Hewlett Packard Enterprise

HPE Apollo 4200 Gen9 Server

Maintenance and Service Guide

Abstract

This guide describes identification and maintenance procedures, diagnostic tools, specifications and requirements for hardware components and software. This guide is for an experienced service technician. 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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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 (http://www.hpe.com/support/selfrepair).

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 (http://www.hpe.com/support/selfrepair).

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 (http://www.hpe.com/support/selfrepair).

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 (http://www.hpe.com/support/selfrepair).

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 (http://www.hpe.com/support/selfrepair).

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 (http://www.hpe.com/support/selfrepair).

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 (http://www.hpe.com/support/selfrepair).

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。

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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

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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

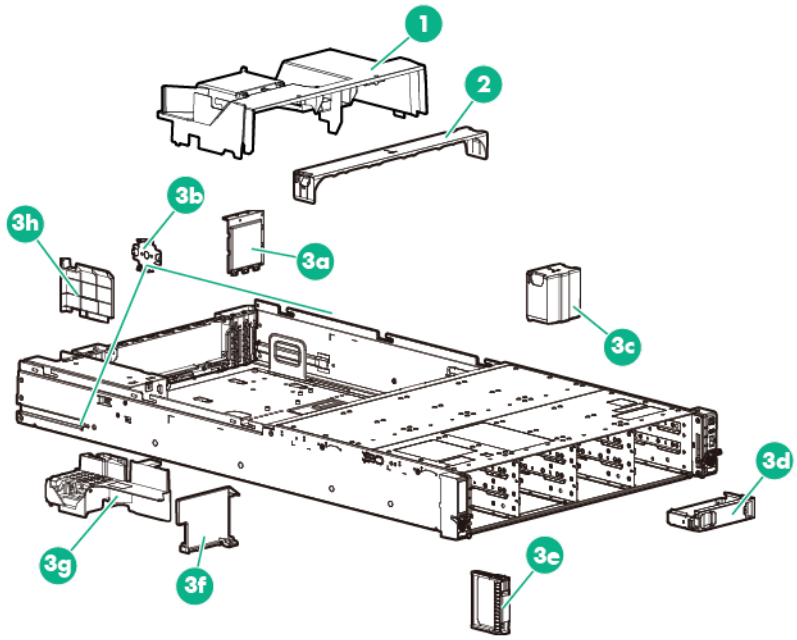
Hewlett Packard Enterprise 제한 보증에는 부품 제공 보증 서비스가 포함될 수 있습니다. 이러한 경우 Hewlett Packard Enterprise는 부품 제공 보증 서비스의 조건에 따라 교체 부품만을 무료로 제공합니다.

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.

Illustrated parts catalog

Mechanical components

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



Item	Description	Spare part number	Customer self repair (on page 6)
1	Air baffle	813583-001	Mandatory[1]
2	Fan cage cover	813582-001	Mandatory[1]
3	Miscellaneous mechanical spare parts kit	809955-001	Mandatory[1]
	a) Air blocker for the onboard PCIe expansion slots 5-7	—	—
	b) Chassis retention bracket	—	—
	c) Fan blank	—	—
	d) LFF drive blank	—	—
	e) SFF drive blank	—	—
	f) Air blocker for the front drive cage 2 backplane	—	—
	g) Cable management holder	—	—
	h) FlexibleLOM blank	—	—

[1]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.

[2]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.
[3]No—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.

[1]Obligatoire—Pièces pour lesquelles le client doit procéder lui-même aux réparations. Si vous demandez à Hewlett Packard Enterprise de procéder au remplacement de ces pièces, les frais de transport et de main d'œuvre pour ce service vous seront facturés.
[2]Facultatif—Pièces pour lesquelles une réparation par le client est facultative. Ces pièces sont également conçues pour que le client puisse procéder lui-même aux réparations. Cependant, les frais supplémentaires engendrés par le remplacement de ces pièces par Hewlett Packard Enterprise dépendent du type de service de garantie désigné pour votre produit.
[3]Non—Certaines pièces Hewlett Packard Enterprise ne sont pas conçues pour être remplacées par le client. Afin de se conformer aux exigences de la garantie la garantie du client, Hewlett Packard Enterprise demande à un fournisseur de services agréé de procéder au remplacement de la pièce. Ces pièces sont signaléespar le mot « Non » dans le Catalogue de pièces illustré.

[1]Obbligatorio—Parti per le quali il cliente è tenuto a effettuare autonomamente la riparazione. Se si richiede l'intervento di Hewlett Packard Enterprise per la sostituzione di queste parti, al cliente verranno addebitate le spese di viaggio e manodopera dell'operazione.
[2]Facoltativo—Parti per le quali la riparazione in autonomia da parte del cliente è facoltativa. Queste parti sono progettate per consentire anche la riparazione da parte del cliente. Tuttavia, se il cliente richiedel'intervento di Hewlett Packard Enterprise per la sostituzione, potrebbero essere addebitate spese aggiuntive a seconda del tipo di garanzia in assistenza previsto per il prodotto.
[3]No—Alcune parti Hewlett Packard Enterprise non sono progettate la riparazione in autonomia da parte del cliente. In base a quanto previsto dalla garanzia per il cliente, Hewlett Packard Enterprise richiede l'intervento di un tecnico autorizzato per la sostituzione della parte. Queste parti sono contrassegnate con"No"nel catalogo parti illustrato.

[1]Zwingend—Teile, für die das Customer Self Repair-Verfahren zwingend vorgegeben ist. Wenn Sie den Austausch dieser Teile von Hewlett Packard Enterprisevornehmen lassen, werden Ihnen die Anfahrt- und Arbeitskosten für diesen Service berechnet.
[2]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 Enterprisevornehmen lassen möchten, können bei diesem Service je nach den für Ihr Produkt vorgesehenen Garantiebedingungen zusätzliche Kosten anfallen.
[3]Nein—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.

[1]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.
[2]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.
[3]No—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.

[1]Verplicht—Onderdelen die de klant zelf moet vervangen. Als u Hewlett Packard Enterprise vraagt deze onderdelen te vervangen, worden er reis- en arbeidskosten voor deze service in rekening gebracht.
[2]Optioneel—Onderdelen die de klant zelf kan vervangen. Deze onderdelen zijn ook ontworpen om door de klant zelf te worden vervangen. Als u Hewlett Packard Enterprise verzoekt om deze te vervangen, kan het zijn dat hiervoor extra kosten in rekening worden gebracht, afhankelijk van het soort garantie dat op uw product van toepassing is.
[3]Geen—Sommige onderdelen van Hewlett Packard Enterprise zijn niet ontworpen om door de klant zelf te worden vervangen. Om te voldoen aan de garantievoorwaarden eist Hewlett Packard Enterprise dat een geautoriseerde serviceverlener het onderdeel vervangt. Deze onderdelen worden aangeduid met 'Geen' in de geïllustreerde onderdelencatalogus.

[1]Obrigatório—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.
[2]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.
[3]Não—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.

[1]Mandatory：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。
[2]Optional：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。
[3]No：除外 — Hewlett Packard Enterprise製品の一部の部品は、カスタマーセルフリペアの対象外です。製品の保証を継続するためには、Hewlett Packard EnterpriseまたはHewlett Packard Enterprise正規保守代理店による交換作業が必須となります。部品カタログには、当該部品がカスタマーセルフリペア除外品である旨が記載されています。

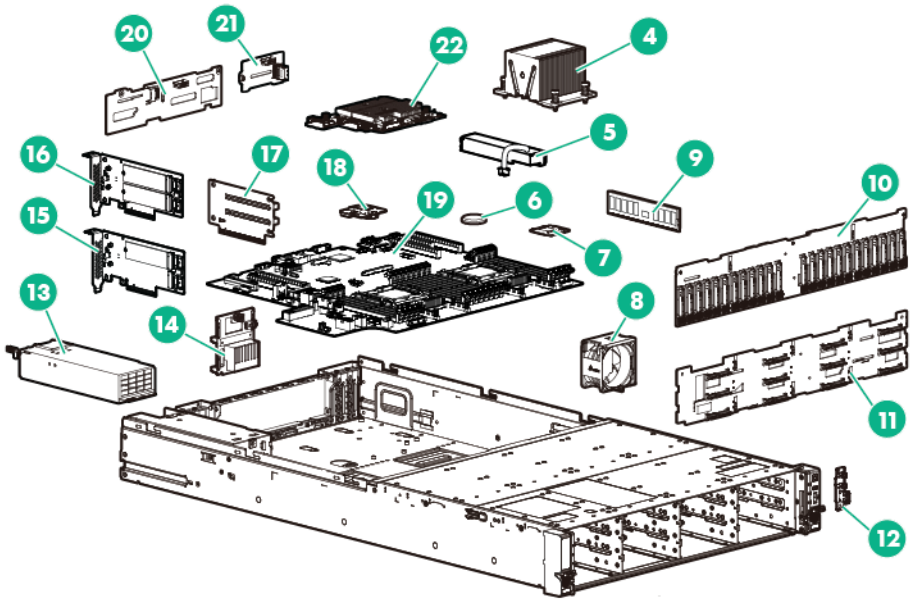
[1]Mandatory — 客户必须自行维修的部件。如果您请求 Hewlett Packard Enterprise 更换这些部件，则必须为该服务支付差旅费和人工费用。
[2]Optional — 客户可以选择是否自行维修的部件。这些部件也是为客户自行维修设计的。不过，如果您要求 Hewlett Packard Enterprise 为您更换这些部件，则根据为您的产品指定的保修服务类型，Hewlett Packard Enterprise 可能收取或不再收取任何附加费用。
[3]No — 某些 Hewlett Packard Enterprise 部件的设计并未考虑客户自行维修。为了满足客户保修的需要，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”。

[1]Mandatory — 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。
[2]Optional — 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。
[3]No — 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」。

[1]Mandatory — 고객 셀프 수리가 의무 사항인 필수 부품. 사용자가 Hewlett Packard Enterprise에 이 부품의 교체를 요청할 경우 해당 서비스에 대한 출장비 및 작업비가 청구됩니다.
[2]Optional — 고객 셀프 수리가 선택 사항인 부품. 이러한 부품들도 고객 셀프 수리가 가능하도록 설계되었습니다. 하지만 사용자가 Hewlett Packard Enterprise에 이러한 부품의 교체를 요청할 경우 사용자가 구입한 제품에 해당하는 보증 서비스 유형에 따라 추가 비용 없이 교체가 가능할 수 있습니다.
[3]No — 일부 Hewlett Packard Enterprise 부품은 고객 셀프 수리가 불가능하도록 설계되었습니다. Hewlett Packard Enterprise는 만족스러운 고객 보증을 위해 공인 서비스 제공업체를 통해 부품을 교체하도록 요구하고 있습니다. 이러한 부품들은 Illustrated Parts Catalog에 “No”라고 표시되어 있습니다.

System components

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



Item	Description	Spare part number	Customer self repair (on page 6)
4	Heatsink	809952-001	Optional[2]
5	HPE Smart Storage Battery	815983-001	Mandatory[1]
6	System battery	234556-001	Mandatory[1]
7	Processors (include alcohol pad and thermal compound)	—	—
	a) 1.60-GHz Intel Xeon E5-2603 v3, 6C, 85 W	762441-001	Optional[2]
	b) 1.80-GHz Intel Xeon E5-2630L v3, 8C, 55 W*	762459-001	Optional[2]
	c) 1.80-GHz Intel Xeon E5-2650L v3, 12C, 65 W*	762461-001	Optional[2]
	d) 1.90-GHz Intel Xeon E5-2609 v3, 6C, 85 W*	762443-001	Optional[2]
	e) 2.00-GHz Intel Xeon E5-2683 v3, 14C, 120 W*	762453-001	Optional[2]
	f) 2.30-GHz Intel Xeon E5-2650 v3, 10C, 105 W*	762448-001	Optional[2]
	g) 2.30-GHz Intel Xeon E5-2670 v3, 12C, 120 W*	762450-001	Optional[2]
	h) 2.30-GHz Intel Xeon E5-2695 v3, 14C, 120 W*	762454-001	Optional[2]
	i) 2.30-GHz Intel Xeon E5-2698 v3, 16C, 135 W*	780760-001	Optional[2]
	j) 2.30-GHz Intel Xeon E5-2699 v3, 18C, 145 W*	780761-001	Optional[2]
	k) 2.40-GHz Intel Xeon E5-2620 v3, 6C, 85 W*	762445-001	Optional[2]
	l) 2.40-GHz Intel Xeon E5-2630 v3, 8C, 85 W*	762446-001	Optional[2]
	m) 2.50-GHz Intel Xeon E5-2680 v3, 12C, 120 W*	762451-001	Optional[2]
	n) 2.60-GHz Intel Xeon E5-2640 v3, 8C, 90 W*	762447-001	Optional[2]

Item	Description	Spare part number	Customer self repair (on page 6)
	o) 2.60-GHz Intel Xeon E5-2660 v3, 10C, 105 W*	762449-001	Optional[2]
	p) 2.60-GHz Intel Xeon E5-2690 v3, 12C, 135 W*	762452-001	Optional[2]
	q) 2.60-GHz Intel Xeon E5-2685 v3, 12C, 120 W*	780759-001	Optional[2]
	r) 2.60-GHz Intel Xeon E5-2697 v3, 14C, 145 W*	765154-001	Optional[2]
	s) 3.00-GHz Intel Xeon E5-2623 v3, 4C, 105 W*	780762-001	Optional[2]
	t) 3.20-GHz Intel Xeon E5-2667 v3, 8C, 135 W*	762457-001	Optional[2]
	u) 3.40-GHz Intel Xeon E5-2643 v3, 6C, 135 W*	762456-001	Optional[2]
	v) 3.50-GHz Intel Xeon E5-2637 v3, 4C, 135 W*	762455-001	Optional[2]
8	Fan	809953-001	Mandatory[1]
9	DIMMs	—	—
	a) 4 GB, single-rank x8 PC4-2133P-R	774169-001	Optional[2]
	b) 8 GB, single-rank x4 PC4-2133P-R*	774170-001	Optional[2]
	c) 8 GB, dual-rank x8 PC4-2133P-R*	774171-001	Optional[2]
	d) 16 GB, dual-rank x4 PC4-2133P-R*	774172-001	Optional[2]
	e) 16 GB, dual-rank x4 PC4-2133P-L*	774173-001	Optional[2]
	f) 32 GB, dual-rank x4 PC4-2133P-R*	774175-001	Optional[2]
	g) 32 GB, quad-rank x4 PC4-2133P-L*	774174-001	Optional[2]
10	24-bay SFF front drive cage backplane	809948-001	Optional[2]
11	12-bay LFF front drive cage backplane	809947-001	Optional[2]
12	Front I/O board	824567-001	Optional[2]
13	Power input modules	—	—
	a) HPE 800 W Flex Slot Platinum Hot-plug Power Supply	754381-001	Mandatory[1]
	b) HPE 800 W Flex Slot Titanium Hot-plug Power Supply*	754378-001	Mandatory[1]
	c) HPE 800 W Flex Slot -48 V DC Hot-plug Power Supply*	754382-001	Mandatory[1]
	d) HPE 800 W Flex Slot Universal Hot-plug Power Supply*	754379-001	Mandatory[1]
	e) HPE 1400 W Flex Slot Platinum Plus Hot-plug Power Supply*	754383-001	Mandatory[1]
14	Power pass-through board	809945-001	Optional[2]
15	SATA M.2 SSD single module enablement kit	797907-001	Optional[2]
	a) M.2 SSD enablement board	—	—
	b) M.2 SSD module	—	—
	c) SATA cable*	—	—
16	SATA M.2 SSD dual module enablement kit	797908-001	Optional[2]
	a) M.2 SSD enablement board	—	—
	b) M.2 SSD modules (2)	—	—
	c) SATA cables (2)	—	—
17	Two-slot PCIe riser board	809951-001	Optional[2]
18	Dedicated iLO management module	809944-001	Optional[2]

Item	Description	Spare part number	Customer self repair (on page 6)
19	System board (include alcohol pad and thermal compound)	809943-001	Optional[2]
20	Four-bay LFF rear drive cage backplane	809949-001	Optional[2]
21	Two-bay SFF rear drive cage backplane	809950-001	Optional[2]
22	HPE Flexible Smart Array P840ar Controller	813586-001	Optional[2]
23	Front drive Mini-SAS and power cable assemblies (cables are enclosed inside plastic cable tracks)*	—	—
	a) LFF drive cable track assemblies*	809956-001	Optional[2]
	b) SFF drive cable track assemblies*	813584-001	Optional[2]
24	Miscellaneous system cable kit*	810246-001	Mandatory[1]
	a) Mini-SAS x4 cable for the four-bay LFF rear drive cage*	—	—
	b) Multi-connector drive signal cable for the two-bay SFF rear drive cage*	—	—
	c) Power Y-cable for the LFF/SFF rear drive cage and PCI riser cage*	—	—
	d) Ambient temperature sensor cable (for SFF drive configurations only)*	—	—

* Not shown
[1]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.
[2]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.
[3]No—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.

[1]Obligatoire—Pièces pour lesquelles le client doit procéder lui-même aux réparations. Si vous demandez à Hewlett Packard Enterprise de procéder au remplacement de ces pièces, les frais de transport et de main d’œuvre pour ce service vous seront facturés.
[2]Facultatif—Pièces pour lesquelles une réparation par le client est facultative. Ces pièces sont également conçues pour que le client puisse procéder lui-même aux réparations. Cependant, les frais supplémentaires engendrés par le remplacement de ces pièces par Hewlett Packard Enterprise dépendent du type de service de garantie désigné pour votre produit.
[3]Non—Certaines pièces Hewlett Packard Enterprise ne sont pas conçues pour être remplacées par le client. Afin de se conformer aux exigences de la garantie la garantie du client, Hewlett Packard Enterprise demande à un fournisseur de services agréé de procéder au remplacement de la pièce. Ces pièces sont signaléespar le mot « Non » dans le Catalogue de pièces illustré.

[1]Obbligatorio—Parti per le quali il cliente è tenuto a effettuare autonomamente la riparazione. Se si richiede l'intervento di Hewlett Packard Enterprise per la sostituzione di queste parti, al cliente verranno addebitate le spese di viaggio e manodopera dell'operazione.
[2]Facoltativo—Parti per le quali la riparazione in autonomia da parte del cliente è facoltativa. Queste parti sono progettate per consentire anche la riparazione da parte del cliente. Tuttavia, se il cliente richiedel'intervento di Hewlett Packard Enterprise per la sostituzione, potrebbero essere addebitate spese aggiuntive a seconda del tipo di garanzia in assistenza previsto per il prodotto.
[3]No—Alcune parti Hewlett Packard Enterprise non sono progettate la riparazione in autonomia da parte del cliente. In base a quanto previsto dalla garanzia per il cliente, Hewlett Packard Enterprise richiede l'intervento di un tecnico autorizzato per la sostituzione della parte. Queste parti sono contrassegnate con"No"nel catalogo parti illustrato.

[1]Zwingend—Teile, für die das Customer Self Repair-Verfahren zwingend vorgegeben ist. Wenn Sie den Austausch dieser Teile von Hewlett Packard Enterprisevornehmen lassen, werden Ihnen die Anfahrt- und Arbeitskosten für diesen Service berechnet.
[2]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 Enterprisevornehmen lassen möchten, können bei diesem Service je nach den für Ihr Produkt vorgesehenen Garantiebedingungen zusätzliche Kosten anfallen.

[3]Nein—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.

[1]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.
[2]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.
[3]No—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.

[1]Verplicht—Onderdelen die de klant zelf moet vervangen. Als u Hewlett Packard Enterprise vraagt deze onderdelen te vervangen, worden er reis- en arbeidskosten voor deze service in rekening gebracht.
[2]Optioneel—Onderdelen die de klant zelf kan vervangen. Deze onderdelen zijn ook ontworpen om door de klant zelf te worden vervangen. Als u Hewlett Packard Enterprise verzoekt om deze te vervangen, kan het zijn dat hiervoor extra kosten in rekening worden gebracht, afhankelijk van het soort garantie dat op uw product van toepassing is.
[3]Geen—Sommige onderdelen van Hewlett Packard Enterprise zijn niet ontworpen om door de klant zelf te worden vervangen. Om te voldoen aan de garantievoorwaarden eist Hewlett Packard Enterprise dat een geautoriseerde serviceverlener het onderdeel vervangt. Deze onderdelen worden aangeduid met 'Geen' in de geïllustreerde onderdelencatalogus.

[1]Obrigatório—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.
[2]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.
[3]Não—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.

[1]Mandatory：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。
[2]Optional：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。
[3]No：除外 — Hewlett Packard Enterprise製品の一部の部品は、カスタマーセルフリペアの対象外です。製品の保証を継続するためには、Hewlett Packard EnterpriseまたはHewlett Packard Enterprise正規保守代理店による交換作業が必須となります。部品カタログには、当該部品がカスタマーセルフリペア除外品である旨が記載されています。

[1]Mandatory — 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。
[2]Optional — 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。
[3]No — 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”。

[1]Mandatory — 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。
[2]Optional — 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。
[3]No — 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」。

[1]Mandatory — 고객 셀프 수리가 의무 사항인 필수 부품. 사용자가 Hewlett Packard Enterprise에 이 부품의 교체를 요청할 경우 해당 서비스에 대한 출장비 및 작업비가 청구됩니다.
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[3]No — 일부 Hewlett Packard Enterprise 부품은 고객 셀프 수리가 불가능하도록 설계되었습니다. Hewlett Packard Enterprise는 만족스러운 고객 보증을 위해 공인 서비스 제공업체를 통해 부품을 교체하도록 요구하고 있습니다. 이러한 부품들은 Illustrated Parts Catalog에 “No”라고 표시되어 있습니다.

Removal and replacement procedures

Required tools

You need the following items for some procedures:

- T-10/T-15 Torx screwdriver
- T-25 Torx screwdriver
- Flathead screwdriver (for removing the front I/O board)
- HPE Insight Diagnostics (on page 124)

Safety considerations

Before performing service procedures, review all the safety information.

Preventing electrostatic discharge

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

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.

Symbols on equipment

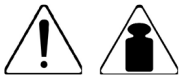
The following symbols may be placed on equipment to indicate the presence of potentially hazardous conditions.

This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel.
WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure. Refer all maintenance, upgrades, and servicing to qualified personnel.

This symbol indicates the presence of electric shock hazards. The area contains no user or field serviceable parts. Do not open for any reason.
WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure.

This symbol on an RJ-45 receptacle indicates a network interface connection.
WARNING: To reduce the risk of electric shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.

This symbol indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists.
WARNING: To reduce the risk of injury from a hot component, allow the surface to cool before touching.



This symbol indicates that the component exceeds the recommended weight for one individual to handle safely.
WARNING: To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manual material handling.

These symbols, on power supplies or systems, indicate that the equipment is supplied by multiple sources of power.
WARNING: To reduce the risk of injury from electric shock, remove all power cords to completely disconnect power from the system.

Server warnings and caution

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

- Observe local occupational health and safety requirements and guidelines for manual handling.
- Reduce the weight of the server by removing the drives and power input modules before installing or removing the server from the rack.
- Obtain adequate assistance to lift and stabilize the server during installation or removal. Hewlett Packard Enterprise recommends that a minimum of two people are required for installing or removing the server from the rack. A third person might be required to help align the server if the server is installed higher than chest level.
- Use caution when installing 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, power input modules, and the internal system components to cool before touching them.

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

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

Rack warnings and caution

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.

⚠ **CAUTION:** Do not operate the server for long periods with the front drive cages extended. When the front drive cages are extended while the server is powered on, do one of the following:

- If the iLO *08-HD Max* sensor reading is reporting a temperature value, monitor the status of the front drive health/thermal LED ("Front panel LEDs and buttons" on page 127). When this LED starts flashing amber, immediately slide the drive cages back into the chassis and keep them there until the LED turns green.
- If the iLO *08-HD Max* sensor reading is reporting an *N/A* value, monitor how long the drive cages have been out of the chassis. Before reaching the 140 sec mark, slide the drive cages back into the chassis and keep them there for at least 300 sec before extending them out again.

Failure to observe this caution will result in improper airflow and insufficient cooling that can lead to thermal damage.

Preparation procedures

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

- Power down the server (on page 26).
- Access the product front panel ("Remove the security bezel" on page 26).
- Extend the front drive cages out of the chassis (on page 26).
- Remove drives from the front drive cages ("Remove a drive from the front drive cages" on page 27).
- Remove drives from the rear drive cage ("Remove a drive from the rear drive cage" on page 29).
- Remove a power input module.
- Remove the server from the rack (on page 33).
- Remove the access panel ("Access panel" on page 49).
- Remove the air baffle ("Air baffle" on page 50).
- Open the cable management holder (on page 35).
- Remove the PCI riser cage (on page 36).
- Remove a rear drive cage (on page 37).

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.

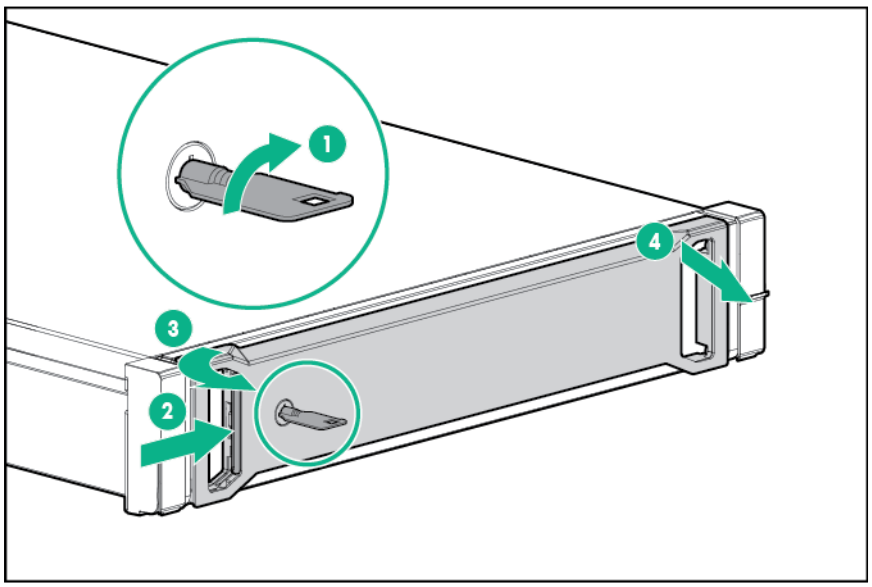
- Use a virtual power button selection through iLO 4.

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

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

Remove the security bezel

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



Extend the front drive cages out of the chassis

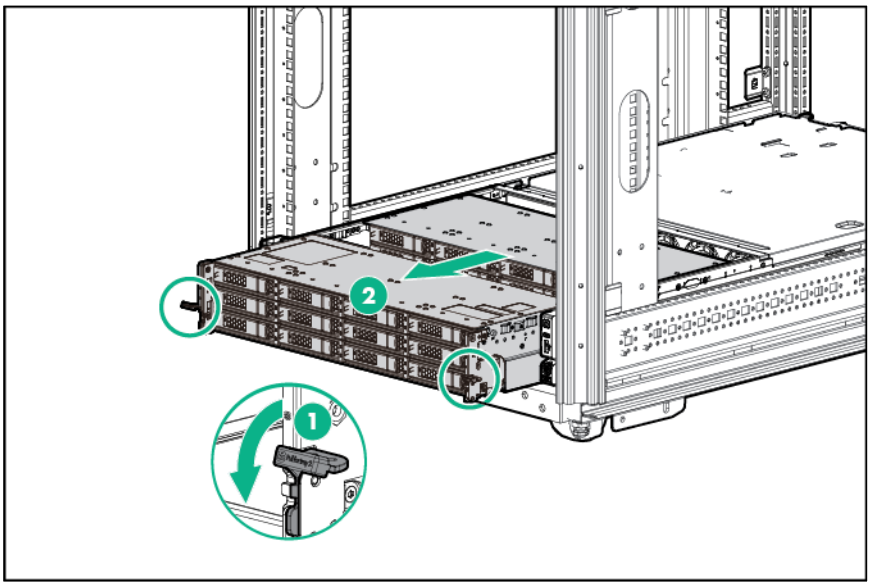
WARNING: To reduce the risk of personal injury or damage to the equipment, adequately stabilize the rack before extending a component outside the rack. Extend only one component at a time. A rack may become unstable if more than one component is extended.

CAUTION: Do not operate the server for long periods with the front drive cages extended. When the front drive cages are extended while the server is powered on, do one of the following:

- If the iLO *08-HD Max* sensor reading is reporting a temperature value, monitor the status of the front drive health/thermal LED ("Front panel LEDs and buttons" on page 127). When this LED starts flashing amber, immediately slide the drive cages back into the chassis and keep them there until the LED turns green.
- If the iLO *08-HD Max* sensor reading is reporting an *N/A* value, monitor how long the drive cages have been out of the chassis. Before reaching the 140 sec mark, slide the drive cages back into the chassis and keep them there for at least 300 sec before extending them out again.

Failure to observe this caution will result in improper airflow and insufficient cooling that can lead to thermal damage.

To extend the front drive cages, pull down the front drive cage release latches and use them to extend the drive cages out of the chassis.



Remove a drive from the front drive cages

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

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

CAUTION: Do not operate the server for long periods with the front drive cages extended. When the front drive cages are extended while the server is powered on, do one of the following:

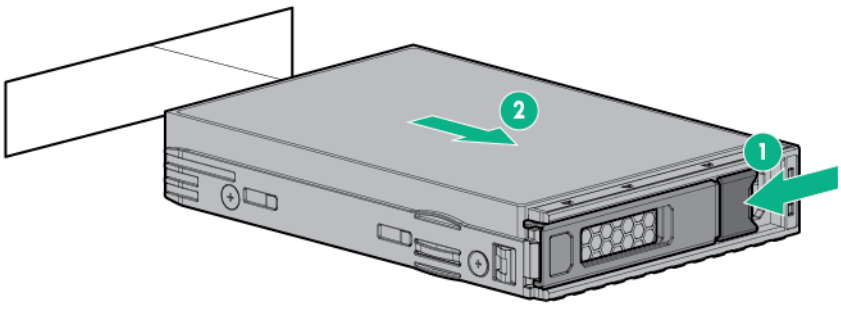
- If the iLO *08-HD Max* sensor reading is reporting a temperature value, monitor the status of the front drive health/thermal LED ("Front panel LEDs and buttons" on page 127). When this LED starts flashing amber, immediately slide the drive cages back into the chassis and keep them there until the LED turns green.
- If the iLO *08-HD Max* sensor reading is reporting an *N/A* value, monitor how long the drive cages have been out of the chassis. Before reaching the 140 sec mark, slide the drive cages back into the chassis and keep them there for at least 300 sec before extending them out again.

Failure to observe this caution will result in improper airflow and insufficient cooling that can lead to thermal damage.

CAUTION: Do not operate the server with any of the front drive cage 1 bays empty. To maintain proper airflow and sufficient cooling in the front drive cage 1, all drive bays in this cage should have a drive or a drive blank.

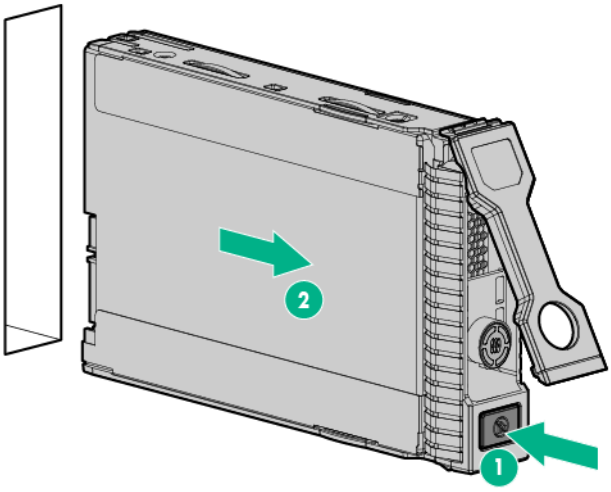
To remove the component:

1. Back up all server data.
2. Do one of the following:
   - If you intend to remove a drive from the front drive cage 1 and the security bezel is installed, remove the bezel ("Remove the security bezel" on page 26).
   - If you intend to remove a drive from the front drive cage 2, extend the front drive cages out of the chassis (on page 26).
3. To remove an LFF drive:
   a. Determine the status of the drive from the drive LED definitions ("Drive LEDs" on page 135).
   b. Wait until the Online/Activity LED stops flashing.
   c. Press the latch to open the release lever.
   d. Pull the release lever to disengage the drive from the backplane, and then slide the drive out of the bay.



4. To remove an SFF drive:
   a. Determine the status of the drive from the drive LED definitions ("Drive LEDs" on page 135).
   b. Wait until the icon in the Do Not Remove button stops flashing and is no longer illuminated.
   c. Press the Do Not Remove button to open the release lever.

d. Pull the release lever to disengage the drive from the backplane, and then slide the drive out of the bay.



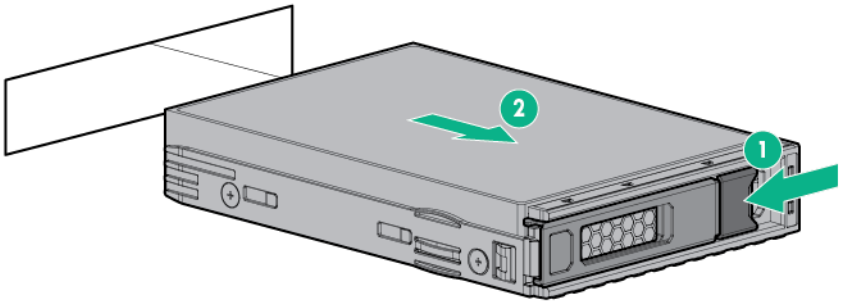
Remove a drive from the rear drive cage

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

CAUTION: Do not operate the server with any of the rear drive bays empty. To maintain proper airflow and sufficient cooling in the rear drive cage, all drive bays in this cage should have a drive or a drive blank. Hewlett Packard Enterprise recommends installing at least one drive in the rear drive cage before operating the server.

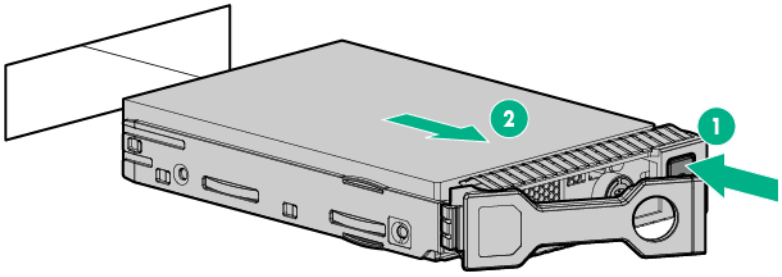
To remove the component:

1. Back up all server data.
2. Access the product rear panel.
3. To remove an LFF drive:
   a. Determine the status of the drive from the drive LED definitions ("Drive LEDs" on page 135).
   b. Wait until the Online/Activity LED stops flashing.
   c. Press the latch to open the release lever.
   d. Pull the release lever to disengage the drive from the backplane, and then slide the drive out of the bay.



4. To remove an SFF drive:

a. Determine the status of the drive from the drive LED definitions ("Drive LEDs" on page 135).
b. Wait until the icon in the Do Not Remove button stops flashing and is no longer illuminated.
c. Press the Do Not Remove button to open the release lever.
d. Pull the release lever to disengage the drive from the backplane, and then slide the drive out of the bay.

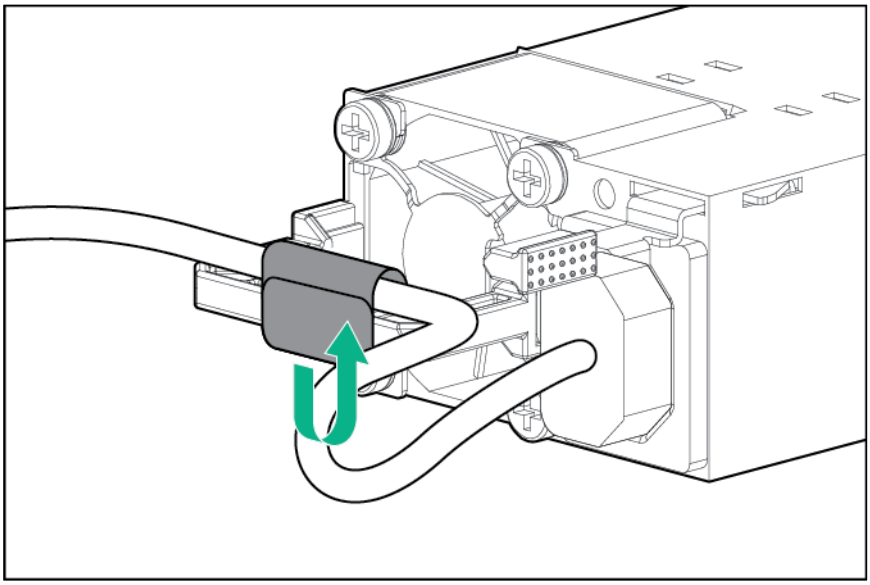


Remove a power input module

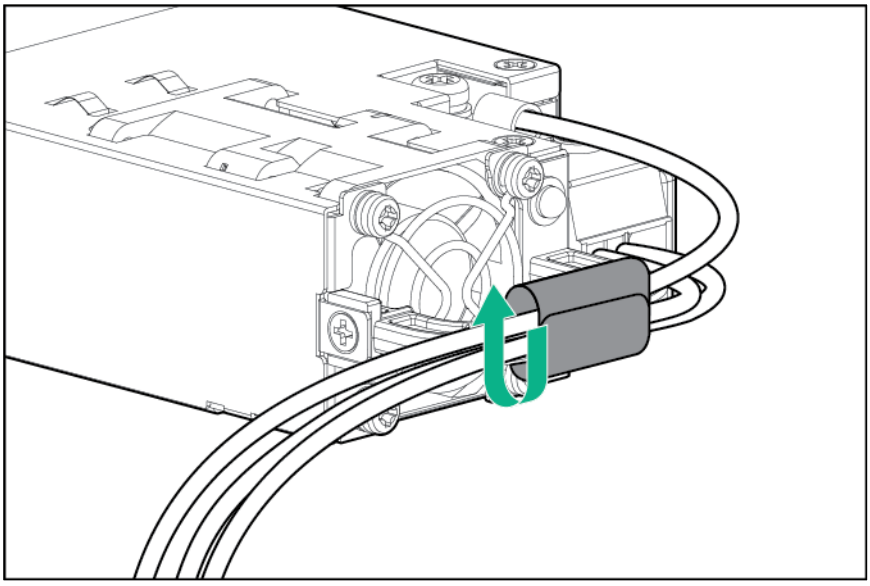
⚠ **WARNING:** To reduce the risk of personal injury from hot surfaces, allow the drives, power input modules, and the internal system components to cool before touching them.

