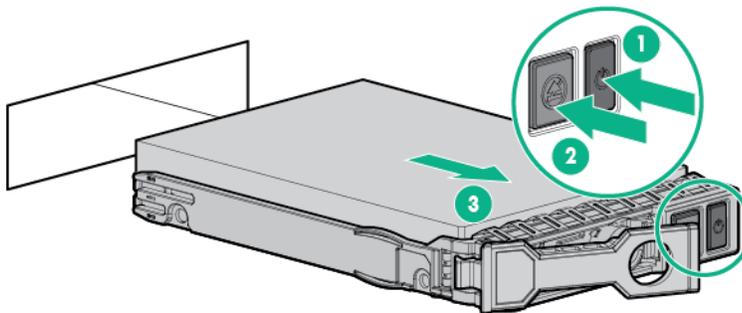

   To replace the component, reverse the removal procedure.

Removing and replacing the SAS expander module

Procedure

1. **Power down the servers**.

2. If installed, **remove the front bezel**.

3. Remove the blanks or drives present above and below the SAS expander module (in the drive bays 12 and 13).

   - Remove the NVMe drive blanks.
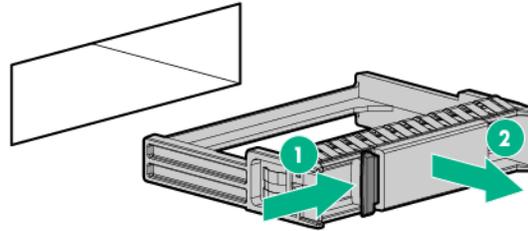
   - **Remove the NVMe drive**.

4. Remove the SAS expander module:

   a. Remove the warning sticker that secures the expander module latch.
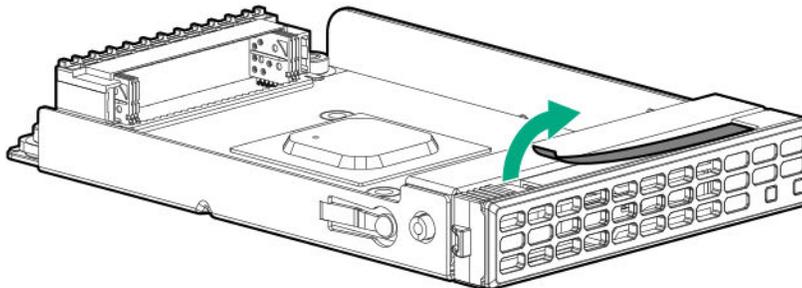
   b. Slide and hold the expander module latch, and then slide the module out of the bay.
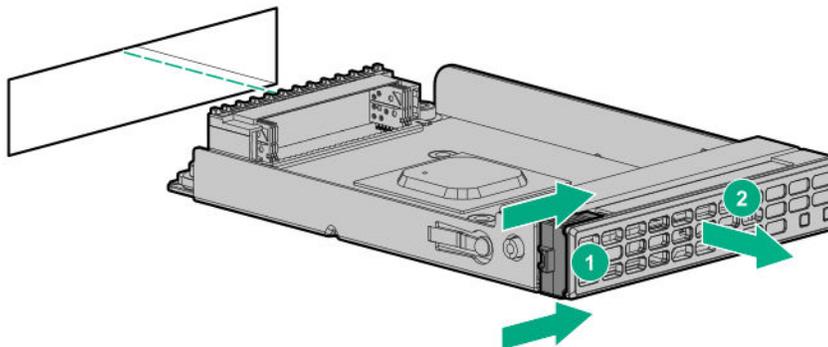

To replace the component, reverse the removal procedure. Make sure that the warning sticker is attached to the new SAS expander module before installing the module in the chassis.

Removing and replacing the RCM module

Procedure

1. <u>**Power down the servers**</u>.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the chassis.

3. Disconnect all cables from the RCM module.

4. Remove the RCM module:

   a. Press and hold the RCM module latch.

   b. Release the power supply strain relief strap from the RCM module latch.

   c. Pull the RCM module away from the power supply handle.
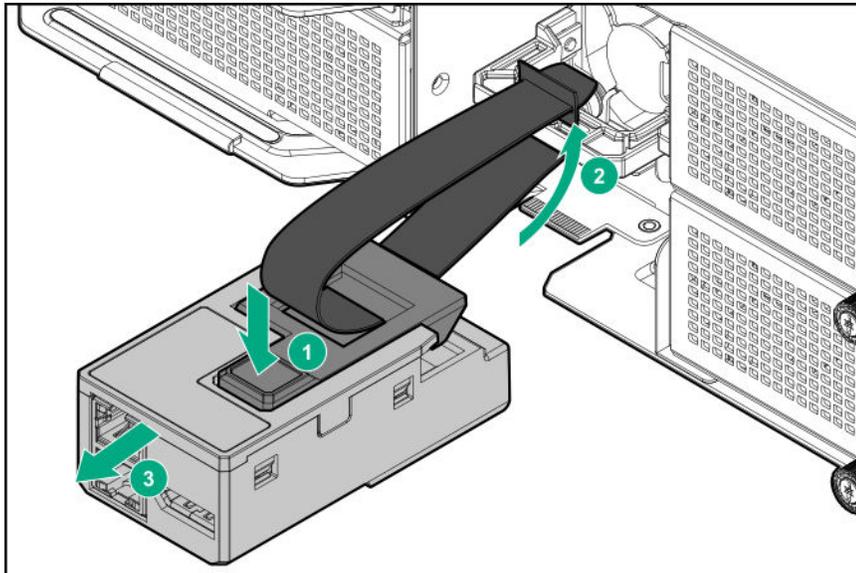
To replace the component, reverse the removal procedure.

Removing and replacing a power supply

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

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

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

- Limit or disable some power supply features including support for power redundancy.
- Cause the system to become unstable and might shut down.

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

Before removing a power supply, note the following information:

- **The location and numbering of the power supply bays**
- Power supply 1 is hot-swappable only if:
  - An RCM module is not installed.
  - Power supply 2 is installed.
- Power supply 2 is hot-swappable only if power supply 1 is installed.

Procedure

1. If only one power supply is operational and it must be removed, or if the RCM module and power supply 1 must be removed, do the following:

   a. **Power down all servers**.

   b. If installed, **remove the RCM module**.

2. Release the power cord, cable, and wires from the strain relief strap.

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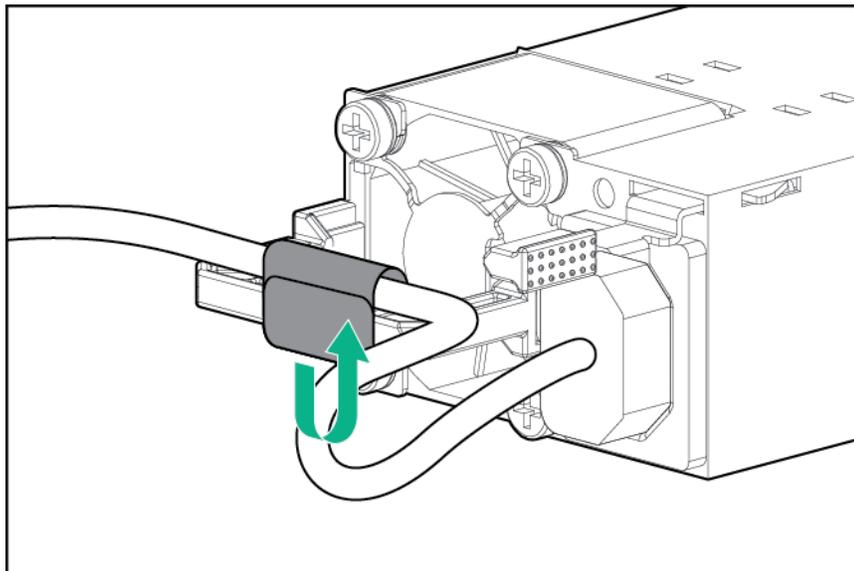
   - DC power supply
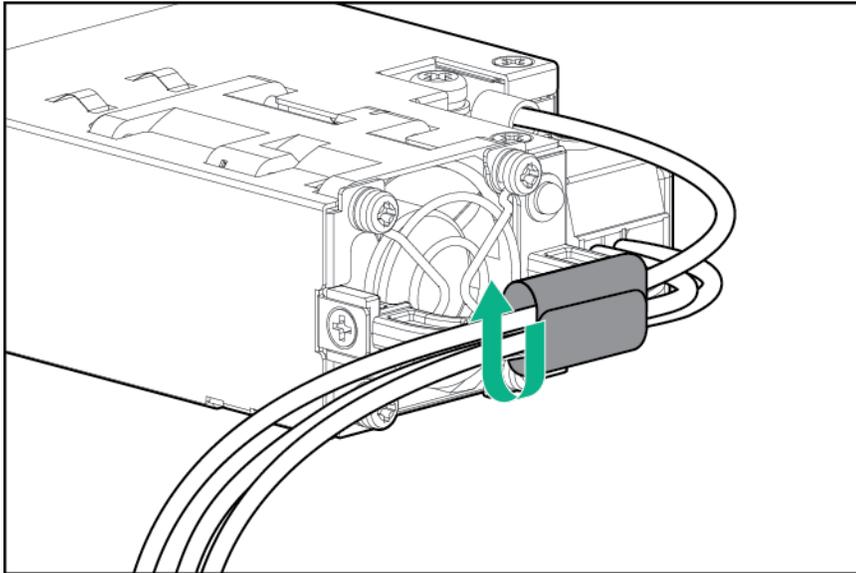
3. For an AC power supply, do the following:

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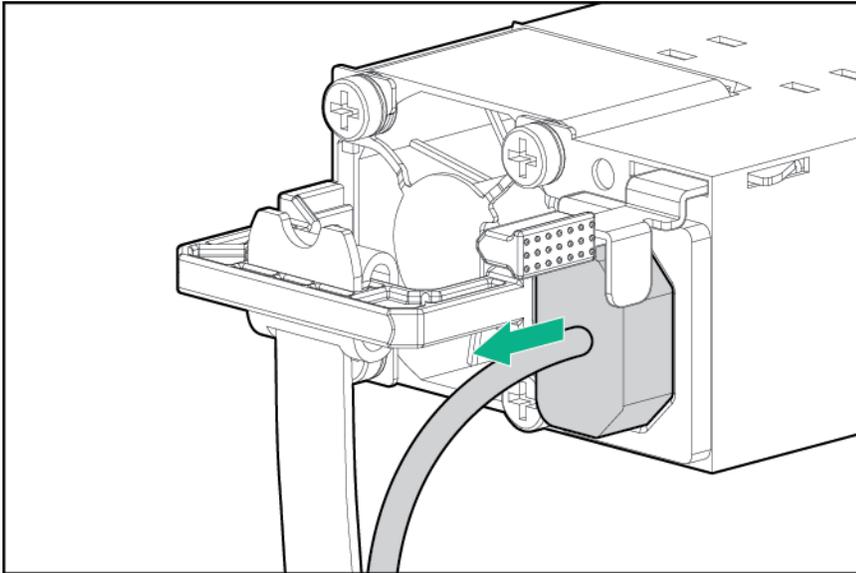
   b. Remove the power supply.
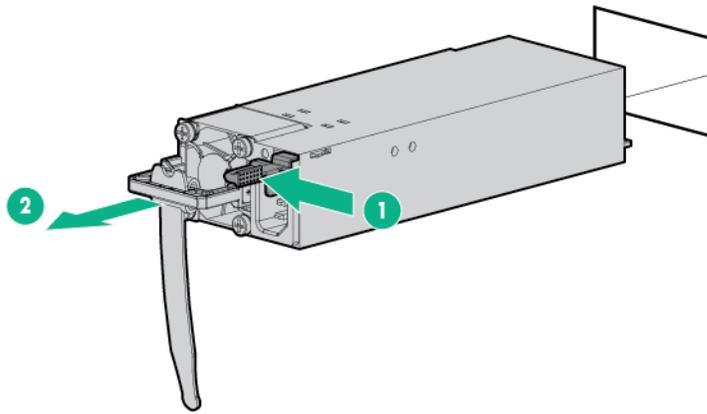
4. For a DC power supply, do the following:

   a. Slide the power supply out of the bay just enough to access the ground cable screw.

   b. Detach the ground (earthed) cable from the power supply.
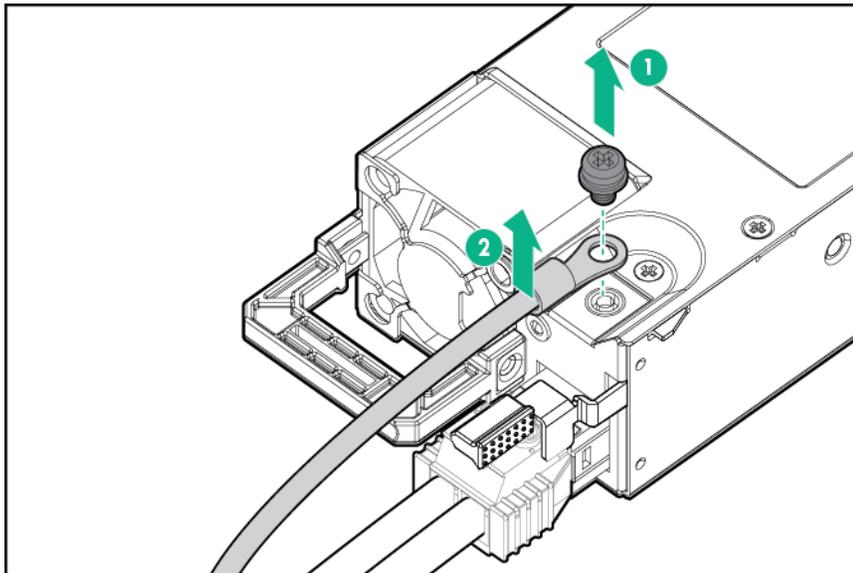
   c. Remove the terminal block connector from the power supply.
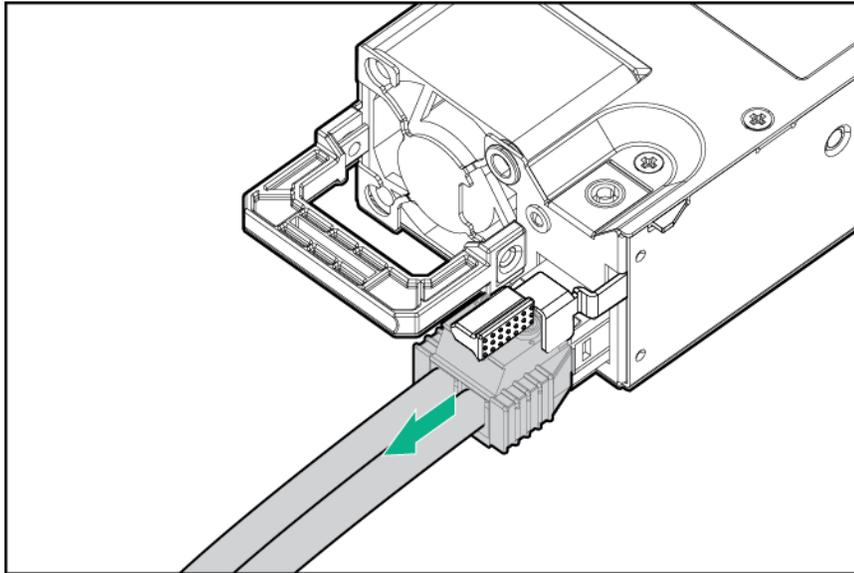
d. Remove the power supply.
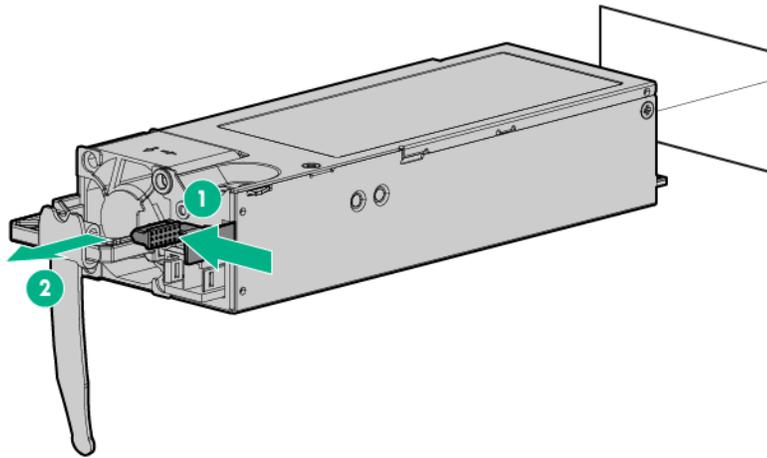
To replace the component, reverse the removal procedure.

Removing and replacing a fan from the fan cage

Procedure

1. **Power down the servers**.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the chassis.

3. Disconnect all peripheral cables from the servers and chassis.

4. **Remove the servers**.

5. **Remove the chassis from the rack** on page 25.

6. **Remove the access panel** on page 27.

7. Remove the fan:

   a. Disconnect the fan signal cable.

   b. Detach the tapes securing the fan signal cable.
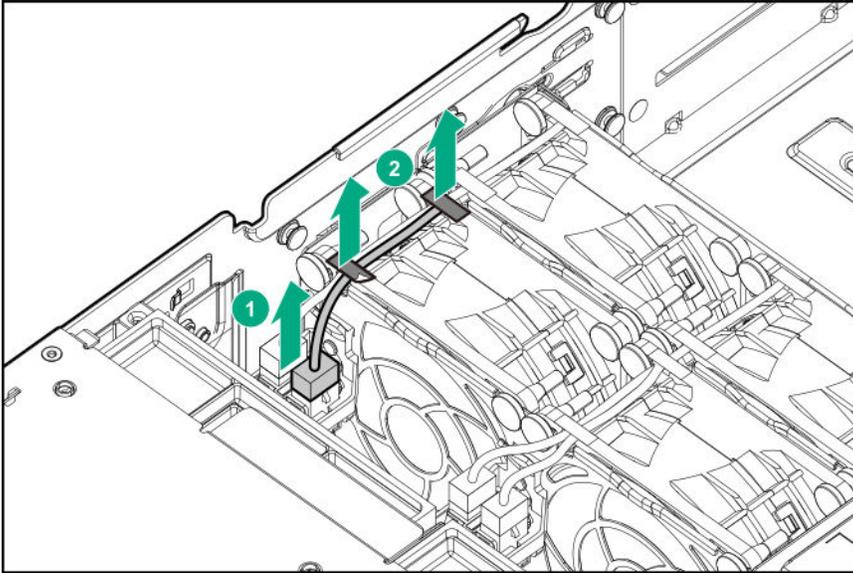
8. Pull the fan out of the cage.
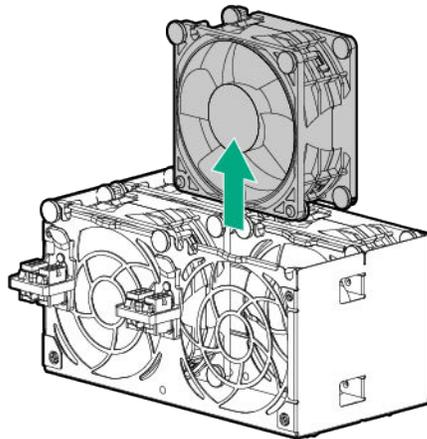
To replace the component, reverse the removal procedure.

Removing and replacing the 1800 W–2200 W power supply dual-rotor fan 9–10

Procedure

1. **Power down the servers**.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the chassis.

3. Disconnect all peripheral cables from the servers and chassis.

4. **Remove the servers**.

5. **Remove the chassis from the rack** on page 25.

6. **Remove the access panel** on page 27.

7. Remove the dual-rotor fan from the holder:

   a. Disconnect the fan signal cable from the connector on the side of the holder.

   b. Pull the fan out of the holder.

To replace the component, reverse the removal procedure.

Removing and replacing the PDB cover

Prerequisites

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

Procedure

1. <u>**Power down the servers**</u>.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the chassis.

3. Disconnect all peripheral cables from the servers and chassis.

4. <u>**Remove the servers**</u>.

5. <u>**Remove the chassis from the rack**</u> on page 25.

6. <u>**Remove the access panel**</u> on page 27.

7. Remove the PDB cover.
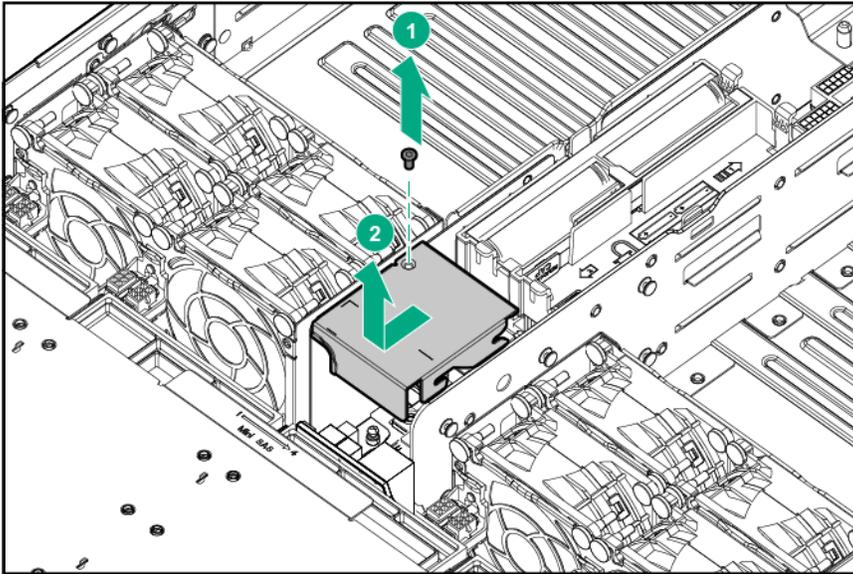
To replace the component, reverse the removal procedure.

Removing and replacing an energy pack or energy pack holder

Prerequisites

When replacing an energy pack in a chassis using the 1800 W–2200 W power supply, make sure that you have a T-10 Torx screwdriver.

Procedure

1. <u>**Power down the servers**</u>.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the chassis.

3. Disconnect all peripheral cables from the servers and chassis.

4. **Remove the servers**.

5. **Remove the chassis from the rack** on page 25.

6. **Remove the access panel** on page 27.

7. **Remove the PDB cover**.

⚠ **CAUTION:** The latches on the energy pack holder are flexible. However, to avoid damaging the holder, do not apply too much pressure on these latches when installing or removing the energy pack from the chassis.

8. To remove the energy pack assembly from a chassis using a 800 W or 1600 W power supply, do the following:

   a. While carefully pressing the latches, pull the energy pack holder up to disengage it from the chassis.

   b. Disconnect the energy pack cable from the PDB.
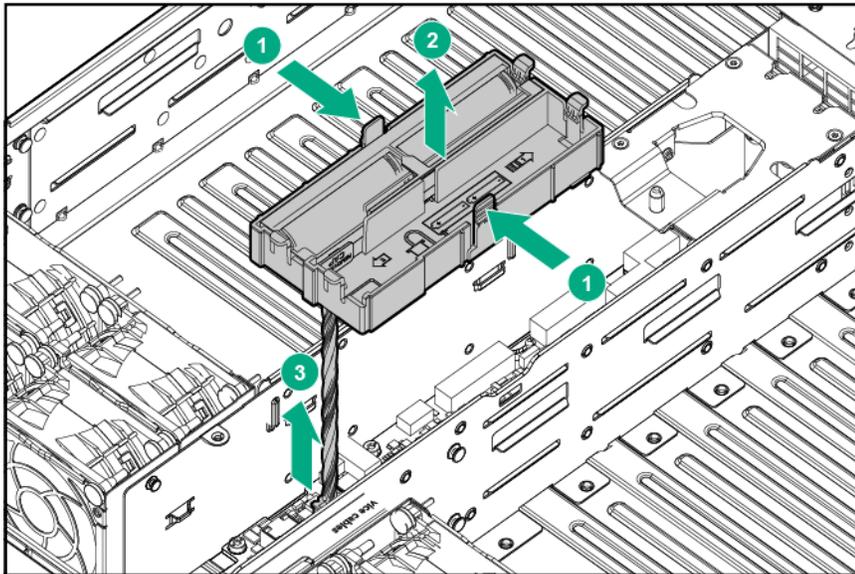
9. To remove the energy pack assembly from a chassis using the 1800 W–2200 W power supply, do the following:

   a. Remove the energy pack holder screw.

   b. Pull the energy pack holder up to disengage it from the chassis.

   c. Disconnect the energy pack cable from the PDB.
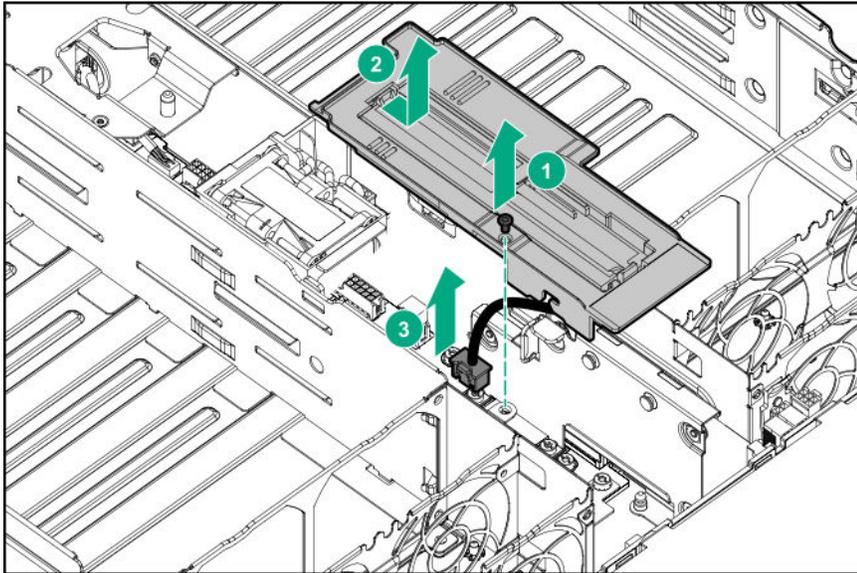
10. Remove the energy pack from the holder.

   - Energy pack removal in a chassis using a 800 W or 1600 W power supply
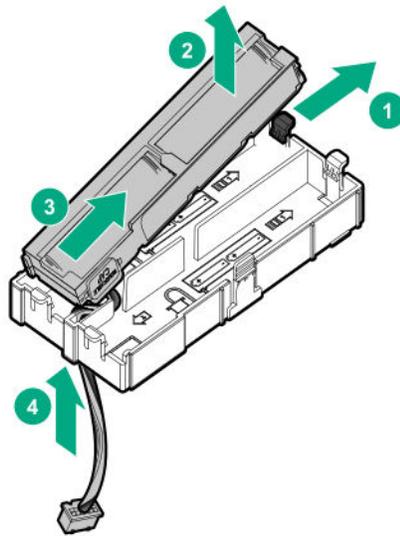
   - Energy pack removal in a chassis using the 1800 W–2200 W power supply
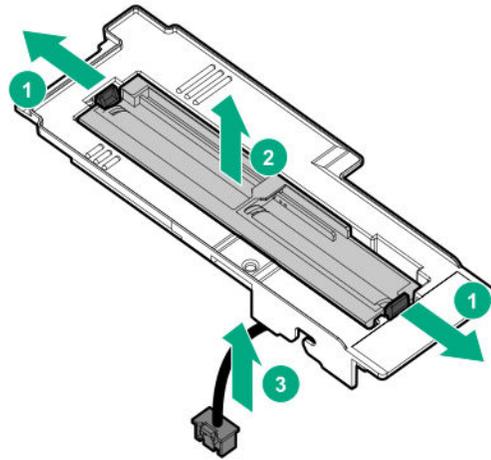
To replace the component, reverse the removal procedure.