To remove the component:

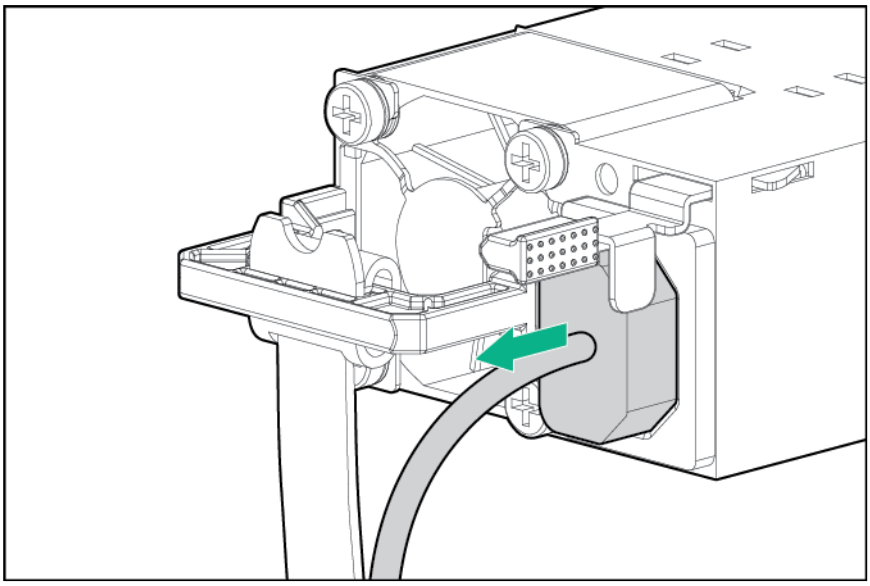
1. If the server is using a single power input module only, remove all power from the server:
   a. Back up all server data.
   b. Power down the server (on page 26).
   c. Disconnect all peripheral cables from the server.
   d. Disconnect the power cord from the power input module.
2. Release the power cords from the strain relief straps.
   - AC power input module



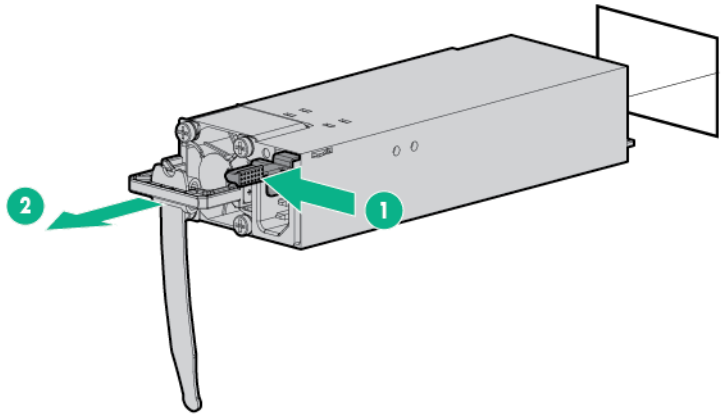
- DC power input module



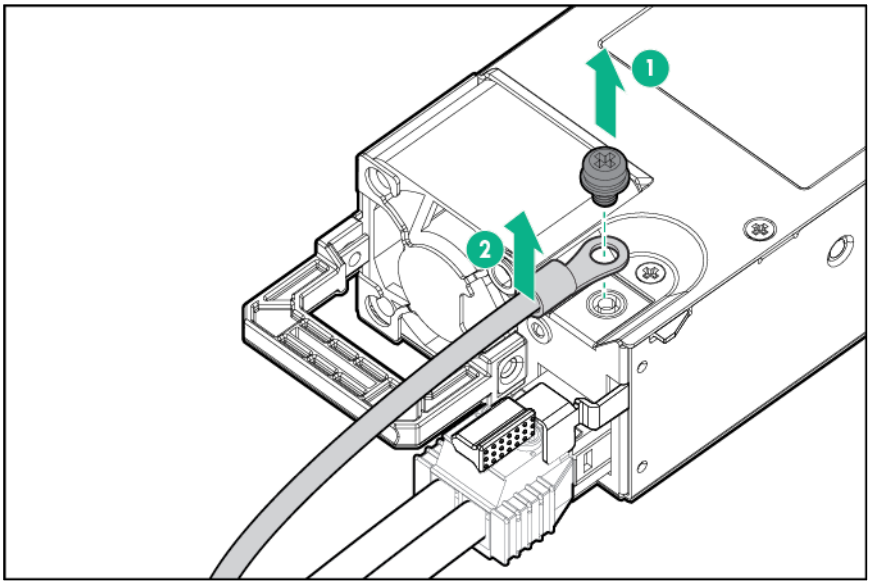
3. For an AC power input module, do the following:
   a. Disconnect the power cord from the power input module.



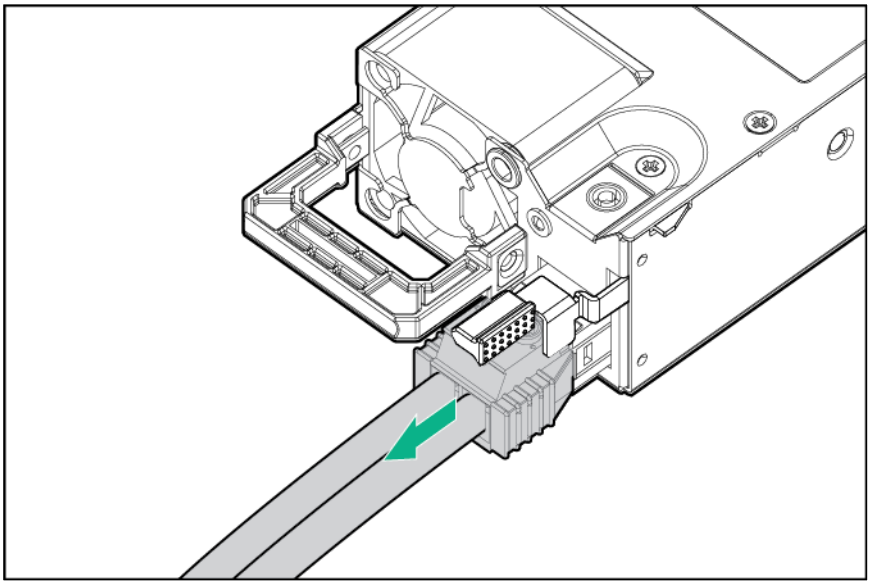
b. Remove the power input module.



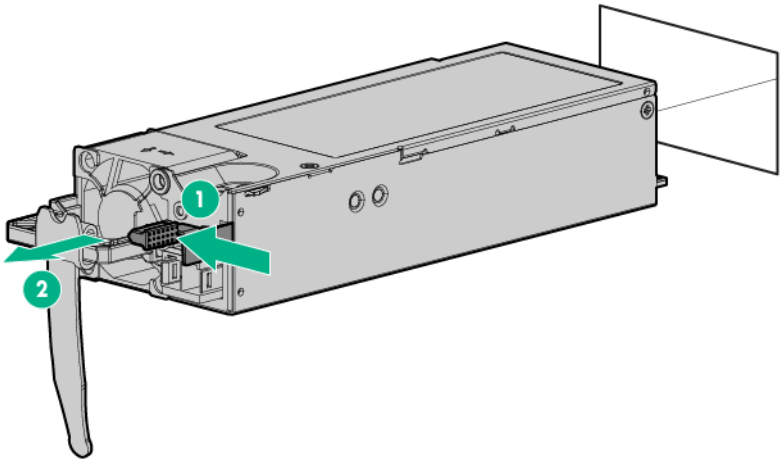
4. For a DC power input module, do the following:
   a. Slide the power input module out of the bay just enough to access the ground cable screw.
   b. Detach the ground (earthed) cable from the power input module.



c. Remove the terminal block connector from the power input module.



d. Remove the power input module.



Remove the server from the rack

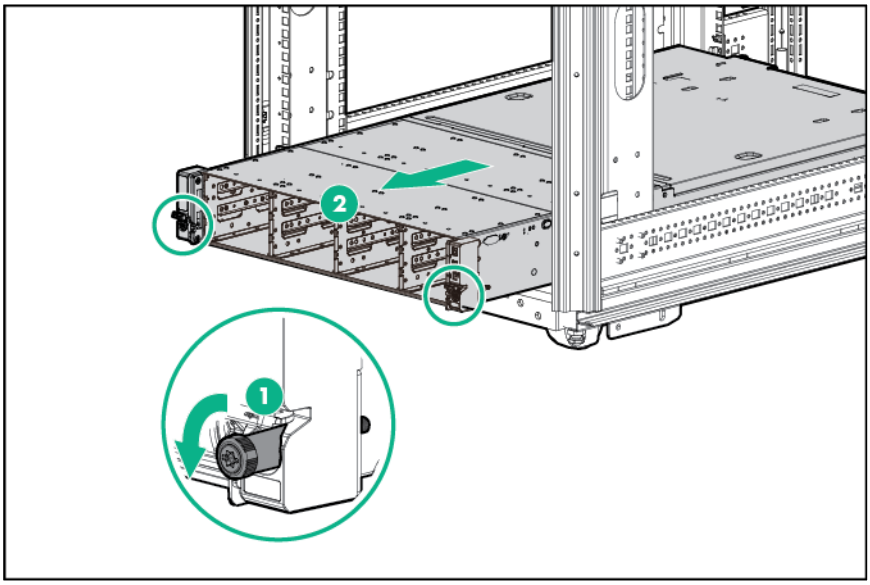
WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives, power input modules, and the internal system components to cool before touching them.

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

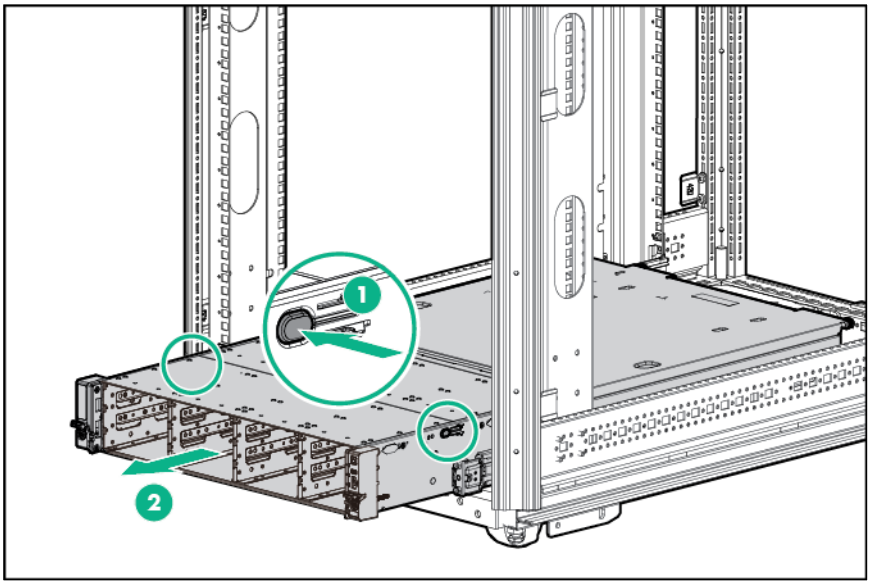
- Observe local occupational health and safety requirements and guidelines for manual handling.
- Reduce the weight of the server by removing the drives and power input modules before installing or removing the server from the rack.
- Obtain adequate assistance to lift and stabilize the server during installation or removal. Hewlett Packard Enterprise recommends that a minimum of two people are required for installing or removing the server from the rack. A third person might be required to help align the server if the server is installed higher than chest level.
- Use caution when installing or removing the server from the rack; it is unstable when not fastened to the rails.

To remove the server from a Hewlett Packard Enterprise, Compaq-branded, Telco, or a third-party rack:

1. Back up all server data.
2. Power down the server (on page 26).
3. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
4. Disconnect all peripheral cables from the server.
5. Remove all installed power input modules.
6. If a rear drive cage option is installed, remove all rear drives ("Remove a drive from the rear drive cage" on page 29).
7. Remove all the drives installed in the front drive cages 1 and 2 ("Remove a drive from the front drive cages" on page 27).
8. Remove the server from the rack:
   a. Loosen the rack ear thumbscrews.
   b. Pull the thumbscrews to extend the server out of the rack until the rack rail lock is engaged.



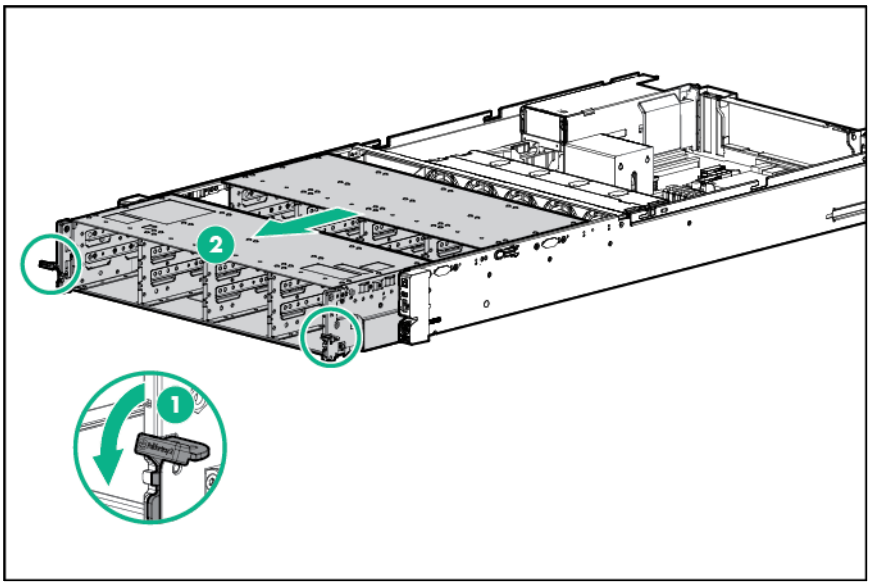
c. Press the server release latches, and then slide the server out of the rack.



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

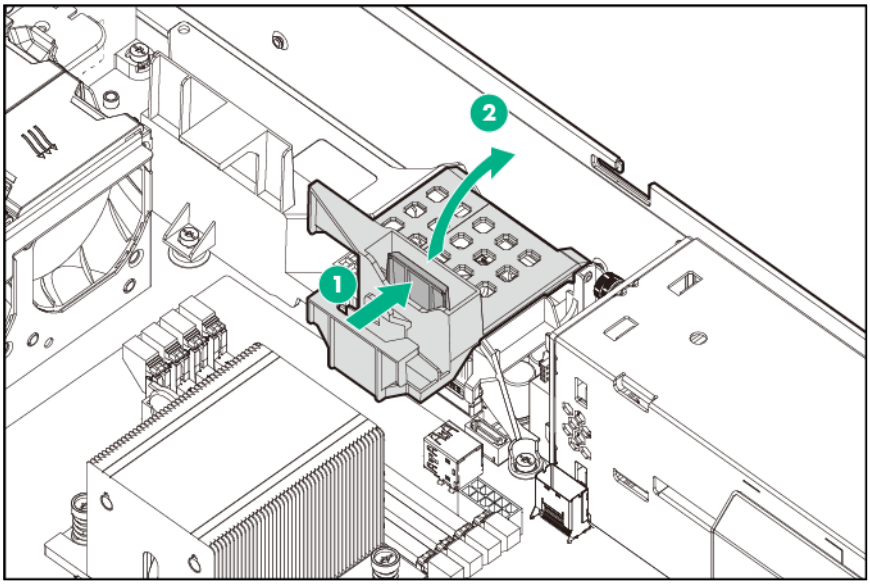
Open the cable management holder

1. Power down the server (on page 26).
2. Remove the server from the rack (on page 33).
3. Remove the access panel ("Access panel" on page 49).
4. Remove the air baffle ("Air baffle" on page 50).
5. Pull down the front drive cage release latches and use them to completely extend the drive cages out of the chassis.



6. Disconnect all system cables secured in the cable management holder from the system board or controller board, and then release them from the holder.

7. Press and hold the cable management holder release latch, and then move the holder up.



Remove the PCI riser cage

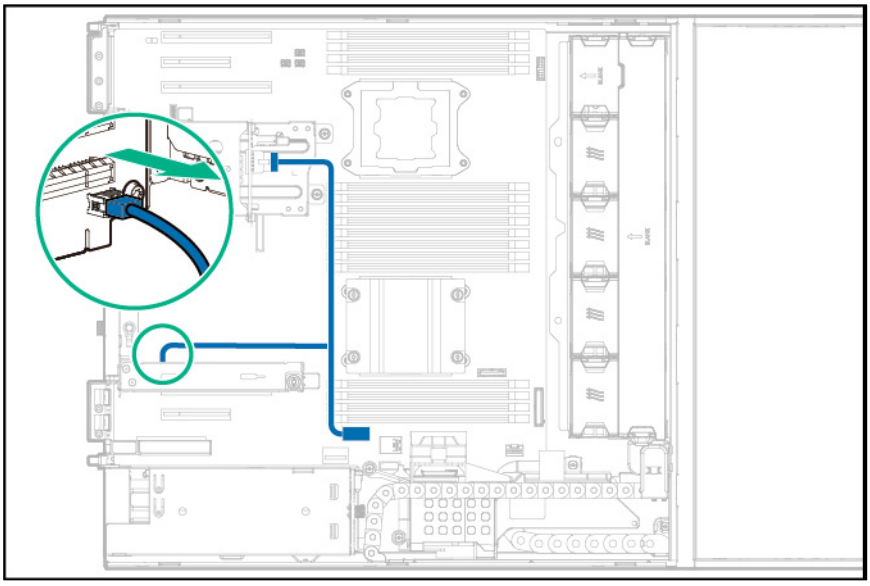
WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching them.

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.

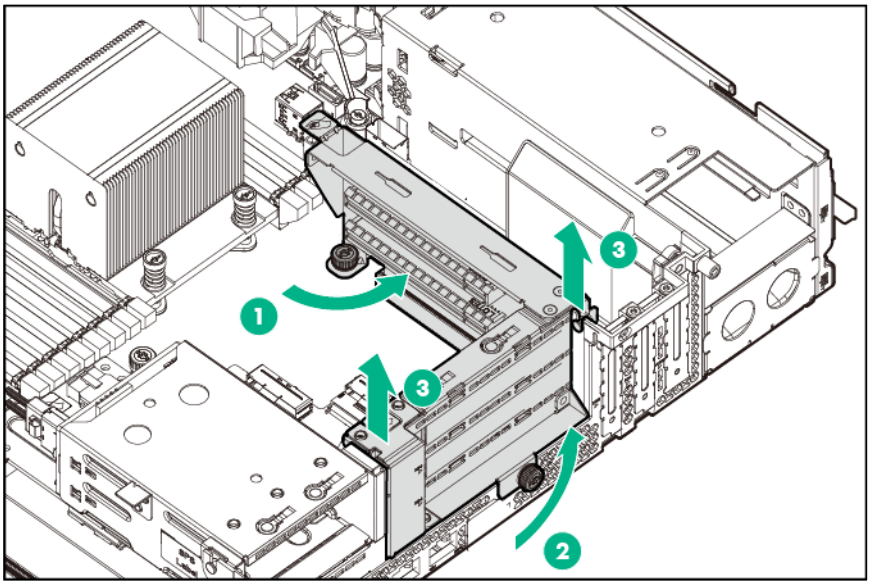
To remove the component:

1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).
4. Remove the access panel ("Access panel" on page 49).
5. If expansion boards with internal cabling are installed on the PCI riser cage, disconnect all internal cables from the expansion boards to completely remove the cage from the server.

6. Disconnect the power cable from the riser board.



7. Remove the PCI riser cage:
   a. Loosen the captive screw on the front end of the PCI riser cage.
   b. Loosen the thumbscrew on the rear end of the PCI riser cage.
   c. Grasp the PCI riser cage at the touch points and lift it out of the chassis.



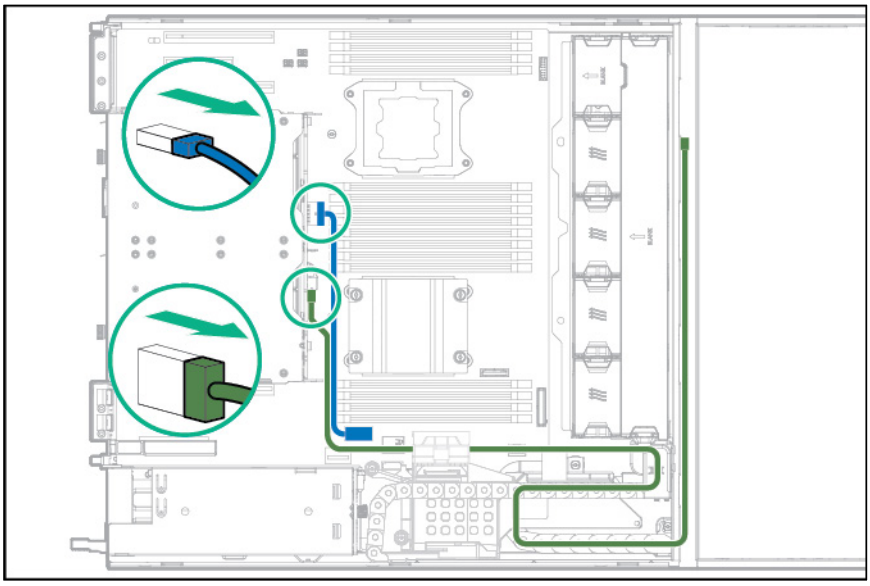
Remove a rear drive cage

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

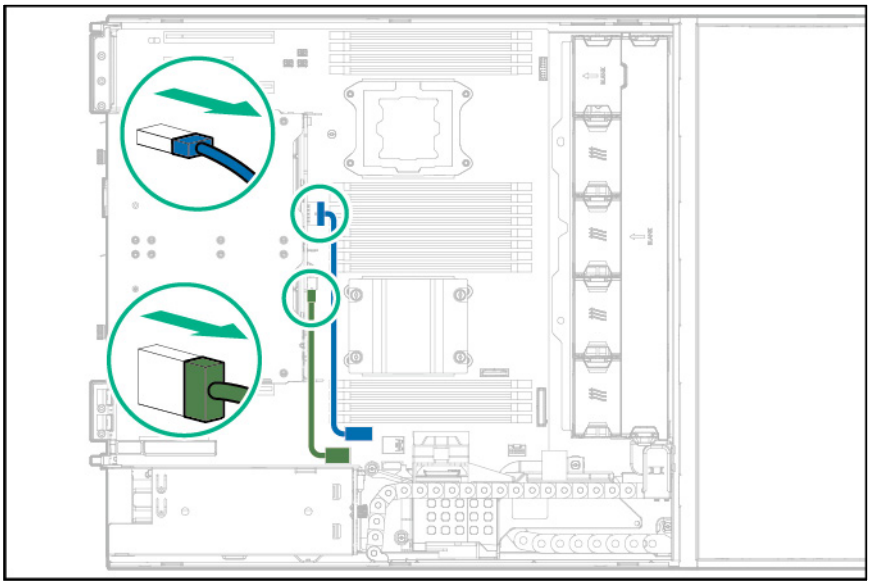
CAUTION: To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

To remove the component:

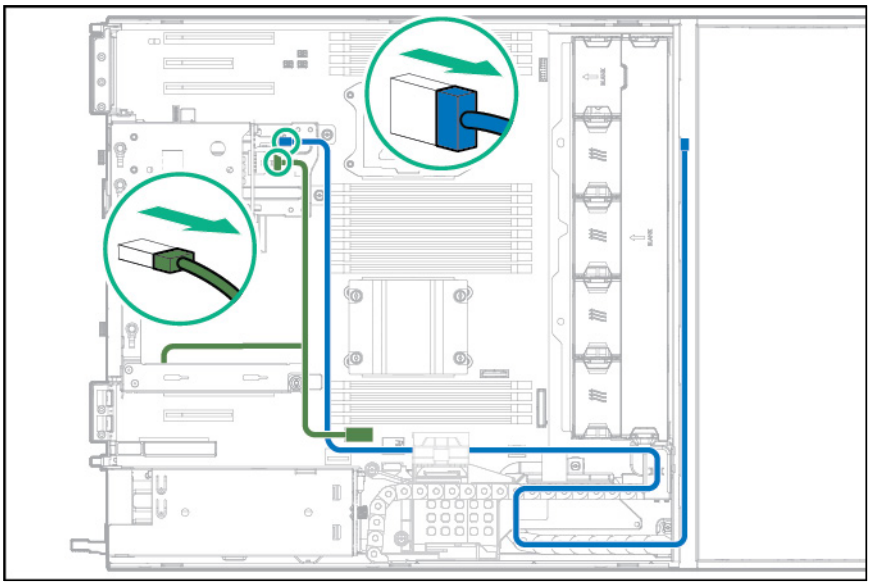
1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).
4. Remove the access panel ("Access panel" on page 49).
5. Disconnect all cables from the rear drive backplane:
   - Disconnecting the cables from the four-bay LFF hot-plug rear drive cage connected to the front drive cage 2 backplane



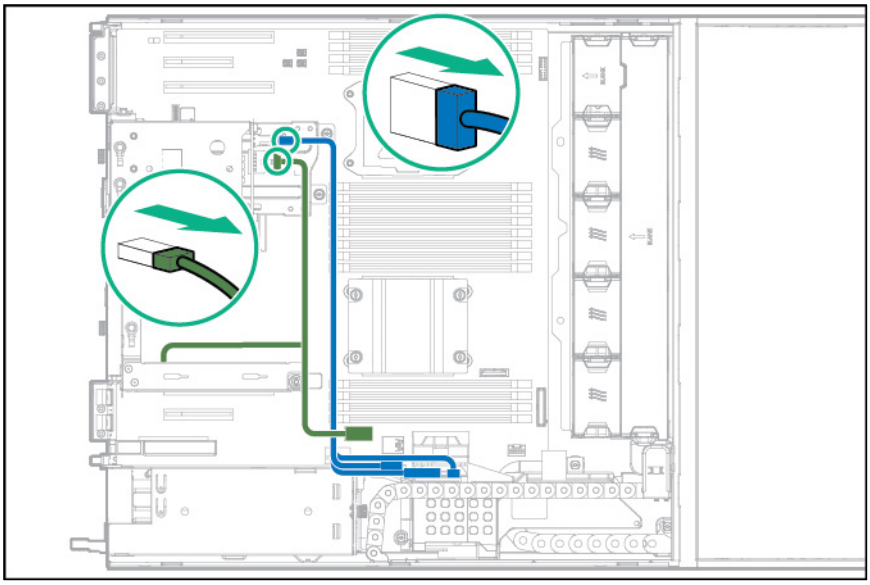
   - Disconnecting the cables from the four-bay LFF hot-plug rear drive cage connected to the system board



- Disconnecting the cables from the two-bay SFF hot-plug rear drive cage connected to the front drive cage 2 backplane

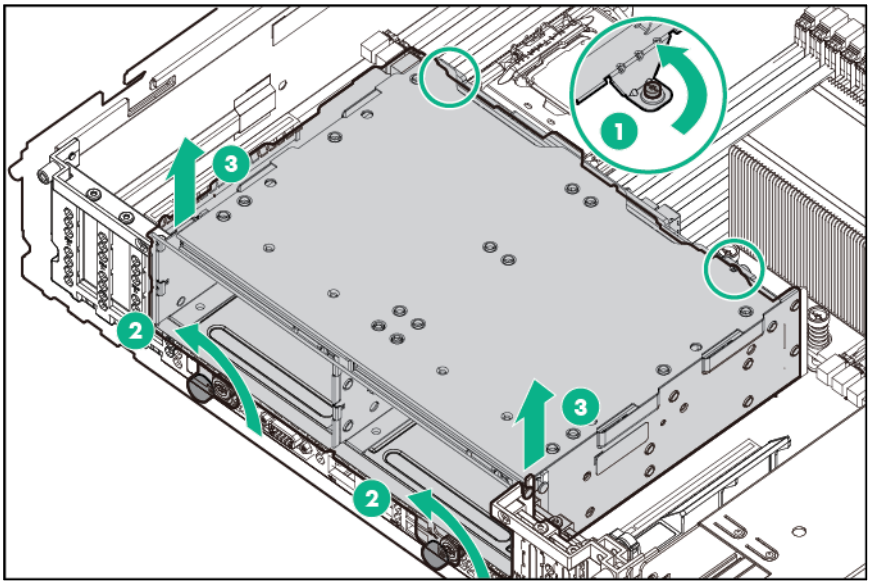


- Disconnecting the cables from the two-bay SFF hot-plug rear drive cage connected to the system board

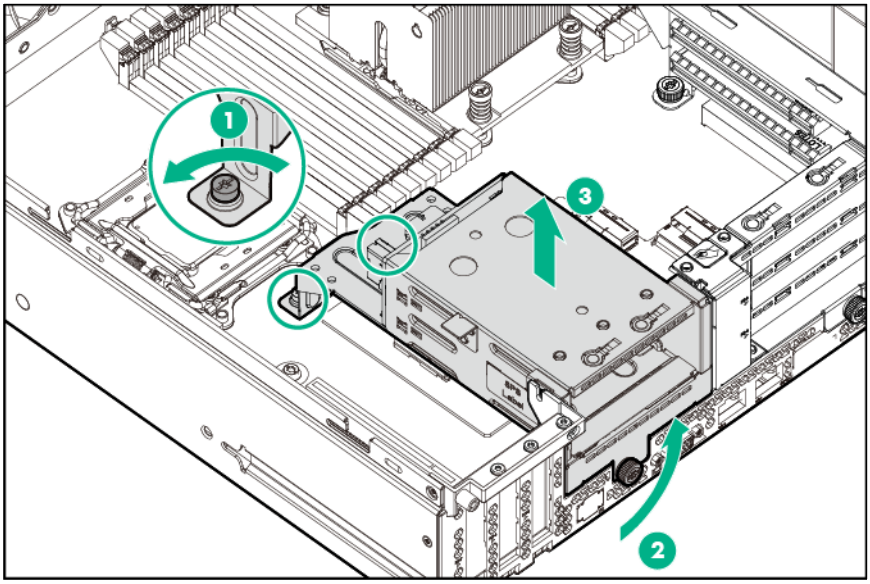


6. Remove the rear drive cage:

- Four-bay LFF hot-plug rear drive cage removal



- Two-bay SFF hot-plug rear drive cage removal



Hot-plug drive blank

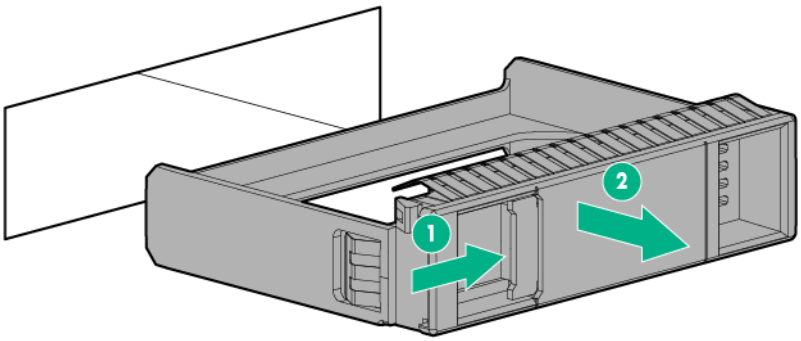
Removing a drive blank from the front drive cage 1

△ **CAUTION:** Do not operate the server with any of the front drive cage 1 bays empty. To maintain proper airflow and sufficient cooling in the front drive cage 1, all drive bays in this cage should have a drive or a drive blank.

To remove the component:

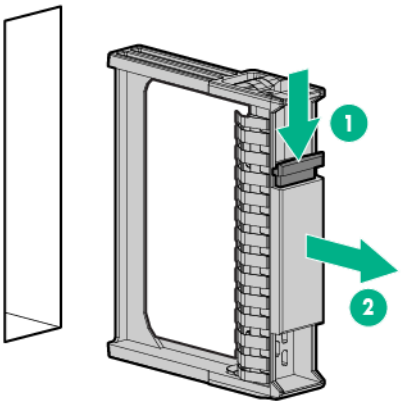
1. If installed, remove the security bezel (on page 26).
2. Remove the drive blank:

- LFF drive blank



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

- SFF drive blank



To replace the SFF drive blank, while pressing the release latch, slide the component into the bay until it is fully seated.

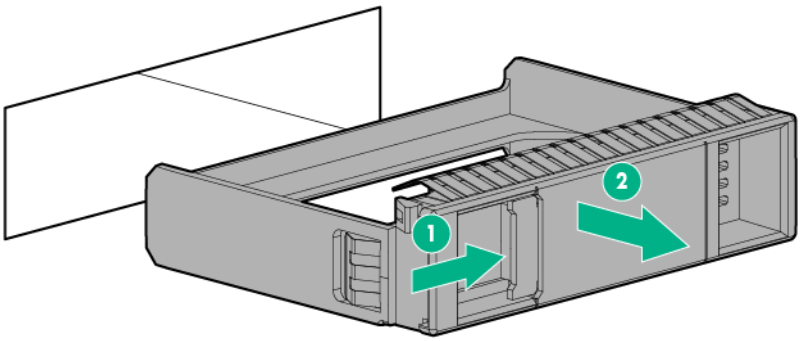
Removing a drive blank from the rear drive cage

CAUTION: Do not operate the server with any of the rear drive bays empty. To maintain proper airflow and sufficient cooling in the rear drive cage, all drive bays in this cage should have a drive or a drive blank. Hewlett Packard Enterprise recommends installing at least one drive in the rear drive cage before operating the server.

To remove the component:

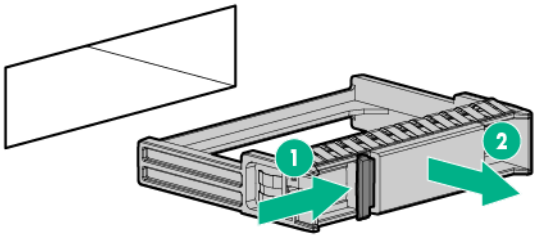
1. Access the product rear panel.
2. Remove the drive blank:

- LFF drive blank



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

- SFF drive blank



To replace the SFF drive blank, while pressing the release latch, slide the component into the bay until it is fully seated.

Hot-plug drive

Removing a drive from the front drive cages

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

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

CAUTION: Do not operate the server for long periods with the front drive cages extended. When the front drive cages are extended while the server is powered on, do one of the following:

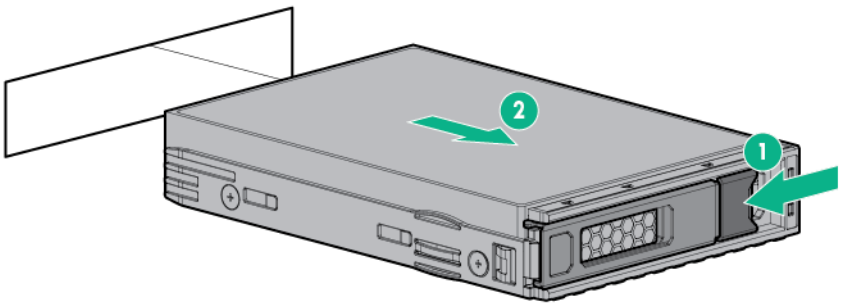
- If the iLO *08-HD Max* sensor reading is reporting a temperature value, monitor the status of the front drive health/thermal LED ("Front panel LEDs and buttons" on page 127). When this LED starts flashing amber, immediately slide the drive cages back into the chassis and keep them there until the LED turns green.
- If the iLO *08-HD Max* sensor reading is reporting an *N/A* value, monitor how long the drive cages have been out of the chassis. Before reaching the 140 sec mark, slide the drive cages back into the chassis and keep them there for at least 300 sec before extending them out again.

Failure to observe this caution will result in improper airflow and insufficient cooling that can lead to thermal damage.

CAUTION: Do not operate the server with any of the front drive cage 1 bays empty. To maintain proper airflow and sufficient cooling in the front drive cage 1, all drive bays in this cage should have a drive or a drive blank.

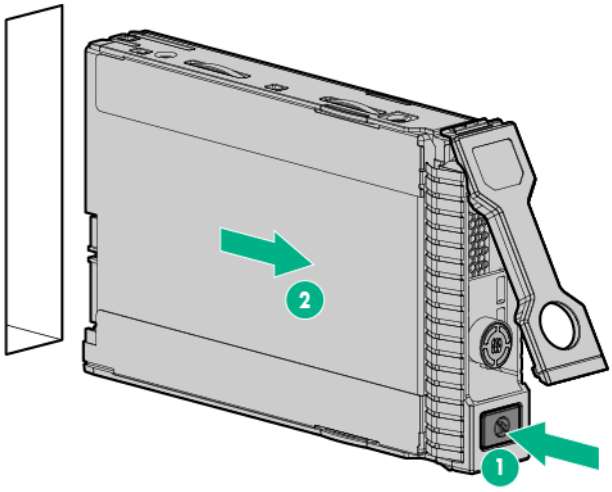
To remove the component:

1. Back up all server data.
2. Do one of the following:
   - If you intend to remove a drive from the front drive cage 1 and the security bezel is installed, remove the bezel ("Remove the security bezel" on page 26).
   - If you intend to remove a drive from the front drive cage 2, extend the front drive cages out of the chassis (on page 26).
3. To remove an LFF drive:
   a. Determine the status of the drive from the drive LED definitions ("Drive LEDs" on page 135).
   b. Wait until the Online/Activity LED stops flashing.
   c. Press the latch to open the release lever.
   d. Pull the release lever to disengage the drive from the backplane, and then slide the drive out of the bay.



4. To remove an SFF drive:
   a. Determine the status of the drive from the drive LED definitions ("Drive LEDs" on page 135).
   b. Wait until the icon in the Do Not Remove button stops flashing and is no longer illuminated.
   c. Press the Do Not Remove button to open the release lever.

d. Pull the release lever to disengage the drive from the backplane, and then slide the drive out of the bay.



To replace the component, reverse the removal procedure.

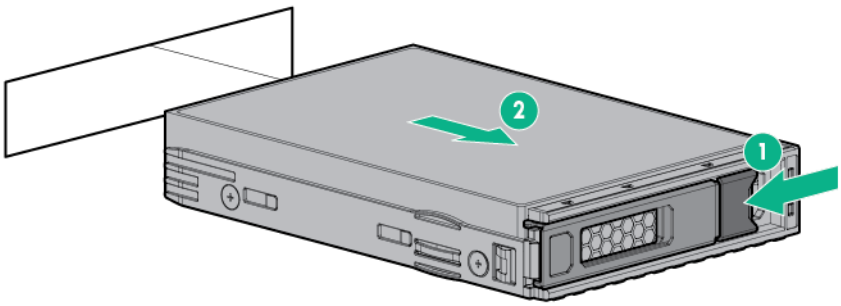
Removing a drive from the rear drive cage

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

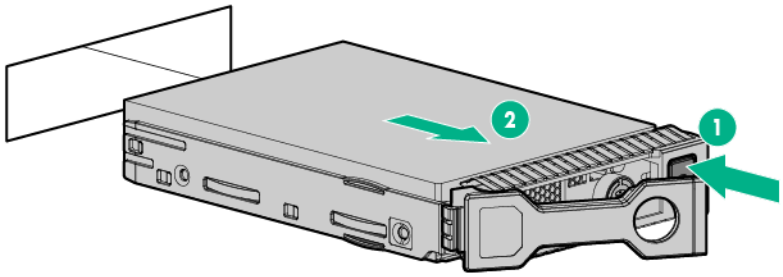
CAUTION: Do not operate the server with any of the rear drive bays empty. To maintain proper airflow and sufficient cooling in the rear drive cage, all drive bays in this cage should have a drive or a drive blank. Hewlett Packard Enterprise recommends installing at least one drive in the rear drive cage before operating the server.

To remove the component:

1. Back up all server data.
2. Access the product rear panel.
3. To remove an LFF drive:
   a. Determine the status of the drive from the drive LED definitions ("Drive LEDs" on page 135).
   b. Wait until the Online/Activity LED stops flashing.
   c. Press the latch to open the release lever.
   d. Pull the release lever to disengage the drive from the backplane, and then slide the drive out of the bay.



4. To remove an SFF drive:
   a. Determine the status of the drive from the drive LED definitions ("Drive LEDs" on page 135).
   b. Wait until the icon in the Do Not Remove button stops flashing and is no longer illuminated.
   c. Press the Do Not Remove button to open the release lever.
   d. Pull the release lever to disengage the drive from the backplane, and then slide the drive out of the bay.



To replace the component, reverse the removal procedure.

Power input module

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

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

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

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

CAUTION: Always install a power input module or a power supply blank into each bay to maintain proper airflow and cooling in the power enclosure. Improper airflow can lead to thermal damage.

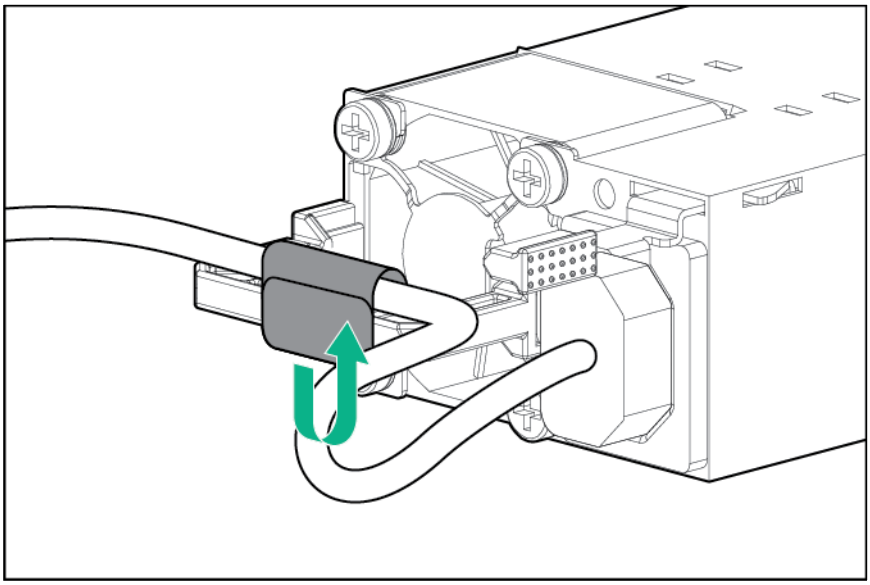
IMPORTANT: Mixing different types of power input modules in the same server might limit or disable some power supply features including support for power redundancy. To ensure access to all available features, all power input modules in the same server should have the same output and efficiency ratings.