Removing and replacing the PDB assembly

△ **CAUTION:** If you are replacing the PDB assembly in an Apollo r2800 Gen10 system that has a customized drive bay mapping set up, take note of this customized configuration. You will reconfigure the drive bay mapping after the installation of the new PDB assembly. For more information, see the *Drive bay mapping* section in the HPE iLO user guide on the Hewlett Packard Enterprise website (**http://www.hpe.com/support/ilo-docs**).

Prerequisites

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

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

Procedure

1. **Power down the servers**.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   **b.** Disconnect each power cord from the chassis.

3. Disconnect all peripheral cables from the servers and chassis.

4. **Remove the servers**.

5. **Remove the chassis from the rack** on page 25.

6. **Remove the access panel** on page 27.

7. **Remove the PDB cover**.

8. If installed, **remove the energy pack assembly**.

9. If installed, **remove the 1800 W–2200 W power supply fan assembly**.

10. Disconnect all cables from the PDB.

11. Push aside the drive backplane cables to locate the RCM FFC connector on the front end of the PDB.

12. Disconnect the RCM FFC from the PDB.
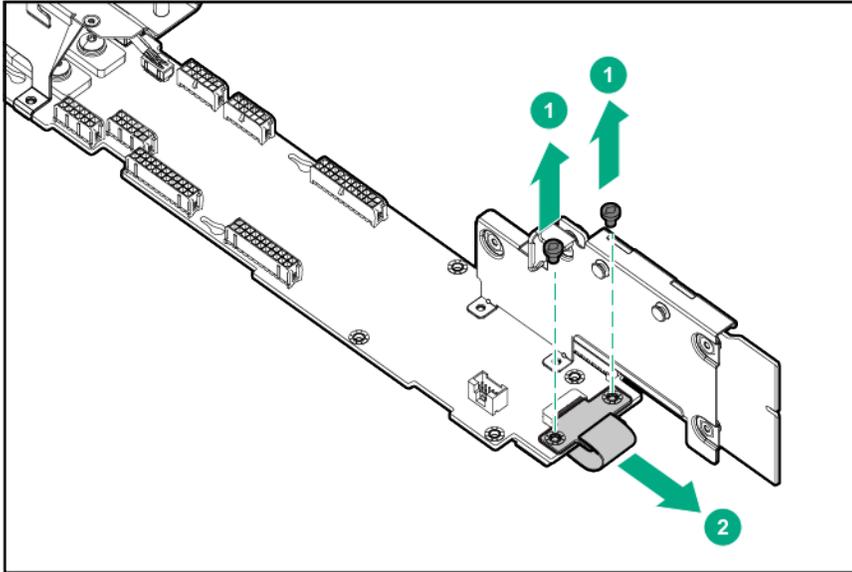
13. Remove the PDB assembly screws.
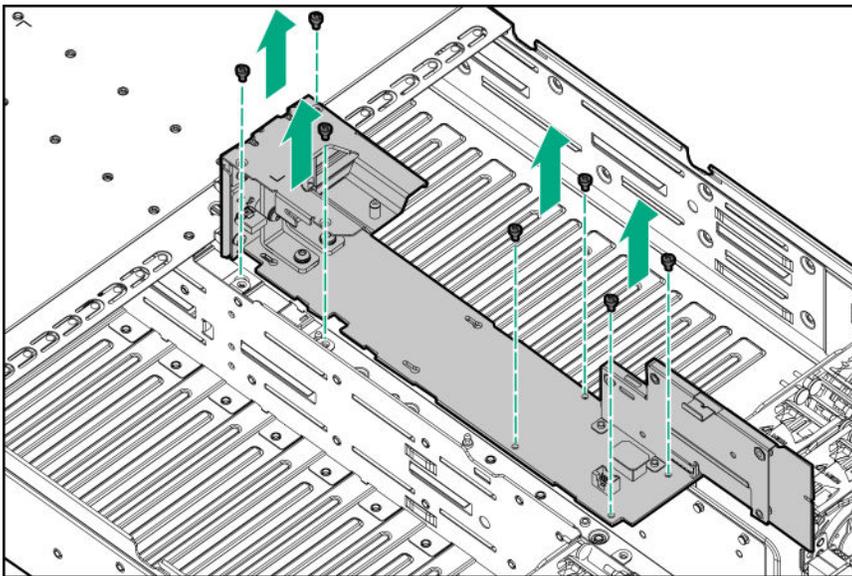
14. Slide the PDB assembly towards the rear of the server to disconnect the RPS link board from the drive backplane, then lift the PDB assembly out of the chassis.
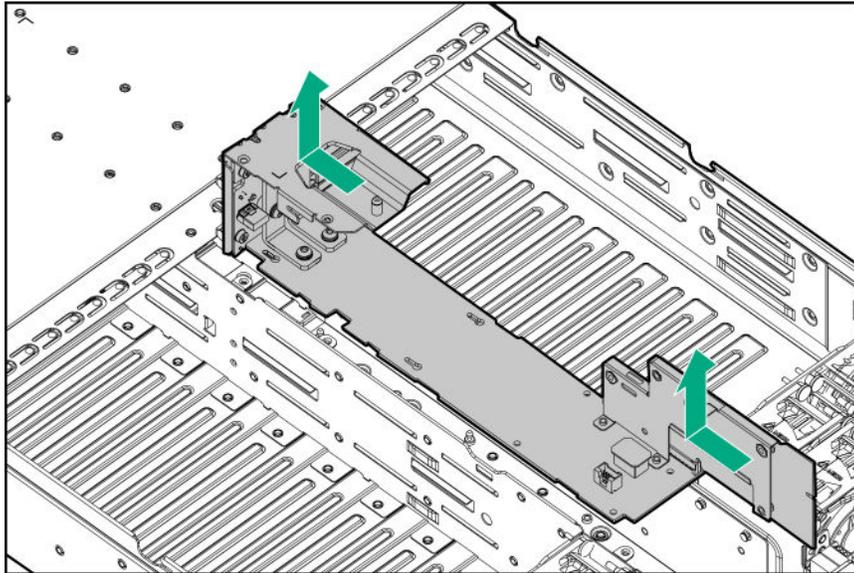
To replace the component, reverse the removal procedure.

Removing and replacing the fan power cable assembly

Procedure

1. **Power down the servers**.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the chassis.

3. Disconnect all peripheral cables from the servers and chassis.

4. **Remove the servers**.

5. **Remove the chassis from the rack** on page 25.

6. **Remove the access panel** on page 27.

7. **Remove the PDB assembly**.

8. **Move the fan cages away from the drive backplane**.

9. While pressing the latch on the fan cage connector, slide the latch up to release it from the pins on the fan cage.

   Repeat this action on the second fan power cable assembly attached to the fan cage.
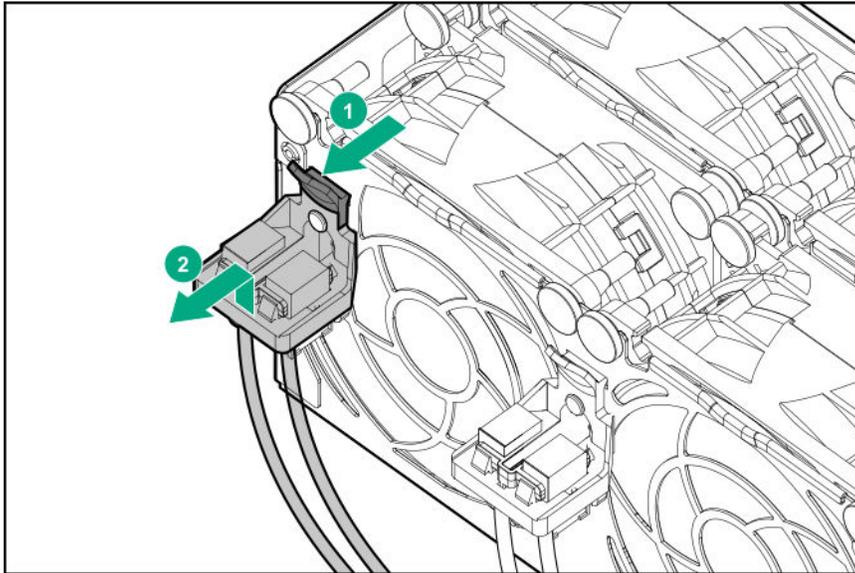
To replace the component, reverse the removal procedure.

Removing and replacing the RCM FFC

Prerequisites

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

Procedure

1. **Power down the servers**.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the chassis.

3. Disconnect all peripheral cables from the servers and chassis.

4. **Remove the servers**.

5. **Remove the chassis from the rack** on page 25.

6. On the rear panel side, remove the RCM FFC screws from the bottom of the chassis.
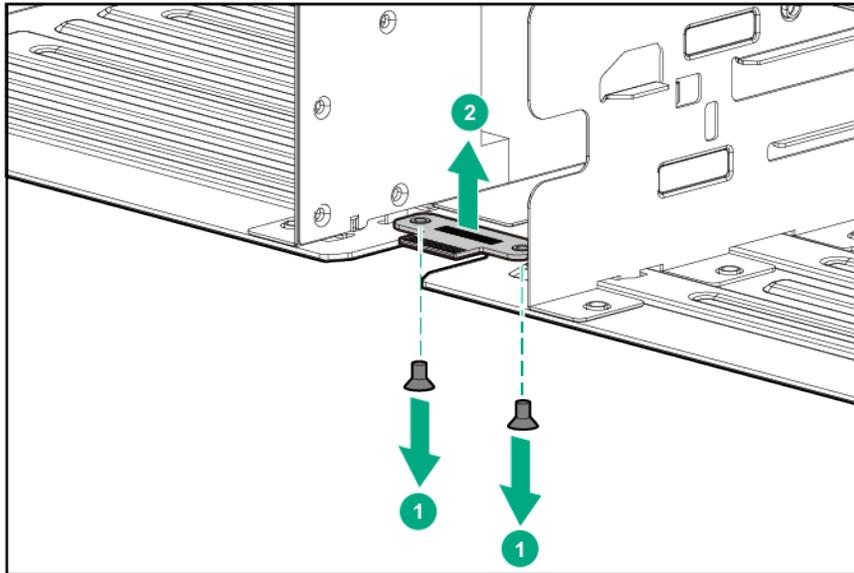
7. **Remove the access panel** on page 27.

8. **Remove the PDB cover**.

9. If installed, **remove the energy pack assembly**.

10. If installed, **remove the 1800 W–2200 W power supply fan assembly**.

11. **Remove the PDB assembly**.

12. Detach and remove the RCM FFC from the chassis.

To replace the component, reverse the removal procedure.

Removing and replacing the chassis ear assembly

Prerequisites

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

Procedure

1. **Power down the servers**.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the chassis.

3. Disconnect all peripheral cables from the servers and chassis.

4. If you are removing the left chassis ear assembly, do the following:

   a. Label the drives before removing them. The drives must be returned to their original locations.

   b. **Remove all the hot-plug drives**.

   c. If installed, **remove the SAS expander module**.

5. If you are removing the right chassis ear assembly, remove the serial number/iLO information pull tab.
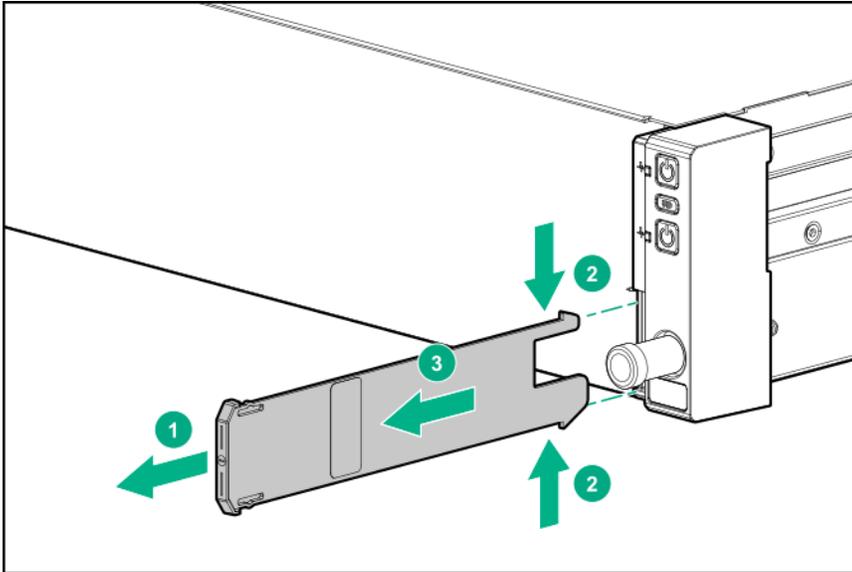
Retain the pull tab for installation in the new right chassis ear assembly spare.

6. **Remove the servers**.

7. **Remove the chassis from the rack** on page 25.

8. **Remove the access panel** on page 27.

9. **Move the fan cages away from the drive backplane**.

10. If you are removing the left chassis ear assembly, do the following:

   a. **Remove the drive backplane**.

   b. If needed, remove the front I/O cable bracket screw, and then release the front I/O cable from underneath the bracket.
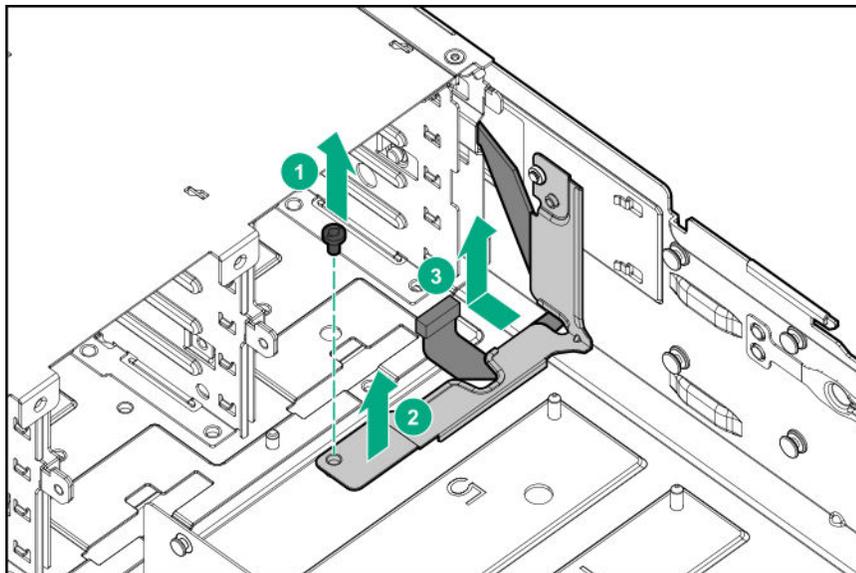
11. If you are removing the right chassis ear assembly, **disconnect the front I/O cable from the drive backplane**.

12. Remove the front I/O cable cover.
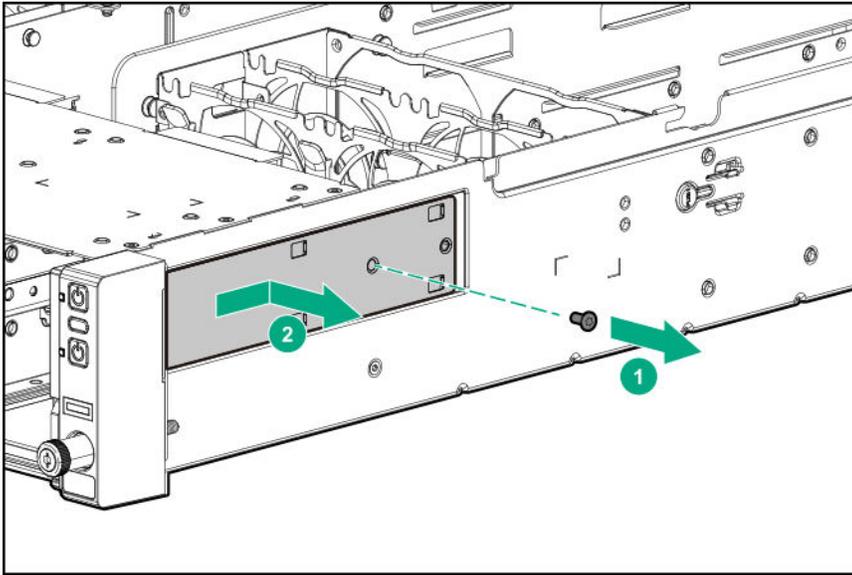
13. Pull the front I/O cable out of the chassis, and then detach the cable from the chassis wall.

14. Remove the chassis ear assembly.
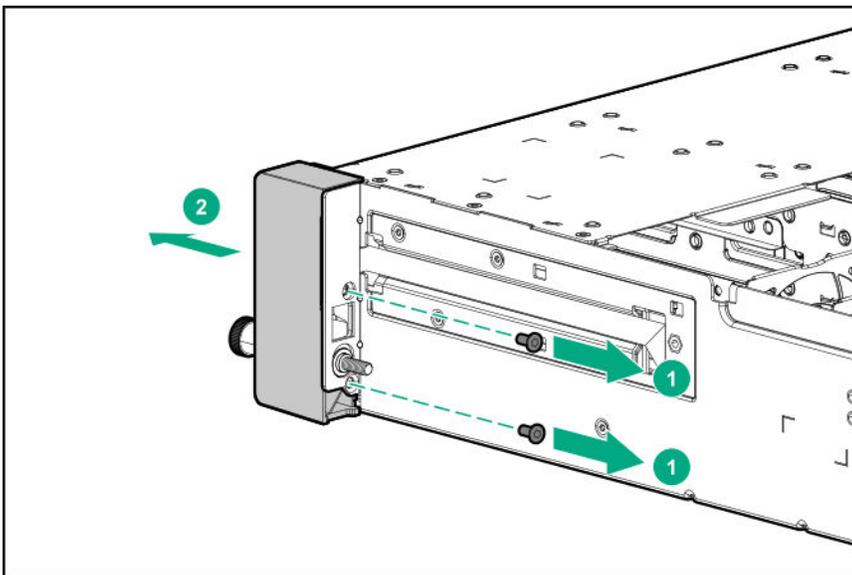
To replace the component, reverse the removal procedure.

If you are replacing the right chassis ear assembly, insert the serial number/iLO information pull tab removed in step 5 in the new chassis ear before installing it in the chassis.

# Removing and replacing the drive backplane

Prerequisites

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

Procedure

1. **Power down the servers**.

2. Remove all power:

   a. Disconnect each power cord from the power source.

   b. Disconnect each power cord from the chassis.

3. Disconnect all peripheral cables from the servers and chassis.

4. **Remove the servers**.

5. If installed, **remove the front bezel**.

6. Label the drives before removing them. The drives must be returned to their original location.

7. **Remove the hot-plug drives**.

8. If you are removing the 24 SFF drive backplane, **remove the SAS expander module**.

9. **Remove the chassis from the rack** on page 25.

10. **Remove the access panel** on page 27.

11. **Move the fan cages away from the drive backplane**.

12. **Remove the PDB assembly**.

13. Disconnect all cables from the drive backplane.

14. If you are removing the 12 LFF drive backplane, do the following:

    a. Remove the backplane screws, then remove the backplane.
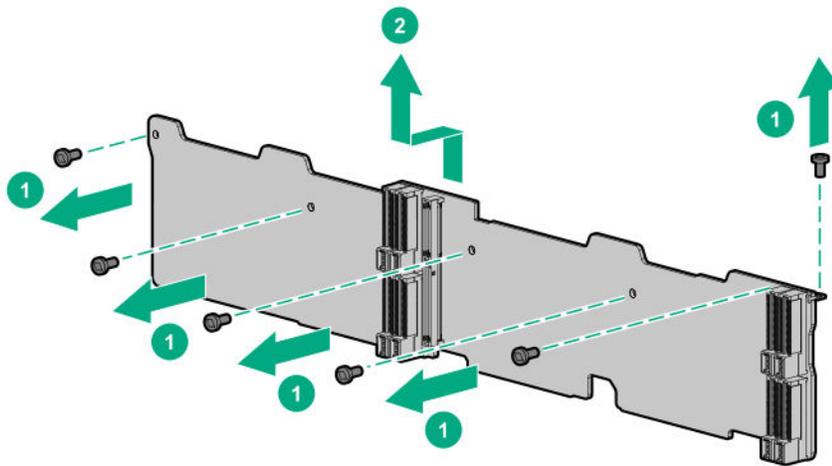
    b. Remove the backplane bracket.
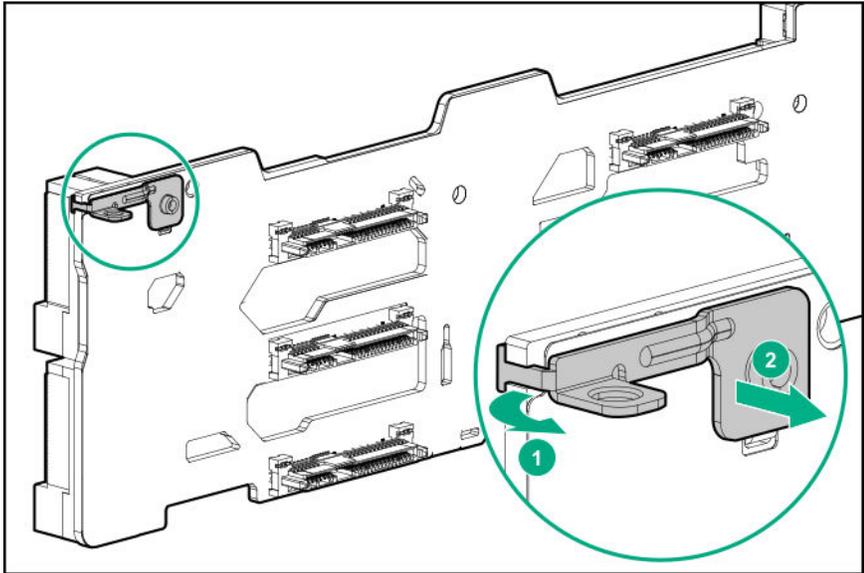
Retain the component for future use.

15. If you are removing the 16 SFF + 8 NVMe or the 24 SFF drive backplane, remove the backplane screws, and then remove the backplane.
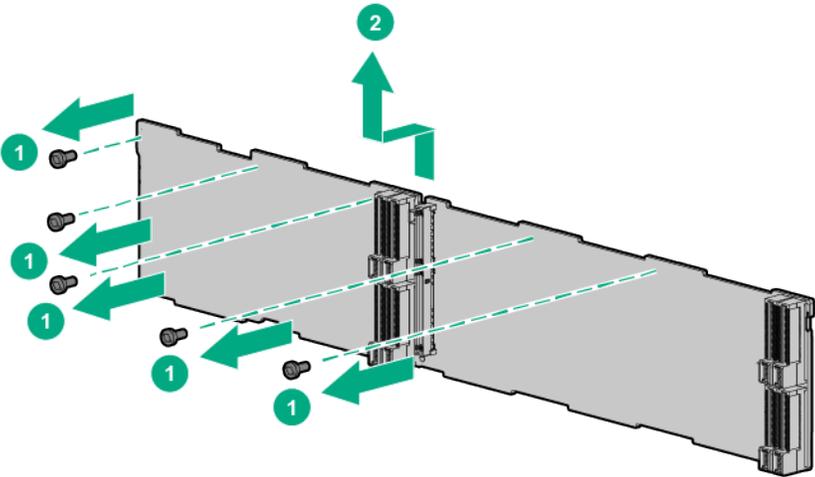
To replace the component, reverse the removal procedure.

Troubleshooting

NMI functionality

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

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

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

Troubleshooting resources

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

- *Troubleshooting Guide for HPE ProLiant Gen10 servers* provides procedures for resolving common problems and comprehensive courses of action for fault isolation and identification, issue resolution, and software maintenance.

- *Error Message Guide for HPE ProLiant Gen10 servers and HPE Synergy* provides a list of error messages and information to assist with interpreting and resolving error messages.

- *Integrated Management Log Messages and Troubleshooting Guide for HPE ProLiant Gen10 and HPE Synergy* provides IML messages and associated troubleshooting information to resolve critical and cautionary IML events.

To access the troubleshooting resources, see the Hewlett Packard Enterprise Information Library (**http://www.hpe.com/info/gen10-troubleshooting**).

Diagnostic tools

Product QuickSpecs

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

UEFI System Utilities

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

- Configuring system devices and installed options.

- Enabling and disabling system features.

- Displaying system information.

- Selecting the primary boot controller or partition.

- Configuring memory options.

- Launching other preboot environments.

HPE servers with UEFI can provide:

- Support for boot partitions larger than 2.2 TB. Such configurations could previously only be used for boot drives when using RAID solutions.

- Secure Boot that enables the system firmware, option card firmware, operating systems, and software collaborate to enhance platform security.

- UEFI Graphical User Interface (GUI)

- An Embedded UEFI Shell that provides a preboot environment for running scripts and tools.

- Boot support for option cards that only support a UEFI option ROM.

Selecting the boot mode

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

- Secure Boot, UEFI Optimized Boot, Generic USB Boot, IPv6 PXE Boot, iSCSI Boot, and Boot from URL

- Fibre Channel/FCoE Scan Policy

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

Prerequisite

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

Procedure

1. From the **System Utilities** screen, select **System Configuration** > **BIOS/Platform Configuration (RBSU)** > **Boot Options** > **Boot Mode**.

2. Select a setting.

   - **UEFI Mode** (default)—Configures the system to boot to a UEFI compatible operating system.

   - **Legacy BIOS Mode**—Configures the system to boot to a traditional operating system in Legacy BIOS compatibility mode.

3. Save your setting.

4. Reboot the server.

Secure Boot

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

- UEFI drivers loaded from PCIe cards

- UEFI drivers loaded from mass storage devices

- Preboot UEFI Shell applications

- OS UEFI boot loaders

When Secure Boot is enabled:

- Firmware components and operating systems with boot loaders must have an appropriate digital signature to execute during the boot process.

- Operating systems must support Secure Boot and have an EFI boot loader signed with one of the authorized keys to boot. For more information about supported operating systems, see **http://www.hpe.com/servers/ossupport**.

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

You can configure Secure Boot:

- Using the **System Utilities** options described in the following sections.

- Using the iLO RESTful API to clear and restore certificates. For more information, see the Hewlett Packard Enterprise website (**http://www.hpe.com/info/redfish**).

- Using the `secboot` command in the Embedded UEFI Shell to display Secure Boot databases, keys, and security reports.

Launching the Embedded UEFI Shell

Use the **Embedded UEFI Shell** option to launch the Embedded UEFI Shell. The Embedded UEFI Shell is a preboot command-line environment for scripting and running UEFI applications, including UEFI boot

loaders. The Shell also provides CLI-based commands you can use to obtain system information, and to configure and update the system BIOS.

Prerequisites

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

Procedure

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

   The **Embedded UEFI Shell** screen appears.

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

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

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

   The `Shell>` prompt appears.

4. Enter the commands required to complete your task.

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

Intelligent Provisioning

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

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

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

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

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

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

To access Intelligent Provisioning:

- Press **F10** from the POST screen and enter either Intelligent Provisioning or HPE Rapid Setup Software.

- From the iLO web interface using **Always On**. **Always On** allows you to access Intelligent Provisioning without rebooting your server.

Intelligent Provisioning operation

Intelligent Provisioning includes the following components:

- Critical boot drivers

- Active Health System (AHS)

- Erase Utility

- Deployment Settings

⚠ **IMPORTANT:**

- Although your server is preloaded with firmware and drivers, Hewlett Packard Enterprise recommends updating the firmware upon initial setup. Also, downloading and updating the latest version of Intelligent Provisioning ensures the latest supported features are available.