To remove the component:

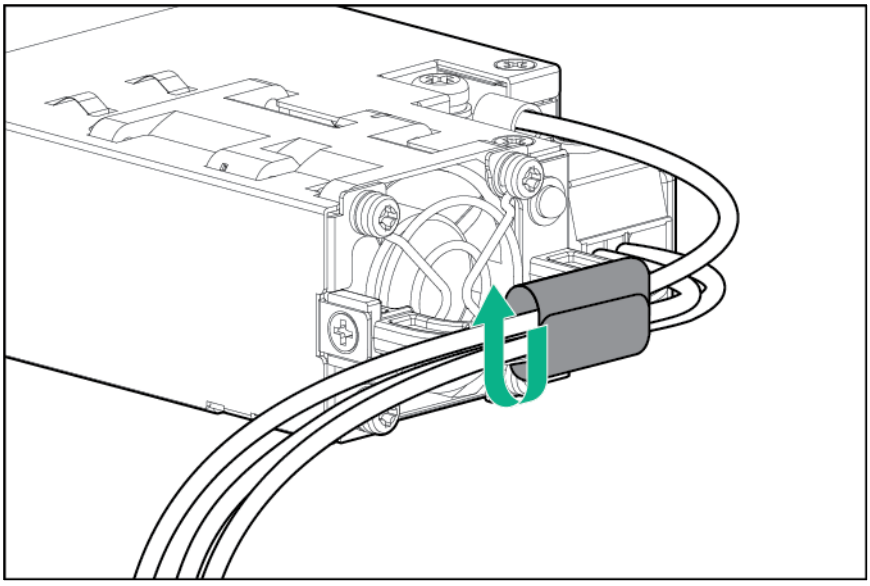
1. If the server is using a single power input module only, remove all power from the server:
   a. Back up all server data.

b. Power down the server (on page 26).
c. Disconnect all peripheral cables from the server.
d. Disconnect the power cord from the power input module.

2. Release the power cords from the strain relief straps.
   - AC power input module

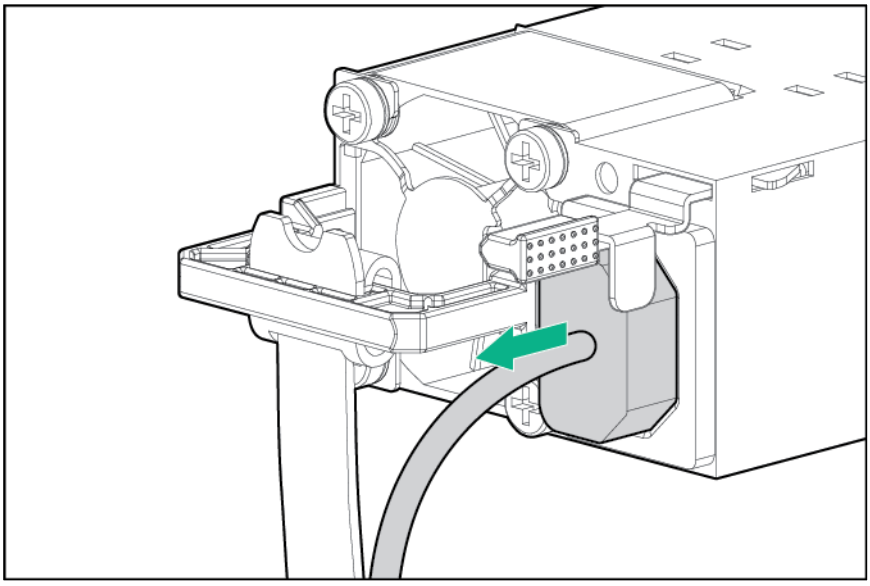


   - DC power input module

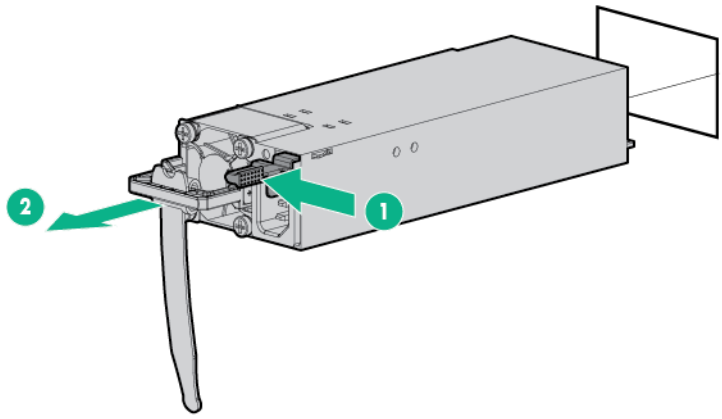


3. For an AC power input module, do the following:

a. Disconnect the power cord from the power input module.

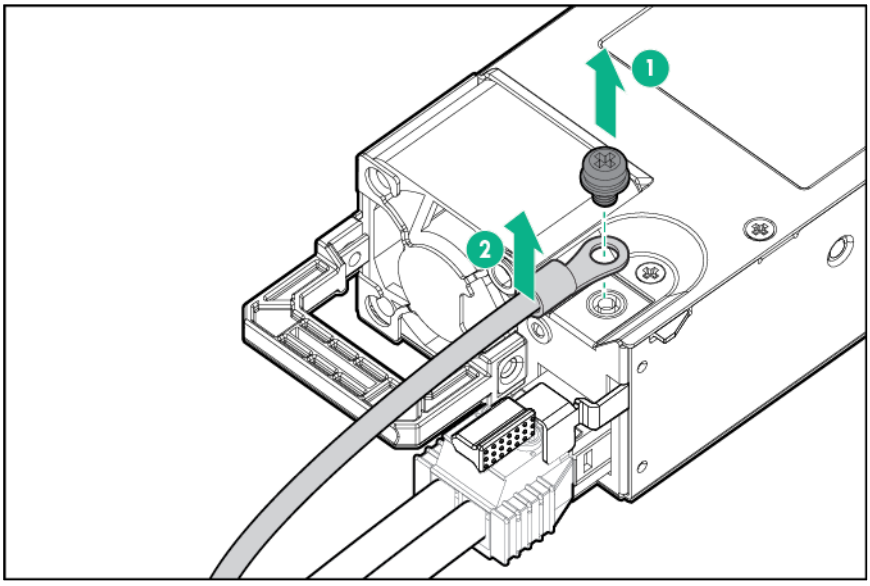


b. Remove the power input module.

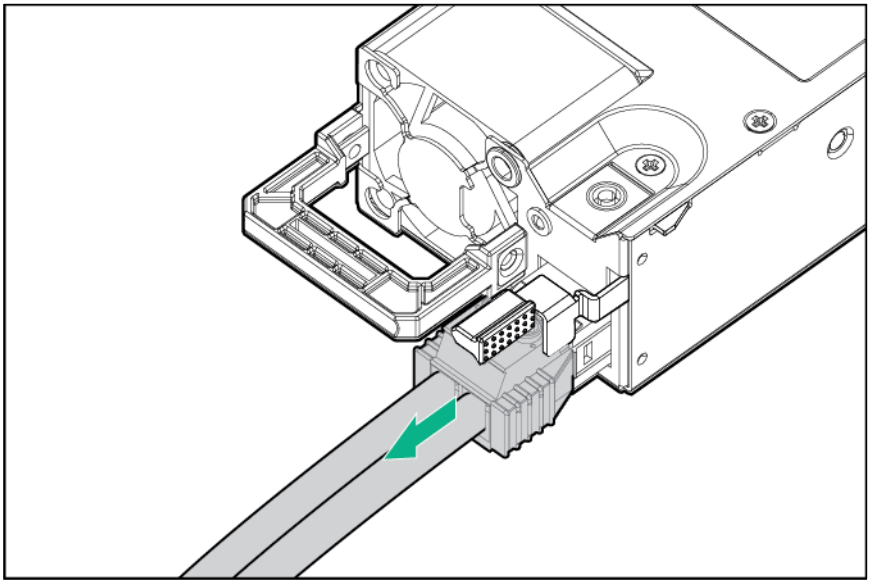


4. For a DC power input module, do the following:
   a. Slide the power input module out of the bay just enough to access the ground cable screw.

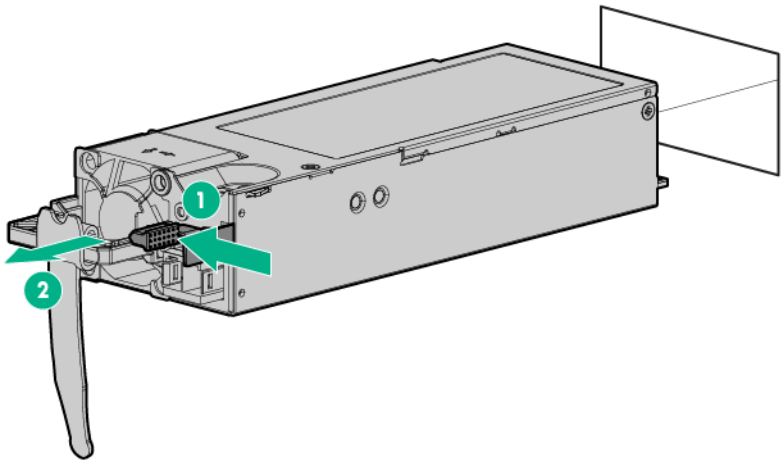
b. Detach the ground (earthed) cable from the power input module.



c. Remove the terminal block connector from the power input module.



d. Remove the power input module.



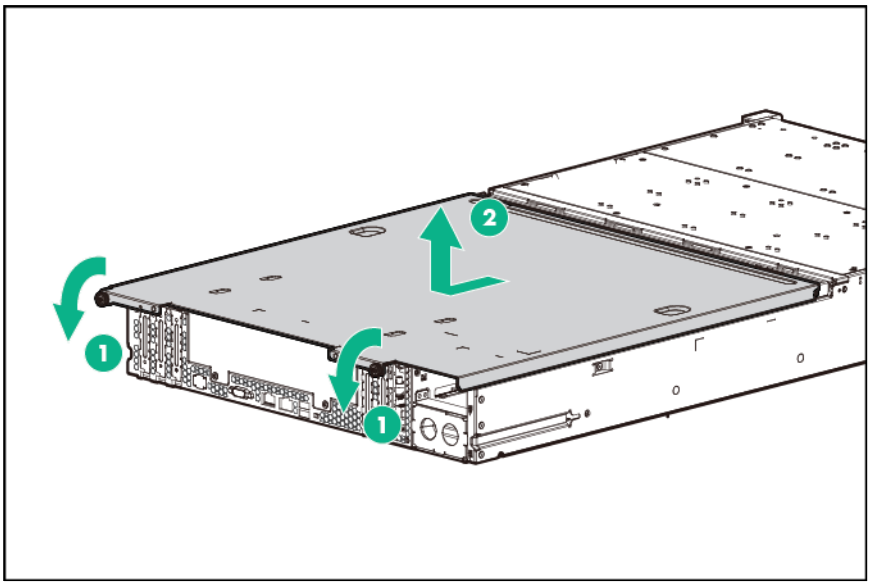
To replace the component, reverse the removal procedure.

Access panel

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

To remove the component:

1. Power down the server (on page 26).
2. Remove the server from the rack (on page 33).
3. Remove the access panel:
   a. Use a screwdriver to loosen the access panel screws.
   b. Slide the access panel toward the rear of the server, then lift it from the server.

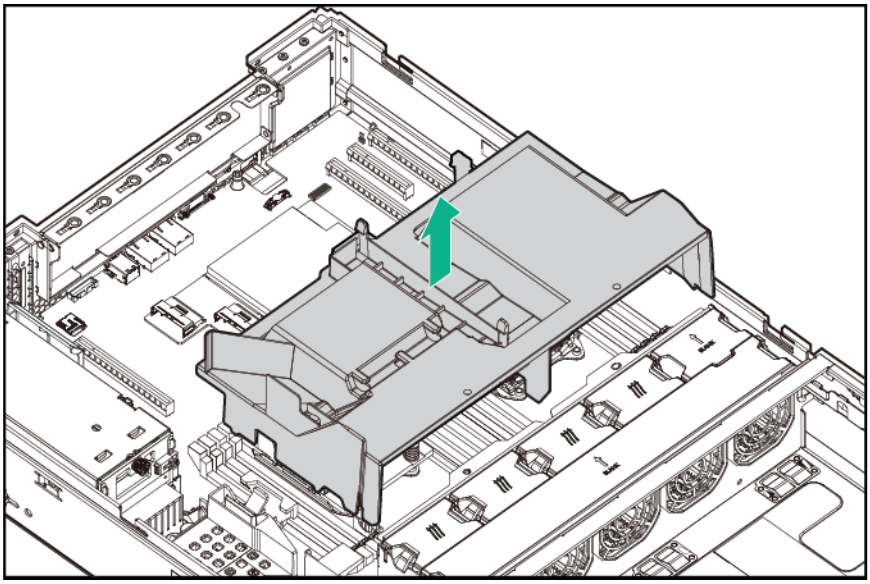


To replace the component, reverse the removal procedure.

Air baffle

To remove the component:

1. Power down the server (on page 26).
2. Remove the server from the rack (on page 33).
3. Remove the access panel ("Access panel" on page 49).
4. If an HPE Smart Storage Battery is installed on the air baffle, remove the battery ("HPE Smart Storage Battery" on page 61).
5. Remove the air baffle.



To replace the component, reverse the removal procedure.

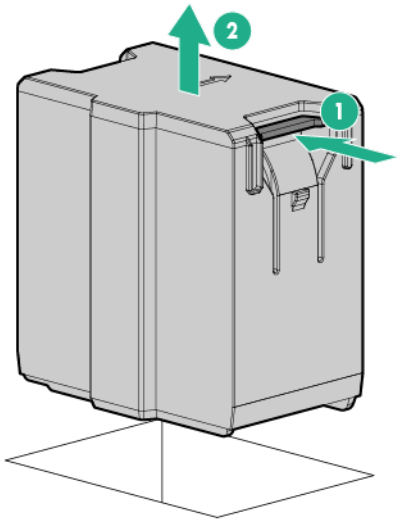
Fan blank

In this server, only the fan bay 5 can be occupied by a fan blank. The rest of the fan bays will either need a fan or a fan cage cover.

To remove the component:

1. Power down the server (on page 26).
2. Remove the server from the rack (on page 33).
3. Remove the access panel.

4. Remove the fan blank from fan bay 5.



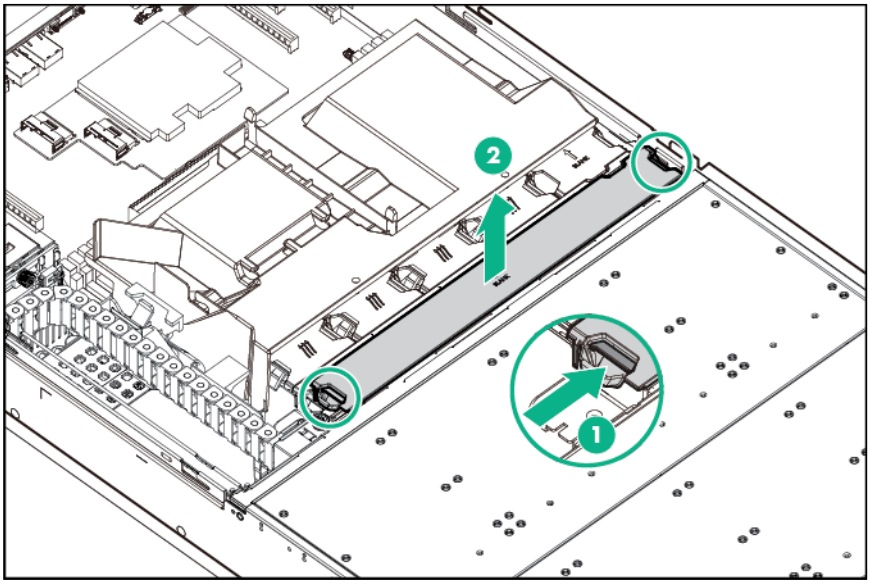
To replace the component, reverse the removal procedure.

Fan cage cover

In this server, only the fan bays 6–10 are covered by the fan cage cover. The rest of the fan bays will either need a fan or a fan blank.

To remove the component:

1. Power down the server (on page 26).
2. Remove the server from the rack (on page 33).
3. Remove the access panel.
4. Remove the fan cage cover.

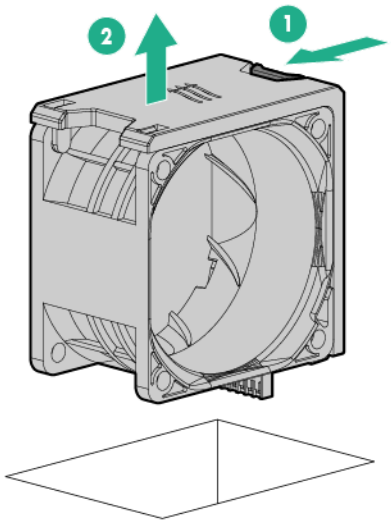


To replace the component, reverse the removal procedure.

Fan

To remove the component:

1. Power down the server (on page 26).
2. Remove the server from the rack (on page 33).
3. Remove the access panel ("Access panel" on page 49).
4. Remove the fan.



To replace the component, reverse the removal procedure.

DIMM

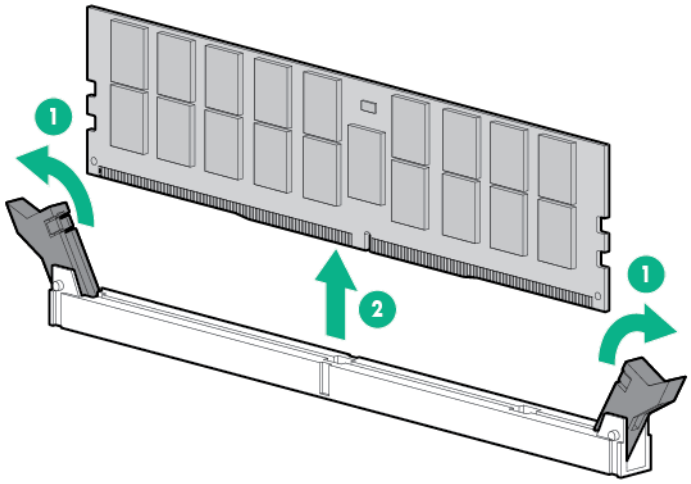
WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching them.

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.

To remove the component:

1. Power down the server (on page 26).
2. Remove the server from the rack (on page 33).
3. Remove the access panel ("Access panel" on page 49).
4. Remove the air baffle ("Air baffle" on page 50).
5. Open the DIMM slot latches.

6. Remove the DIMM.



To replace the component, reverse the removal procedure.

Heatsink

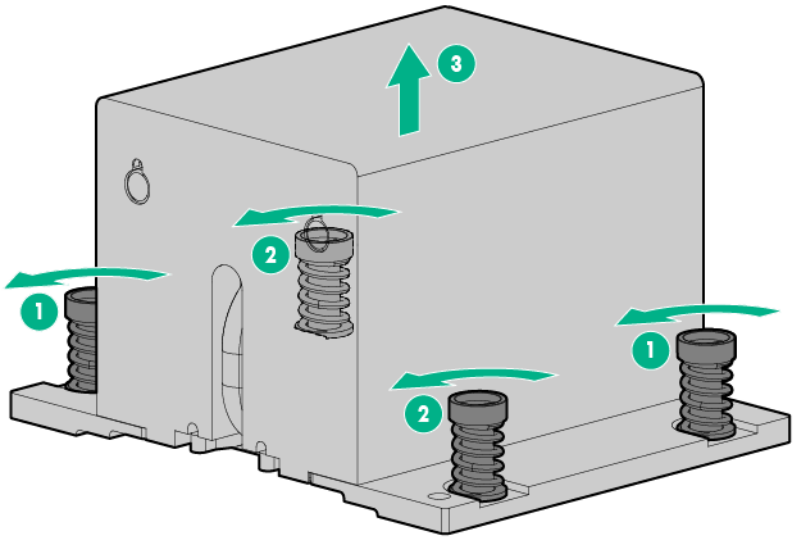
WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching them.

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.

To remove the component:

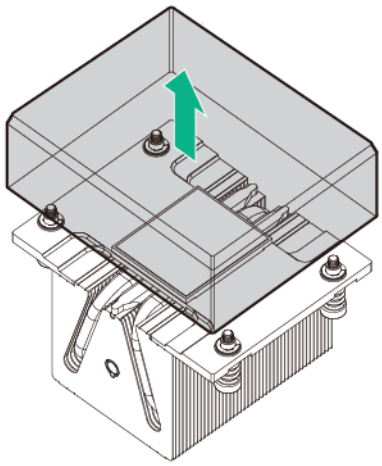
1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).
4. Remove the access panel ("Access panel" on page 49).
5. Remove the air baffle ("Air baffle" on page 50).
6. Remove the heatsink:
   a. Loosen one pair of diagonally opposite screws halfway, and then loosen the other pair of screws.
   b. Completely loosen all screws in the same sequence.

c. Remove the heatsink from the processor backplate.



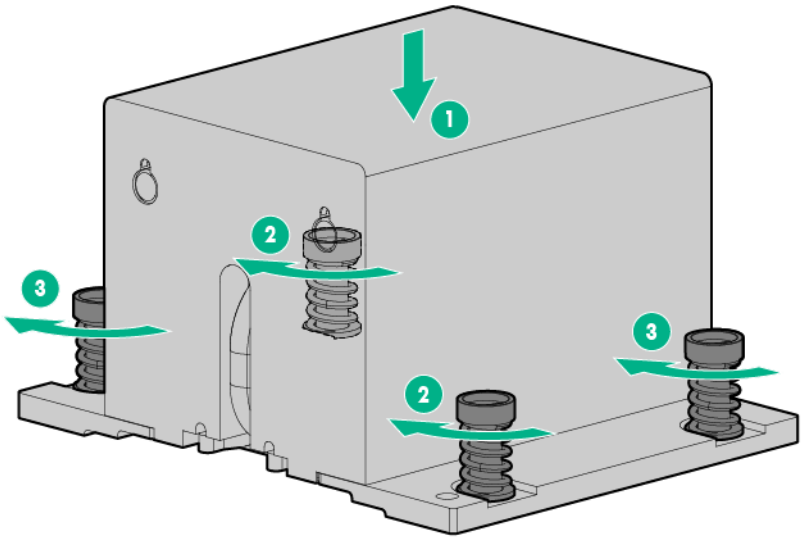
To replace the component:

1. Clean the old thermal grease from the processor with the alcohol swab. Allow the alcohol to evaporate before continuing.
2. Remove the thermal interface protective cover from the heatsink.



3. Install the heatsink:
   a. Position the heatsink on the processor backplate.
   b. Tighten one pair of diagonally opposite screws halfway, and then tighten the other pair of screws.

c. Finish the installation by completely tightening the screws in the same sequence.



4. Install the air baffle.
5. If disconnected, connect the Smart Storage Battery cable.
6. Install the access panel.
7. Install the server into the rack.
8. Power up the server.

Processor

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

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

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

CAUTION: To prevent possible server overheating, always populate each processor socket with a processor socket cover or a processor and a heatsink.

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

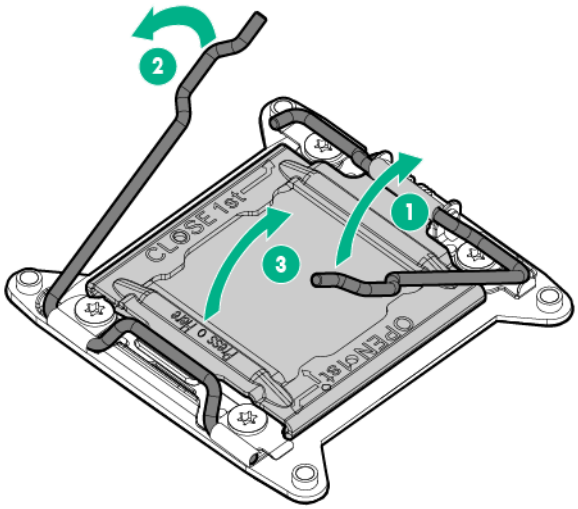
CAUTION: If you are removing a processor from processor socket 2 with no intention of replacing it, be sure to install the air blocker for the onboard PCIe expansion slots 5–7 ("Air blocker for the onboard PCIe expansion slots 5–7" on page 115). Failure to observe this caution will result in improper airflow and insufficient cooling that can lead to thermal damage.

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

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

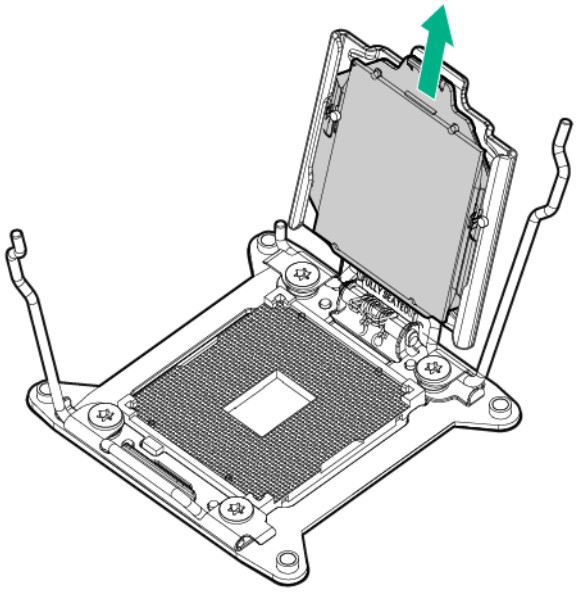
To remove the component:

1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).
4. Remove the access panel ("Access panel" on page 49).
5. Remove the air baffle ("Air baffle" on page 50).
6. Remove the heatsink ("Heatsink" on page 53).
7. Open each of the processor locking levers in the order indicated, and then open the processor retaining bracket.



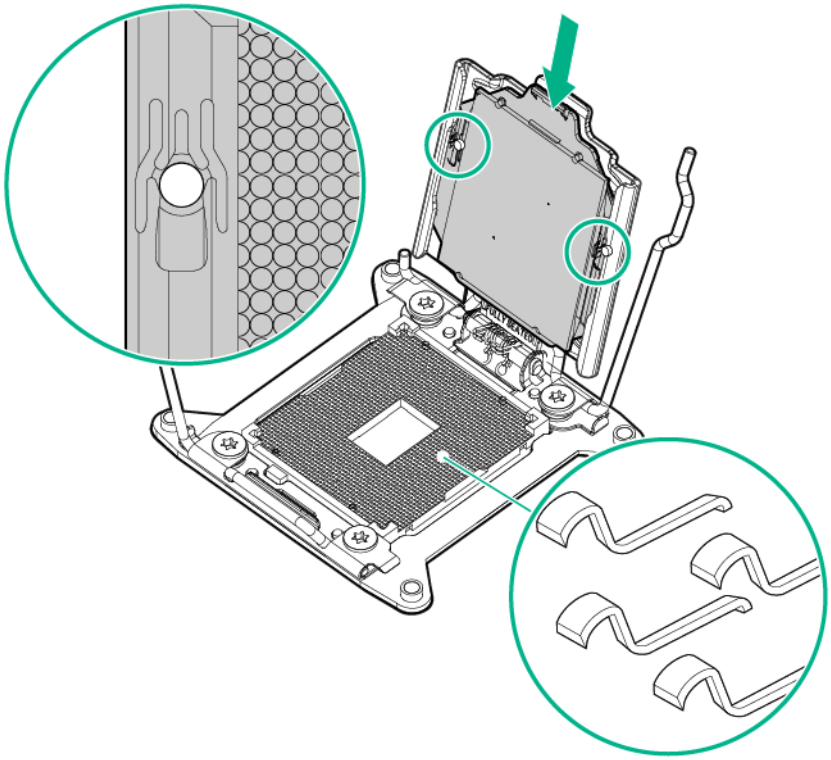
CAUTION: THE PINS ON THE SYSTEM BOARD ARE VERY FRAGILE AND EASILY DAMAGED. To avoid damage to the system board, do not touch the processor or the processor socket contacts.

8. Remove the processor from the processor retaining bracket.



To replace the component:

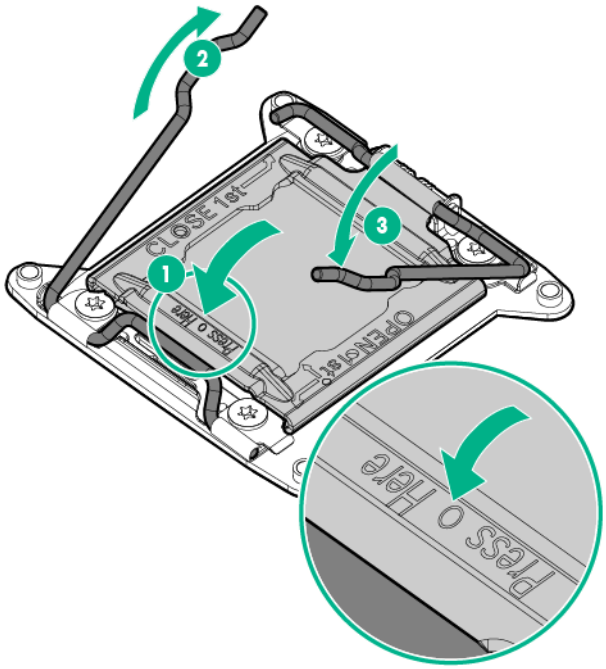
1. Install the processor. Verify that the processor is fully seated in the processor retaining bracket by visually inspecting the processor installation guides on either side of the processor. **THE PINS ON THE SYSTEM BOARD ARE VERY FRAGILE AND EASILY DAMAGED**.



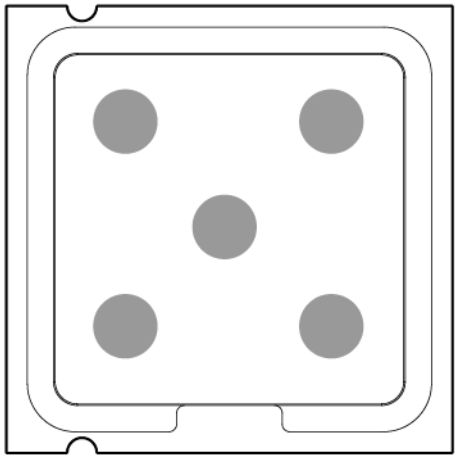
△ **CAUTION: THE PINS ON THE SYSTEM BOARD ARE VERY FRAGILE AND EASILY DAMAGED.** To avoid damage to the system board, do not touch the processor or the processor socket contacts.

△ **CAUTION:** Do not press down on the processor. Pressing down on the processor may cause damage to the processor socket and the system board. Press only in the area indicated on the processor retaining bracket.

2. Close the processor retaining bracket. When the processor is installed properly inside the processor retaining bracket, the processor retaining bracket clears the flange on the front of the socket.
3. Press and hold the processor retaining bracket in place, and then close each processor locking lever. Press only in the area indicated on the processor retaining bracket.

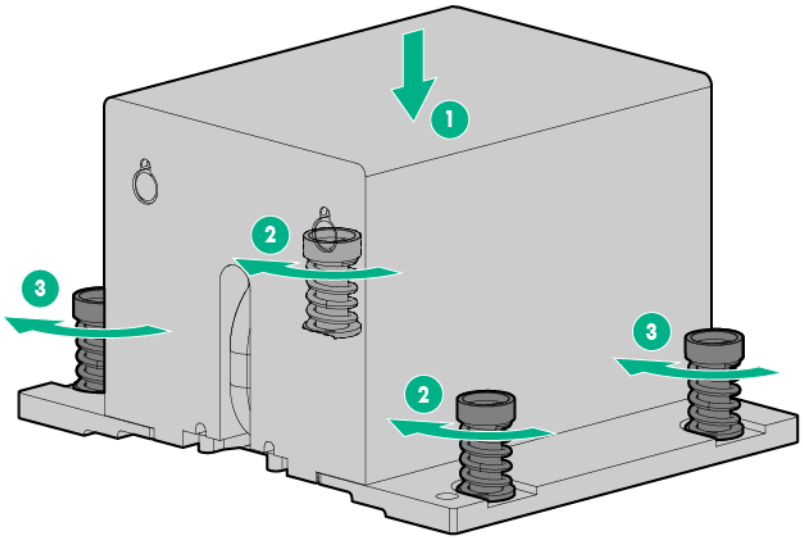


4. Clean the old thermal grease from the heatsink with the alcohol swab. Allow the alcohol to evaporate before continuing.
5. Apply all the grease to the top of the processor in the following pattern to ensure even distribution.



6. Install the heatsink:
   a. Position the heatsink on the processor backplate.
   b. Tighten one pair of diagonally opposite screws halfway, and then tighten the other pair of screws.

c. Finish the installation by completely tightening the screws in the same sequence.



7. Install the air baffle.
8. If disconnected, connect the Smart Storage Battery cable.
9. Install the access panel.
10. Install the server into the rack.
11. Power up the server.

Expansion board

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

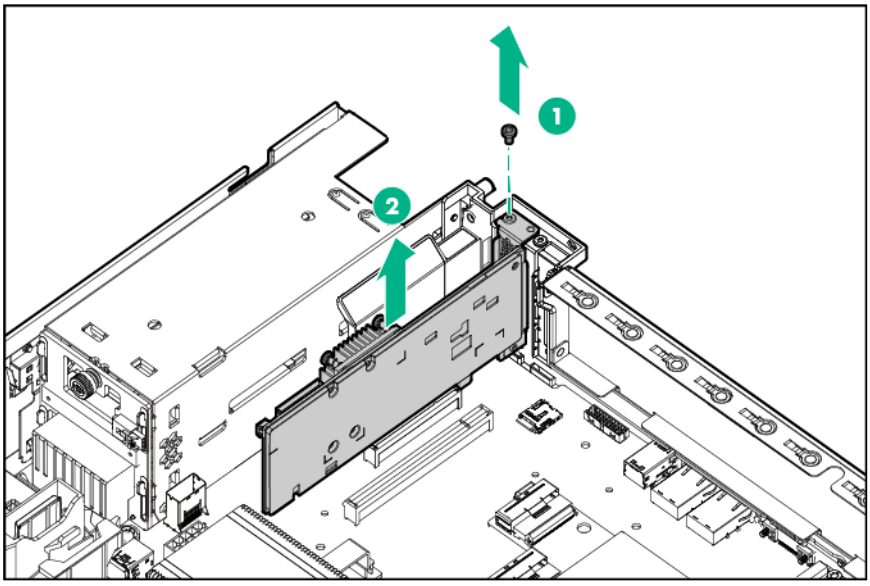
CAUTION: To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

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

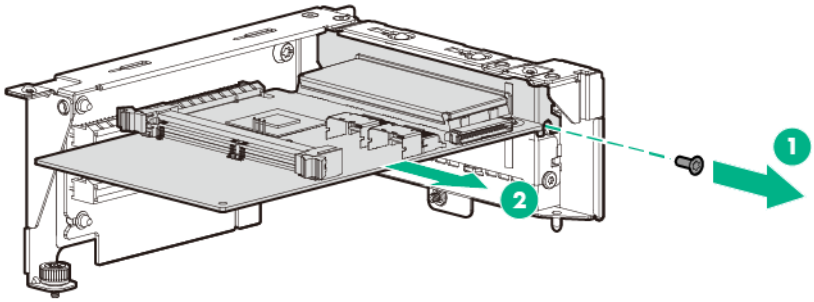
To remove the component:

1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).
4. Remove the access panel ("Access panel" on page 49).
5. If you are removing an expansion board installed in the PCI riser cage, remove the riser cage ("Remove the PCI riser cage" on page 36).
6. Disconnect any internal cables that are connected to the expansion board.
7. Remove the expansion board.

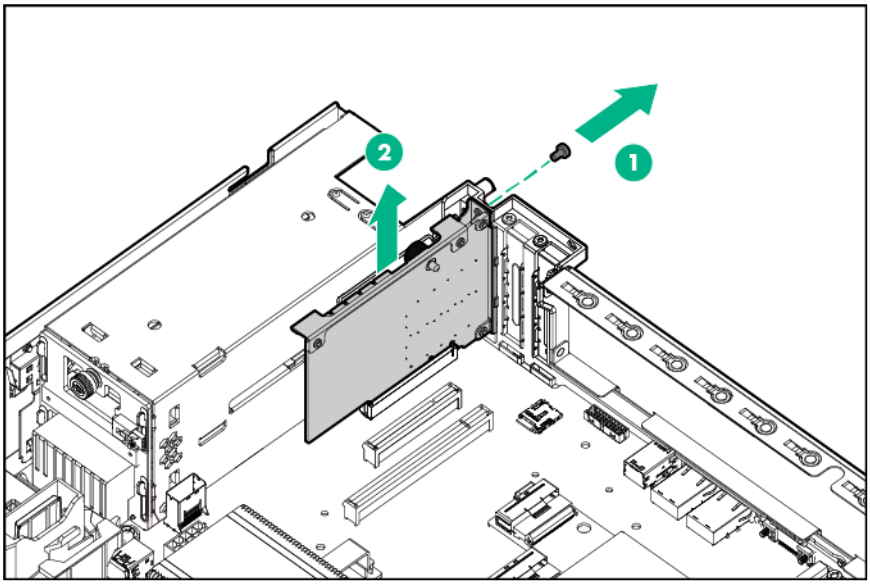
- Expansion board removal from an onboard expansion slot



- Expansion board removal from the PCI riser cage



- FlexibleLOM adapter removal



8. If you are removing a storage controller board with a cache module installed, remove the cache module ("FBWC module" on page 62).

To replace the component, reverse the removal procedure.

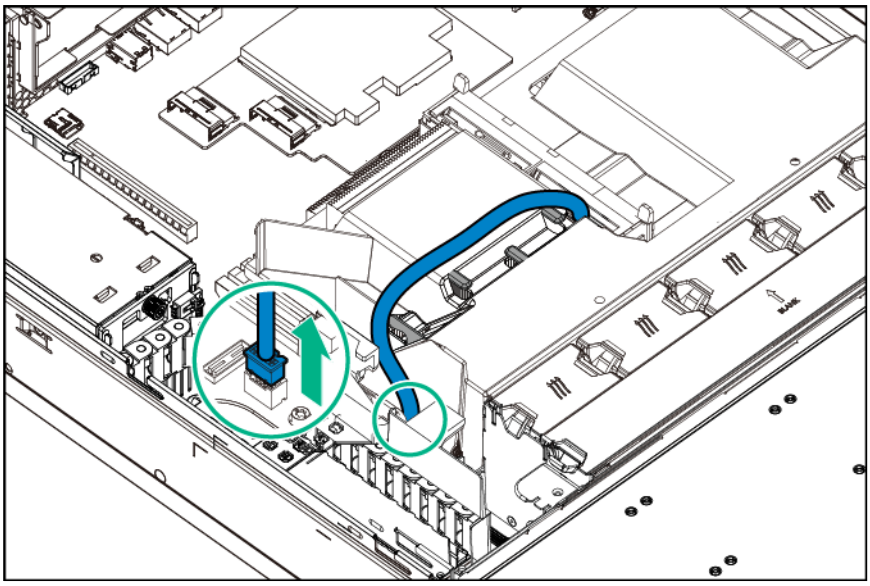
HPE Smart Storage Battery

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

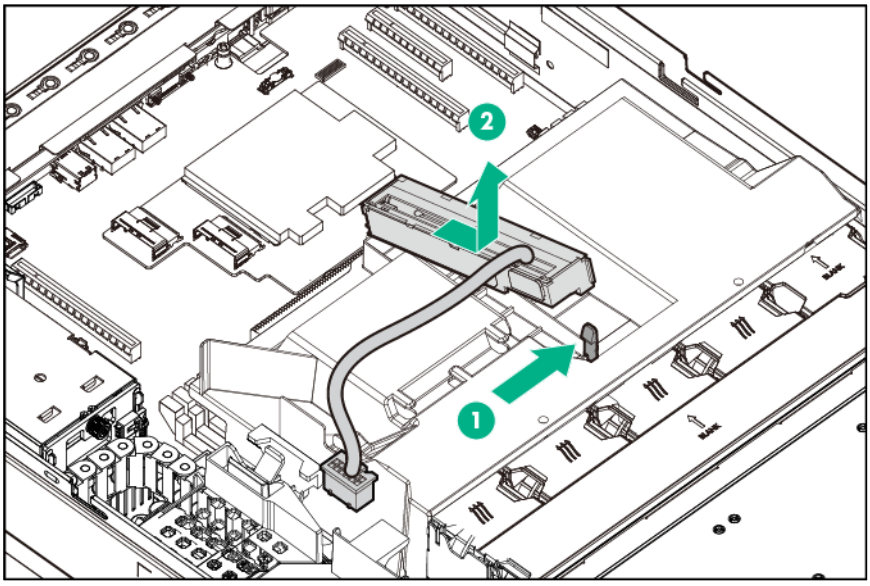
CAUTION: To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

To remove the component:

1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server.
4. Remove the access panel ("Access panel" on page 49).
5. Disconnect the Smart Storage Battery cable, and then release the cable from the air baffle clips.



6. Remove the Smart Storage Battery.



To replace the component, reverse the removal procedure.

FBWC module

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

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

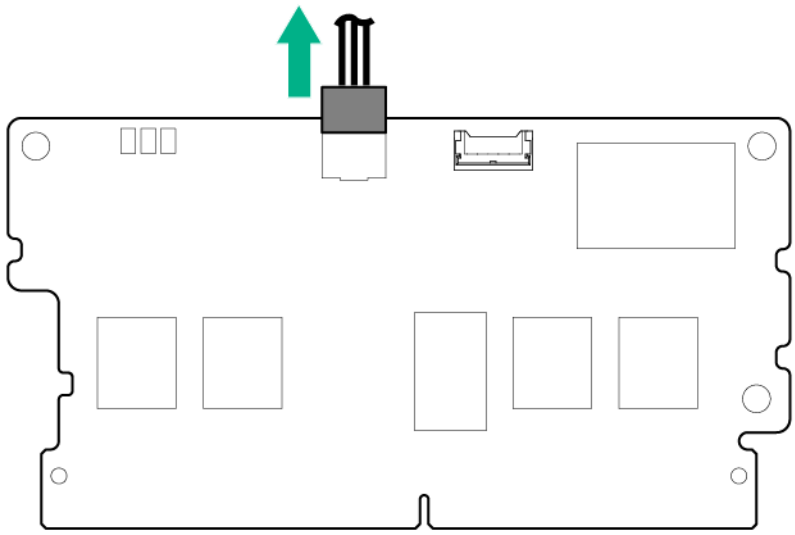
CAUTION: To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

To remove the component:

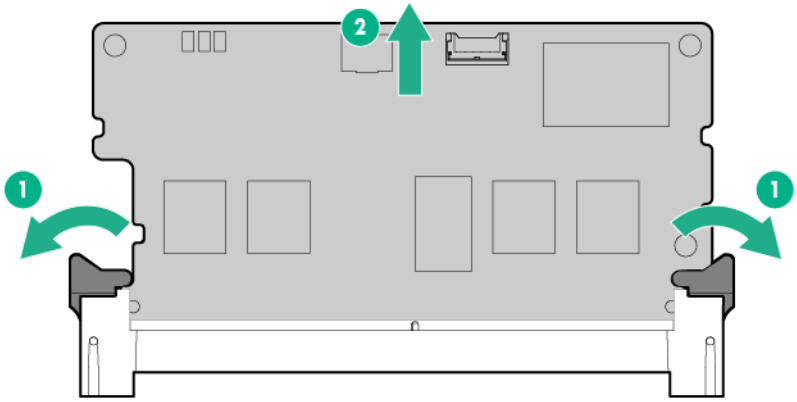
1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).
4. Remove the access panel ("Access panel" on page 49).
5. If necessary for easier removal of the FBWC module from the storage controller board, do one of the following:
   - Remove the low-profile, standup storage controller board ("Expansion board" on page 59).
   - Remove the PCI riser cage (on page 36).

CAUTION: When connecting or disconnecting the cache module cable, the connectors on the cache module and cable are susceptible to damage. Avoid excessive force and use caution to avoid damage to these connectors.

6. Disconnect the cache module backup power cable from the cache module.



7. Remove the cache module.



To replace the component, reverse the removal procedure.

M.2 SSD enablement kit

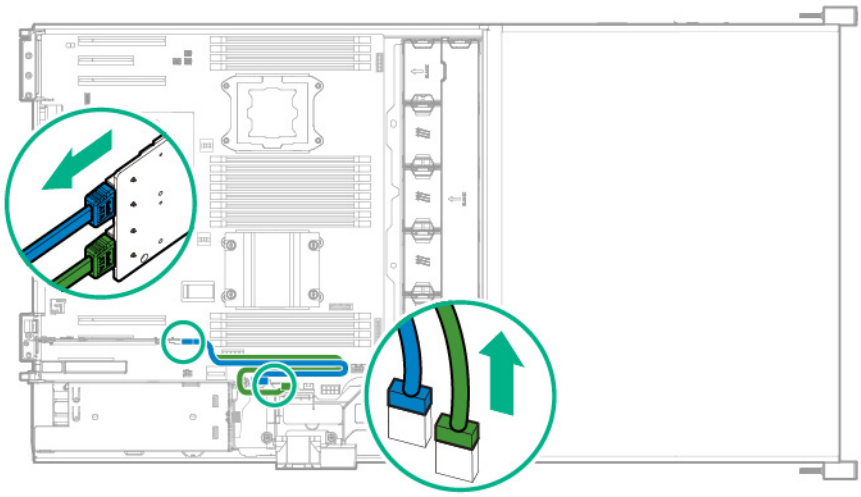
WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching them.

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.

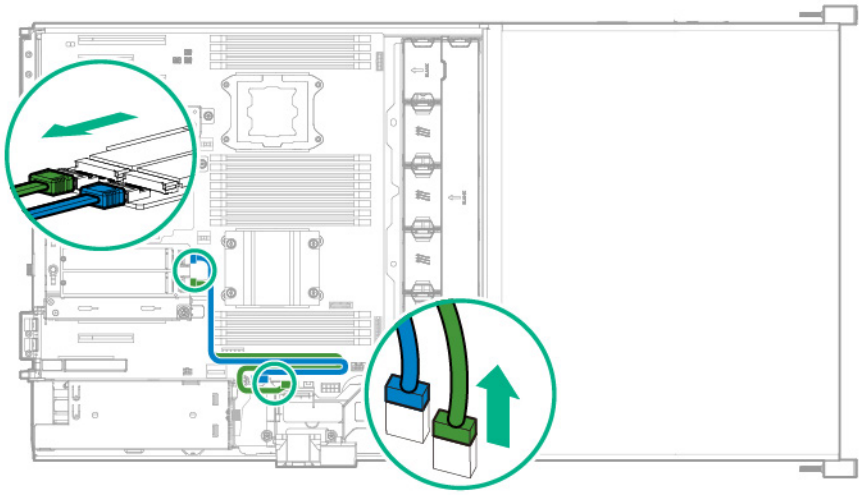
To remove the component:

1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.

3. Remove the server from the rack (on page 33).
4. Remove the access panel ("Access panel" on page 49).
5. Remove the air baffle ("Air baffle" on page 50).
6. Open the cable management holder (on page 35).
7. Disconnect the SATA cables from the M.2 SSD enablement board and the system board.
   - M.2 SSD SATA cable disconnection when the enablement board is installed in the onboard PCIe expansion slot 1 or 2

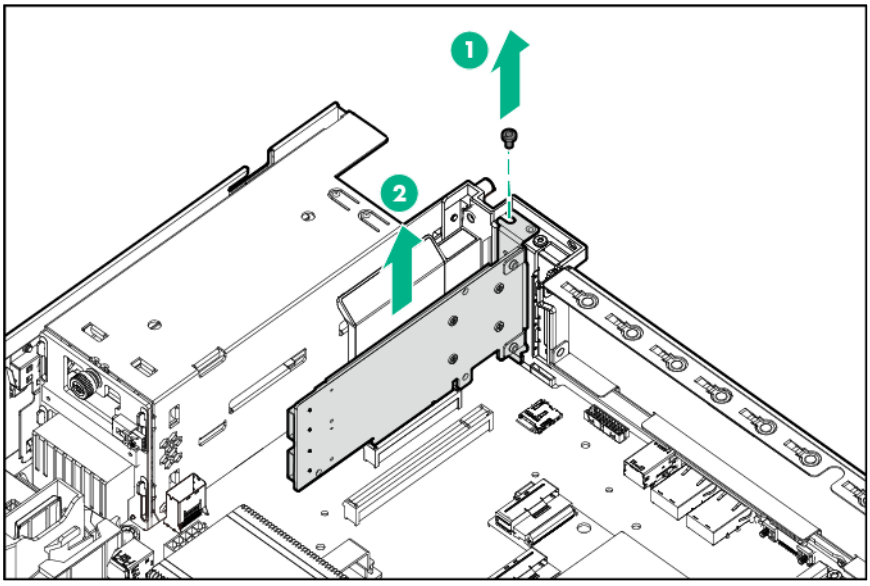


   - M.2 SSD SATA cable disconnection when the enablement board is installed in the PCI riser cage

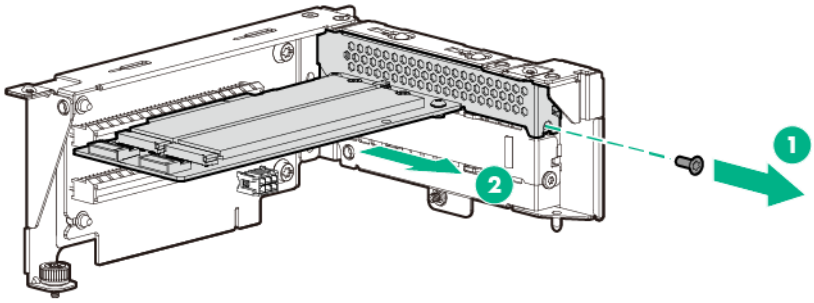


8. If the M.2 SSD enablement board is installed in the PCI riser cage, remove the riser cage ("Remove the PCI riser cage" on page 36).
9. Remove the M.2 SSD enablement board.

- M.2 SSD enablement board removal from the system board



- M.2 SSD enablement board removal from the PCI riser cage



To replace the component, reverse the removal procedure.

HPE Flexible Smart Array P840ar Controller

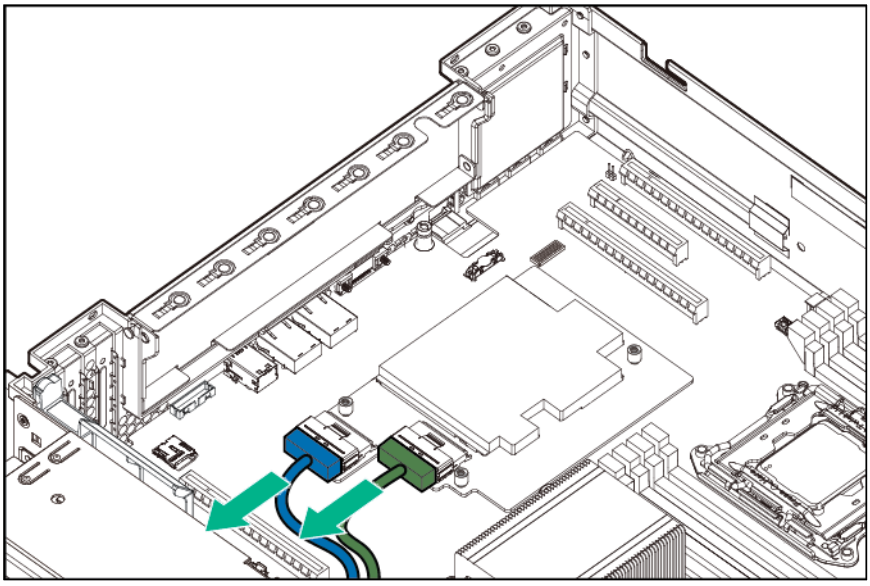
WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching them.

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.

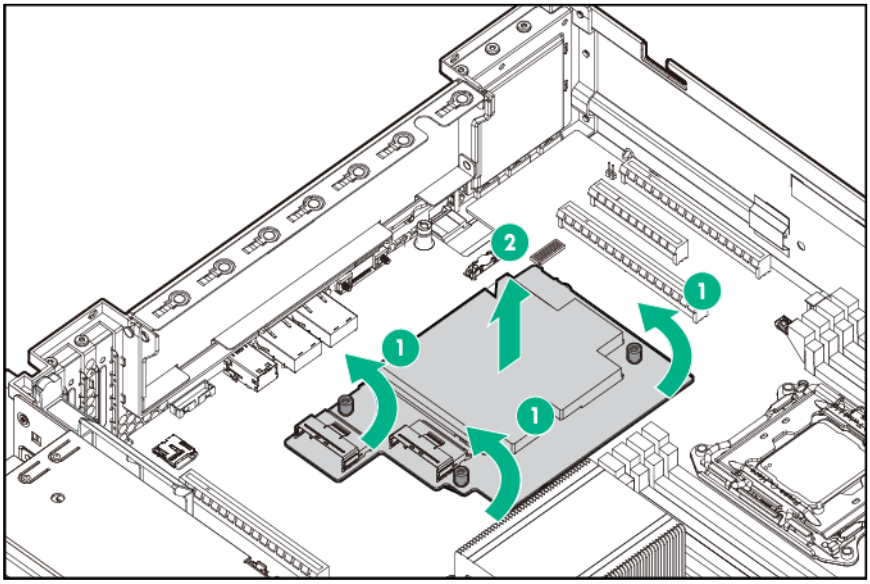
To remove the component:

1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).
4. Remove the access panel ("Access panel" on page 49).
5. If installed, remove the rear drive cage ("Remove a rear drive cage" on page 37).

6. Disconnect all cables connected to the storage controller.



7. Remove the storage controller.



To replace the component, reverse the removal procedure.

Two-slot PCIe riser board

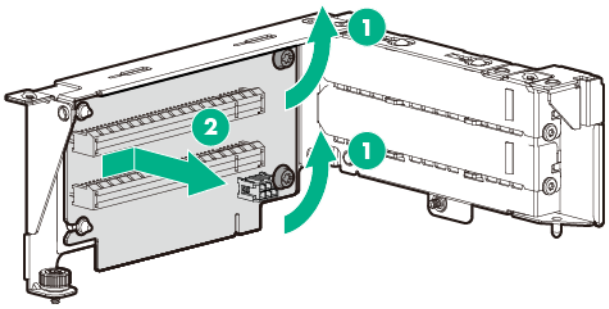
WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching them.

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.

To remove the component:

1. Power down the server (on page 26).
2. Remove all power:

a. Disconnect each power cord from the power source.
b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).
4. Remove the access panel ("Access panel" on page 49).
5. Remove the PCI riser cage (on page 36).
6. Remove any existing expansion board from the riser board ("Expansion board" on page 59).
7. Remove the PCIe riser board.



To replace the component, reverse the removal procedure.

Dedicated iLO management module

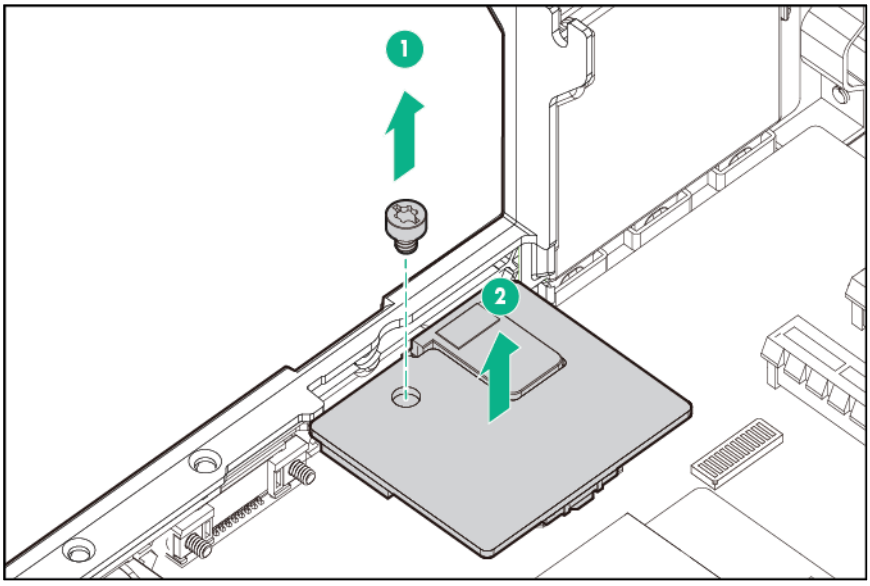
WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching them.

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.

To remove the component:

1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).
4. Remove the access panel ("Access panel" on page 49).
5. If installed, remove the rear drive cage ("Remove a rear drive cage" on page 37).

6. Remove the dedicated iLO management module.



To replace the component, reverse the removal procedure. After installing the new dedicated iLO management module, enable the dedicated iLO connector ("Enabling the dedicated iLO management module" on page 68).

Enabling the dedicated iLO management module

The onboard NIC 1/shared iLO connector is set as the default system iLO connector. To enable the dedicated iLO management module, use the iLO 4 Configuration Utility accessible within the HPE UEFI System Utilities.

For more information on the UEFI System Utilities, see the UEFI documentation on the Hewlett Packard Enterprise website (http://www.hpe.com/info/ProLiantUEFI/docs).

IMPORTANT: If the iLO configuration settings are reset to the default values, remote access to the machine will be lost. Access the physical machine and repeat the procedure described in this section to re-enable the dedicated iLO management connector.

To enable the dedicated iLO management module:

1. During the server startup sequence after installing the module, press **F9** in the POST screen.

   The System Utilities screen appears.
2. Select **System Configuration** | **iLO 4 Configuration Utility**.

   The iLO 4 Configuration Utility screen appears.
3. Select **Network Options**, and then press **Enter**.

   The Network Options screen appears.
4. Set the **Network Interface Adapter** field to **ON**, and then press **Enter**.
5. Press **F10** to save your changes.

   A message prompt to confirm the iLO settings reset appears.
6. Press **Enter** to reboot the iLO settings.
7. Press **Esc** until the main menu is displayed.
8. Select **Reboot the System** to exit the utility and resume the boot process.

   The IP address of the enabled dedicated iLO connector appears on the POST screen on the subsequent boot-up. Access the Network Options screen again to view this IP address for later reference.

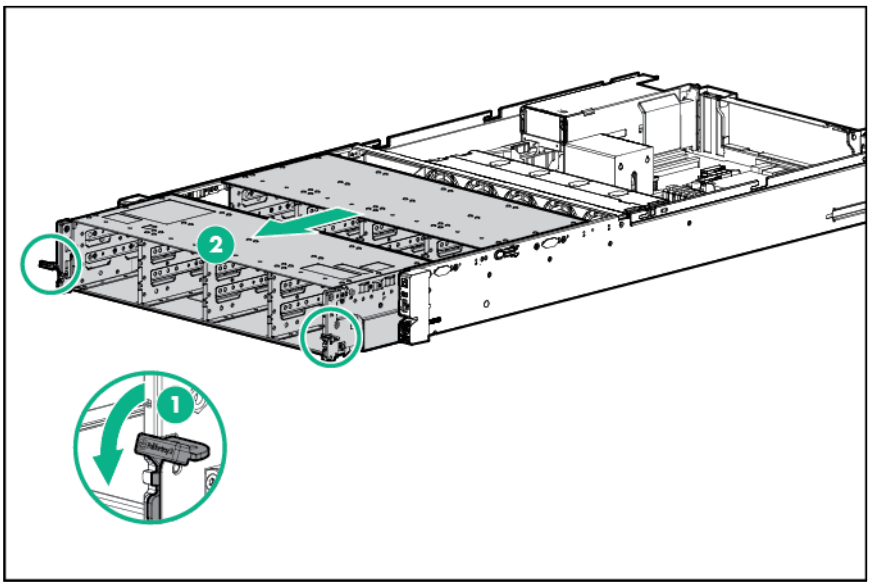
Power pass-through board

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

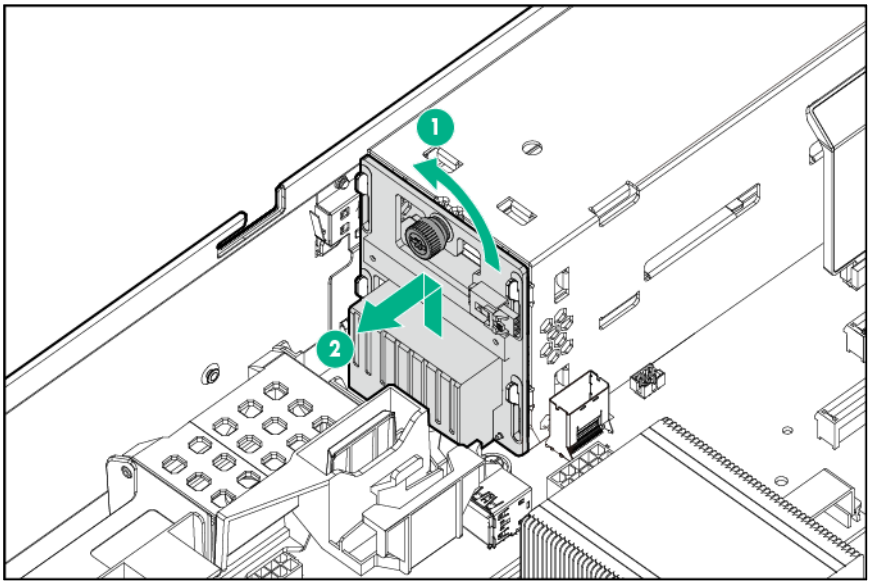
CAUTION: To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

To remove the component:

1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).
4. Remove the access panel ("Access panel" on page 49).
5. Pull down the front drive cage release latches and use them to completely extend the front drive cages from the chassis.



6. Remove the power pass-through board.



To replace the component, reverse the removal procedure.

System battery

If the server no longer automatically displays the correct date and time, then replace the battery that provides power to the real-time clock. Under normal use, battery life is 5 to 10 years.

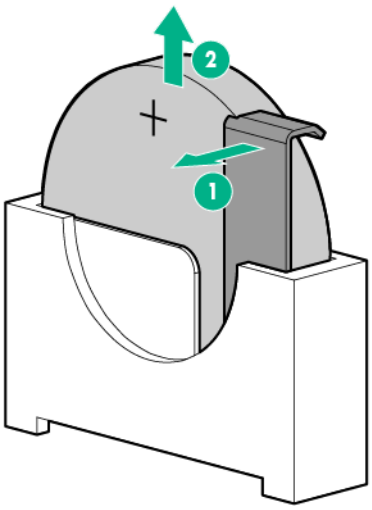
⚠ **WARNING:** The computer contains an internal lithium manganese dioxide, a vanadium pentoxide, or an alkaline battery pack. A risk of fire and burns exists if the battery pack is not properly handled. To reduce the risk of personal injury:

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

To remove the component:

1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).
4. Remove the access panel ("Access panel" on page 49).
5. Remove the air baffle ("Air baffle" on page 50).
6. Locate the battery on the system board ("System board components" on page 131).

7. Remove the battery.



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

To replace the component, reverse the removal procedure.

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

System board

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

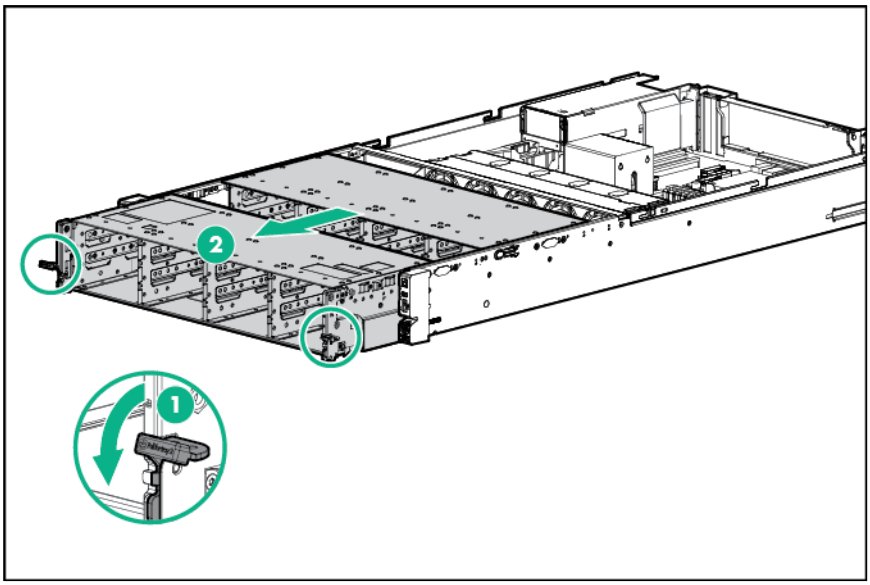
CAUTION: To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

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

To remove the system board:

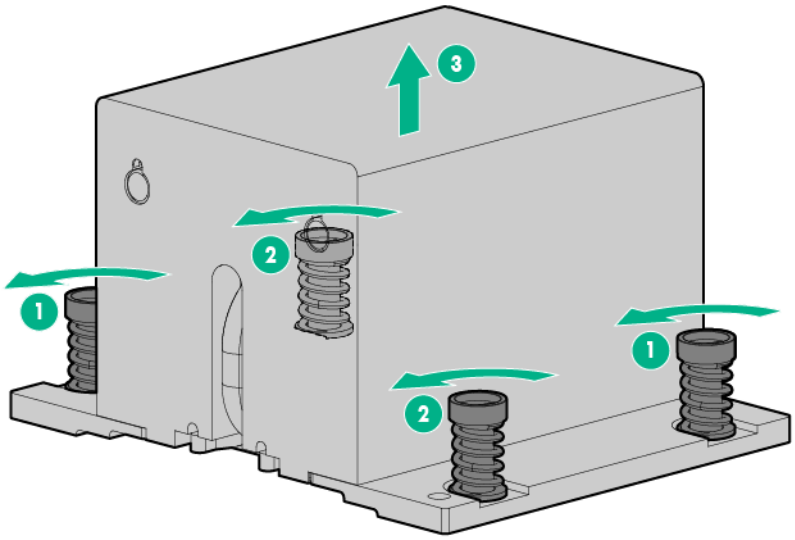
1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).
4. Remove the access panel ("Access panel" on page 49).
5. Remove the air baffle ("Air baffle" on page 50).

6. Pull down the front drive cage release latches and use them to completely extend the front drive cages from the chassis.

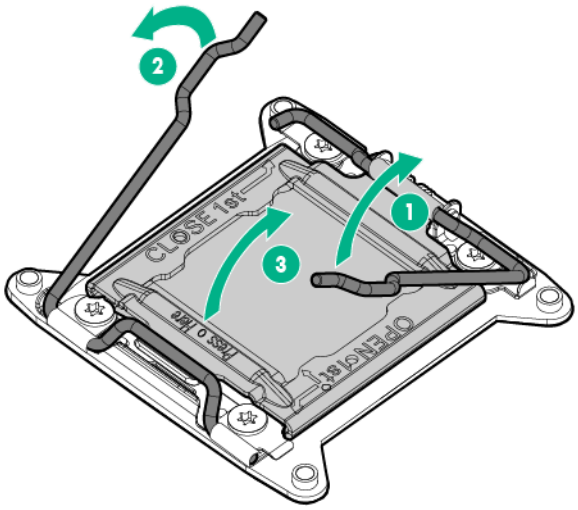


7. If installed, remove the rear drive cage ("Remove a rear drive cage" on page 37).
8. If installed, remove the dedicated iLO module ("Dedicated iLO management module" on page 67).
9. If installed, remove the FlexibleLOM blank ("FlexibleLOM blank" on page 114).
10. If installed, remove the PCI riser cage (on page 36).
11. Remove all expansion boards from the onboard PCIe expansion slots ("Expansion board" on page 59).
12. If installed, remove the internal USB storage device.
13. If installed, remove the internal microSD card.
14. Remove the Flexible Smart Array P840ar Controller ("HPE Flexible Smart Array P840ar Controller" on page 65).
15. Remove all DIMMs ("DIMM" on page 52).
16. Remove the heatsink:
    a. Loosen one pair of diagonally opposite screws halfway, and then loosen the other pair of screws.
    b. Completely loosen all screws in the same sequence.

c. Remove the heatsink from the processor backplate.

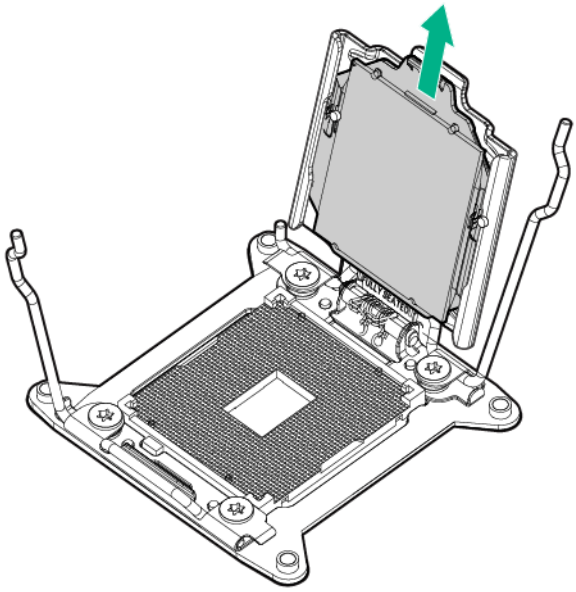


17. Open each of the processor locking levers in the order indicated, and then open the processor retaining bracket.

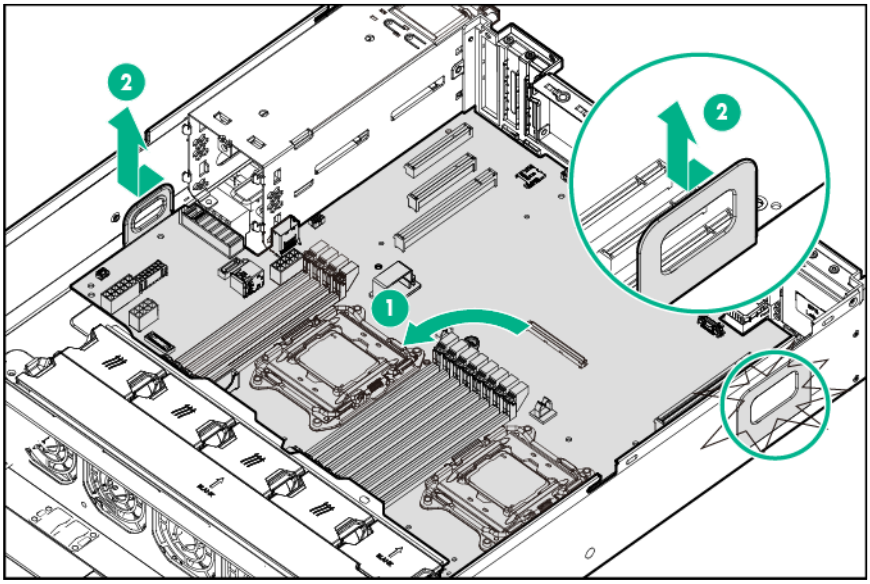


△ **CAUTION: THE PINS ON THE SYSTEM BOARD ARE VERY FRAGILE AND EASILY DAMAGED.** To avoid damage to the system board, do not touch the processor or the processor socket contacts.

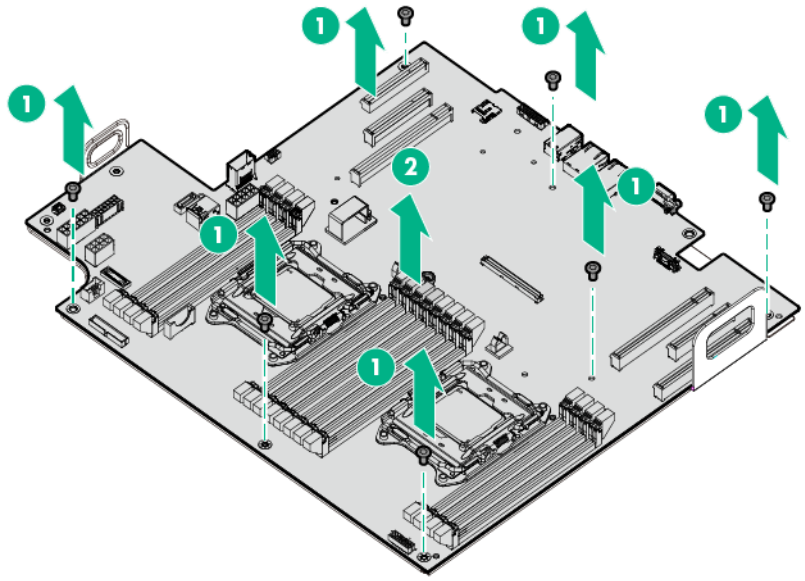
18. Remove the processor from the processor retaining bracket.



19. Remove the system battery ("System battery" on page 70).
20. Remove the power pass-through board ("Power pass-through board" on page 69).
21. Disconnect all cables connected to the system board.
22. Remove the cable management holder ("Cable management holder" on page 113).
23. Remove the failed system board.

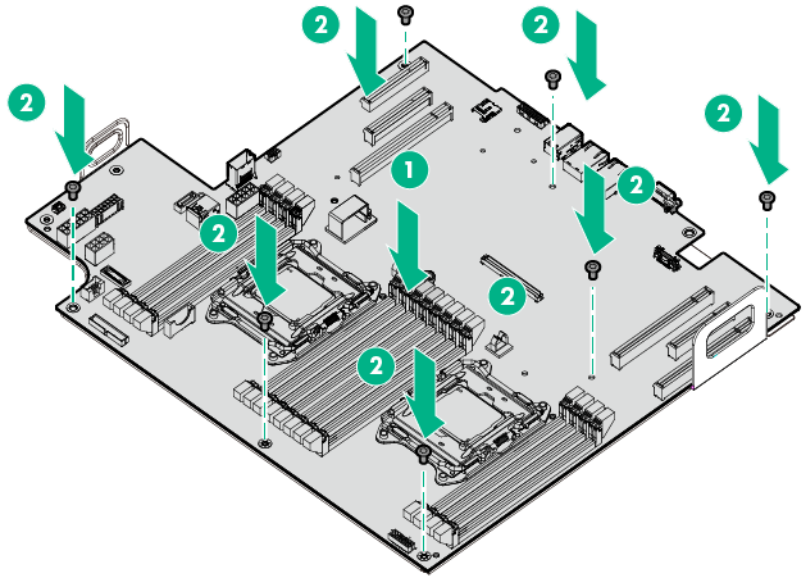


24. Remove the failed system board from its tray.

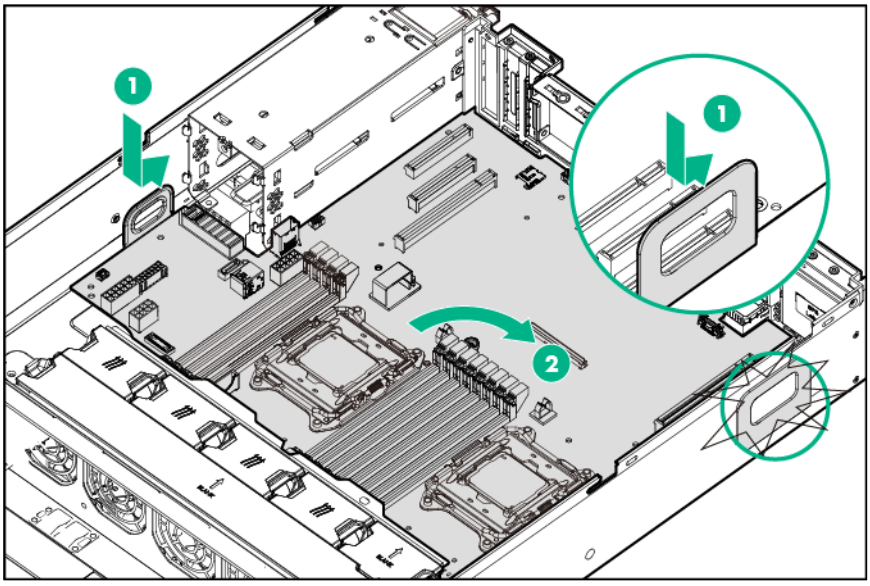


To replace the system board:

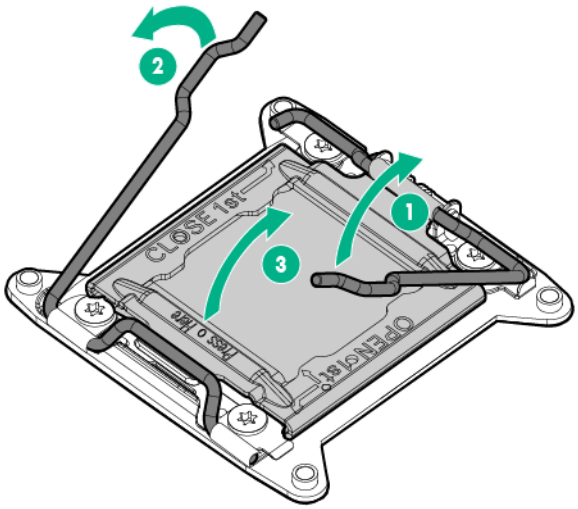
1. Install the new system board on the tray.



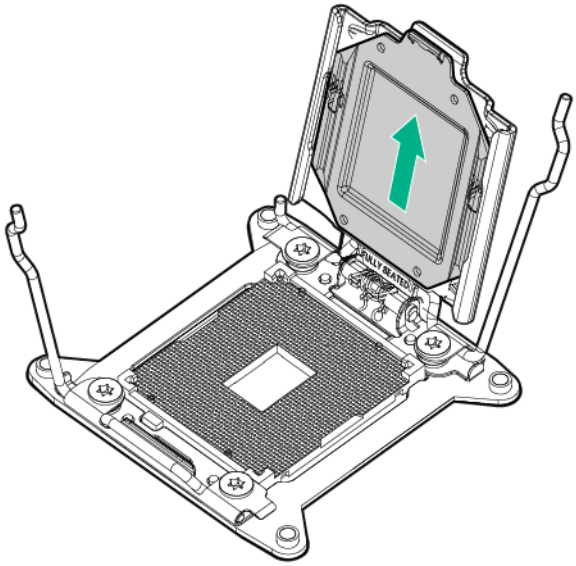
2. Install the system board.



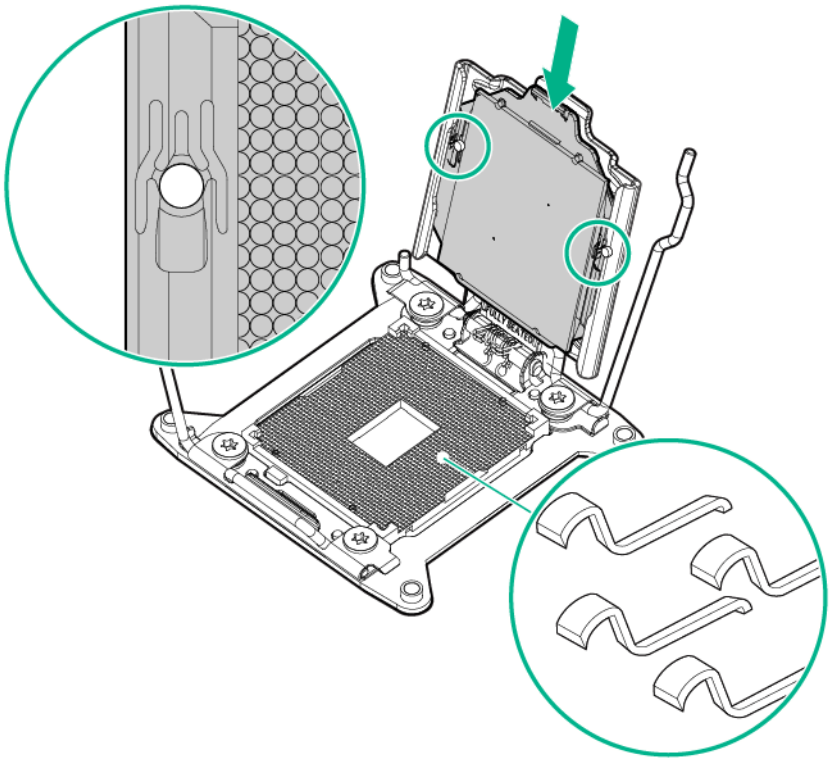
3. Open each of the processor locking levers in the order indicated, and then open the processor retaining bracket.



4. Remove the clear processor socket cover. Retain the processor socket cover for future use.



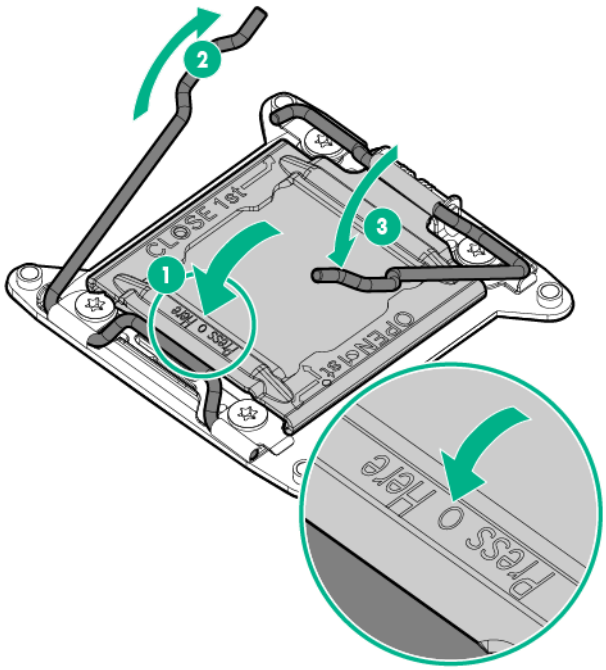
5. Install the processor. Verify that the processor is fully seated in the processor retaining bracket by visually inspecting the processor installation guides on either side of the processor. **THE PINS ON THE SYSTEM BOARD ARE VERY FRAGILE AND EASILY DAMAGED.**



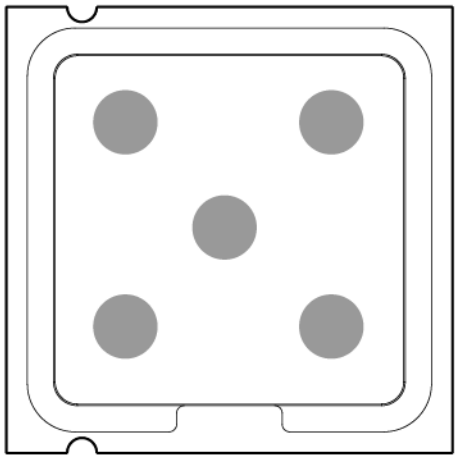
△ **CAUTION:** Do not press down on the processor. Pressing down on the processor may cause damage to the processor socket and the system board. Press only in the area indicated on the processor retaining bracket.