- For ProLiant servers, firmware is updated using the Intelligent Provisioning Firmware Update utility.

- Do not update firmware if the version you are currently running is required for compatibility.

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

Intelligent Provisioning provides installation help for the following operating systems:

- Microsoft Windows Server

- Red Hat Enterprise Linux

- SUSE Linux Enterprise Server

- VMware ESXi/vSphere Custom Image

- ClearOS

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

HPE Insight Remote Support

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

your authorized Hewlett Packard Enterprise Channel Partner for onsite service, if configured and available in your country.

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

HPE InfoSight for servers

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

HPE InfoSight for servers:

*   Combines the machine learning and predictive analytics of HPE InfoSight with the health and performance monitoring of Active Health System (AHS) and HPE iLO to optimize performance and predict and prevent problems

*   Provides automatic collection and analysis of the sensor and telemetry data from AHS to derive insights from the behaviors of the install base to provide recommendations to resolve problems and improve performance

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

USB support

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

External USB functionality

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

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

HPE Smart Storage Administrator

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

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

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

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

*   Accessing HPE SSA in the offline environment

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

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

- Accessing HPE SSA in the online environment

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

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

Component identification

System components
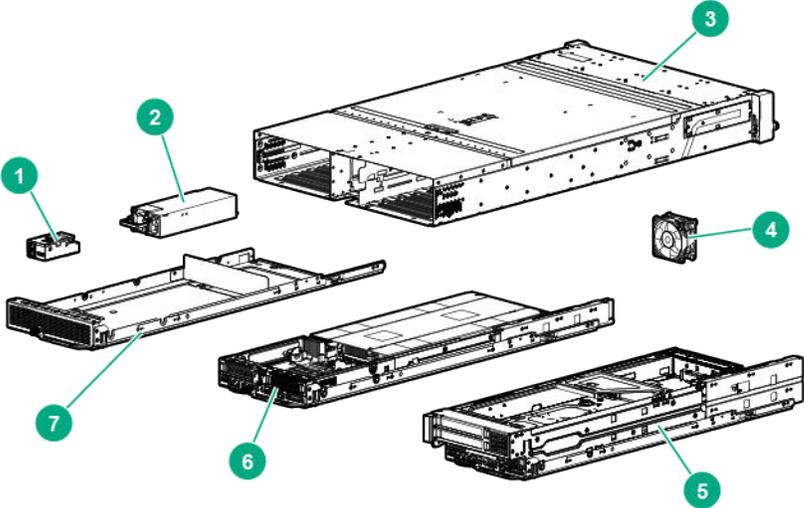
Item	Description
1	RCM module (optional)
2	Power supply
3	Chassis
4	Fan
5	2U server node
6	1U server node
7	Server blank

Front panel components

HPE Apollo r2200 Gen10 Chassis
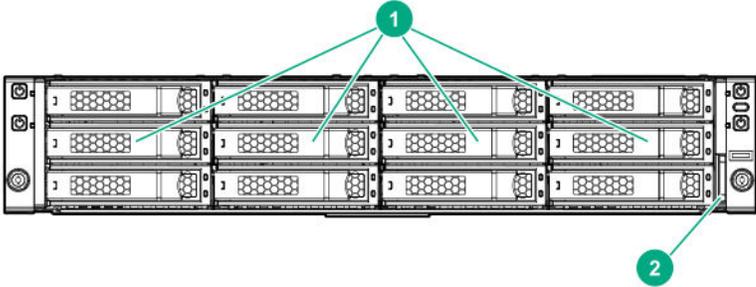
Item	Description
1	LFF hot-plug drives
2	**Serial number/iLO information pull tab** on page 62

HPE Apollo r2600 Gen10 Chassis
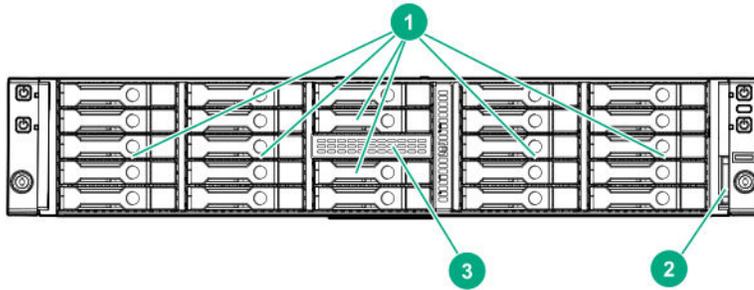
Item	Description
1	SFF hot-plug drives
2	**Serial number/iLO information pull tab** on page 62
3	Nonremovable bezel blank

HPE Apollo r2800 Gen10 Chassis with 16 NVMe drives
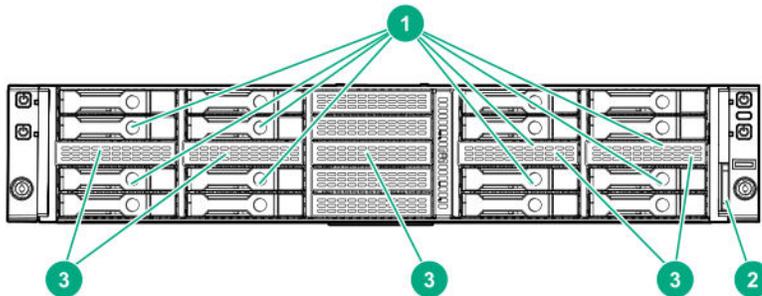
Item	Description
1	NVMe drives
2	**Serial number/iLO information pull tab** on page 62
3	Nonremovable bezel blanks

HPE Apollo r2800 Gen10 Chassis with 24 SFF drives
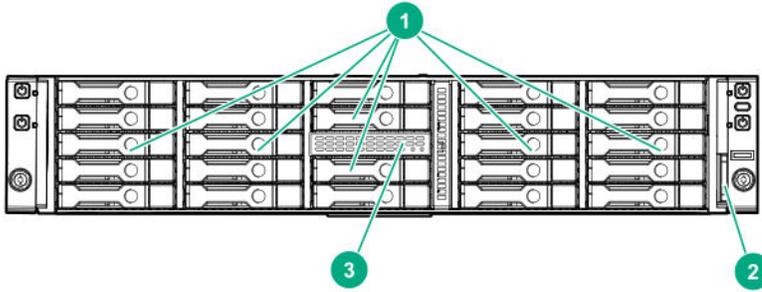
Item	Description
1	SFF hot-plug drives
2	**Serial number/iLO information pull tab** on page 62
3	**SAS expander module**

Serial number/iLO information pull tab

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

Use a mobile device to scan the QR code label to display the server mobile product page (**http://www.hpe.com/qref/apollo2000gen10**). This page contains links to server setup information, spare part numbers, QuickSpecs, troubleshooting resources, and other useful product links.

Front panel LEDs and buttons
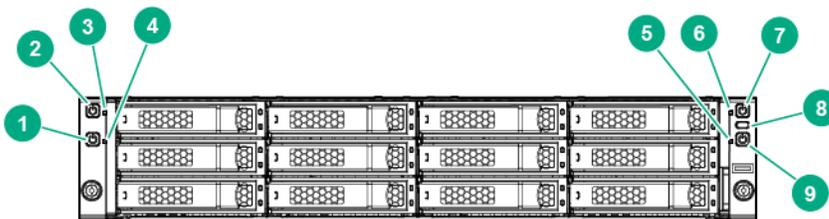
Item	Description	Status	Definition
1	Power On/Standby button and system power LED (Server 1)[1]	Solid green	System on and normal operation
		Flashing green	Performing power-on sequence
		Solid amber	System in standby
		Off	No power present[2]
2	Power On/Standby button and system power LED (Server 2)[1]	Solid green	System on and normal operation
		Flashing green	Performing power-on sequence

Table Continued

Item	Description	Status	Definition
		Solid amber	System in standby
		Off	No power present[2]
3	Health LED (Server 2)[1]	Solid green	Normal
		Flashing green	iLO is rebooting
		Flashing amber	System degraded[3]
		Flashing red	System critical[3]
4	Health LED (Server 1)[1]	Solid green	Normal
		Flashing green	iLO is rebooting
		Flashing amber	System degraded[3]
		Flashing red	System critical[3]
5	Health LED (Server 3)[1]	Solid green	Normal
		Flashing green	iLO is rebooting
		Flashing amber	System degraded[3]
		Flashing red	System critical[3]
6	Health LED (Server 4)[1]	Solid green	Normal
		Flashing green	iLO is rebooting
		Flashing amber	System degraded[3]
		Flashing red	System critical[3]
7	Power On/Standby button and system power LED (Server 4)[1]	Solid green	System on and normal operation
		Flashing green	Performing power-on sequence
		Solid amber	System in standby
		Off	No power present[2]
8	UID button/LED[1]	Solid blue	Activated

Table Continued

Item	Description	Status	Definition
		Flashing blue	• 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
9	Power On/Standby button and system power LED (Server 3)[1]	Solid green	System on and normal operation
		Flashing green	Performing power-on sequence
		Solid amber	System in standby
		Off	No power present[2]

[1] When the LEDs described in this table flash simultaneously, a power fault has occurred. For more information, see **Front panel LED power fault codes** on page 64.

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

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

Front panel LED power fault codes

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

Subsystem	LED behavior
System board	1 flash
Processor	2 flashes
Memory	3 flashes
Riser board PCIe slots	4 flashes
FlexibleLOM	5 flashes
Removable HPE Smart Array SR Gen10 controller	6 flashes
System board PCIe slots	7 flashes
Power backplane or storage backplane	8 flashes
Power supply	9 flashes

Chassis UID LED

The chassis UID LED is used to locate a particular chassis when it is deployed in a dense rack with other equipment. When the UID LED of any of the servers installed in the chassis is activated, the chassis UID

LED also flashes blue. Activating the UID LED allows an onsite technician to quickly identify a chassis for maintenance tasks.

UID button functionality

The UID button can be used to display the Server Health Summary when the server will not power on. For more information, see the latest *HPE iLO 5 User Guide* on the **Hewlett Packard Enterprise website**.

SAS expander module LEDs

The SAS expander module is only available in the HPE Apollo r2800 Gen10 Chassis with 24 SFF drive model.
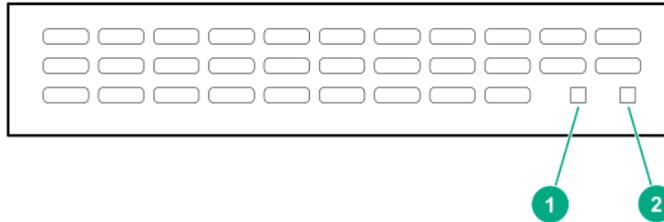
Item	Description	Status	Definition
1	Power LED[1]	Green	The expander daughter card is operating normally.
		Off	No expander daughter card activity
2	Power fault LED[1]	Amber	Expander daughter card failure
		Off	No expander daughter card activity

[1] When the SAS expander module LEDs are both off, verify that the module is properly engaged with the backplane. If the LEDs remains off, the expander daughter card has failed. For the SAS expander module spare part number and replacement procedure, see the *HPE Apollo 2000 Gen10 chassis Maintenance and Service Guide* (**https://www.hpe.com/info/Apollo2000-Gen10-Chassis-MSG**)

Rear panel components

1U system
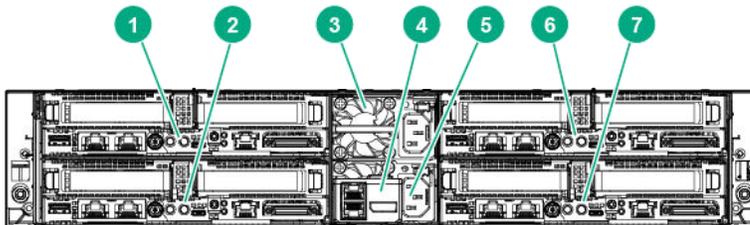
Item	Description
1	Server 4
2	Server 3
3	Power supply 2
4	RCM module (optional)
5	Power supply 1
6	Server 2
7	Server 1

2U system
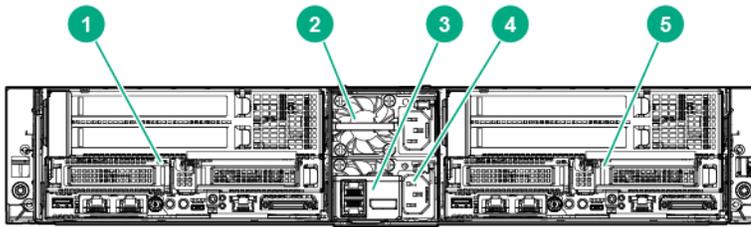
Item	Description
1	Server 3
2	Power supply 2
3	RCM module (optional)
4	Power supply 1
5	Server 1

Power supply LED
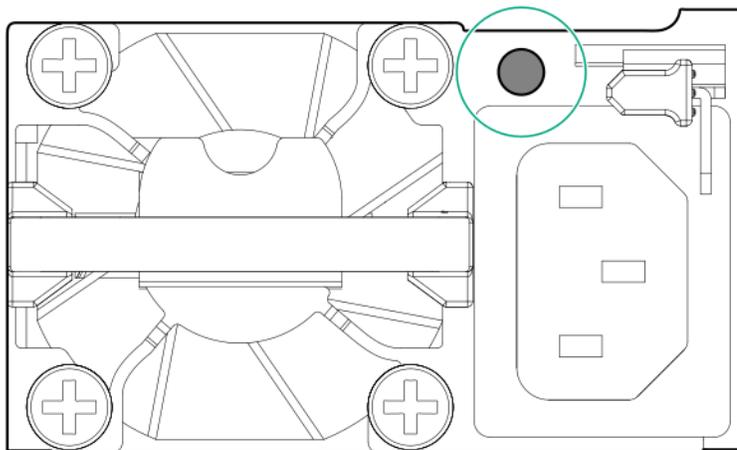
Status	Definition
Solid green	The power supply is operating normally.
Off	One or more of the following conditions exists • Power is unavailable • Power supply failure • Power supply is in standby mode • Power supply error

Fan bay numbering

• Fans 1–4 are the default system fans.