△ **CAUTION:** Close and hold down the processor cover socket while closing the processor locking levers. The levers should close without resistance. Forcing the levers closed can damage the processor and socket, requiring system board replacement.

6. Close the processor retaining bracket. When the processor is installed properly inside the processor retaining bracket, the processor retaining bracket clears the flange on the front of the socket.
7. Press and hold the processor retaining bracket in place, and then close each processor locking lever. Press only in the area indicated on the processor retaining bracket.

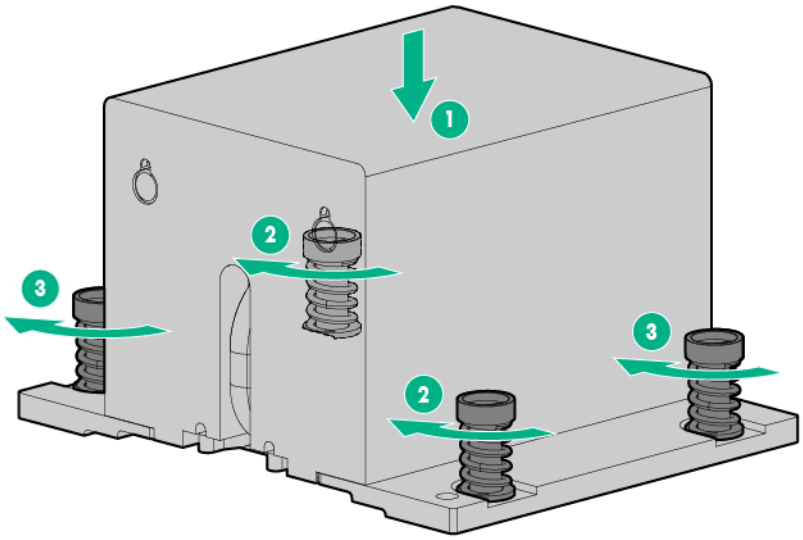


8. Install the processor socket cover on the failed system board.
9. Clean the old thermal grease from the heatsink and the top of the processor with the alcohol swab. Allow the alcohol to evaporate before continuing.
10. Apply all the grease to the top of the processor in the following pattern to ensure even distribution.



11. Install the heatsink:
    a. Position the heatsink on the processor backplate.
    b. Tighten one pair of diagonally opposite screws halfway, and then tighten the other pair of screws.

c. Finish the installation by completely tightening the screws in the same sequence.



12. If the new system board does not include a system battery, install the one removed from the failed system board.
13. Install the power pass-through board.
14. Install the cable management holder.
15. Install the Flexible Smart Array P840ar Controller.
16. If removed, install the internal microSD card.
17. Install all removed expansion boards on the onboard PCIe expansion slots.
18. If removed, install the internal USB storage device.
19. If removed, install the PCI riser cage.
20. If removed, install the FlexibleLOM blank.
21. If removed, install the dedicated iLO management module.
22. If removed, install the rear drive cage and connect the drive backplane cables.
23. Connect all cables disconnected from the failed system board.
24. Install the air baffle.
25. Install the access panel.
26. Install the server into the rack.
27. Connect each power cord to the server.
28. Connect each power cord to the power source.
29. Press the Power On/Standby button.

    The server exits standby mode and applies full power to the system. The system power LED changes from amber to green.

IMPORTANT: Install all components with the same configuration that was used on the failed system board.

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

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

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

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

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

7. Enter the product ID and press the **Enter** key.
8. Press the **F10** key to confirm exiting System Utilities. The server automatically reboots.

Drive backplane

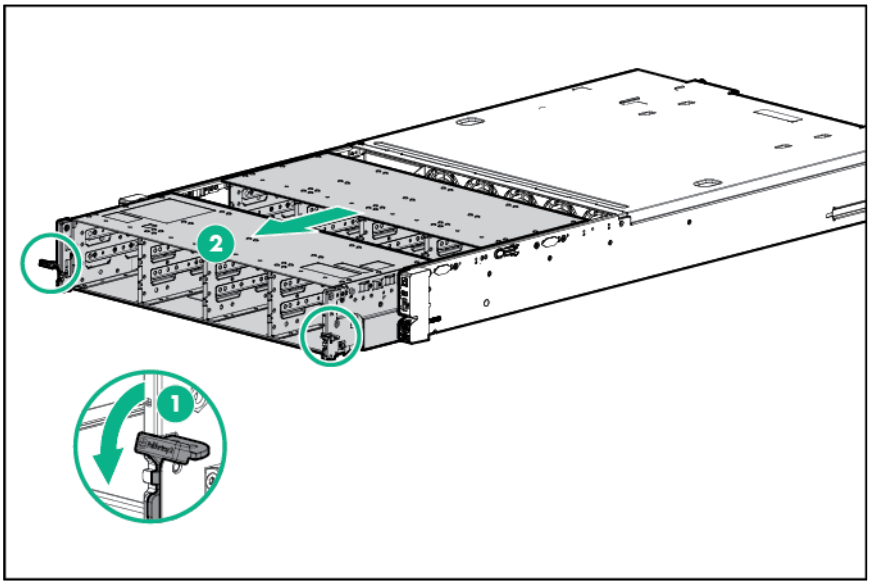
Removing the front LFF drive cage 1 backplane

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

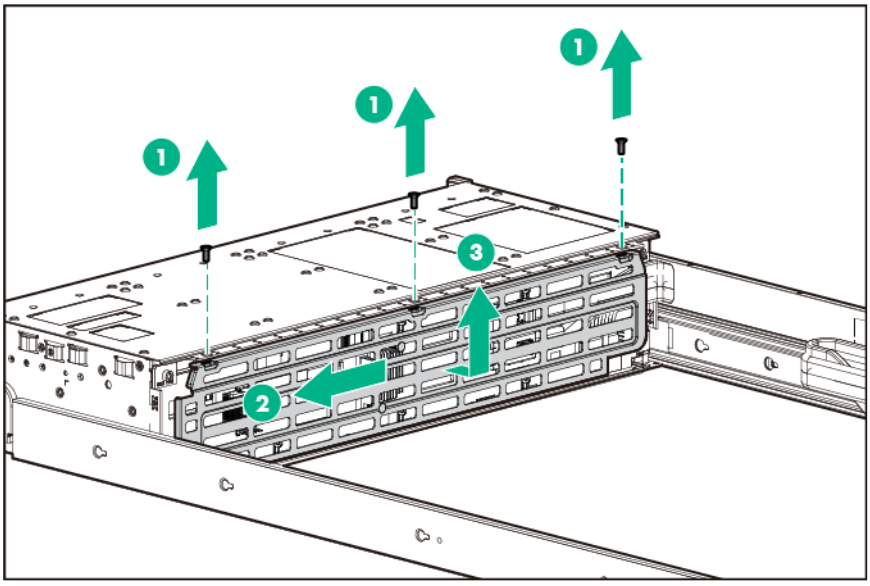
CAUTION: To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

To remove the component:

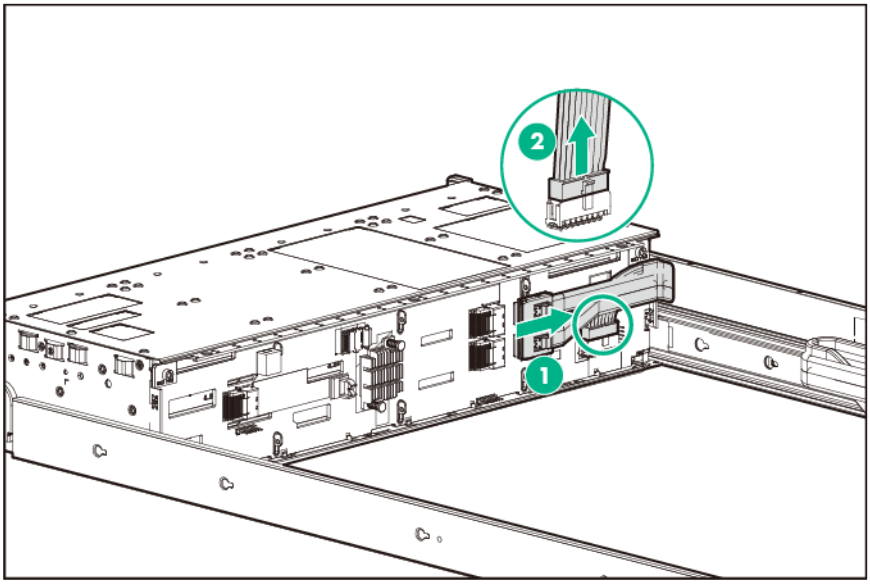
1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).
4. Pull down the front drive cage release latches and use them to completely extend the front drive cages from the chassis.



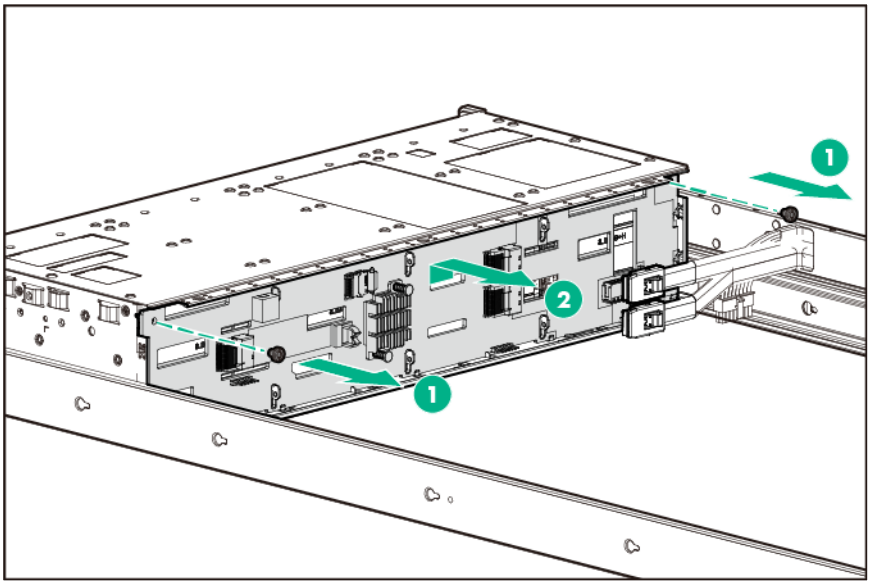
5. Remove the backplane cable guard.



6. Disconnect all cables connected to the drive backplane.



7. Remove the drive backplane.



To replace the component, reverse the removal procedure.

Removing the front LFF drive cage 2 backplane

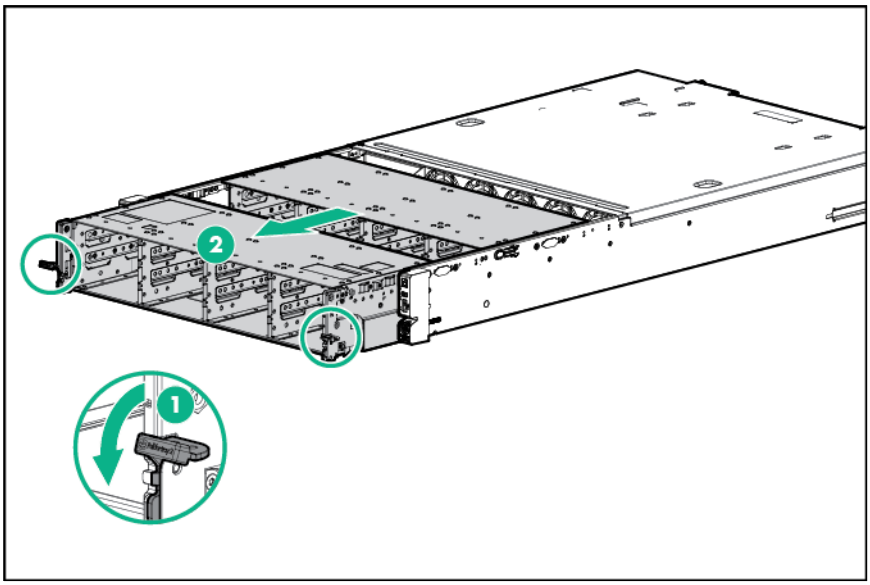
WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching them.

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.

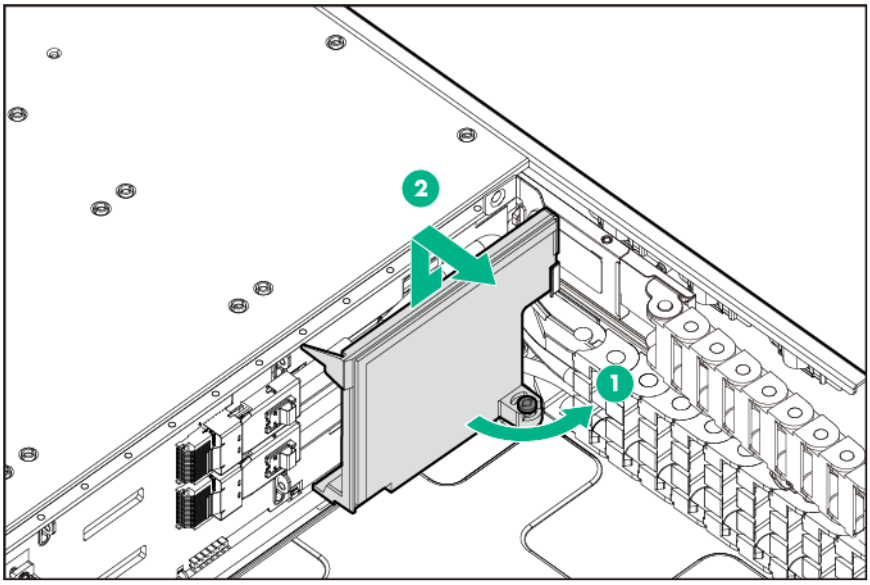
To remove the component:

1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).

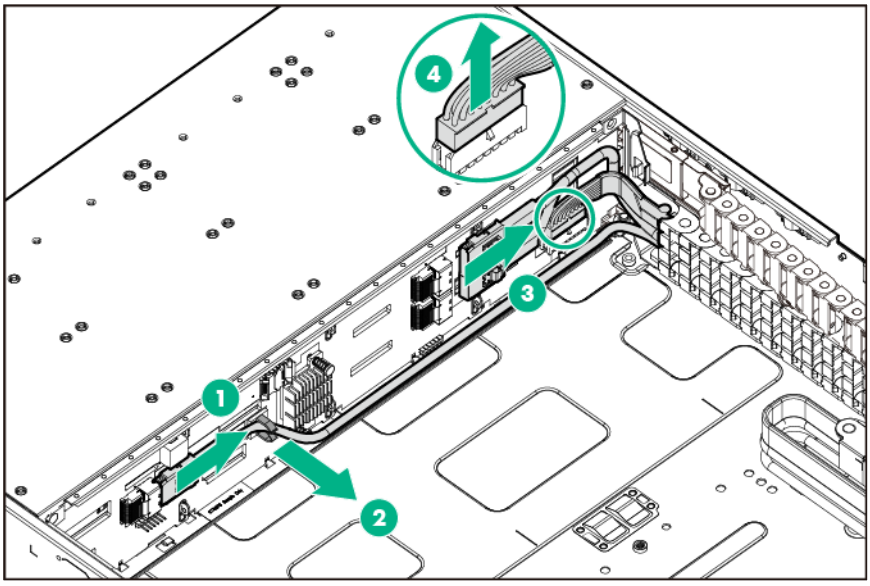
4. Pull down the front drive cage release latches and use them to completely extend the front drive cages from the chassis.



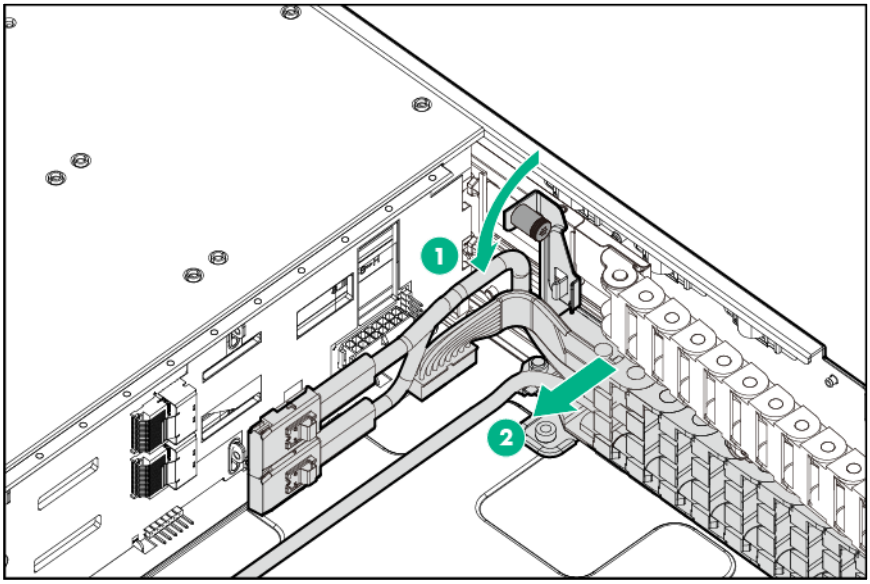
5. Remove the air blocker.



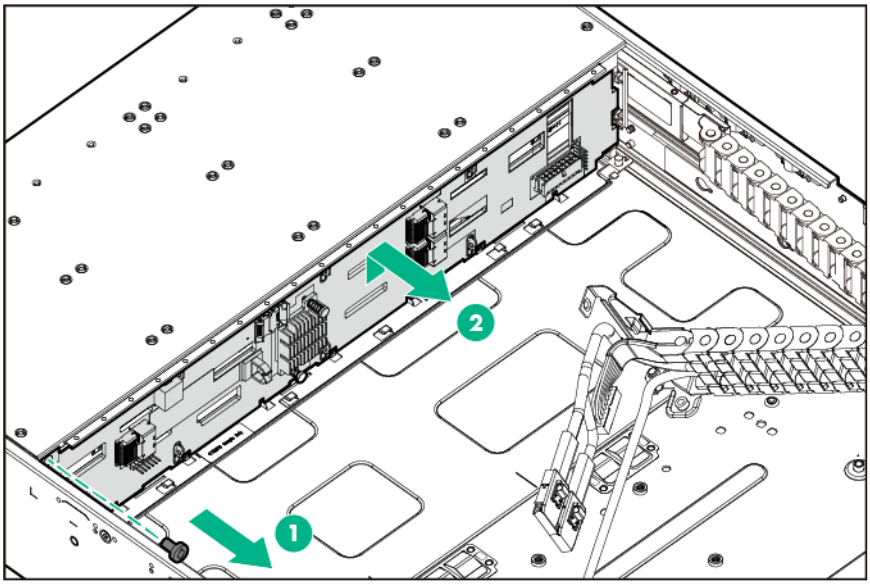
6. Disconnect all cables connected to the drive backplane.



7. Release the front bracket of the front LFF drive cage 2 cable track from the chassis.



8. Remove the drive backplane.



To replace the component, reverse the removal procedure.

Removing the front SFF drive cage 1 backplane

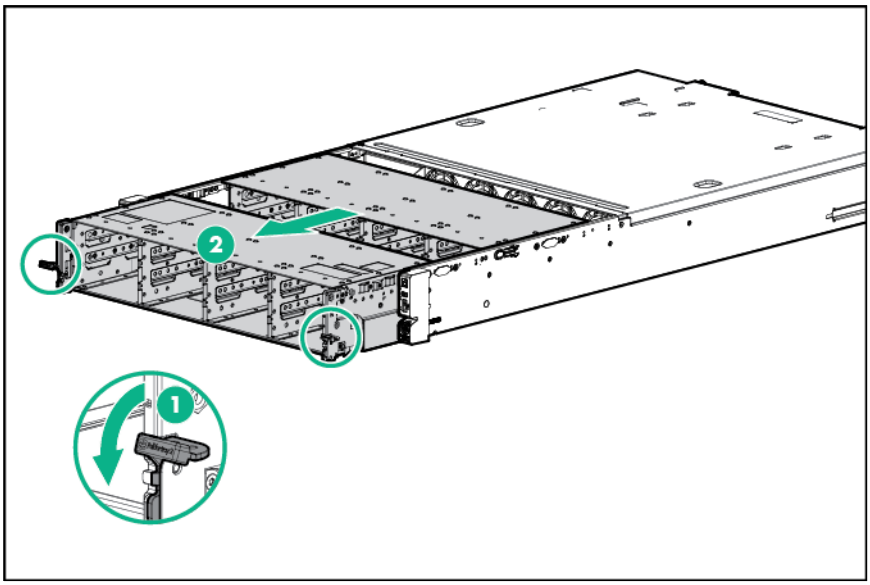
WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching them.

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.

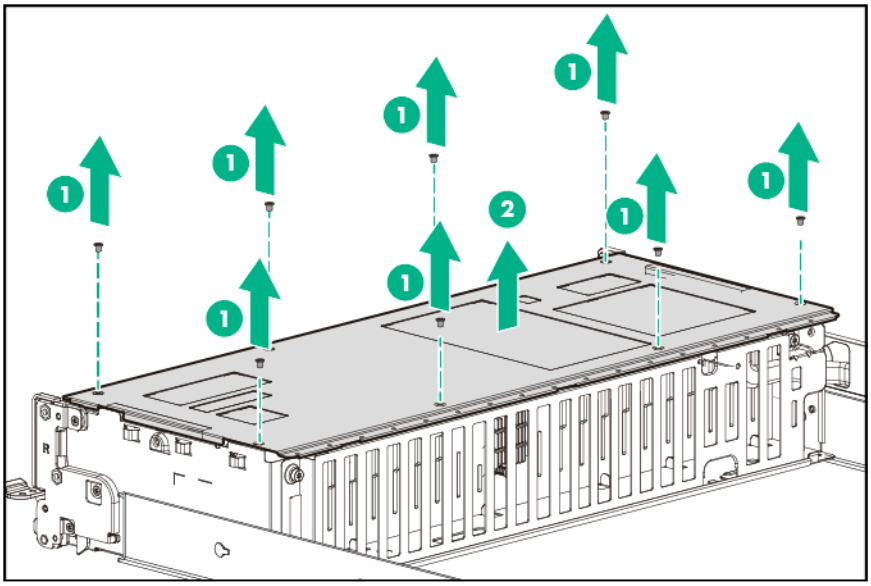
To remove the component:

1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).

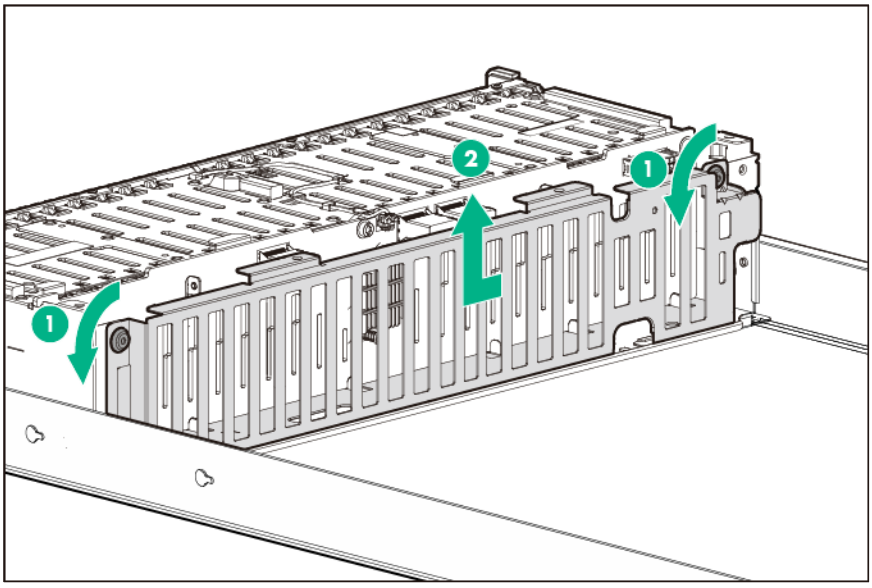
4. Pull down the front drive cage release latches and use them to completely extend the front drive cages from the chassis.



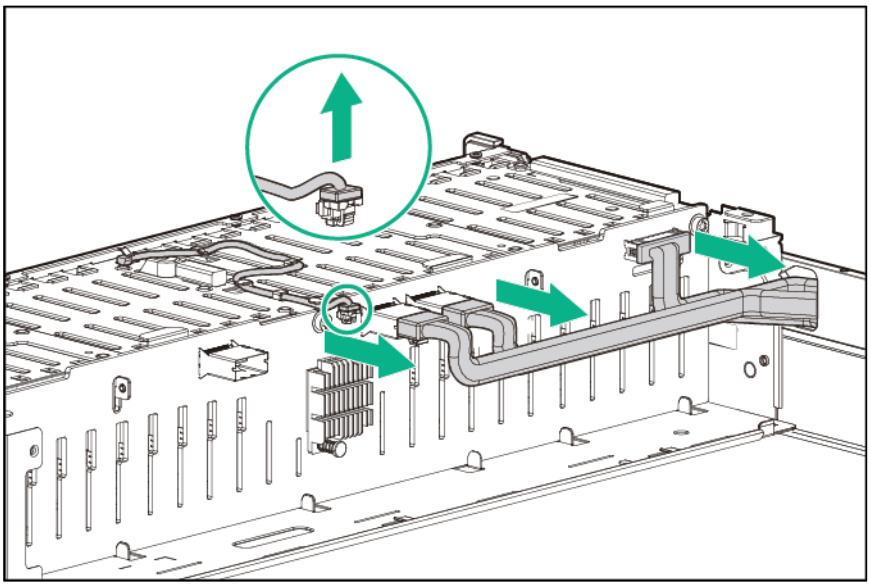
5. Remove the drive cage top cover.



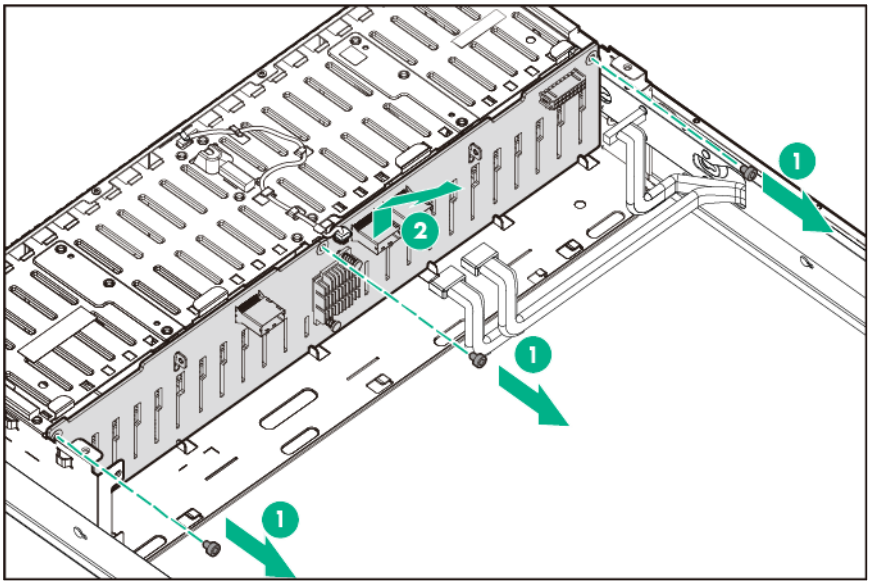
6. Remove the backplane cable guard.



7. Disconnect all cables connected to the drive backplane.



8. Remove the drive backplane.



To replace the component, reverse the removal procedure.

Removing the front SFF drive cage 2 backplane

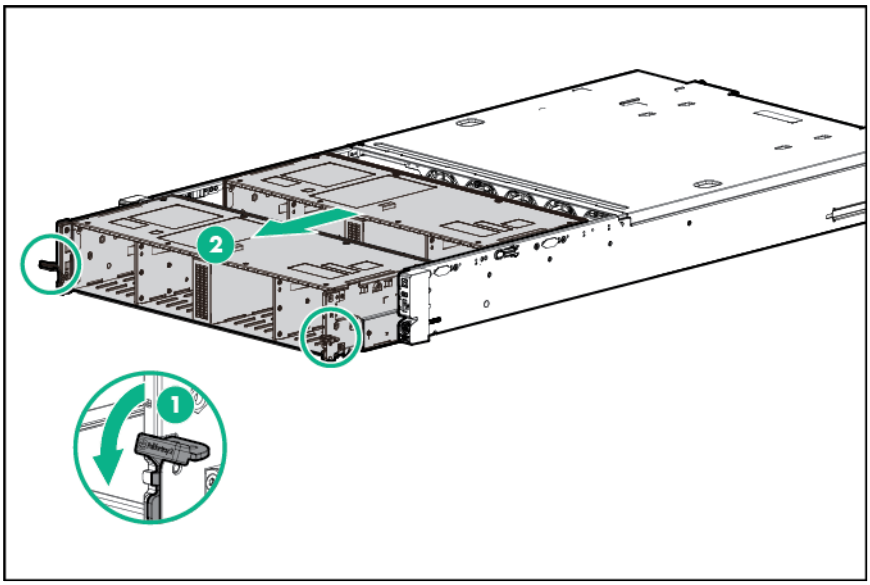
WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching them.

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.

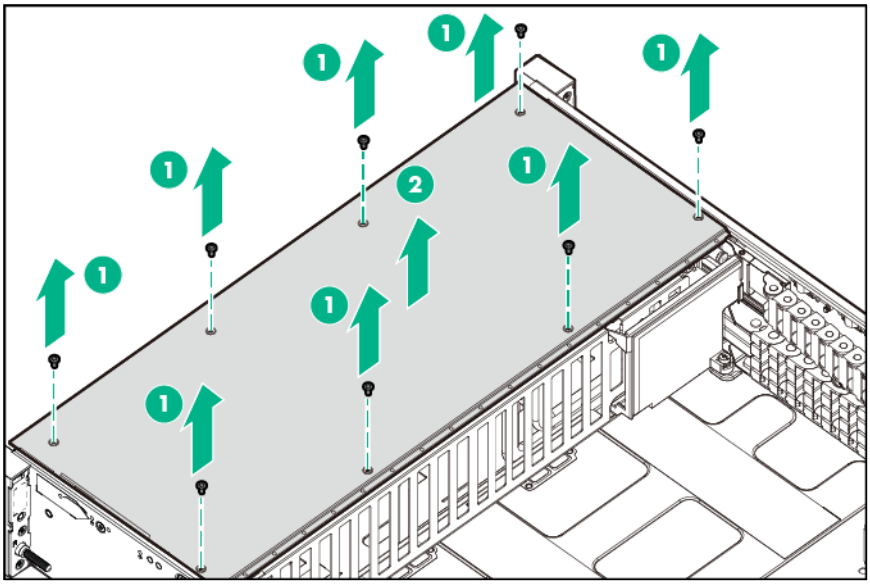
To remove the component:

1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).

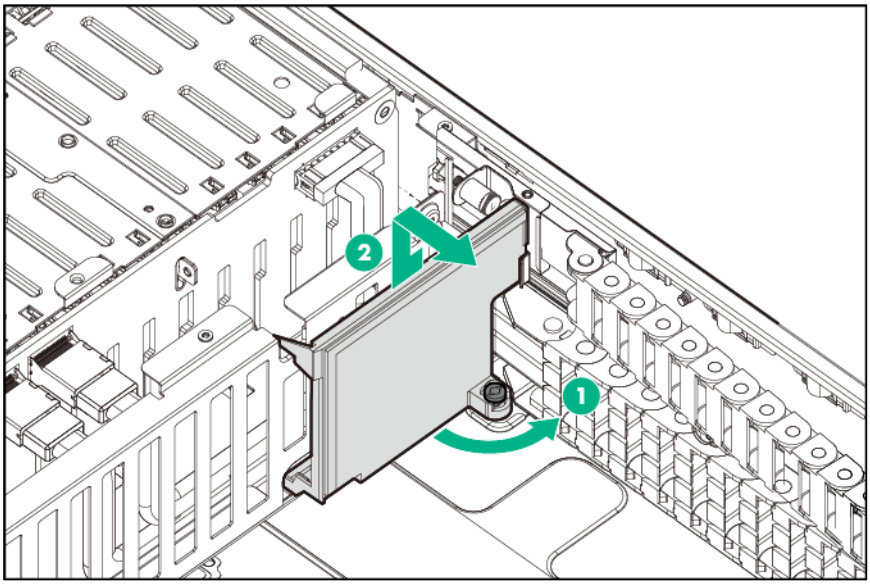
4. Pull down the front drive cage release latches and use them to completely extend the front drive cages from the chassis.



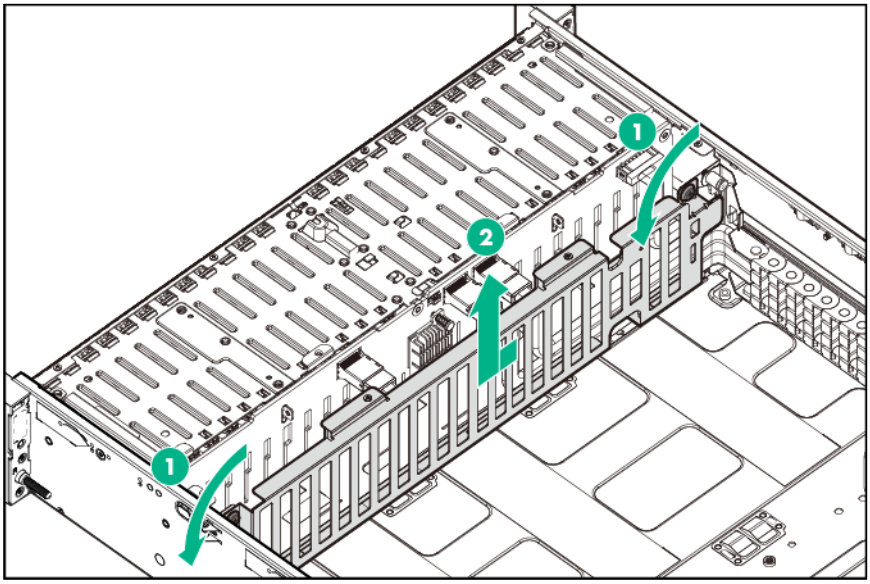
5. Remove the drive cage top cover.



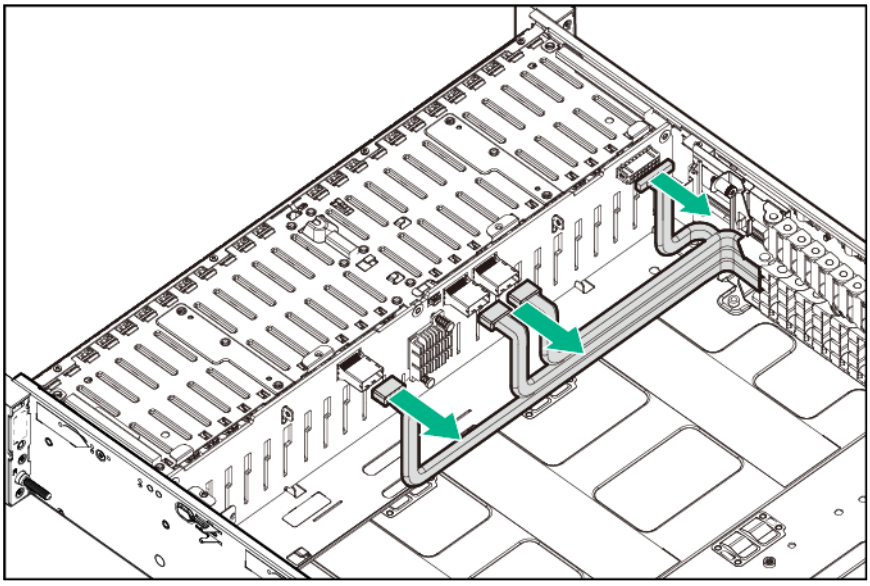
6. Remove the air blocker.



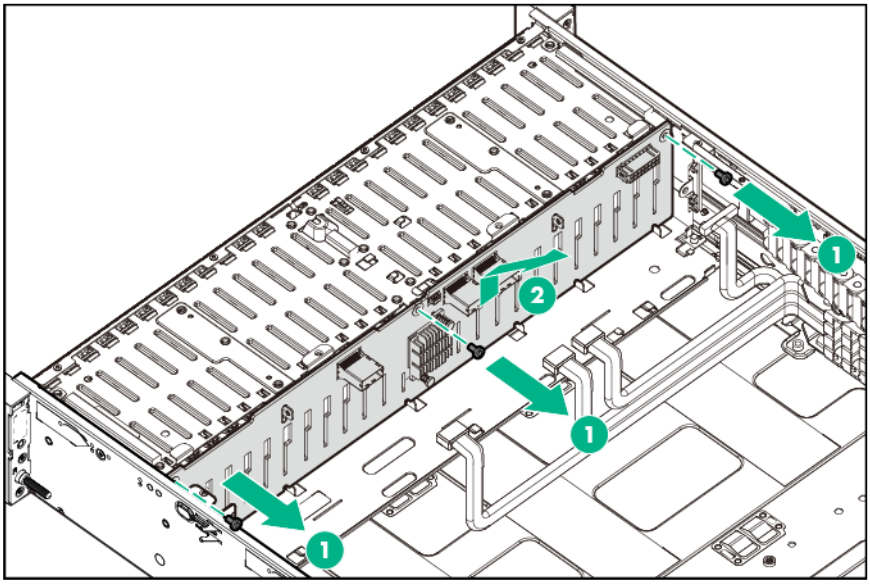
7. Remove the backplane cable guard.



8. Disconnect all cables connected to the drive backplane.



9. Remove the drive backplane.



To replace the component, reverse the removal procedure.

Removing the four-bay LFF rear drive cage backplane

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

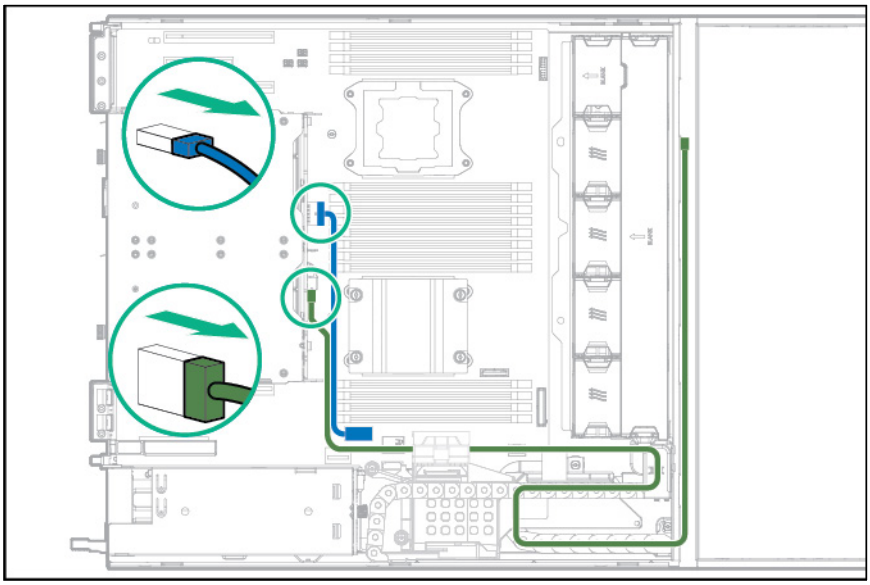
CAUTION: To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

To remove the component:

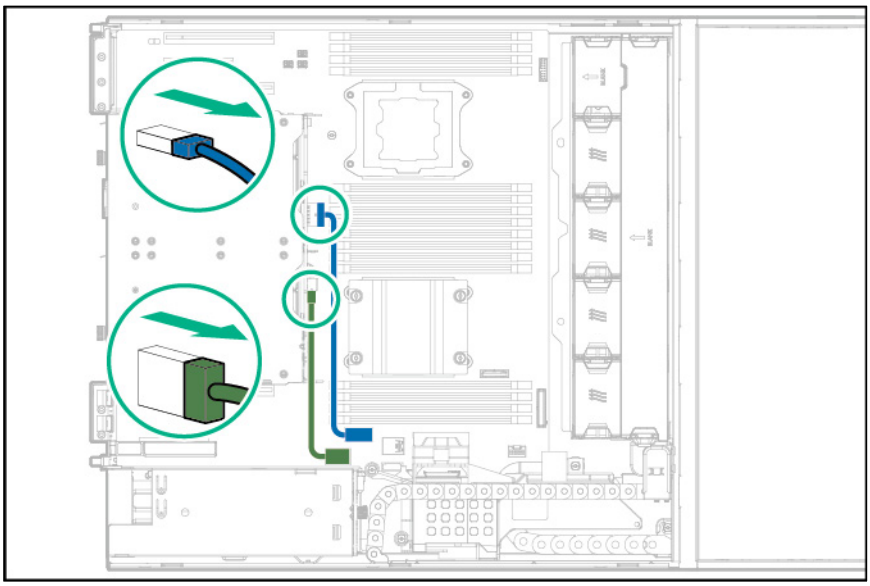
1. Power down the server (on page 26).
2. Remove all power:

a. Disconnect each power cord from the power source.
b. Disconnect each power cord from the server.

3. Remove the server from the rack (on page 33).
4. Remove the access panel ("Access panel" on page 49).
5. Disconnect all cables connected to the drive backplane.
   - Disconnecting the cables from the four-bay LFF hot-plug rear drive cage connected to the front drive cage 2 backplane

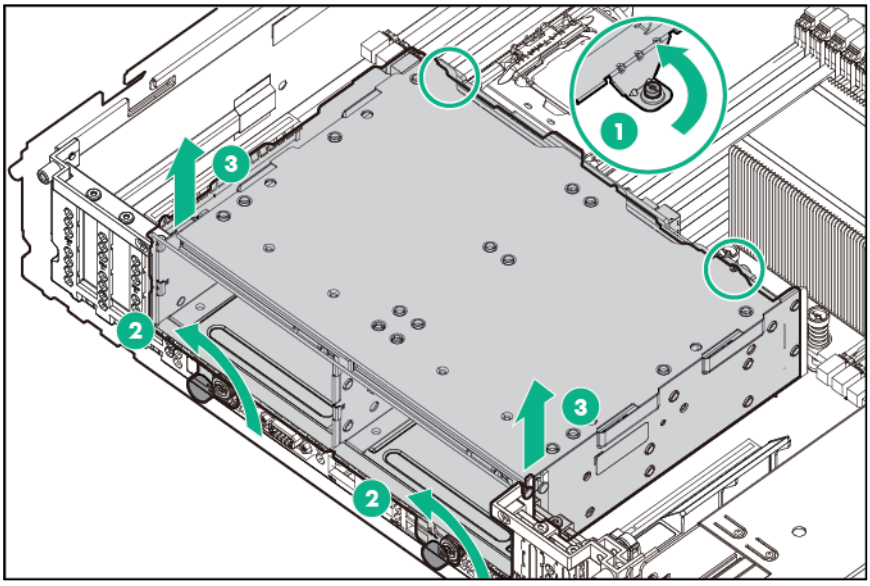


   - Disconnecting the cables from the four-bay LFF hot-plug rear drive cage connected to the system board

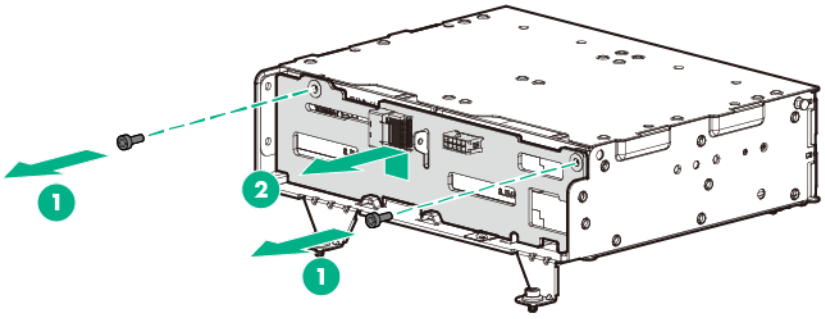


6. Remove the rear drive cage:
   a. Loosen the captive screws to detach the rear drive cage from system board.
   b. Loosen the thumbscrews to detach the drive cage from the rear panel.

c. Grasp and lift the rear drive cage out of the chassis.



7. Remove the drive backplane.



To replace the component, reverse the removal procedure.

Removing the two-bay SFF rear drive cage backplane

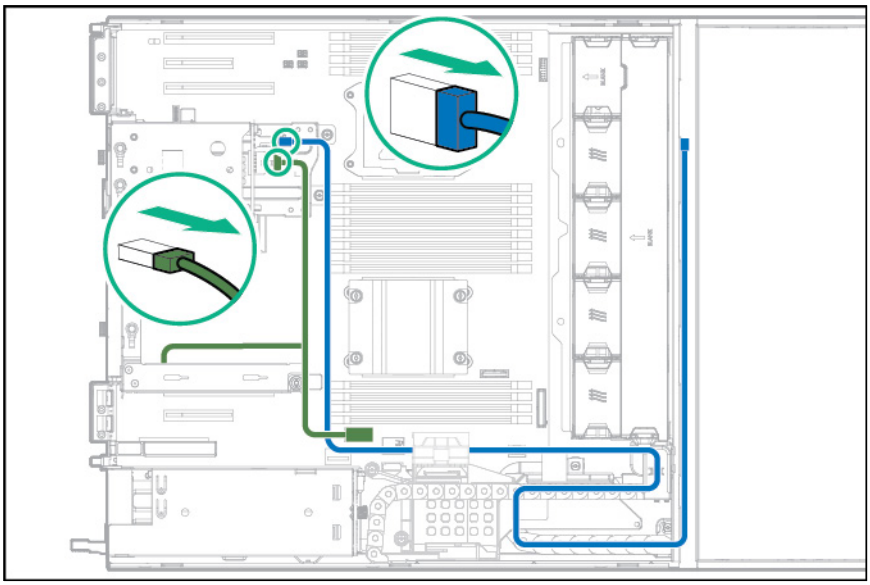
WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching them.

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.

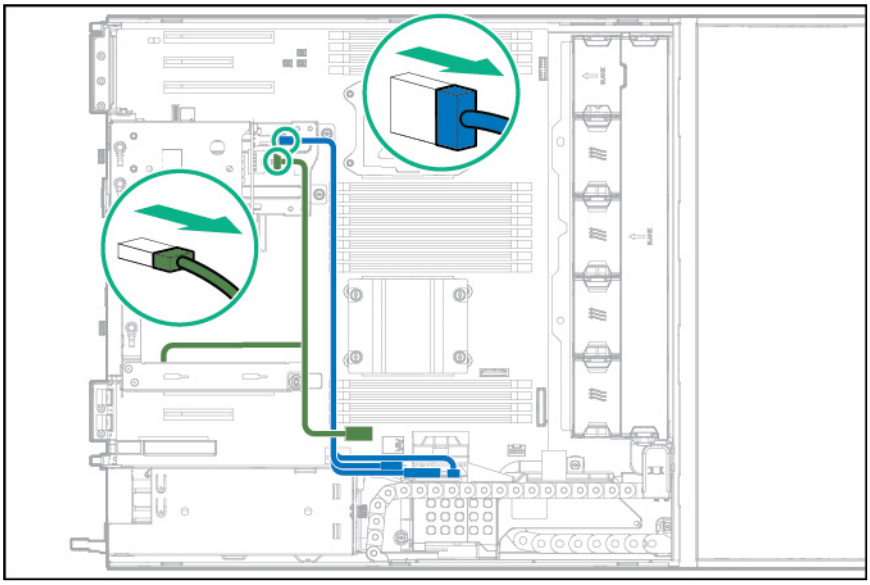
To remove the component:

1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).
4. Remove the access panel ("Access panel" on page 49).
5. Disconnect all cables connected to the drive backplane.

- Disconnecting the cables from the two-bay SFF hot-plug rear drive cage connected to the front drive cage 2 backplane

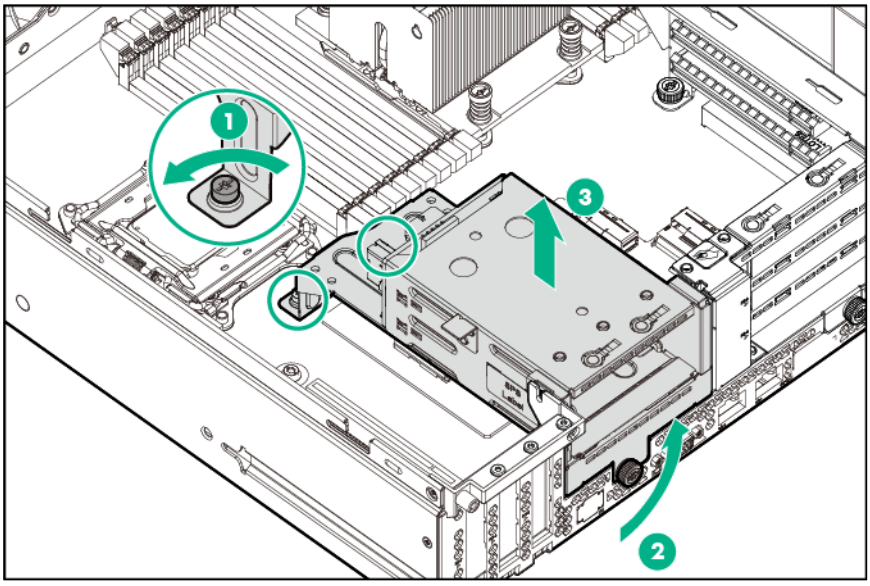


- Disconnecting the cables from the two-bay SFF hot-plug rear drive cage connected to the system board

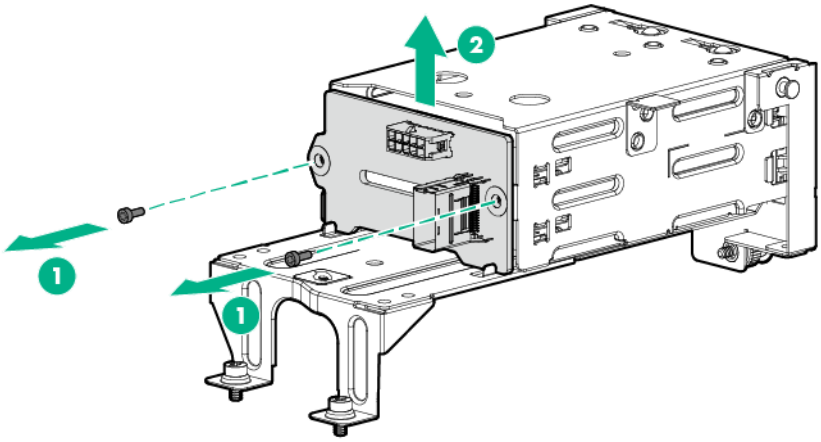


6. Remove the rear drive cage:
   a. Loosen the captive screws to detach the rear drive cage from system board.
   b. Loosen the thumbscrew to detach the drive cage from the rear panel.

c. Grasp and lift the rear drive cage out of the chassis.



7. Remove the drive backplane.



To replace the component, reverse the removal procedure.

LFF drive cable track assemblies

The Mini-SAS and power cables used in the 24-bay LFF front drive cages are enclosed in two plastic cable track assemblies. The top cable track connects to the front LFF drive cage 1 backplane; the bottom cable track connects to the front LFF drive cage 2 backplane.

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

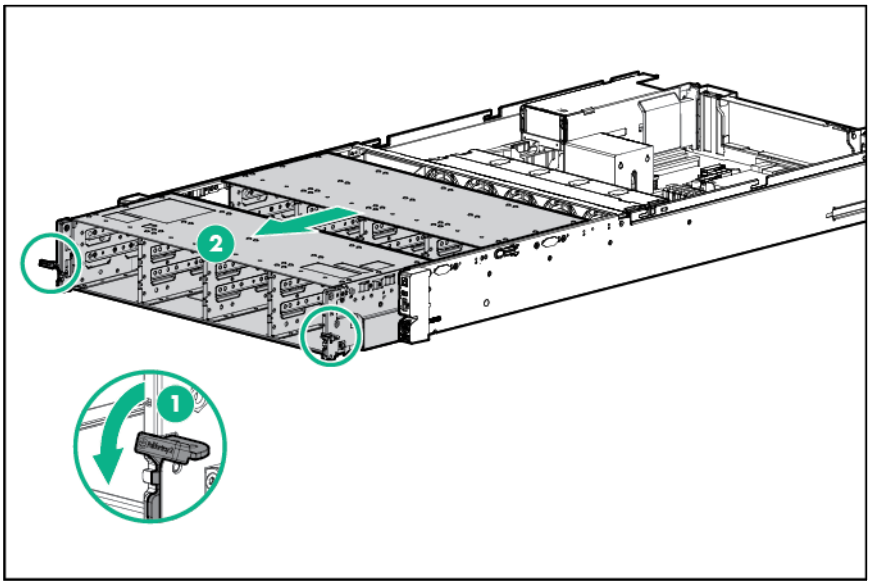
△ **CAUTION:** To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

To remove the component:

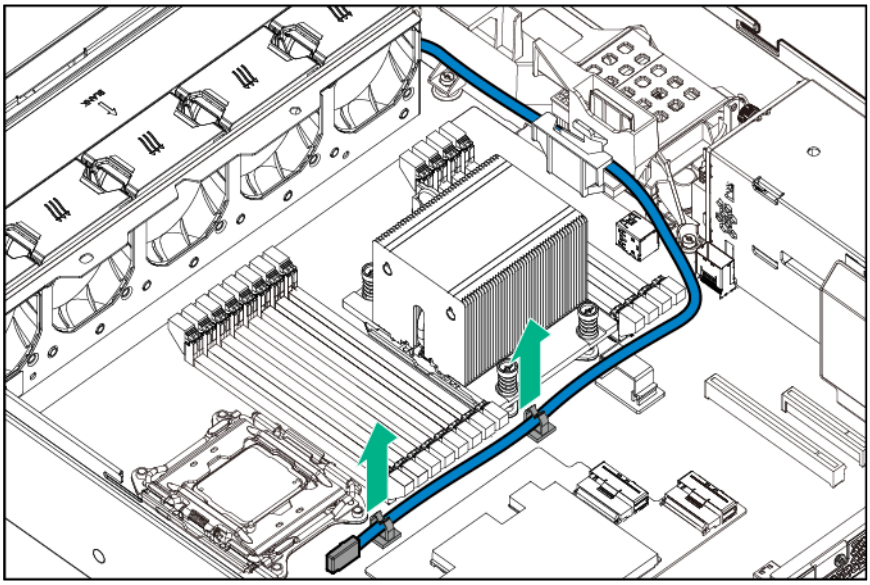
1. Power down the server (on page 26).
2. Remove all power:

a. Disconnect each power cord from the power source.
b. Disconnect each power cord from the server.

3. Remove the server from the rack (on page 33).
4. Remove the access panel ("Access panel" on page 49).
5. Remove the air baffle ("Air baffle" on page 50).
6. Pull down the front drive cage release latches and use them to completely extend the front drive cages from the chassis.

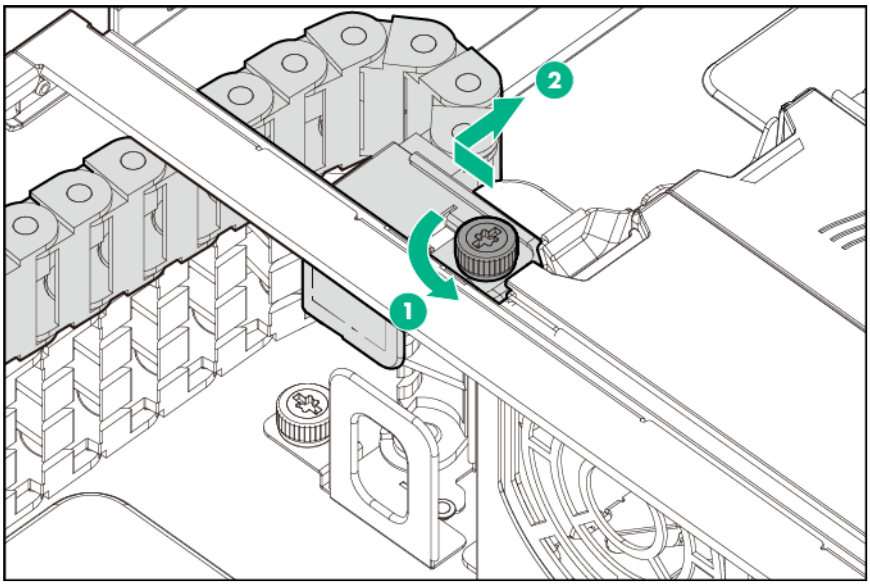


7. Do one of the following:
   - Release the preinstalled Mini-SAS x4 cable from the system board cable clips.

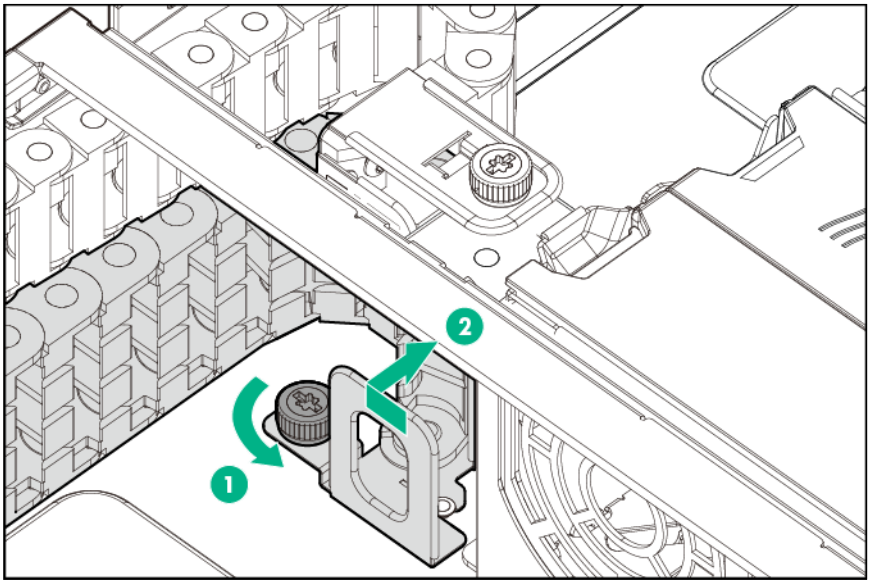


   - If a rear drive cage is connected to the front drive cage 2 backplane, disconnect the preinstalled Mini-SAS x4 cable from the rear drive cage backplane ("Four-bay LFF hot-plug SAS/SATA rear drive cabling" on page 140, "Two-bay SFF hot-plug SAS/SATA rear drive cabling" on page 141).
8. Remove the cable management holder ("Cable management holder" on page 113).
9. Release the cable track brackets:

a. Loosen the front LFF drive cage 1 cable track thumbscrew, and then release the bracket from the chassis.

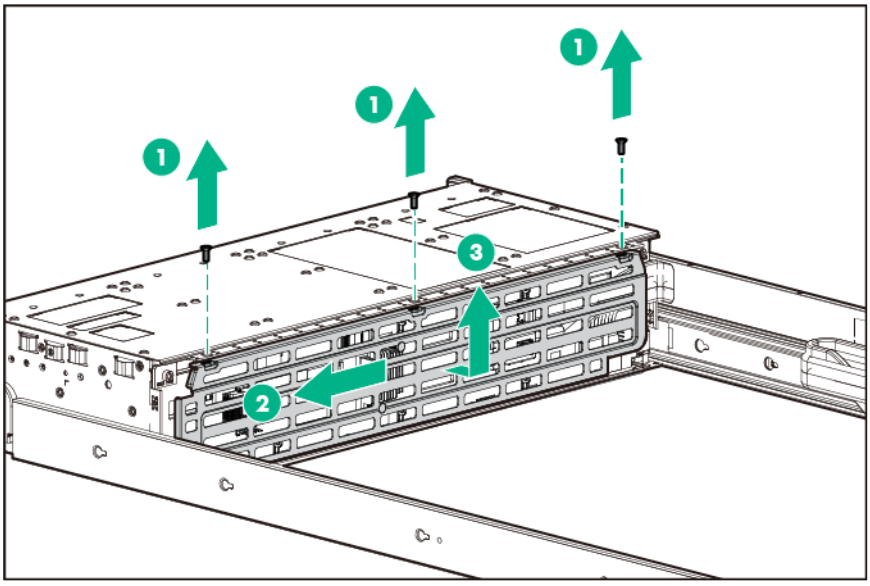


b. Loosen the front LFF drive cage 2 cable track thumbscrew, and then release the bracket from the chassis.

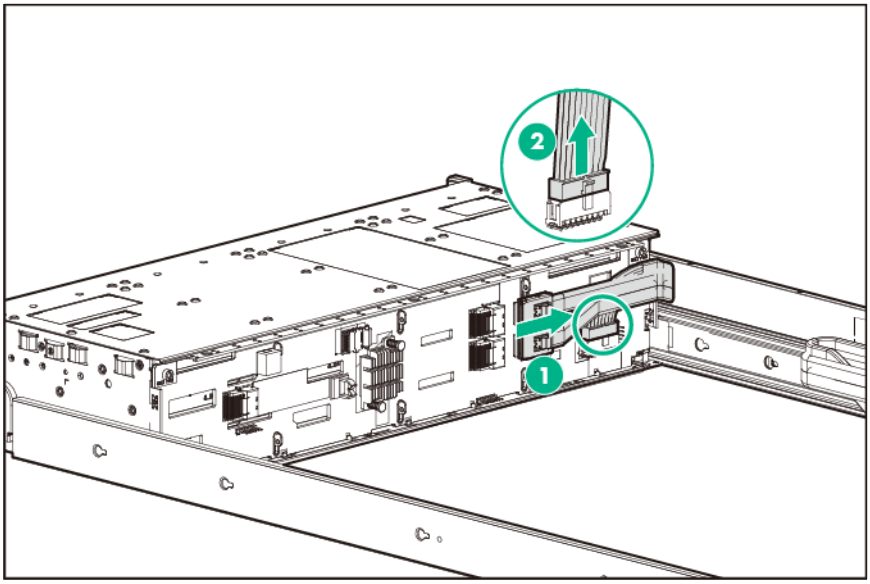


10. Remove the front LFF drive cage 1 cable track assembly:

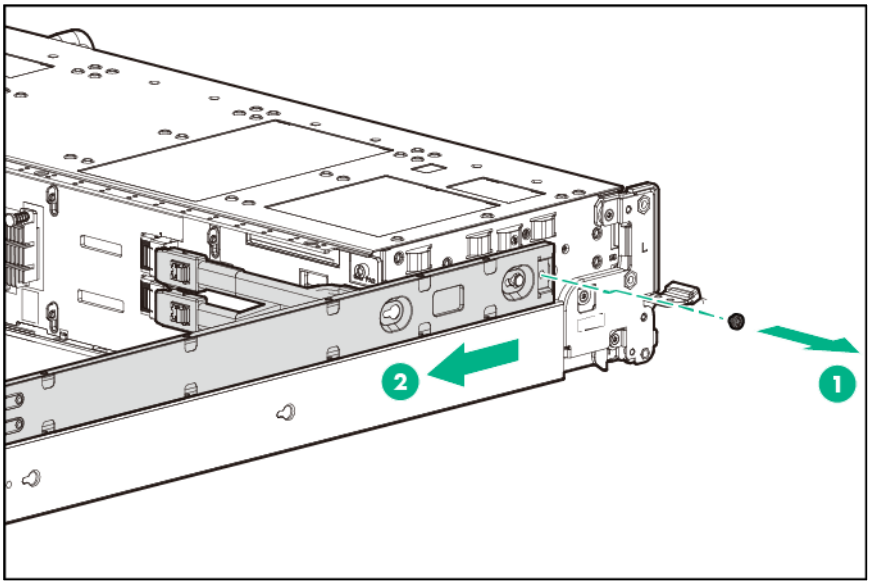
a. Remove the backplane cable guard.



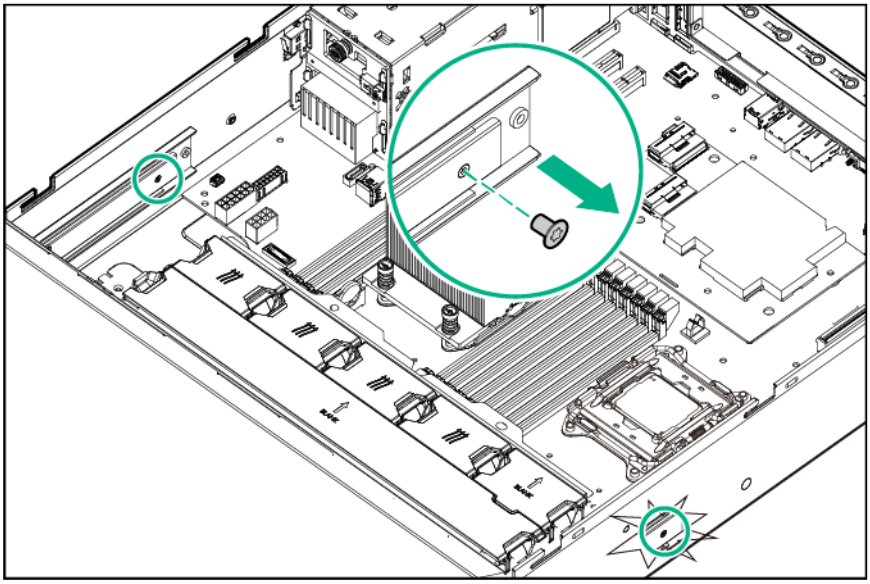
b. Disconnect all cables connected to the drive backplane.



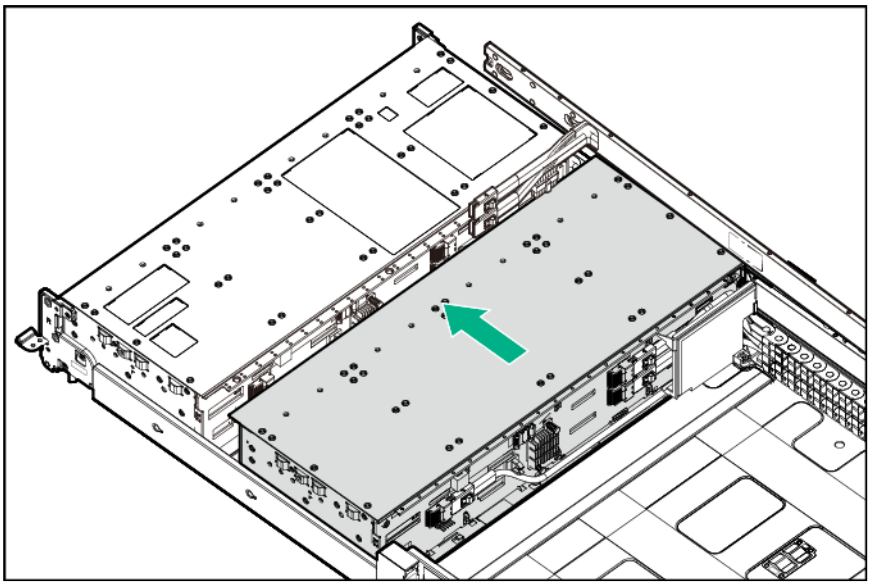
c. Release the front LFF drive cage 1 cable track rail from the side of the chassis.



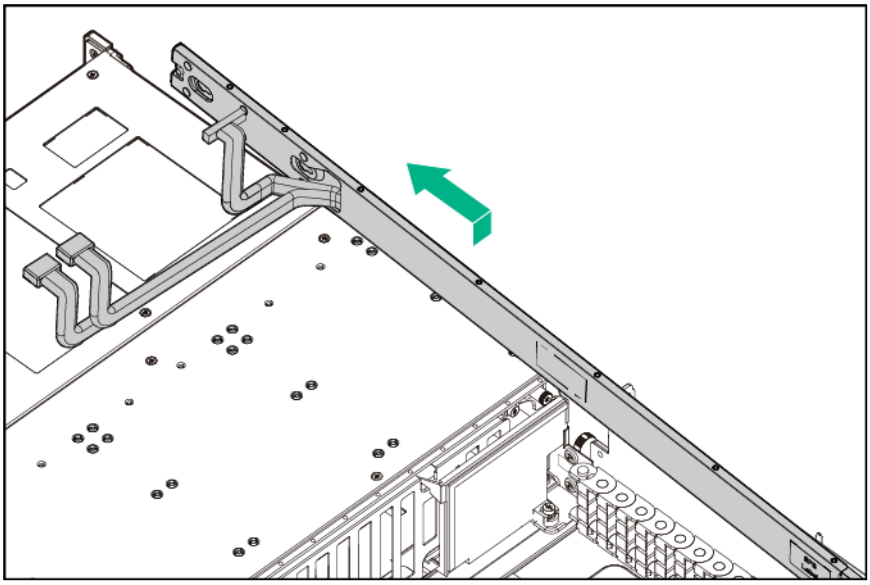
d. Remove the screws from the front LFF drive cage 1 rails.



e. Slide the front LFF drive cage 2 forward until both front drive cages are extended out of the front chassis.

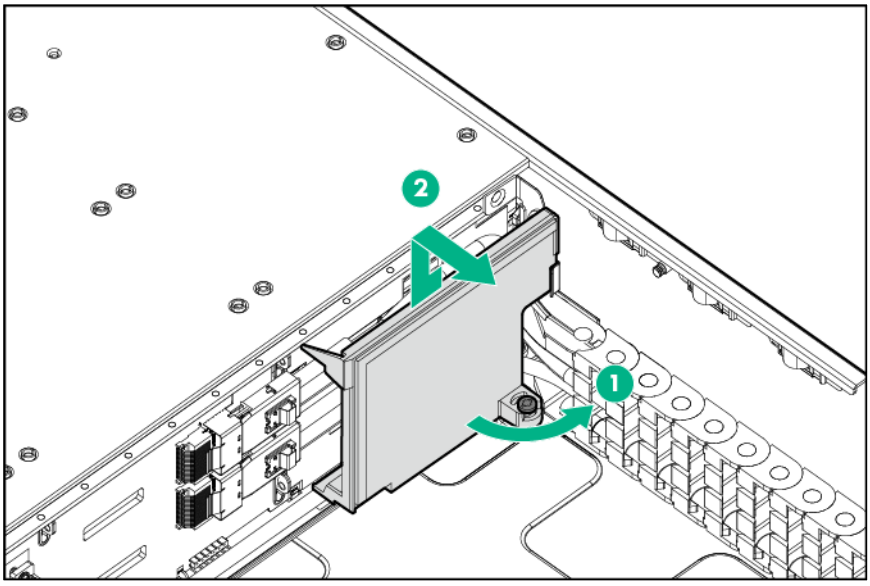


f. Remove the front LFF drive cage 1 cable track assembly.

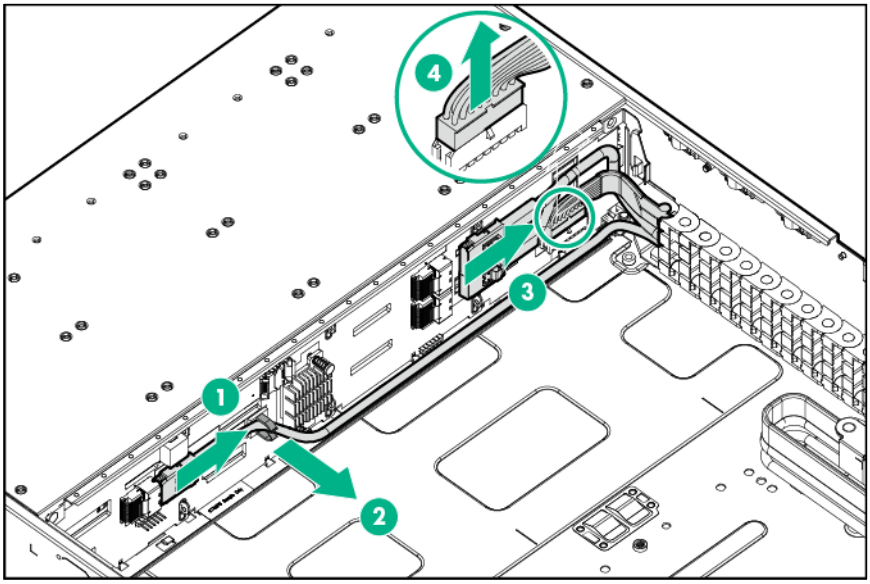


11. Remove the front LFF drive cage 2 cable track assembly:
    a. Remove the front LFF drive cage 1 cable track assembly. See step 10 of this section.

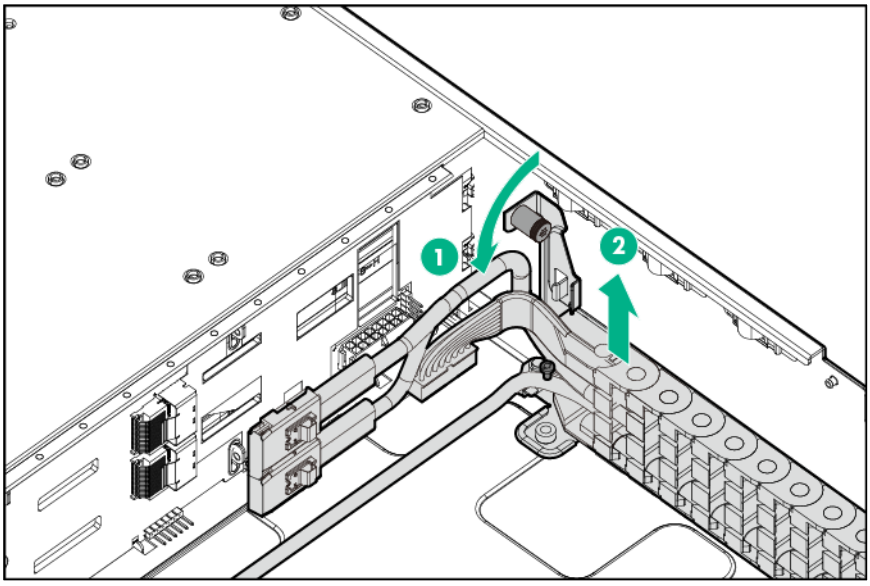
b. Remove the air blocker.



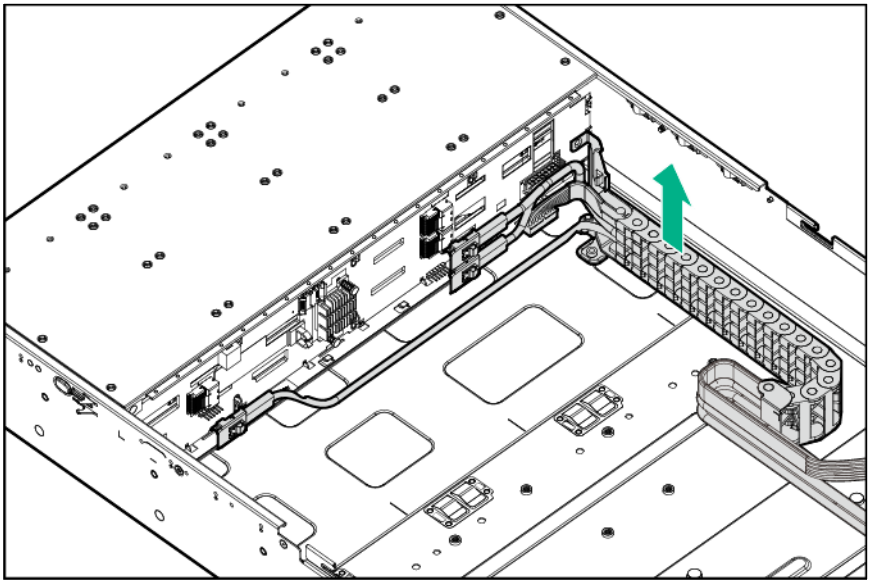
c. Disconnect all cables connected to the drive backplane.



d. Release the front bracket of the front LFF drive cage 2 cable track from the chassis.



e. Remove the front LFF drive cage 2 cable track assembly.



To replace the component, reverse the removal procedure.

SFF drive cable track assemblies

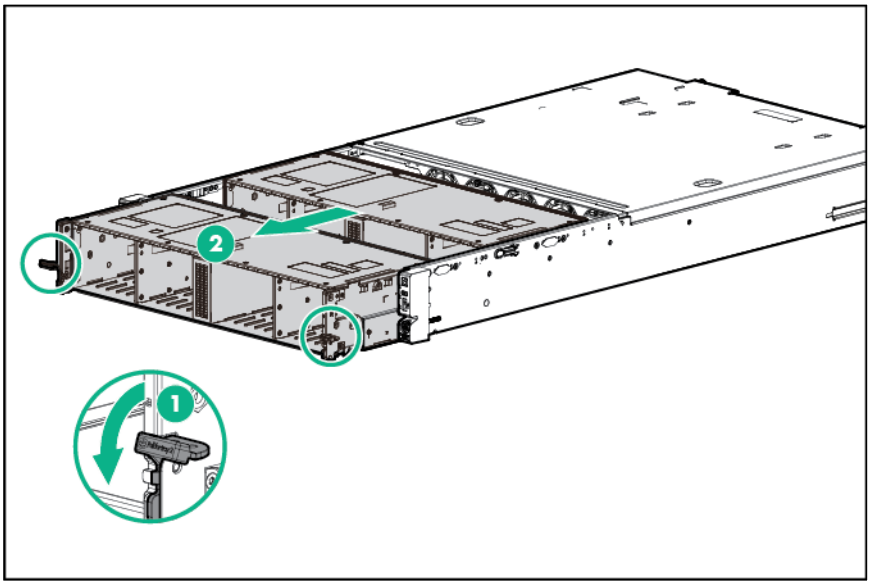
The Mini-SAS and power cables used in the 48-bay SFF front drive cages are enclosed in two plastic cable track assemblies. The top cable track connects to the front SFF drive cage 1 backplane; the bottom cable track connects to the front SFF drive cage 2 backplane.

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

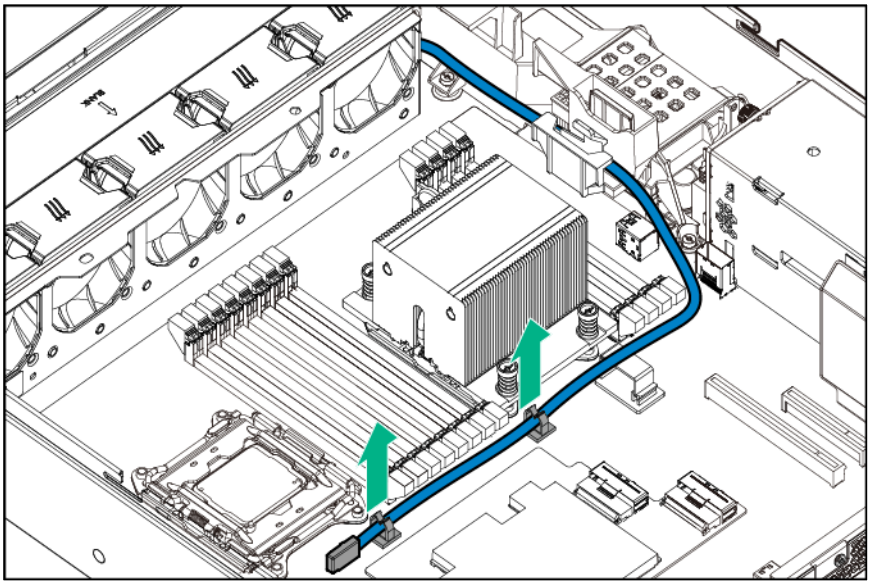
CAUTION: To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

To remove the component:

1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).
4. Remove the access panel ("Access panel" on page 49).
5. Remove the air baffle ("Air baffle" on page 50).
6. Pull down the front drive cage release latches and use them to completely extend the front drive cages from the chassis.