• Fans 5–8 are available through the redundant fan option kit.

• The dual-rotor fan 9–10 is required when installing the HPE 1800W–2200W Flex Slot Platinum Hot-plug Power Supply.
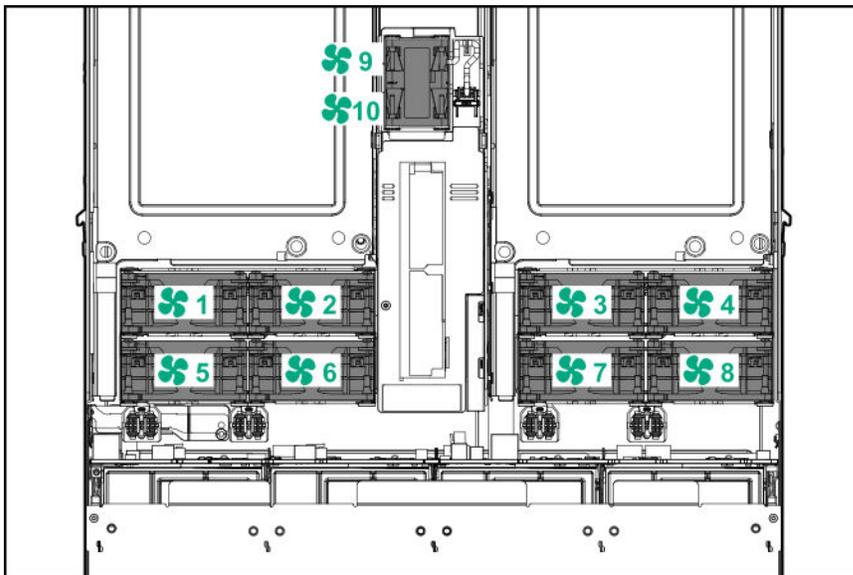
Drive bay numbering

Drive bay numbering depends on how the drive backplane is connected. The backplane can be connected to one of the following:

• Embedded HPE Smart Array S100i SR Gen10 Controller

• Smart Array type-p storage controller

• SAS expander daughter card – This daughter card is in the SAS expander module. This module is only available in the HPE Apollo r2800 Gen10 Chassis with 24 SFF drive model.

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

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

Apollo r2200 Gen10 Chassis and Apollo r2600 Gen10 Chassis drive bay numbering using the onboard SATA port connection in AHCI mode

- The numbered callouts outside the front panel image refer to the server numbering.

- The numbered callouts on the drive bays refer to the drive numbering.

Apollo r2200 Gen10 Chassis with 1U servers in AHCI mode
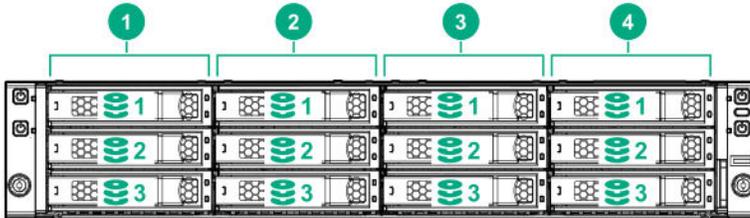
Apollo r2200 Gen10 Chassis with 2U servers in AHCI mode
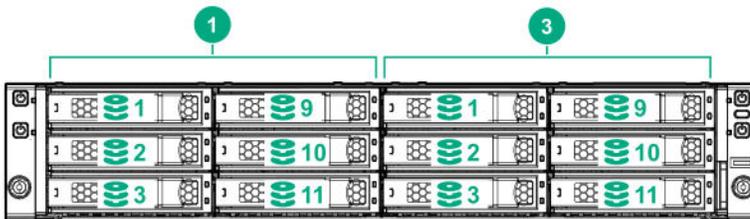
Apollo r2600 Gen10 Chassis with 1U servers
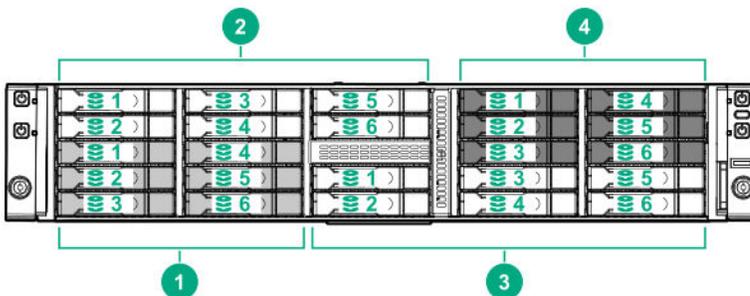
- Each 1U server supports six drives.

- NVMe drive is supported in:

  ◦ Server 1 – Drive bays 1-5, 1-6

  ◦ Server 2 – Drive bays 2-1, 2-2

- Server 3 – Drive bays 3-5, 3-6
- Server 4 – Drive bays 4-1, 4-2

Apollo r2600 Gen10 Chassis with 2U servers
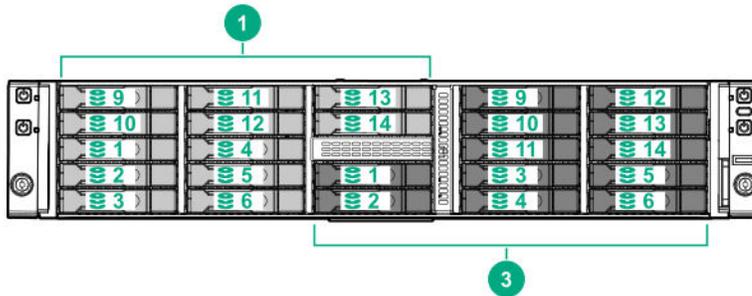
- Each 2U server supports 12 drives.
- NVMe drive is supported in:
  - Server 1 – Drive bays 1-5, 1-6, 1-9, 1-10
  - Server 3 – Drive bays 3-5, 3-6, 3-9, 3-10

Apollo r2600 Gen10 Chassis drives numbering using a Smart Array type-p connection or onboard SATA port connection in Smart Array SW RAID mode

- The first digit refers to the server numbering.
- The second digit refers to the drive numbering.

- Each 1U server supports six drives, while each 2U server supports 12 drives.
- In 1U server, NVMe drive is supported in:
  - Server 1 – Drive bays 1-5, 1-6
  - Server 2 – Drive bays 2-1, 2-2
  - Server 3 – Drive bays 3-5, 3-6
  - Server 4 – Drive bays 4-1, 4-2
- In 2U servers, NVMe drive is supported in:

- ◦ Server 1 – Drive bays 1-5, 1-6, 2-1, 2-2
- ◦ Server 3 – Drive bays 3-5, 3-6, 4-1, 4-2

- If the 2U server drives are connected to an HPE Smart Array type-p controller, NVMe drive is only supported in:
  - ◦ Server 1 – Drive bays 1-5, 1-6
  - ◦ Server 3 – Drive bays 3-5, 3-6

Apollo r2800 Gen10 Chassis bay numbering

Apollo r2800 Gen10 Chassis with 16 NVMe drives

- The first digit refers to the server numbering.

- The second digit refers to the drive numbering.
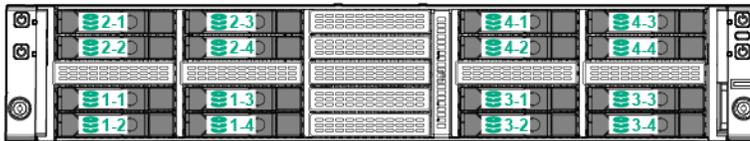
- This drive configuration does not support connection to the embedded Smart Array S100i SR Gen10 Software RAID nor to a Smart Array type-p controller.

- Each 1U server supports four NVMe drives, while each 2U server supports eight NVMe drives.

Apollo r2800 Gen10 Chassis with 24 SFF drives

- The drive configuration requires an HPE Smart Array type-p controller linked to the SAS expander module located between drive bays 12 and 13. The expander function treats all drive bays as a single box 1 so the drive numbering is continuous.

- The drive bays in this configuration are divided, by default, by the number of server host ports.

- 1U servers - Six drive bays are assigned to each of the four servers.

- 2U servers - 12 drive bays are assigned to each of the two servers.

- Drive bay mapping is supported in this drive configuration. Use the iLO web interface or the iLO RESTful API (the iLO Redfish API conformant) to assign the drives to specific server nodes for customized drive allocations to match specific workloads. For more information, see the *Drive bay mapping* section in the HPE iLO user guide on the Hewlett Packard Enterprise website (**http://www.hpe.com/support/ilo-docs**).

Drive LEDs and buttons

Low profile LFF drive LED definitions
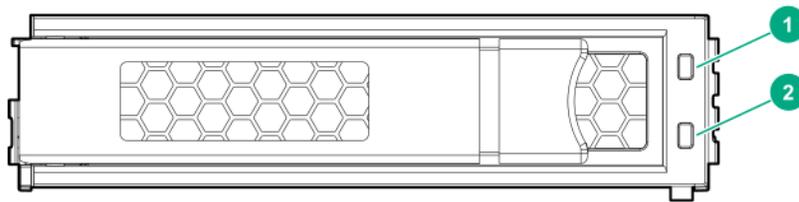
Item	LED	Status	Definition
1	Fault \Locate	Solid amber	The drive has failed.
		Solid blue	The drive is operating normally and being identified by a management application.
		Flashing amber/blue (1 flash per second)	The drive has failed, or a predictive failure alert has been received for this drive; it also has been identified by a management application.
		Flashing amber (1 flash per second)	A predictive failure alert has been received for this drive. Replace the drive as soon as possible.
2	Online \Activity	Solid green	The drive is online and has no activity.
		Flashing green (4 flashes per second)	The drive is operating normally and has activity.

Table Continued

Item	LED	Status	Definition
		Flashing green (1 flash per second)	The drive is doing one of the following: • Rebuilding • Performing a RAID migration • Performing a strip size migration • Performing a capacity expansion • Performing a logical drive extension • Erasing • Spare part activation
		Off	The drive is not configured by a RAID controller or a spare drive.

Hot-plug drive LED definitions

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

Table Continued

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

NVMe SSD LED definitions

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

⚠ **CAUTION:** Do not remove an NVMe SSD from the drive bay while the Do not remove LED is flashing. The Do not remove LED flashes to indicate that the device is still in use. Removing the NVMe SSD before the device has completed and ceased signal/traffic flow can cause loss of data.
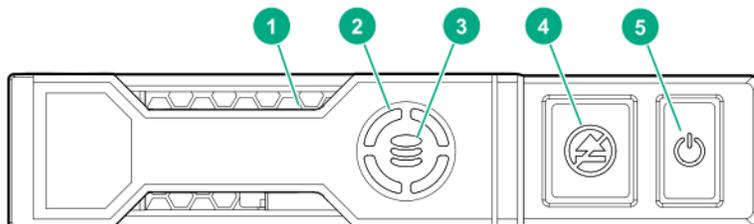
| Item	LED	Status	Definition
1	Locate	Solid blue	The drive is being identified by a host application.
		Flashing blue	The drive carrier firmware is being updated or requires an update.
2	Activity ring	Rotating green	Drive activity
		Off	No drive activity
3	Drive status	Solid green	The drive is a member of one or more logical drives.

Table Continued

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

NVMe SSD button actions
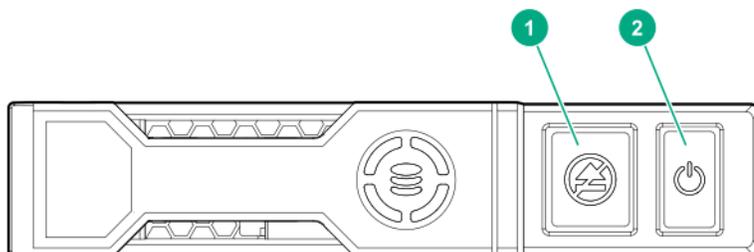
Item	Button	Action
1	Do Not Remove	Press to open the release lever.
2	Power	Press to request PCIe ejection. Removal request can be denied by the: • RAID controller (one or more of the logical drives could fail) • Operating system

RCM module

RCM module components
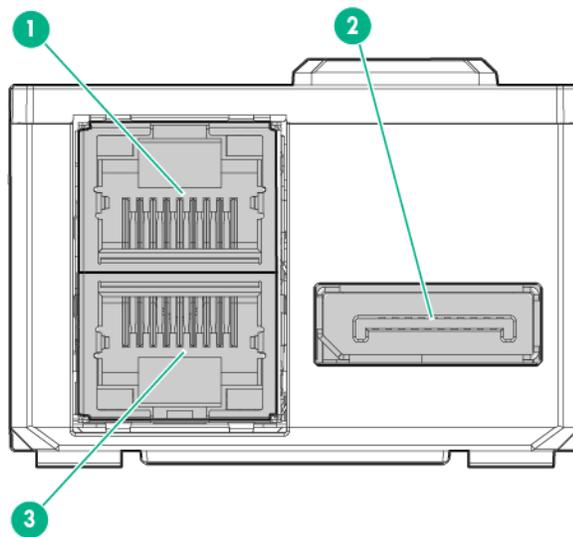
Item	Description
1	iLO connector
2	HPE APM 2.0 connector
3	iLO connector

RCM module LEDs
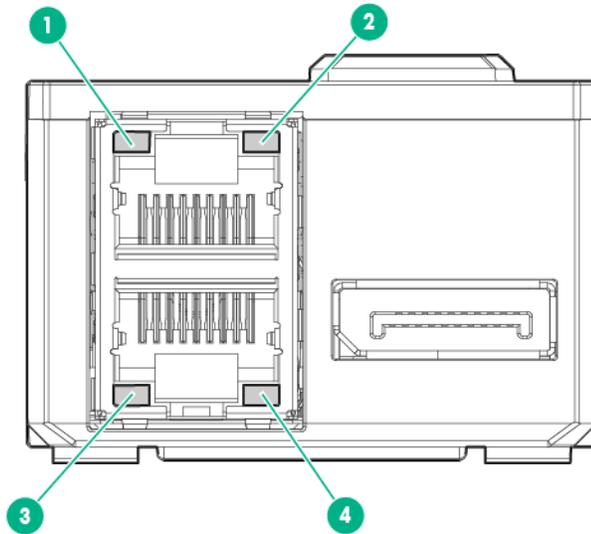
Item	Description	Status	Definition
1 and 4	iLO activity LED	Green or flashing green	Network activity
		Off	No network activity
2 and 3	iLO link LED	Green	Linked to network
		Off	No network connection

PDB assembly boards
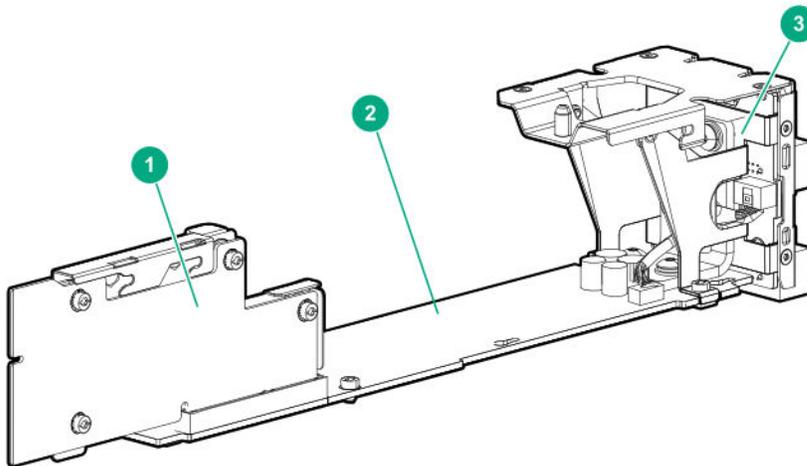
Item	Description
1	RPS link board
2	PDB (power distribution board)
3	PDB pass-through board

Cabling

Cabling guidelines

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

Observe the following guidelines when working with server cables.

Before connecting cables

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

When connecting cables

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

When disconnecting cables

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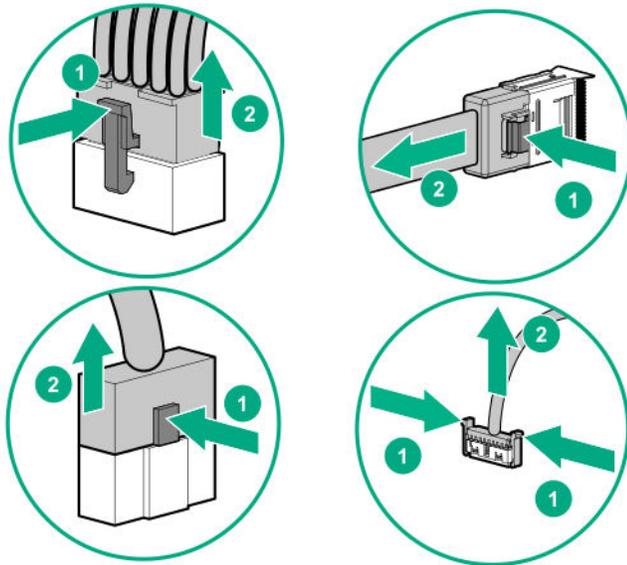
- Remove cables that are no longer being used. Retaining them inside the server can restrict airflow. If you intend to use the removed cables later, label and store them for future use.

Front I/O cabling

Apollo r2200 Gen10 Chassis
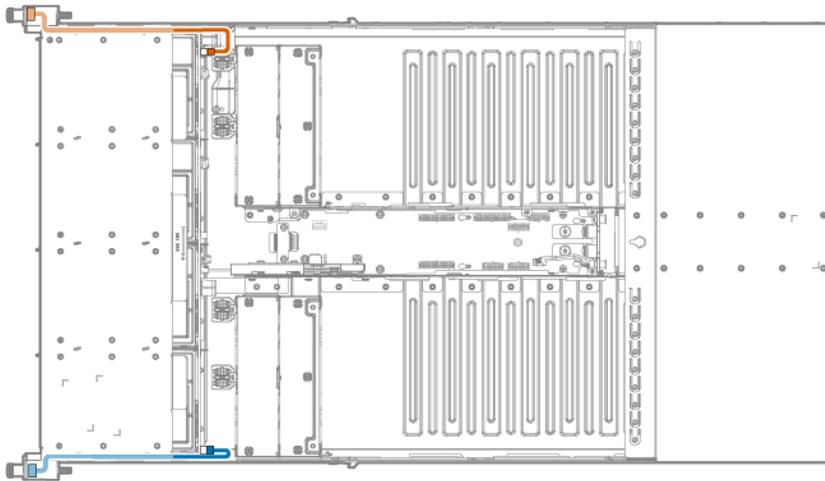
Cable color	Description
Orange	Left front I/O cable
Blue	Right front I/O cable

Apollo r2600 Gen10 Chassis and Apollo r2800 Gen10 Chassis
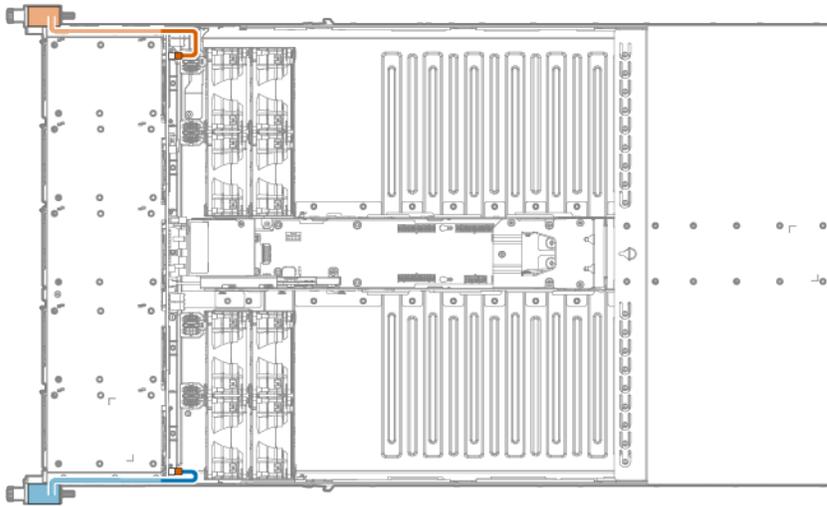
Cable color	Description
Orange	Left front I/O cable
Blue	Right front I/O cable

System power cabling

Apollo r2200 Gen10 Chassis
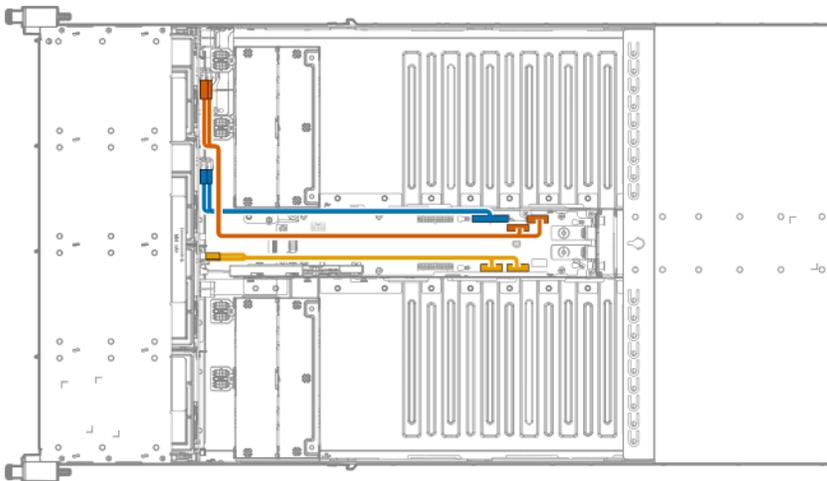
Cable color	Description
Orange	Power cable for servers 1 and 2
Blue	Power cable for hot-plug drives
Gold	Power cable for servers 3 and 4

Apollo r2600 Gen10 Chassis
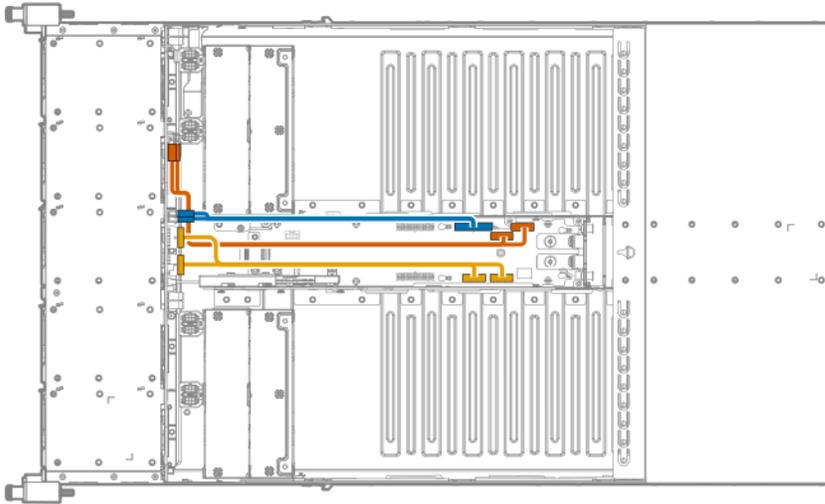
Cable color	Description
Orange	Power cable for servers 1 and 2
Blue	Power cable for hot-plug drives
Gold	Power cable for servers 3 and 4

Apollo r2800 Gen10 Chassis
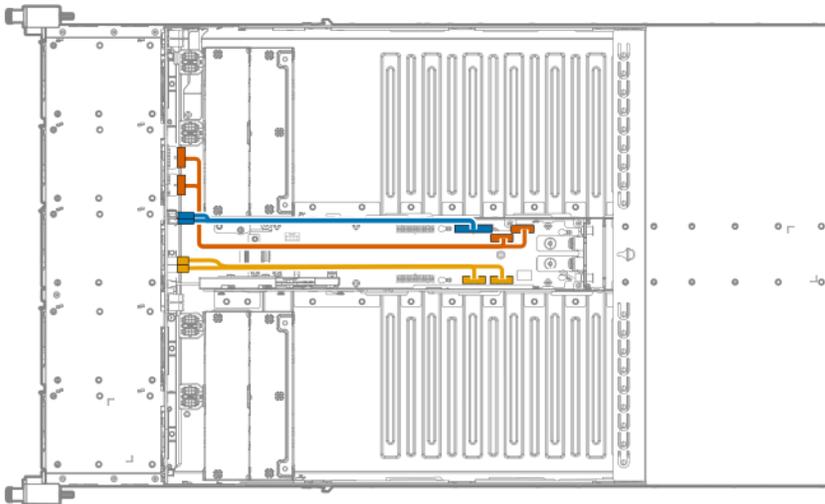
Cable color	Description
Orange	Power cable for servers 1 and 2
Blue	Power cable for hot-plug drives
Gold	Power cable for servers 3 and 4

PDB pass-through board cabling
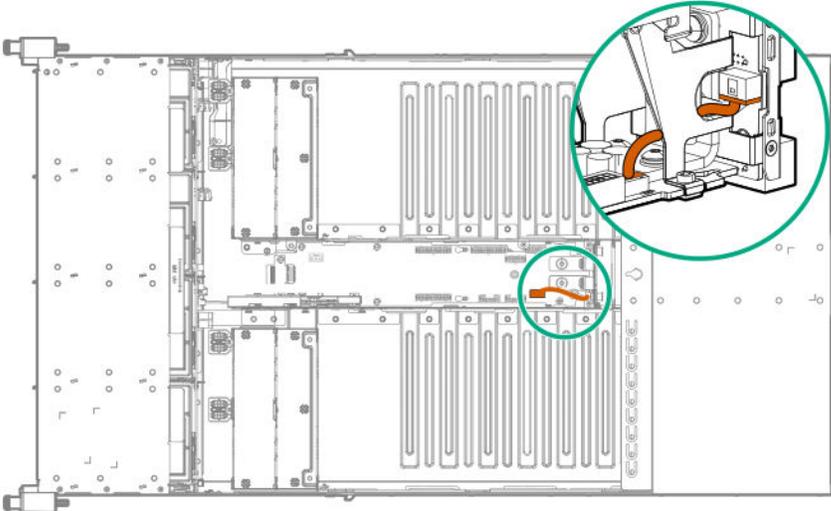
Fan cabling

Fan power cabling
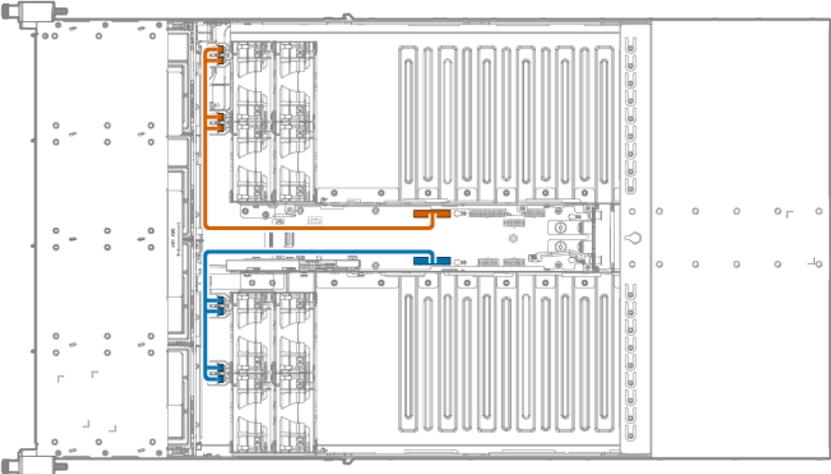
Cable color	Description
Orange	Fan power cable for fans 1, 2, 5, and 6
Blue	Fan power cable for fans 3, 4, 7, and 8