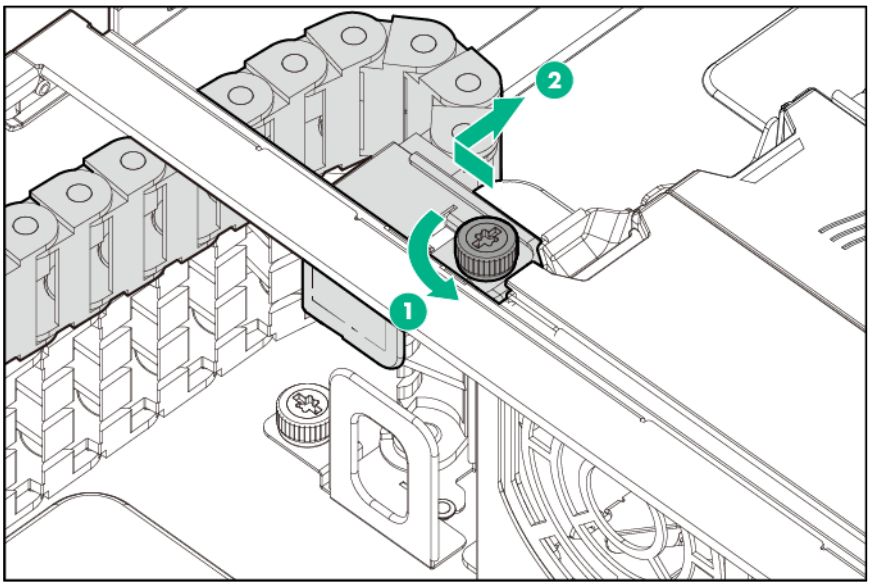


7. Do one of the following:
   - Release the preinstalled Mini-SAS x4 cable from the system board cable clips.

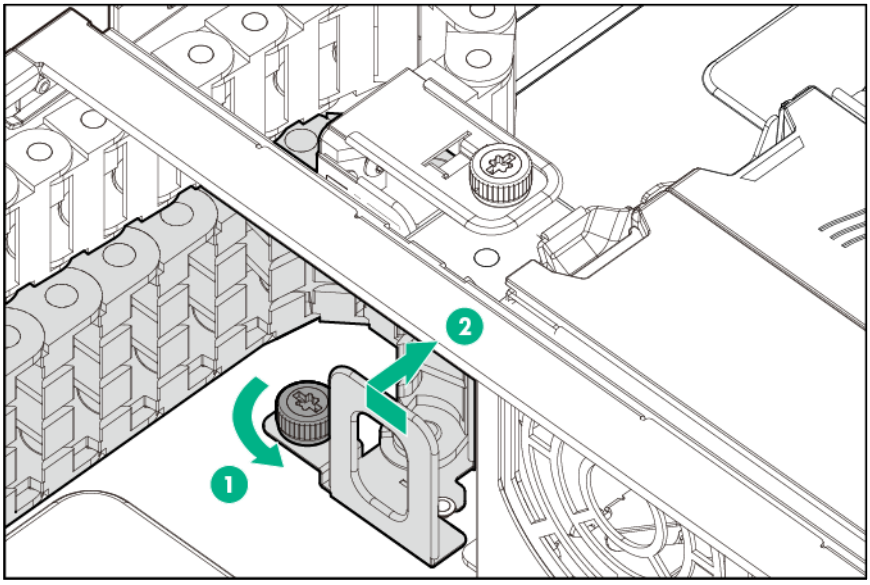


   - If a rear drive cage is connected to the front drive cage 2 backplane, disconnect the preinstalled Mini-SAS x4 cable from the rear drive cage backplane ("Four-bay LFF hot-plug SAS/SATA rear drive cabling" on page 140, "Two-bay SFF hot-plug SAS/SATA rear drive cabling" on page 141).

8. Remove the cable management holder ("Cable management holder" on page 113).
9. Release the cable track brackets:
   a. Loosen the front SFF drive cage 1 cable track thumbscrew, and then release the bracket from the chassis.

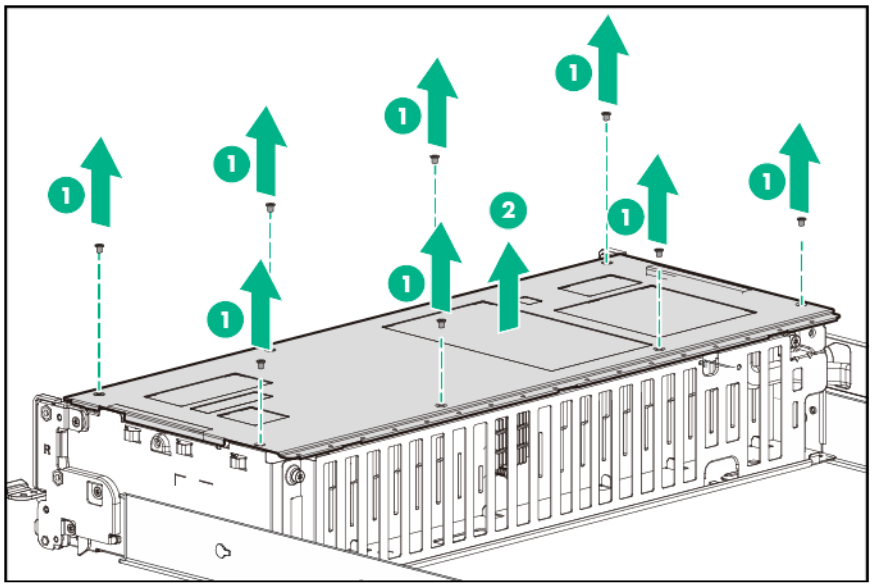


   b. Loosen the front SFF drive cage 2 cable track thumbscrew, and then release the bracket from the chassis.

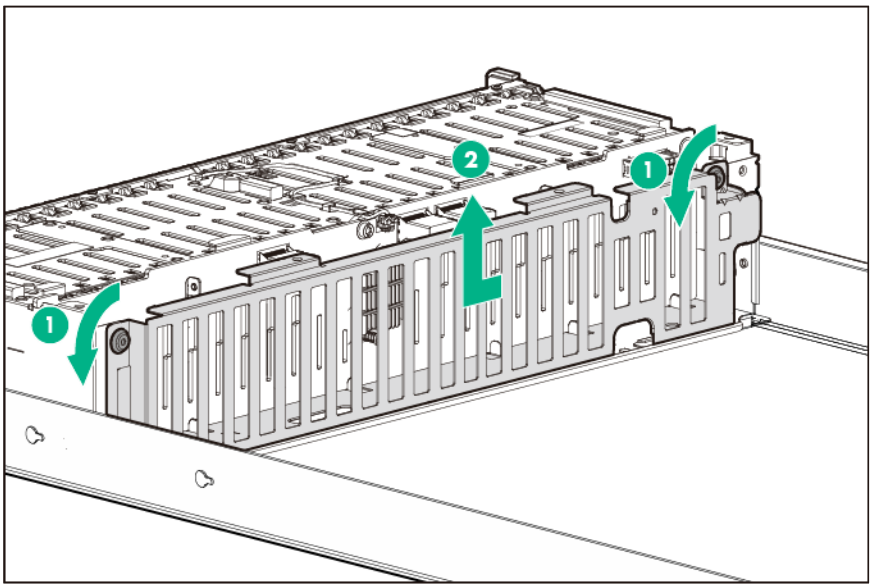


10. Remove the front SFF drive cage 1 cable track assembly:

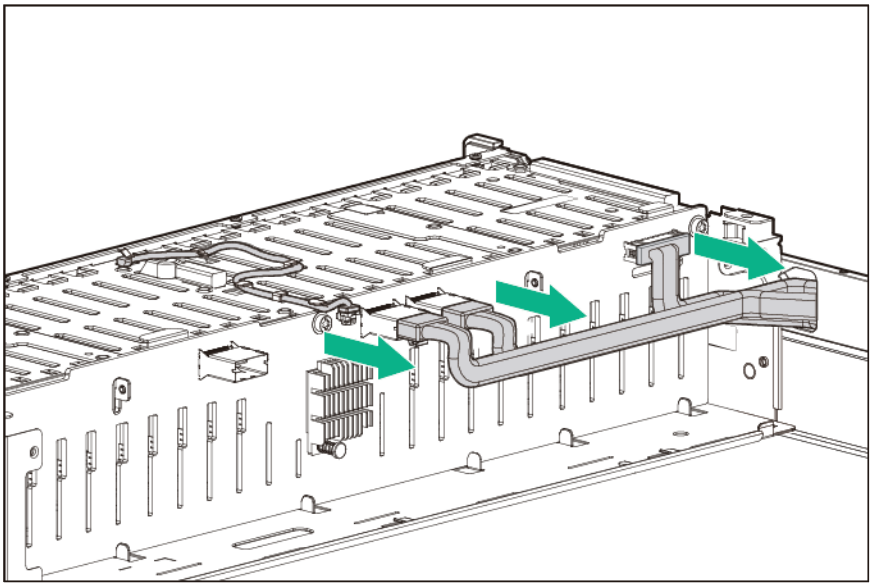
a. Remove the drive cage top cover.



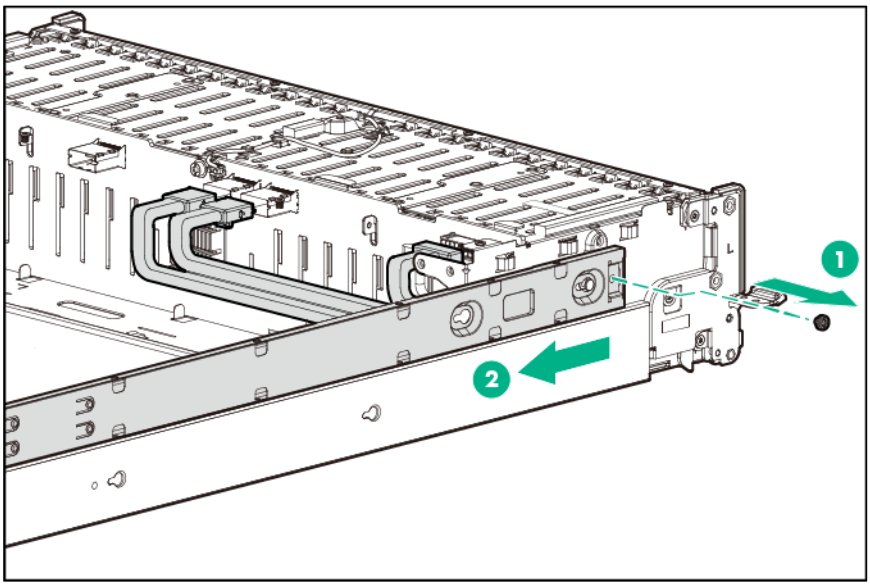
b. Remove the backplane cable guard.



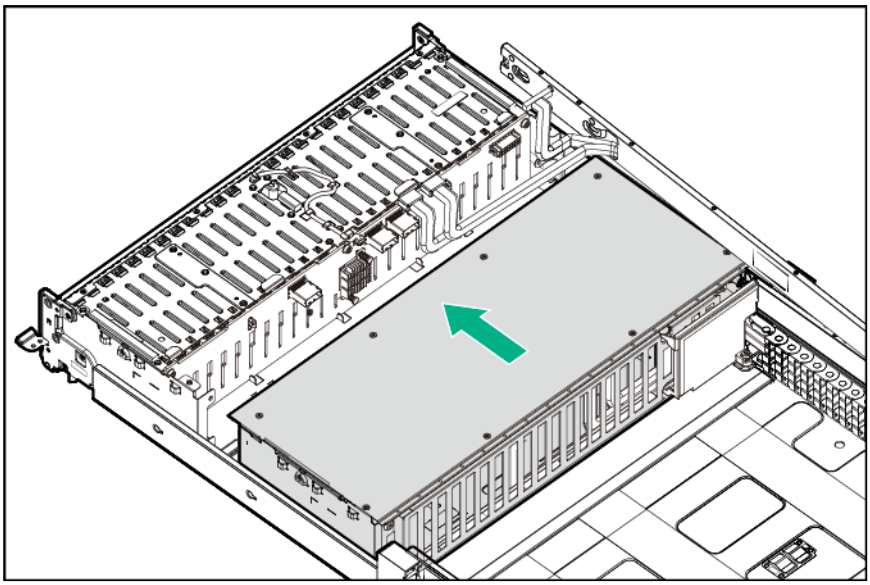
c. Disconnect the front SFF drive cage 1 Mini-SAS and power cables.



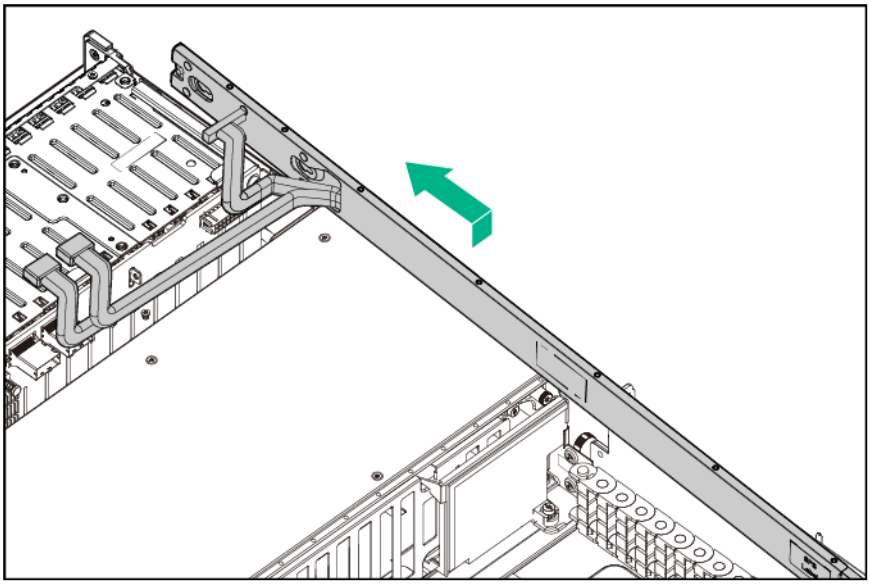
d. Release the front SFF drive cage 1 cable track rail from the side of the chassis.



e. Slide the front SFF drive cage 2 forward until both front drive cages are extended out of the front chassis.

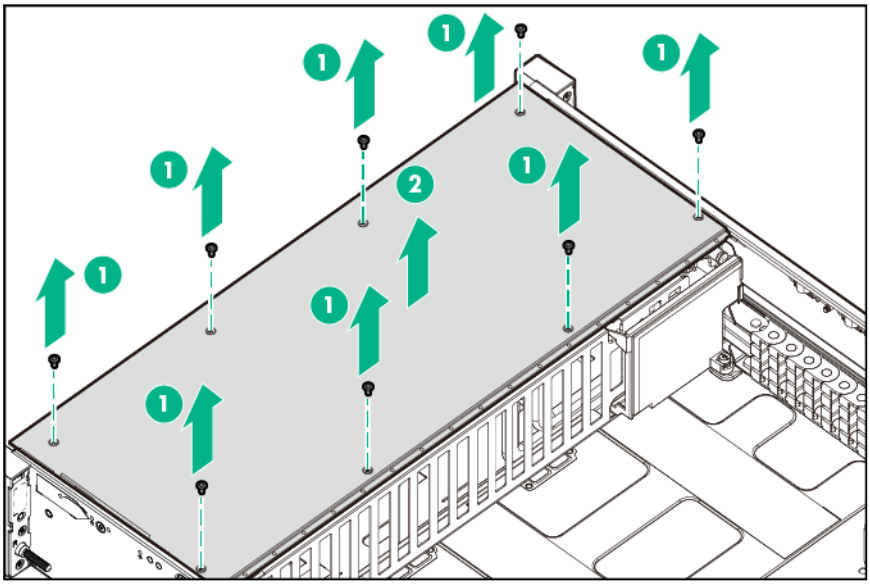


f. Remove the front SFF drive cage 1 cable track assembly.

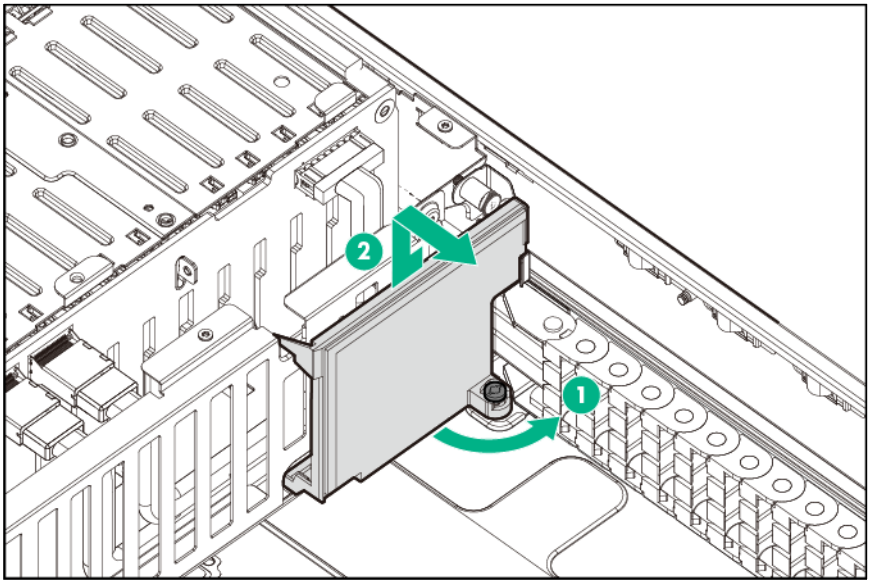


11. Remove the front SFF drive cage 2 cable track assembly:
    a. Remove the front SFF drive cage 1 cable track assembly. See step 10 of this section.

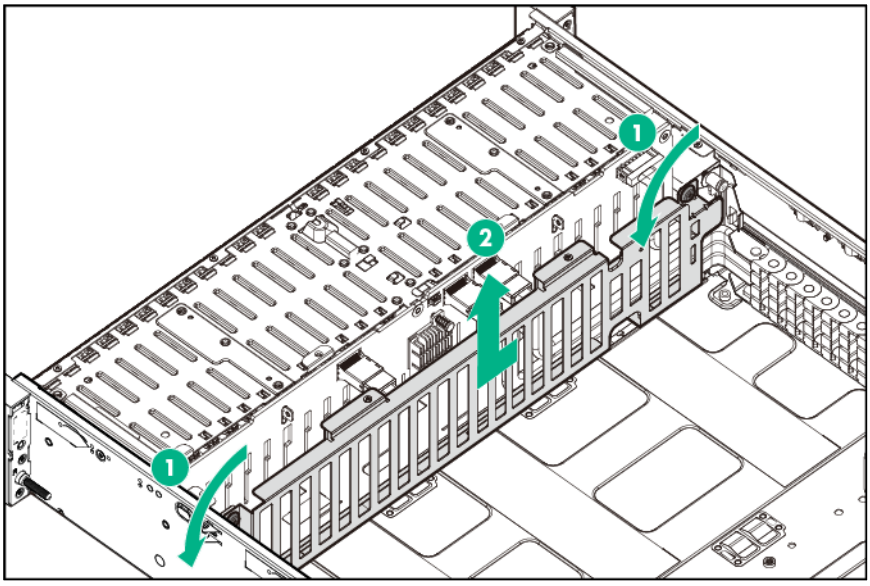
b. Remove the drive cage top cover.



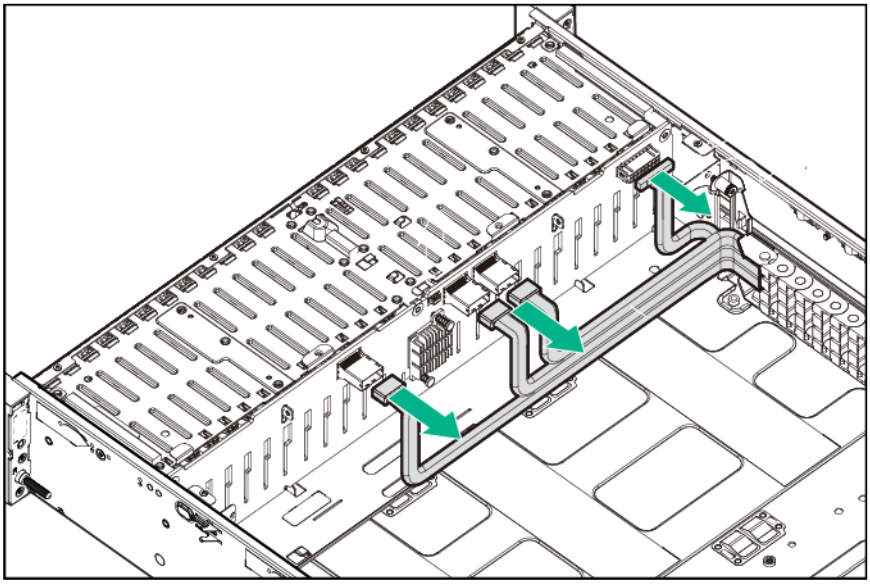
c. Remove the air blocker.



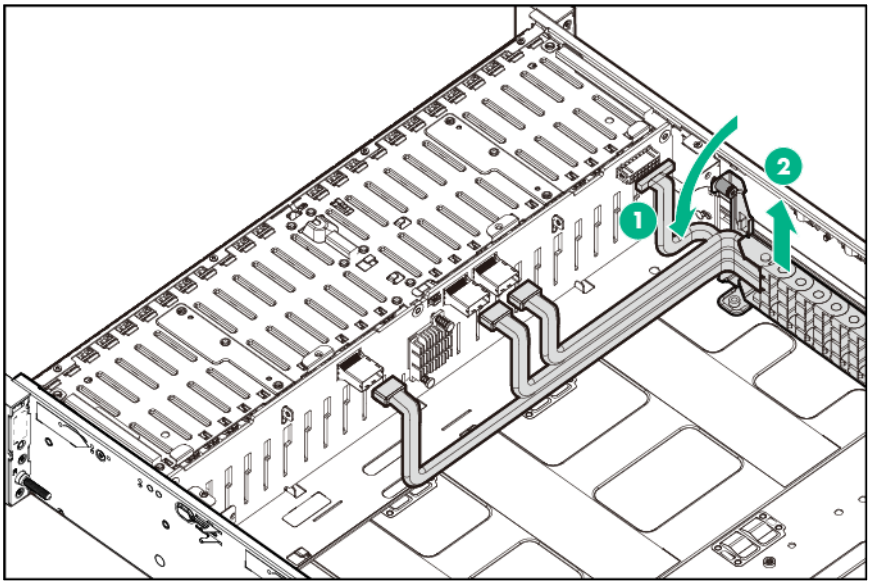
d. Remove the backplane cable guard.



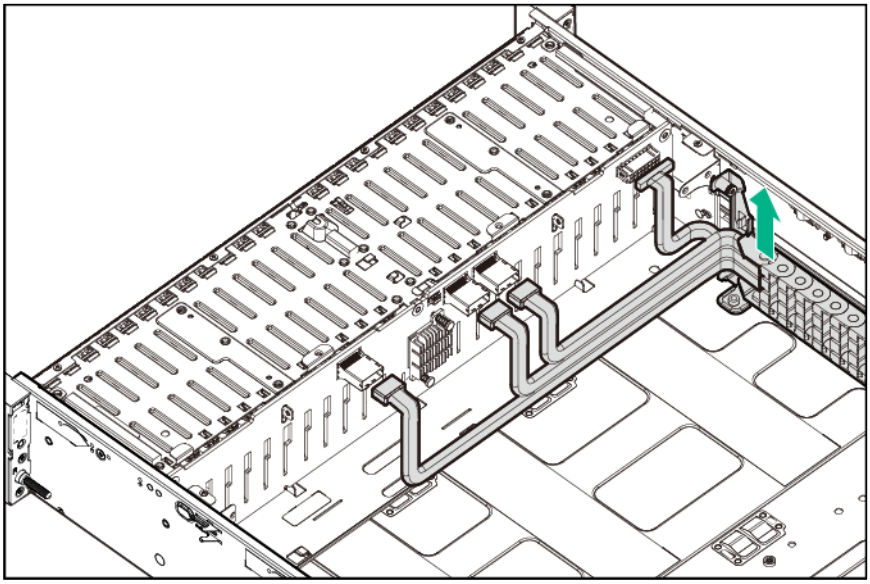
e. Disconnect all cables connected to the drive backplane.



f. Release the front bracket of the front SFF drive cage 2 cable track from the chassis.



g. Remove the front SFF drive cage 2 cable track assembly.



To replace the component, reverse the removal procedure.

Ambient temperature sensor cable

This cable is present in SFF drive configurations only; the ambient temperature sensor function in LFF drive configurations is integrated in the front LFF drive cage 1 backplane.

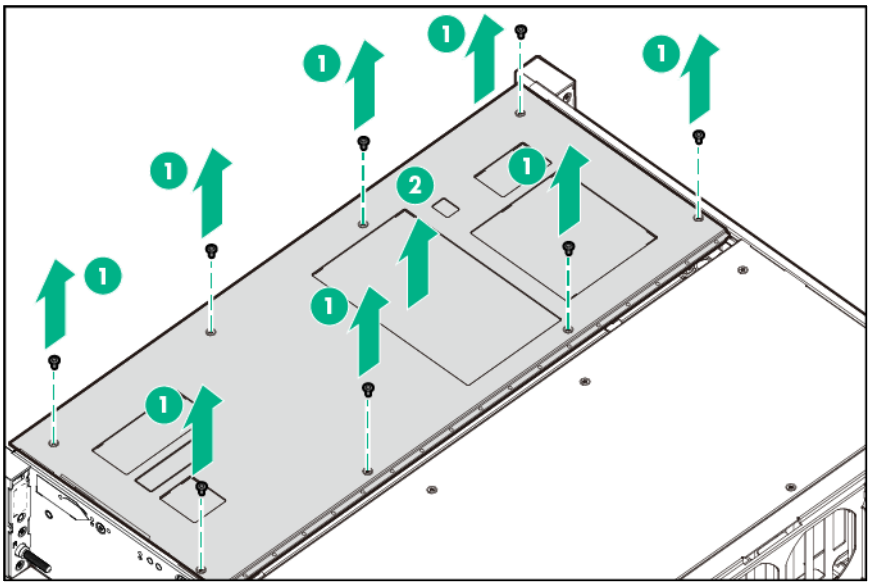
CAUTION: To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

To remove the component:

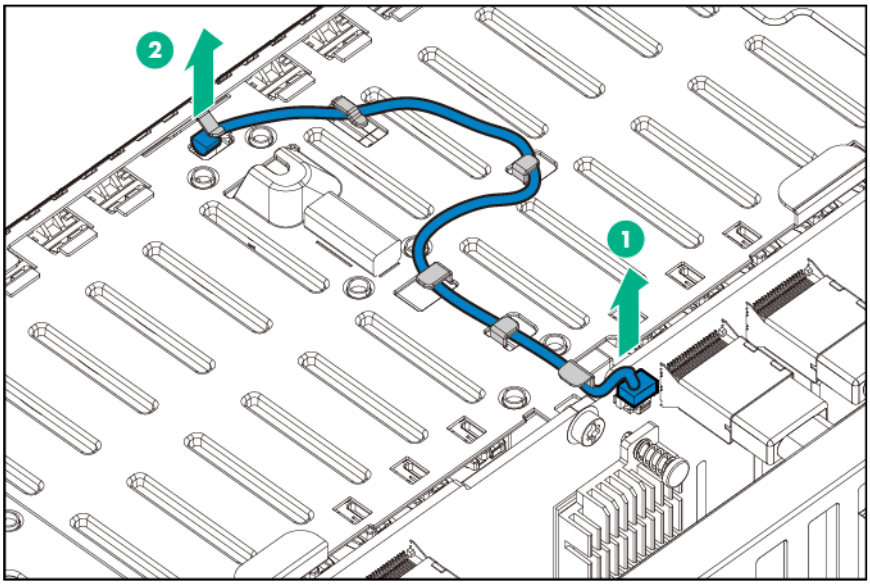
1. Power down the server (on page 26).
2. Remove all power:

a. Disconnect each power cord from the power source.
b. Disconnect each power cord from the server.

3. Remove the server from the rack (on page 33).
4. Remove the drive cage top cover.



5. Remove the ambient temperature sensor cable.



To replace the component, reverse the removal procedure.

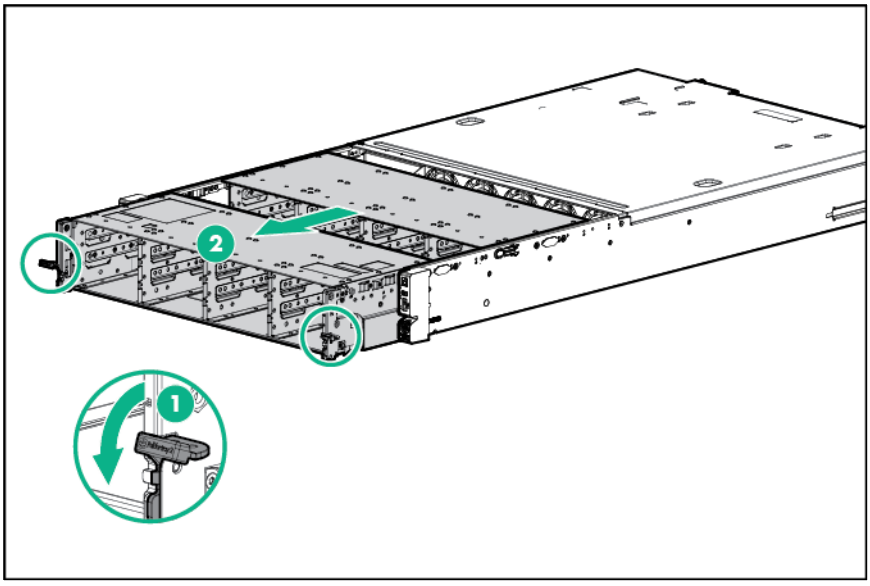
Front I/O board

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.

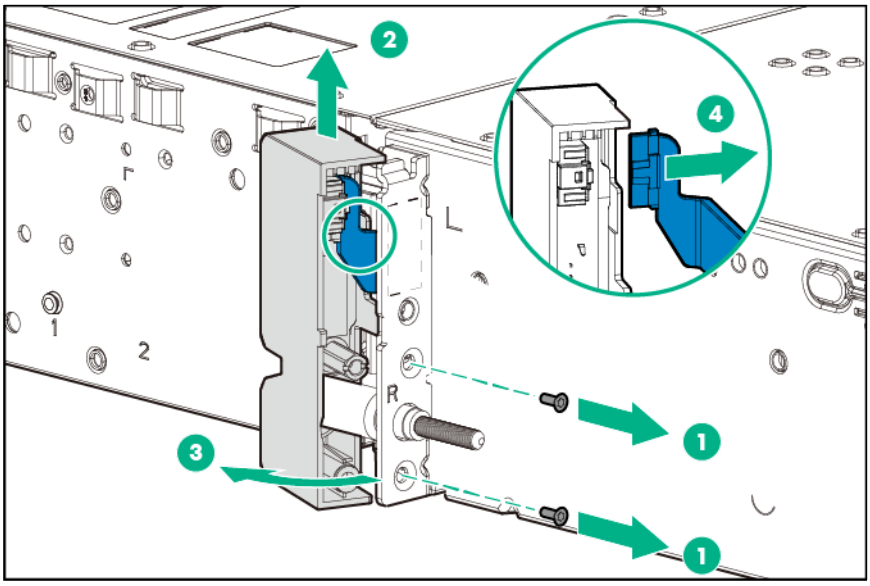
To remove the component:

1. Power down the server (on page 26).

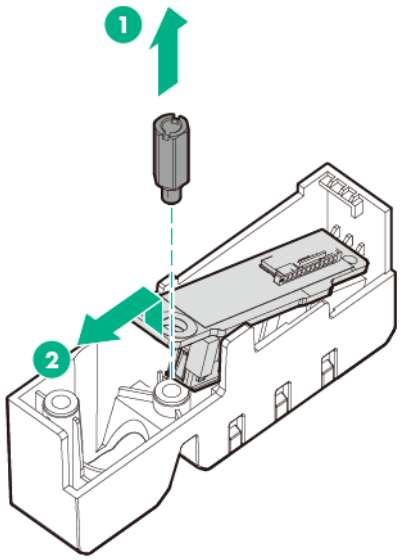
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).
4. Pull down the front drive cage release latches and use them to completely extend the front drive cages from the chassis.



5. Remove the right rack ear assembly:
   a. Remove the screws behind the right rack ear.
   b. Carefully open the right rack ear from behind, and then disconnect the front I/O cable.
      This action releases the right rack ear assembly from the chassis.



6. Use a flat-headed screwdriver to remove the front I/O board.



To replace the component, reverse the removal procedure.

Cable management holder

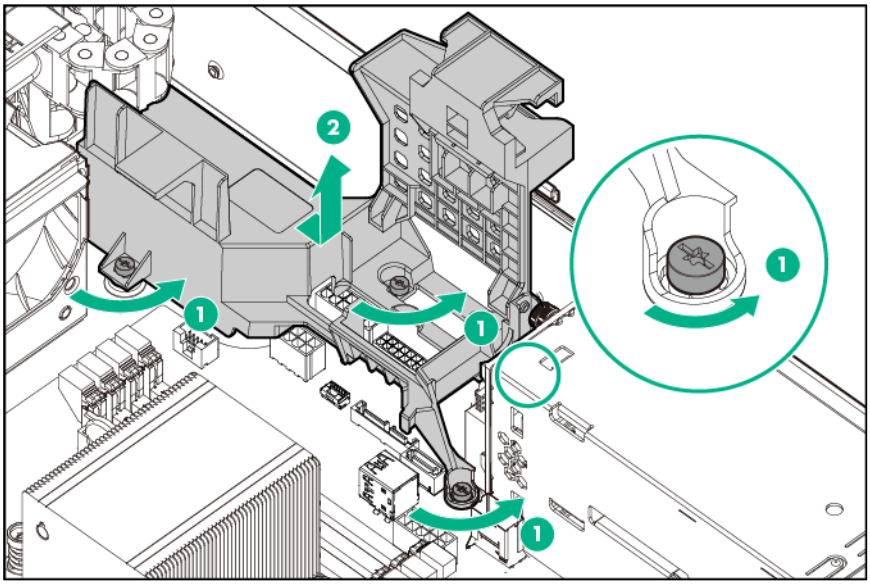
WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching them.

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.

To remove the component:

1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).
4. Remove the access panel ("Access panel" on page 49).
5. Remove the air baffle ("Air baffle" on page 50).
6. Open the cable management holder (on page 35).
7. Disconnect all the cables from the system board connectors located underneath the cable management holder.

8. Remove the cable management holder.



To replace the component, reverse the removal procedure.

FlexibleLOM blank

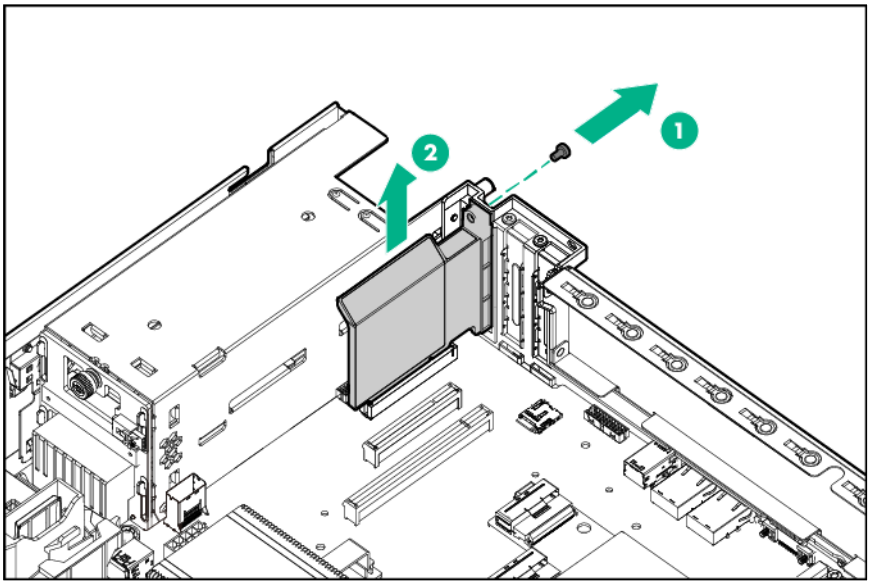
WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching them.

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.

To remove the component:

1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).
4. Remove the access panel ("Access panel" on page 49).

5. Remove the FlexibleLOM blank.



To replace the component, reverse the removal procedure.

Air blocker for the onboard PCIe expansion slots 5–7

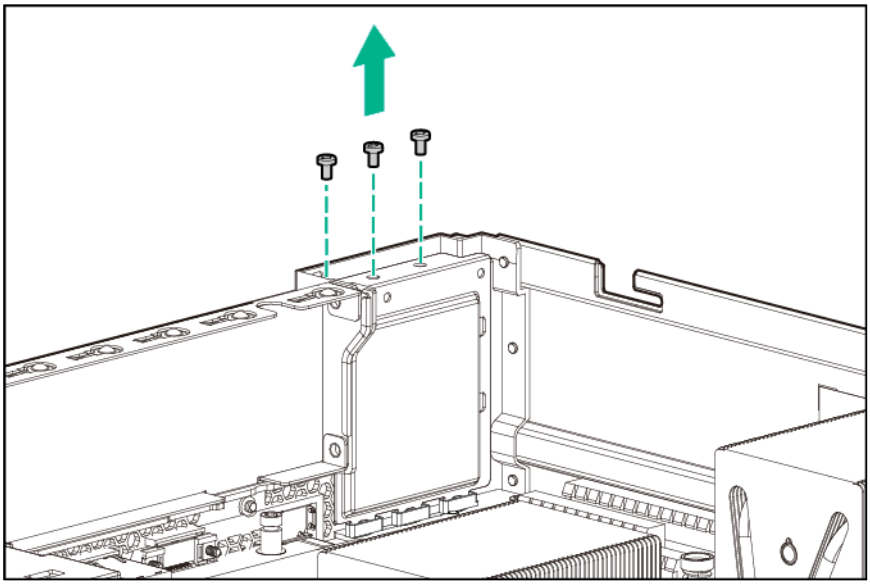
> **CAUTION:** To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

> **CAUTION:** Ensure that the air blocker for the onboard PCIe expansion slots 5-7 is present if the server is operating as a single-processor system. Failure to observe this caution will result in improper airflow and insufficient cooling that can lead to thermal damage.

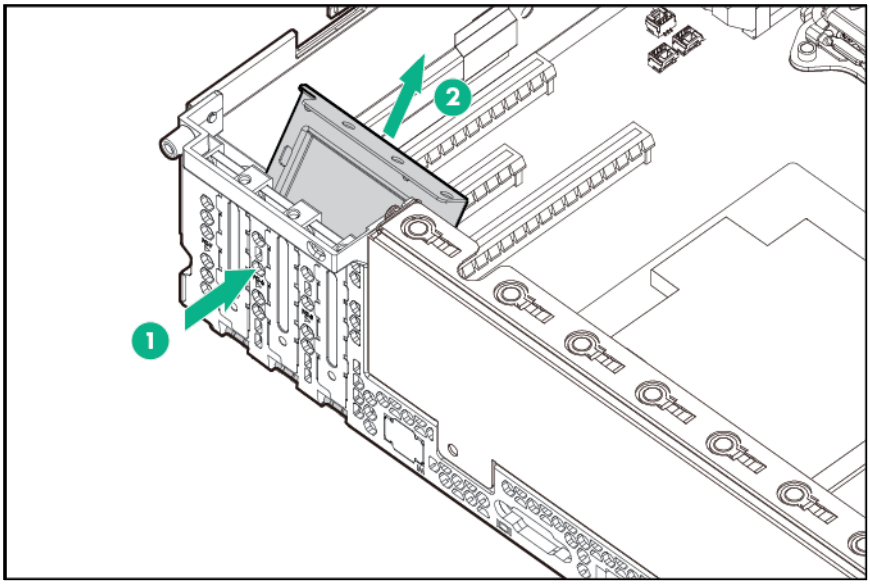
To remove the component:

1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).
4. Remove the access panel ("Access panel" on page 49).
5. Remove the air blocker for the onboard PCIe expansion slots 5–7:

a. Remove the air blocker screws.



b. Insert a pen or a small screwdriver into one of the slot cover hole to push the air blocker down, and then remove the air blocker from the chassis.



To replace the component, reverse the removal procedure.