Fan signal cabling
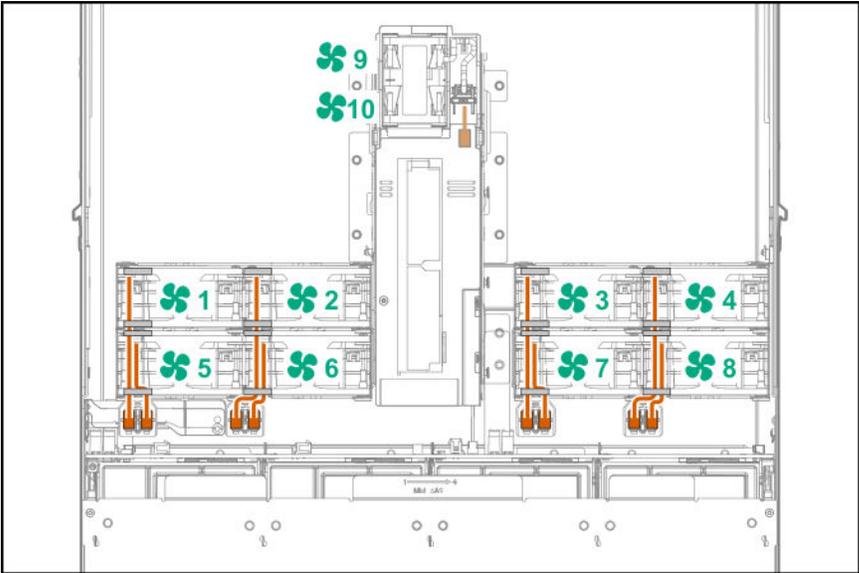
Energy pack cabling

Energy pack cabling in a chassis using an 800 W or 1600 W power supply
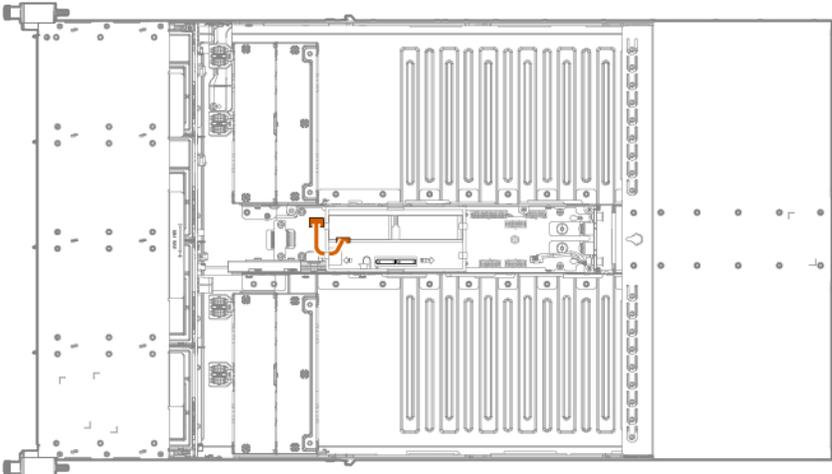
Energy pack cabling in a chassis using the 1800 W–2200 W power supply
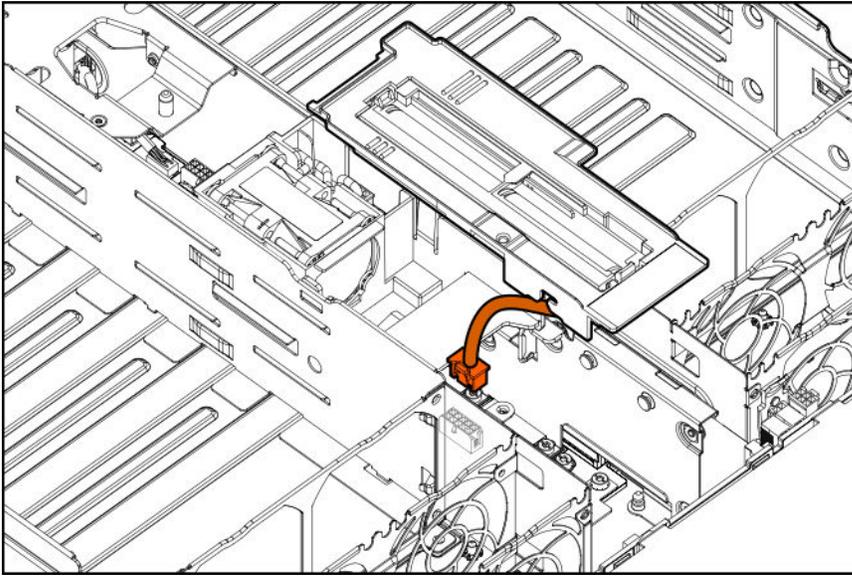
RCM cabling
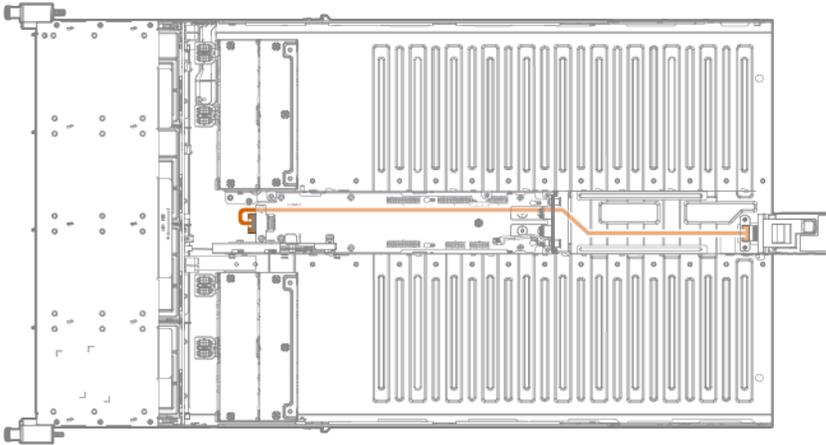
Specifications

Environmental specifications

Specification	Value
Temperature range[1]	—
Operating	10°C to 35°C (50°F to 95°F)
Non-operating	-30°C to 60°C (-22°F to 140°F)
Relative humidity (noncondensing)	—
Operating	8% to 90% 28°C (82.4°F), maximum wet bulb temperature
Non-operating	5% to 95% 38.7°C (101.7°F), maximum wet bulb temperature

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

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

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

- 40°C to 45°C (104°F to 113°F) at sea level with an altitude derating of 1.0°C per every 125 m (1.8°F per every 410 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft).

Mechanical specifications

Apollo r2200 Gen10 Chassis

Specifications	Value
Dimensions	—
Height	8.76 cm (3.45 in)
Depth	87.93 cm (34.62 in)
Width	44.80 cm (17.64 in)
Weight (approximate values)	—
Weight (maximum)	41.16 kg (90.75 lb)
Weight (minimum)	13.10 kg (28.89 lb)

Apollo r2600 Gen10 Chassis

Specifications	Value
Dimensions	—
Height	8.76 cm (3.45 in)
Depth	83.87 cm (33.02 in)
Width	44.80 cm (17.64 in)
Weight (approximate values)	—
Weight (maximum)	36.20 kg (79.81 lb)
Weight (minimum)	12.70 kg (28.00 lb)

Apollo r2800 Gen10 Chassis with 16 NVMe drives

Specifications	Value
Dimensions	—
Height	8.76 cm (3.45 in)
Depth	83.87 cm (33.02 in)
Width	44.80 cm (17.64 in)
Weight (approximate values)	—
Weight (maximum)	36.20 kg (79.81 lb)
Weight (minimum)	12.70 kg (28.00 lb)

Apollo r2800 Gen10 Chassis with 24 SFF drives

Specifications	Value
Dimensions	—
Height	8.76 cm (3.45 in)
Depth	83.87 cm (33.02 in)
Width	44.80 cm (17.64 in)
Weight (approximate values)	—
Weight (maximum)	36.20 kg (79.81 lb)
Weight (minimum)	12.70 kg (28.00 lb)

Power supply specifications

△ **CAUTION:** Do not mix power supplies with different efficiency and wattage in the chassis. Install only one type of power supply. Verify that all power supplies have the same part number and label color. The system becomes unstable and may shut down when it detects mismatched power supplies.

Depending on installed options, the system is configured with one of the following power supplies:

For more information about the power supply features, specifications, and compatibility, see the **Hewlett Packard Enterprise website** .

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

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

Table Continued

Specification	Value
Rated steady-state power	800 W at 100 VAC to 127 VAC input
	800 W at 100 VAC to 240 VAC input
	800 W at 240 VDC input for China only
Maximum peak power	800 W at 100 VAC to 127 VAC input
	800 W at 100 VAC to 240 VAC input
	800 W at 240 VDC input for China only

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

Specification	Value
Input requirements	—
Rated input voltage	200 VAC to 277 VAC
	380 VDC
Rated input frequency	50 Hz to 60 Hz
Rated input current	4.4 A at 200 VAC
	3.1 A at 277 VAC
	2.3 A at 380 VDC
Maximum rated input power	869 W at 200 VAC
	865 W at 230 VAC
	861 W at 277 VAC
	863 W at 380 VDC
BTUs per hour	2964 at 200 VAC
	2951 at 230 VAC
	2936 at 277 VAC
	2943 at 380 VDC
Power supply output	—
Rated steady-state power	800 W at 200 VAC to 277 VAC input
Maximum peak power	800 W at 200 VAC to 277 VAC input

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

Specification	Value
Input requirements	—
Rated input voltage	-40 VDC to -72 VDC -48 VDC nominal input
Rated input current	22.1 A at -40 VDC input 18.2 A at -48 VDC input, nominal input 12.0 A at -72 VDC input
Rated input power (W)	874 W at -40 VDC input 865 W at -48 VDC input, nominal input 854 W at -72 VDC input
Rated input power (BTUs per hour)	2983 at -40 VDC input 2951 at -48 VDC input, nominal input 2912 at -72 VDC input
Power supply output	—
Rated steady-state power (W)	800 W at -40 VDC to -72 VDC
Maximum peak power (W)	800 W at -40 VDC to -72 VDC
Maximum peak power	800 W at -40 VDC to -72 VDC input

⚠️ **WARNING:** To reduce the risk of electric shock or energy hazards:

- This equipment must be installed by trained service personnel.

- Connect the equipment to a reliably grounded secondary circuit source. A secondary circuit has no direct connection to a primary circuit and derives its power from a transformer, converter, or equivalent isolation device.

- The branch circuit overcurrent protection must be rated 27 A.

△ **CAUTION:** This equipment is designed to permit the connection of the earthed conductor of the DC supply circuit to the earthing conductor at the equipment.

If this connection is made, all of the following must be met:

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

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

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

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

HPE 1600W Flex Slot Platinum Hot-plug Low Halogen Power Supply

Specification	Value
Input requirements	
Rated input voltage	200 VAC to 240 VAC
	240 VDC for China only
Rated input frequency	50 Hz to 60 Hz
Rated input current	8.7 A at 200 VAC
	7.2 A at 240 VAC
Maximum rated input power	1734 W at 200 VAC
	1725 W at 240 VAC
BTUs per hour	5918 at 200 VAC
	5884 at 240 VAC
Power supply output	
Rated steady-state power	1600 W at 200 VAC to 240 VAC input
	1600 W at 240 VDC input
Maximum peak power	2200 W for 1 ms (turbo mode) at 200 VAC to 240 VAC input

HPE 1800W–2200W Flex Slot Platinum Hot-plug Power Supply

Specification	Value
Input requirements	
Rated input voltage	200 VAC to 240 VAC 240 VDC for China only
Rated input frequency	50 Hz to 60 Hz (Not applicable to 240VDC)
Rated input current	10.0 A at 240 VAC 8.2 A at 240 VDC for China Only
Maximum rated input power	1800 W at 200 VAC 2200 W at 240 VAC 1800 W at 240 VDC for China Only
BTUs per hour	6590 at 200 VAC 8096 at 240 VAC 6606 at 240 VDC for China only
Power supply output	
Rated steady-state power	1800 W at 200 VAC 2200 W at 240 VAC 1800 W at 240 VDC for China only
Maximum peak power	1800 W at 200 VAC 2200 W at 240 VAC 1800 W at 240 VDC for China only

Websites

General websites

Hewlett Packard Enterprise Information Library

www.hpe.com/info/EIL

Subscription Service/Support Alerts

www.hpe.com/support/e-updates

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 general support websites, see **Support and other resources**.

Product websites

HPE Apollo 2000 Gen10 chassis support page

http://www.hpe.com/info/Apollo2000-Gen10-Chassis-UG-en

HPE Apollo 2000 Gen10 chassis user documents

http://www.hpe.com/info/Apollo2000-Gen10-docs

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/info/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

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

AHCI

Advanced Host Controller Interface

CSR

Customer Self Repair

CNA

Converged Network Adapter

FHHL

Full Height Half Length

FC HBA

Fibre Channel Host Bus Adapter

HPE APM

HPE Apollo Platform Management

HPE SSA

HPE Smart Storage Administrator

iLO

Integrated Lights-Out

IML

Integrated Management Log

ISO

International Organization for Standardization

IFP

Internal faceplate-to-processor

LFF

large form factor

LOM

LAN on Motherboard

NIC

network interface controller

NMI

nonmaskable interrupt

PCIe

Peripheral Component Interconnect Express

PDB

Power Distribution Board

PDU

power distribution unit

POST

Power-On Self-Test

RBSU

ROM-Based Setup Utility

RCM

Rack Consolidation Management

RoHS

Restriction of Hazardous Substances

SAS

serial attached SCSI

SATA

serial ATA

SFF

small form factor

SPP

Service Pack for ProLiant

UEFI

Unified Extensible Firmware Interface

UID

unit identification

USB

universal serial bus