Air blocker for the front drive cage 2 backplane

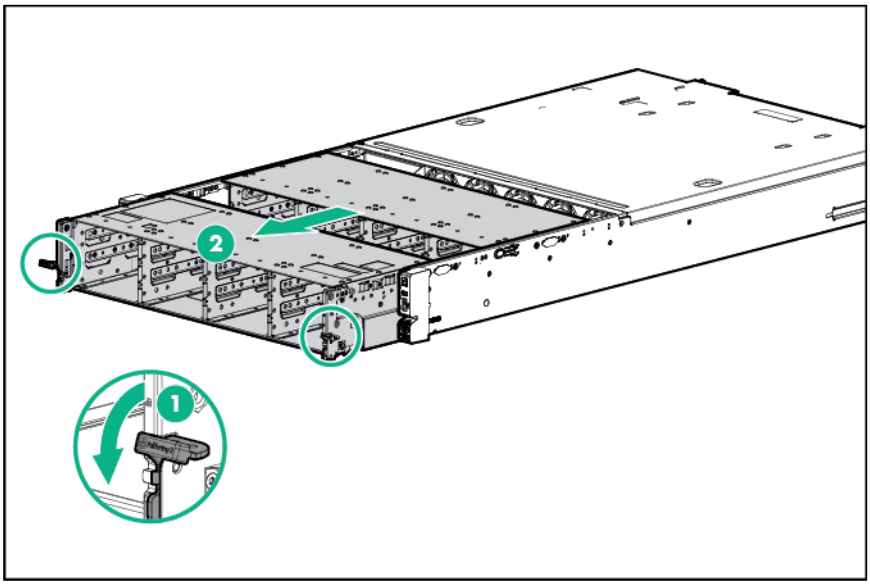
WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching them.

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.

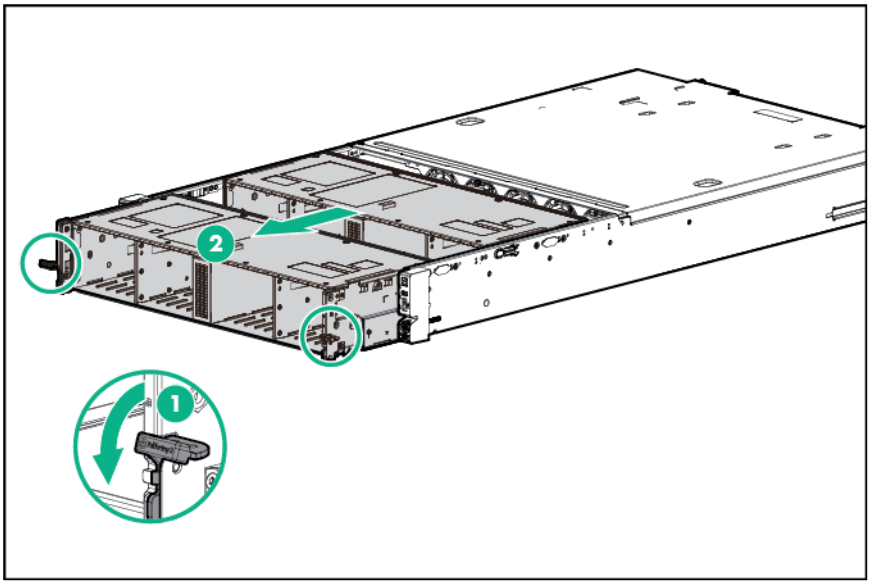
To remove the component:

1. Power down the server (on page 26).

2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack (on page 33).
4. Pull down the front drive cage release latches and use them to completely extend the front drive cages from the chassis.
   - LFF chassis

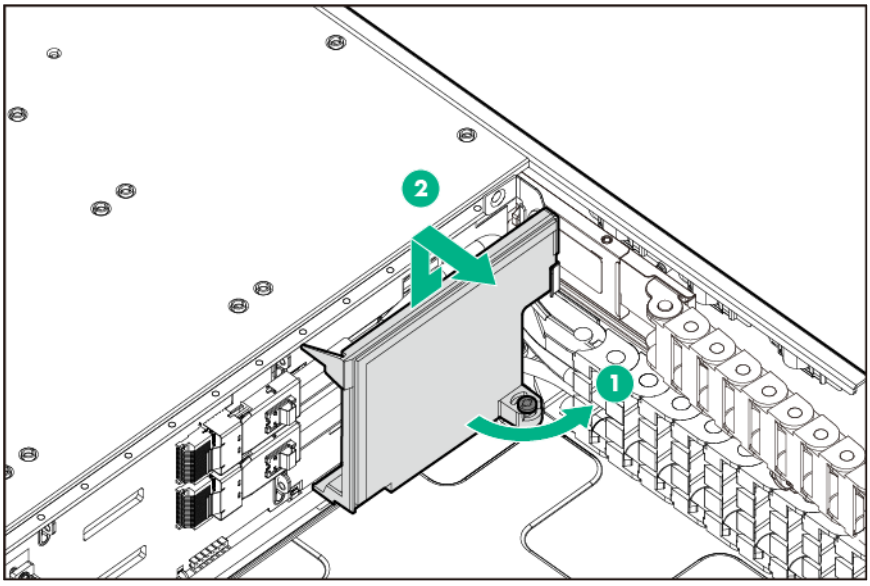


   - SFF chassis

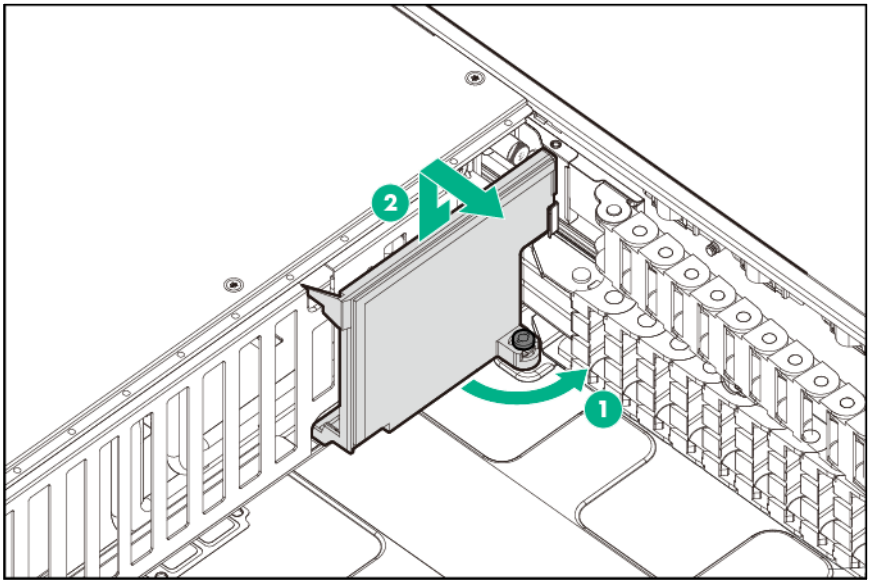


5. Remove the air blocker for the front drive cage 2 backplane.

- LFF chassis



- SFF chassis



To replace the component, reverse the removal procedure.

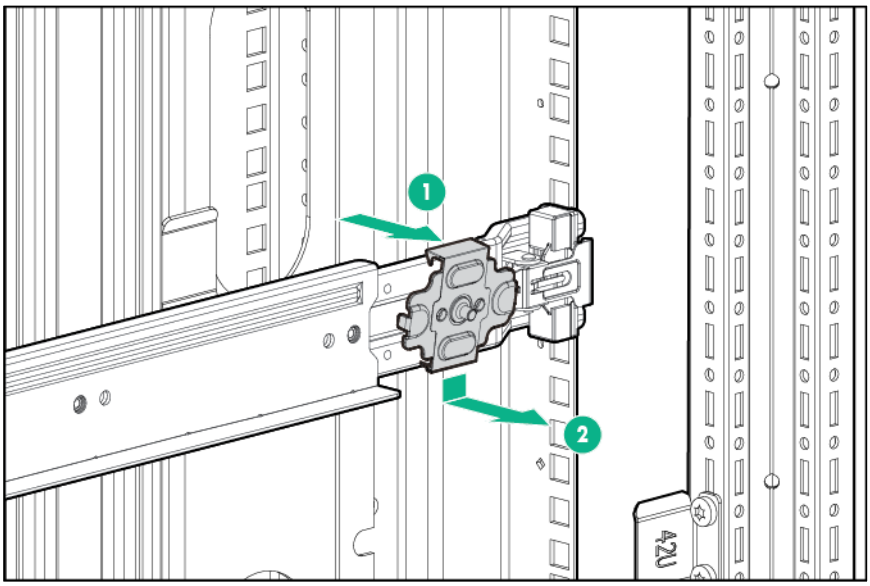
Chassis retention bracket

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.

To remove the component:

1. Power down the server (on page 26).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.

3. Remove the server from the rack (on page 33).
4. Remove the chassis retention bracket.



To replace the component, reverse the removal procedure.

HP Trusted Platform Module

The TPM is not a customer-removable part.

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

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

Troubleshooting

Troubleshooting resources

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

- English (http://www.hpe.com/support/Gen9_TSG_en)
- French (http://www.hpe.com/support/Gen9_TSG_fr)
- Spanish (http://www.hpe.com/support/Gen9_TSG_es)
- German (http://www.hpe.com/support/Gen9_TSG_de)
- Japanese (http://www.hpe.com/support/Gen9_TSG_ja)
- Simplified Chinese (http://www.hpe.com/support/Gen9_TSG_zh_cn)

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

- English (http://www.hpe.com/support/Gen9_EMG_en)
- French (http://www.hpe.com/support/Gen9_EMG_fr)
- Spanish (http://www.hpe.com/support/Gen9_EMG_es)
- German (http://www.hpe.com/support/Gen9_EMG_de)
- Japanese (http://www.hpe.com/support/Gen9_EMG_ja)
- Simplified Chinese (http://www.hpe.com/support/Gen9_EMG_zh_cn)

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).

HPE iLO

The iLO 4 subsystem is a standard component of HPE ProLiant servers that simplifies initial server setup, server health monitoring, power and thermal optimization, and remote server administration. The iLO 4 subsystem includes an intelligent microprocessor, secure memory, and a dedicated network interface. This design makes iLO 4 independent of the host server and its operating system.

iLO 4 enables and manages the Active Health System (on page 121) and also features Agentless Management. All key internal subsystems are monitored by iLO 4. If enabled, SNMP alerts are sent directly by iLO 4 regardless of the host operating system or even if no host operating system is installed.

Embedded remote support software is available on HPE ProLiant Gen8 and later servers with iLO 4, regardless of the operating system software and without installing OS agents on the server.

Using iLO 4, you can do the following:

- Access a high-performance and secure Integrated Remote Console to the server from anywhere in the world if you have a network connection to the server.
- Use the shared .NET Integrated Remote Console to collaborate with up to four server administrators.
- Remotely mount high-performance Virtual Media devices to the server.
- Securely and remotely control the power state of the managed server.
- Implement true Agentless Management with SNMP alerts from iLO, regardless of the state of the host server.
- Download the Active Health System log.
- Register for HPE Insight Remote Support.
- Use iLO Federation to manage multiple servers from one system running the iLO web interface.
- Use Virtual Power and Virtual Media from the GUI, the CLI, or the iLO scripting toolkit for many tasks, including the automation of deployment and provisioning.
- Control iLO by using a remote management tool.

For more information about iLo features, see the iLo documentation on the Hewlett Packard Enterprise website (http://www.hpe.com/info/ilo/docs).

The iLO 4 hardware and firmware features and functionality, such as NAND size and embedded user partition, vary depending on the server model. For a complete list of supported features and functionality, see the iLO 4 QuickSpecs on the Hewlett Packard Enterprise website (http://www.hpe.com/info/Quickspecs-iLO).

Active Health System

The HPE Active Health System provides the following features:

- Combined diagnostics tools/scanners
- Always on, continuous monitoring for increased stability and shorter downtimes
- Rich configuration history
- Health and service alerts
- Easy export and upload to Service and Support

The Active Health System monitors and records changes in the server hardware and system configuration. The Active Health System assists in diagnosing problems and delivering rapid resolution if server failures occur.

The Active Health System collects the following types of data:

- Server model
- Serial number
- Processor model and speed
- Storage capacity and speed
- Memory capacity and speed
- Firmware/BIOS

Active Health System does not collect information about Active Health System users' operations, finances, customers, employees, partners, or data center, such as IP addresses, host names, user names, and passwords. Active Health System does not parse or change operating system data from third-party error event log activities, such as content created or passed through by the operating system.

The data that is collected is managed according to the Hewlett Packard Enterprise Data Privacy policy. For more information see the Hewlett Packard Enterprise website (http://www.hpe.com/info/privacy).

The Active Health System, in conjunction with the system monitoring provided by Agentless Management or SNMP Pass-thru, provides continuous monitoring of hardware and configuration changes, system status, and service alerts for various server components.

The Agentless Management Service is available in the SPP, which can be downloaded from the Hewlett Packard Enterprise website (http://www.hpe.com/servers/spp/download). The Active Health System log can be downloaded manually from iLO 4 or HPE Intelligent Provisioning and sent to Hewlett Packard Enterprise.

For more information, see the following documents:

- *iLO User Guide* on the Hewlett Packard Enterprise website (http://www.hpe.com/info/enterprise/docs)
- *Intelligent Provisioning User Guide* on the Hewlett Packard Enterprise website (http://www.hpe.com/info/enterprise/docs)

HPE ProLiant Pre-boot Health Summary

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

For additional information, see the following documents:

- *iLO 4 User Guide* — See the Hewlett Packard Enterprise website (http://www.hpe.com/info/ilo/docs).
- *ProLiant Gen9 Troubleshooting Guide, Volume I: Troubleshooting* — See "Troubleshooting Resources (on page 120)."

Integrated Management Log

The IML records hundreds of events and stores them in an easy-to-view form. The IML timestamps each event with 1-minute granularity.

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

- From within HPE SIM
- From within UEFI System Utilities ("HPE UEFI System Utilities" on page 123)
- From within the Embedded UEFI shell
- From within operating system-specific IML viewers:
  - For Windows: IML Viewer
  - For Linux: IML Viewer Application
- From within the iLO 4 web interface
- From within Insight Diagnostics ("HPE Insight Diagnostics" on page 124)

HPE UEFI System Utilities

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

- Configuring system devices and installed options
- Enabling and disabling system features
- Displaying system information
- Selecting the primary boot controller
- Configuring memory options
- Selecting a language
- Launching other pre-boot environments such as the Embedded UEFI Shell and Intelligent Provisioning

For more information on the UEFI System Utilities, see the *UEFI System Utilities User Guide for HPE ProLiant Gen9 Servers* on the Hewlett Packard Enterprise website (http://www.hpe.com/info/ProLiantUEFI/docs).

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

Using UEFI System Utilities

To use the UEFI System Utilities, use the following keys.

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

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

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

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

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

Embedded Diagnostics option

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

For more information on the Embedded Diagnostics option, see the *UEFI System Utilities User Guide for ProLiant Gen9 Servers* on the Hewlett Packard Enterprise website (http://www.hpe.com/info/ProLiantUEFI/docs).

Re-entering the server serial number and product ID

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

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

   ```
   The serial number should only be modified by qualified service personnel.
   This value should always match the serial number located on the chassis.
   ```
4. Press the **Enter** key to clear the warning.
5. Enter the serial number and press the **Enter** key.
6. Select **Product ID**. The following warning appears:

   ```
   Warning: The Product ID should ONLY be modified by qualified service
   personnel. This value should always match the Product ID located on the
   chassis.
   ```
7. Enter the product ID and press the **Enter** key.
8. Press the **F10** key to confirm exiting System Utilities. The server automatically reboots.

HPE Insight Diagnostics

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

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

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

For more information or to download the utility, see the Hewlett Packard Enterprise website (http://www.hpe.com/servers/diags).The Insight Diagnostics Online Edition is also available in the SPP.

HPE Insight Diagnostics survey functionality

HPE Insight Diagnostics (on page 124) provides survey functionality that gathers critical hardware and software information on ProLiant servers.

This functionality supports operating systems that are supported by the server. For operating systems supported by the server, see the Hewlett Packard Enterprise website (http://www.hpe.com/info/supportos).

If a significant change occurs between data-gathering intervals, the survey function marks the previous information and overwrites the survey data files to reflect the latest changes in the configuration.

Survey functionality is installed with every Intelligent Provisioning-assisted HPE Insight Diagnostics installation, or it can be installed through the SPP.

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, HP Care Pack Service, 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 (http://www.hpe.com/info/insightremotesupport/docs). Insight Remote Support is available as part of Warranty, HP Care Pack Service, or contractual support agreement.

USB support

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

- USB 3.0 capable devices operate at USB 2.0 speeds when installed in a USB 2.0 port.
- When the server is configured for UEFI Boot Mode, Hewlett Packard Enterprise provides legacy USB support in the pre-boot environment prior to the operating system loading for USB 1.0, USB 2.0 , and USB 3.0 speeds.
- When the server is configured for Legacy BIOS Boot Mode, Hewlett Packard Enterprise provides legacy USB support in the pre-boot environment prior to the operating system loading for USB 1.0 and USB 2.0 speeds. While USB 3.0 ports can be used with all devices in Legacy BIOS Boot Mode, they are not available at USB 3.0 speeds in the pre-boot environment. Standard USB support (USB support from within the operating system) is provided by the OS through the appropriate USB device drivers. Support for USB 3.0 varies by operating system.

For maximum compatibility of USB 3.0 devices with all operating systems, Hewlett Packard Enterprise provides a configuration setting for USB 3.0 Mode. Auto is the default setting. This setting impacts USB 3.0 devices when connected to USB 3.0 ports in the following manner:

- **Auto (default)**—If configured in Auto Mode, USB 3.0 capable devices operate at USB 2.0 speeds in the pre-boot environment and during boot. When a USB 3.0 capable OS USB driver loads, USB 3.0 devices transition to USB 3.0 speeds. This mode provides compatibility with operating systems that do not support USB 3.0 while still allowing USB 3.0 devices to operate at USB 3.0 speeds with state-of-the art operating systems.

- **Enabled**—If Enabled, USB 3.0 capable devices operate at USB 3.0 speeds at all times (including the pre-boot environment) when in UEFI Boot Mode. This mode should not be used with operating systems that do not support USB 3.0. If operating in Legacy Boot BIOS Mode, the USB 3.0 ports cannot function in the pre-boot environment and are not bootable.
- **Disabled**—If configured for Disabled, USB 3.0 capable devices function at USB 2.0 speeds at all times.

The pre-OS behavior of the USB ports is configurable in System Utilities, so that the user can change the default operation of the USB ports. For more information, see the *UEFI System Utilities User Guide for ProLiant Gen9 Servers* on the Hewlett Packard Enterprise website (http://www.hpe.com/info/ProLiantUEFI/docs).

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

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

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

Some HPE SSA features include the following:

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

For more information about HPE SSA, see the Hewlett Packard Enterprise website (http://www.hpe.com/info/hpessa).

Automatic Server Recovery

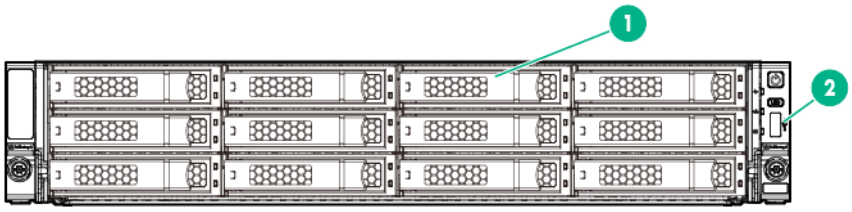
ASR is a feature that causes the system to restart when a catastrophic operating system error occurs, such as a blue screen, ABEND (does not apply to HPE ProLiant DL980 Servers), or panic. A system fail-safe timer, the ASR timer, starts when the System Management driver, also known as the Health Driver, is loaded. When the operating system is functioning properly, the system periodically resets the timer. However, when the operating system fails, the timer expires and restarts the server.

ASR increases server availability by restarting the server within a specified time after a system hang. At the same time, the SIM console notifies you by sending a message to a designated pager number that ASR has restarted the system. You can disable ASR from the System Management Homepage or through RBSU.

Component identification

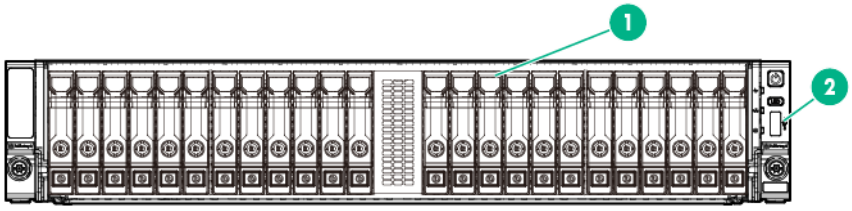
Front panel components

- LFF chassis



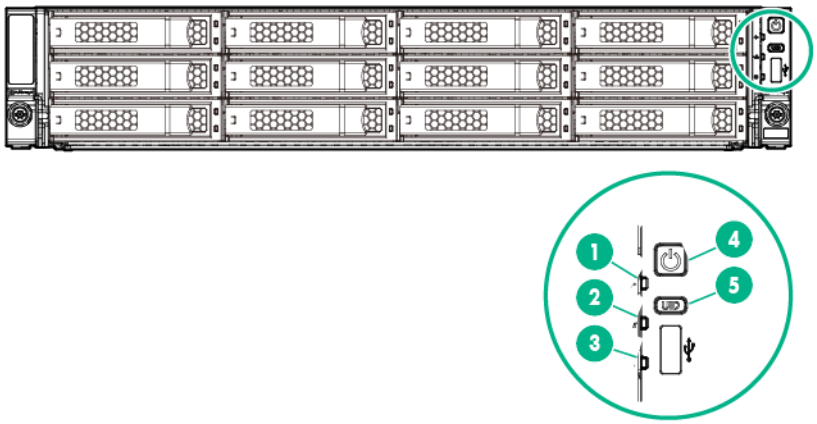
Item	Description
1	LFF hot-plug drives
2	USB 2.0 connector

- SFF chassis



Item	Description
1	SFF hot-plug drives
2	USB 2.0 connector

Front panel LEDs and buttons



Item	Description	Status
1	Health LED[1]	Solid green = Normal Flashing green (1 Hz/cycle per sec) = iLO is rebooting Flashing amber = System degraded[2] Flashing red (1 Hz/cycle per sec) = System critical[2]
2	NIC status LED[1]	Solid green = Link to network Flashing green (1 Hz/cycle per sec) = Network active Off = No network activity
3	Front drive health/thermal LED	Solid green = Drives supported by the SAS expander are functional.[3] Solid amber = Failure or predictive failure of one or more drives supported by the SAS expander.[3] Flashing amber (1 Hz/cycle per sec) = The temperature sensor in one or more front drives is about to reach the thermal threshold. Immediately slide the front drive cages back into the chassis and keep them there until the LED turns green.[4] Off = No power present[5]
4	Power On/Standby button and system power LED[1]	Solid green = System on Flashing green (1 Hz/cycle per sec) = Performing power on sequence Solid amber = System in standby Off = No power present[5]
5	UID button/LED[1]	Solid blue = Activated Flashing blue: • 1 Hz/cycle per sec = Remote management or firmware upgrade in progress • 4 Hz/cycle per sec = iLO manual reboot sequence initiated • 8 Hz/cycle per sec = iLO manual reboot sequence in progress Off = Deactivated

[1] When these four LEDs flash simultaneously, a power fault has occurred. For more information, see "Power fault LEDs (on page 128)."
[2] If the health LED indicates a degraded or critical state, review the system IML or use iLO to review the system health status.
[3] This LED behavior applies to all front drives, as well as to the rear drives connected to the front drive cage 2 backplane.
[4] This LED behavior depends on the iLO *08-HD Max* sensor reading. For more information, see "Front drive thermal LED (on page 129)."
[5] 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.

Power fault LEDs

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

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

Front drive thermal LED

The thermal warning function of the front drive health/thermal LED depends on the iLO *08-HD Max* sensor reading. This function is disabled under these conditions:

- There are no drives in the front drive cages 1 and 2.
- The temperature sensor in one or more front drives has failed.

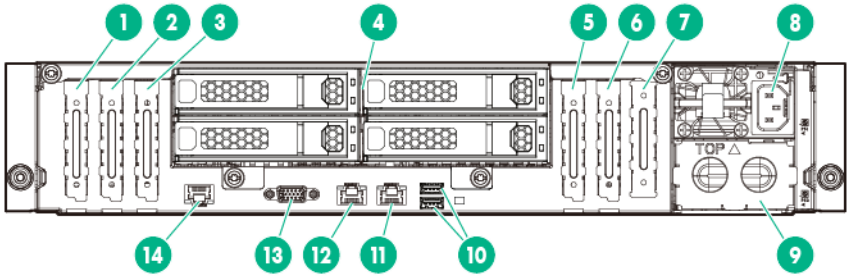
Under these conditions, iLO shows the *08-HD Max* sensor reading as *N/A.* To view temperature sensor data, log in to iLO 4 web interface and navigate to the Information → System Information → Temperatures page.

If the *08-HD Max* sensor reading shows *N/A*, observe the following when extending the front drive cage:

- Do not keep the drive cages out of the chassis for more than 140 sec.
- Keep the drive cages inside the chassis for at least 300 sec before extending them out again.

Rear panel components

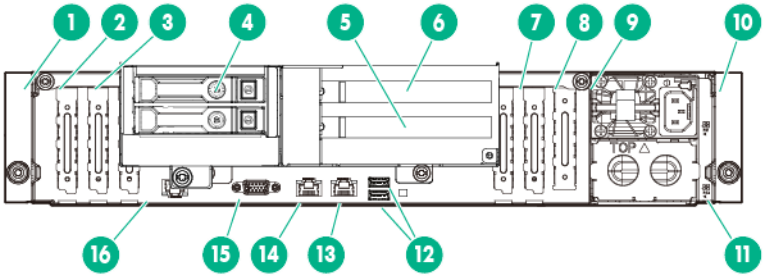
- Rear panel with the four-bay LFF hot-plug rear drive cage option



Item	Description
1	PCIe3 x16 (16, 8, 4, 1) slot 7 for low-profile, standup expansion board[1]
2	PCIe3 x8 (8, 4, 1) slot 6 for low-profile, standup expansion board[1]
3	PCIe3 x16 (16, 8, 4, 1) slot 5 for low-profile, standup expansion board[1]
4	LFF hot-plug drives
5	PCIe3 x16 (16, 8, 4, 1) slot 2 for low-profile, standup expansion board or riser cage options[2]
6	PCIe3 x8 (8, 4, 1) slot 1 for low-profile, standup expansion board[2]
7	FlexibleLOM slot[2]
8	Hot-plug power supply bay 1
9	Hot-plug power supply bay 2
10	USB 3.0 connectors
11	NIC 1/shared iLO connector
12	NIC connector 2
13	Video connector
14	Dedicated iLO management connector (optional)

[1] The PCIe expansion slots 5-7 are associated with processor 2.
[2] The PCIe expansion slots 1-4 and the FlexibleLOM slot are associated with processor 1.

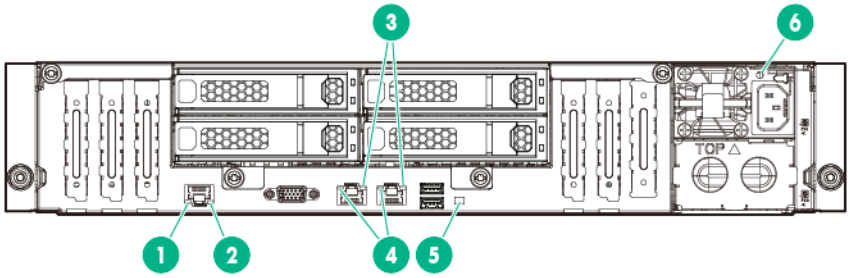
- Rear panel with the two-bay SFF hot-plug rear drive cage and two-slot PCI riser cage options



Item	Description
1	PCIe3 x16 (16, 8, 4, 1) slot 7 for low-profile, standup expansion board[1]
2	PCIe3 x8 (8, 4, 1) slot 6 for low-profile, standup expansion board[1]
3	PCIe3 x16 (16, 8, 4, 1) slot 5 for low-profile, standup expansion board[1]
4	SFF hot-plug drives
5	PCIe3 x8 (8, 4, 1) riser slot 4 for full-height, half-length expansion board[2]
6	PCIe3 x8 (8, 4, 1) riser slot 3 for full-height, half-length expansion board[2]
7	PCIe3 x16 (16, 8, 4, 1) slot 2 for low-profile, standup expansion board or riser cage options[2]
8	PCIe3 x8 (8, 4, 1) slot 1 for low-profile, standup expansion board[2]
9	FlexibleLOM slot[2]
10	Hot-plug power supply bay 1
11	Hot-plug power supply bay 2
12	USB 3.0 connectors
13	NIC 1/shared iLO connector
14	NIC connector 2
15	Video connector
16	Dedicated iLO management connector (optional)

[1] The PCIe expansion slots 5-7 are associated with processor 2.
[2] The PCIe expansion slots 1-4 and the FlexibleLOM slot are associated with processor 1.

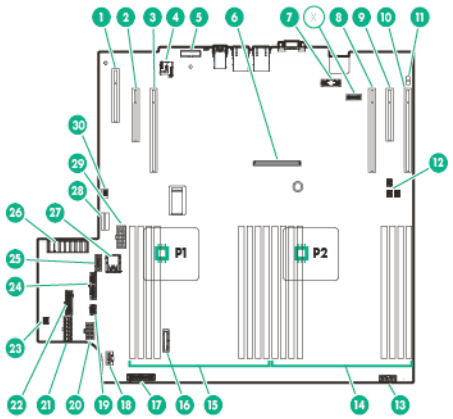
Rear panel LEDs



Item	Description	Status
1	Dedicated iLO activity LED	Solid green = Link to network Flashing green = Network active Off = No network activity
2	Dedicated iLO link LED	Green = Network link Off = No network link
3	NIC activity LED	Solid green = Link to network Flashing green = Network active Off = No network activity
4	NIC link LED	Green = Network link Off = No network link
5	UID LED	Solid blue = Activated Flashing blue: • 1 Hz/cycle per sec = Remote management or firmware upgrade in progress • 4 Hz/cycle per sec = iLO manual reboot sequence initiated • 8 Hz/cycle per sec = iLO manual reboot sequence in progress Off = Deactivated
6	Power supply LED	Solid green = Normal Off = One or more of the following conditions exists: • Power is unavailable • Power supply failed • Power supply is in standby mode • Power supply error

System board components

The components shown in this section are associated with the HPE ProLiant XL420 Gen9 Server system board.



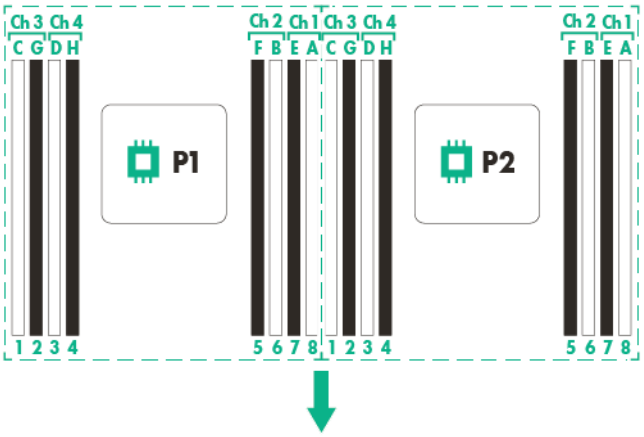
Item	Description
1	FlexibleLOM slot[1]
2	PCIe3 x8 (8, 4, 1) slot 1 for low-profile, standup expansion board[1]
3	PCIe3 x16 (16, 8, 4, 1) slot 2 for low-profile, standup expansion board or riser cage options[1]

Item	Description
4	microSD slot
5	TPM connector
6	Flexible Smart Array Controller slot
7	Dedicated iLO management module connector
8	PCIe3 x16 (16, 8, 4, 1) slot 5 for low-profile, standup expansion board[2]
9	PCIe3 x8 (8, 4, 1) slot 6 for low-profile, standup expansion board[2]
10	PCIe3 x16 (16, 8, 4, 1) slot 7 for low-profile, standup expansion board[2]
11	NMI header
12	Storage backup power connectors for expansion slots 3–7
13	Front I/O connector
14	Processor 2 DIMM slots
15	Processor 1 DIMM slots
16	System battery
17	Fan signal connector
18	HPE Smart Storage Battery connector
19	Rear SFF drive backplane detection connector
20	Fan power connector
21	Front drive cage 2 backplane power connector
22	Front drive cage 1 backplane power connector
23	Storage backup power connector for expansion slots 1–2
24	SATA 6Gb/s connector 4
25	SATA 6Gb/s connector 5
26	Power pass-through board connector
27	Internal USB 3.0 connector
28	SATA x4 connector 1
29	Rear drive cage backplane power connector
30	Front USB 2.0 connector
X	System maintenance switch

[1] The PCIe expansion slots 1-4 and the FlexibleLOM slot are associated with processor 1.
[2] The PCIe expansion slots 5-7 are associated with processor 2.

DIMM slot locations

DIMM slots are numbered sequentially (1 through 8) for each processor. The supported AMP modes use the letter assignments for population guidelines.



The arrow points to the front of the server.

System maintenance switch

Position	Default	Function
S1	Off	Off = iLO 4 security is enabled. On = iLO 4 security is disabled.
S2	Off	Off = System configuration can be changed. On = System configuration is locked.
S3	Off	Reserved
S4	Off	Reserved
S5	Off	Off = Power-on password is enabled. On = Power-on password is disabled.
S6	Off	Off = No function On = ROM reads system configuration as invalid.
S7	Off	Off = Set default boot mode to UEFI. On = Set default boot mode to legacy.
S8	—	Reserved
S9	—	Reserved
S10	—	Reserved
S11	—	Reserved
S12	—	Reserved

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

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

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

NMI functionality

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

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

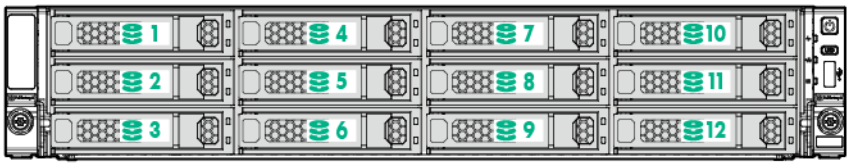
To force the system to invoke the NMI handler and generate a crash dump log, do one of the following:

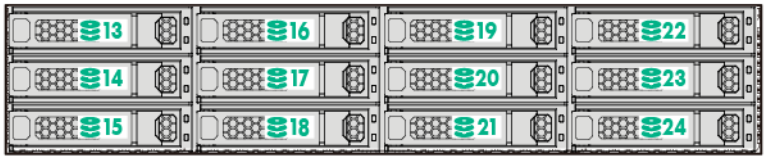
- Use the iLO Virtual NMI feature.
- Short the NMI header ("System board components" on page 131).

For more information, see the Hewlett Packard Enterprise website (http://www.hpe.com/support/NMI).

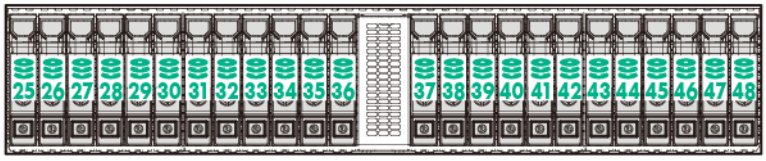
Drive numbering

- 24-bay LFF hot-plug front drive numbering

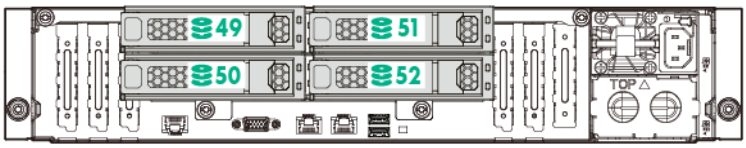




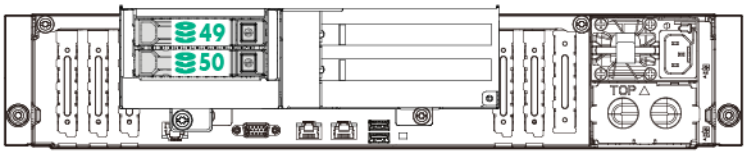
- 48-bay SFF hot-plug front drive numbering



- Four-bay LFF hot-plug rear drive numbering



- Two-bay SFF hot-plug rear drive numbering



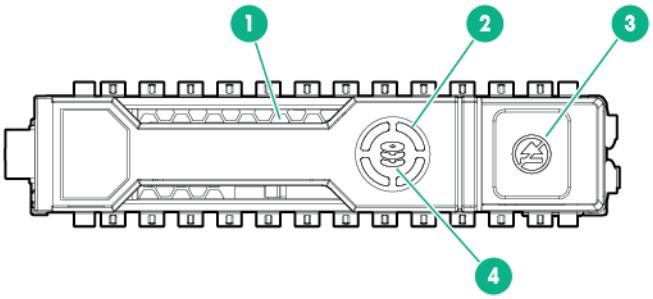
Drive LEDs

LFF and SFF drives have different sets of LEDs to reflect the drive status.

SFF drive LED definitions

HPE SmartDrives are the latest Hewlett Packard Enterprise drive technology, and they are supported beginning with ProLiant Gen8 servers and server blades. The SmartDrive is not supported on earlier generation servers and server blades. Identify a SmartDrive by its carrier, shown in the following illustration.

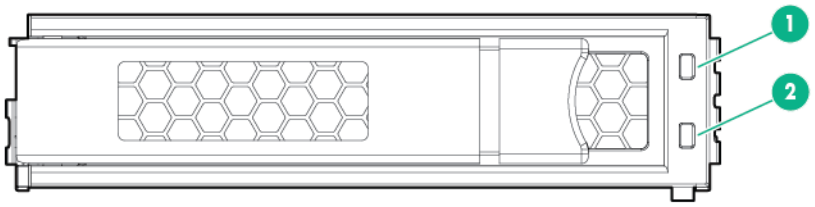
When a drive is configured as a part of an array and connected to a powered-up controller, the drive LEDs indicate the condition of the drive.



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

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

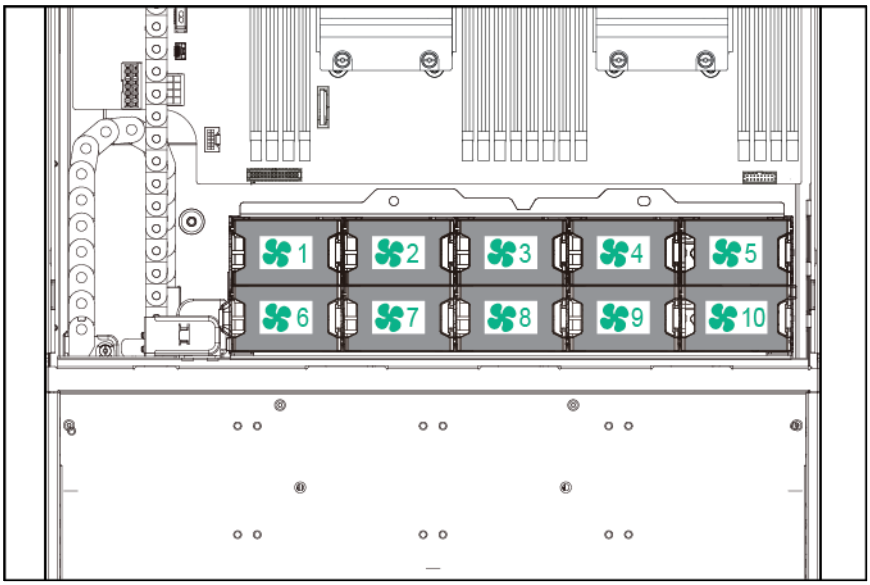
LFF drive LED definitions



Item	Definition
1	Fault/UID (amber/blue)
2	Online/Activity (green)

Online/Activity LED (green)	Fault/UID LED (amber/blue)	Definition
On, off, or flashing	Alternating amber and blue	One or more of the following conditions exist: • The drive has failed. • A predictive failure alert has been received for this drive. • The drive has been selected by a management application.
On, off, or flashing	Solid blue	One or both of the following conditions exist: • The drive is operating normally. • The drive has been selected by a management application.
On	Flashing amber	A predictive failure alert has been received for this drive. Replace the drive as soon as possible.
On	Off	The drive is online but is not currently active.
1 flash per second	Flashing amber	Do not remove the drive. Removing the drive might terminate the current operation and cause data loss. The drive is part of an array that is undergoing capacity expansion or stripe migration, but a predictive failure alert has been received for this drive. To minimize the risk of data loss, do not remove the drive until the expansion or migration is complete.
1 flash per second	Off	Do not remove the drive. Removing the drive might terminate the current operation and cause data loss. The drive is rebuilding, erasing, or is part of an array that is undergoing capacity expansion or stripe migration.
4 flashes per second	Flashing amber	The drive is active but a predictive failure alert has been received for this drive. Replace the drive as soon as possible.
4 flashes per second	Off	The drive is active and is operating normally.
Off	Solid amber	A critical fault condition has been identified for this drive and the controller has placed it offline. Replace the drive as soon as possible.
Off	Flashing amber	A predictive failure alert has been received for this drive. Replace the drive as soon as possible.
Off	Off	The drive is offline, a spare, or not configured as part of an array.

Fan locations



Cabling

Cabling overview

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

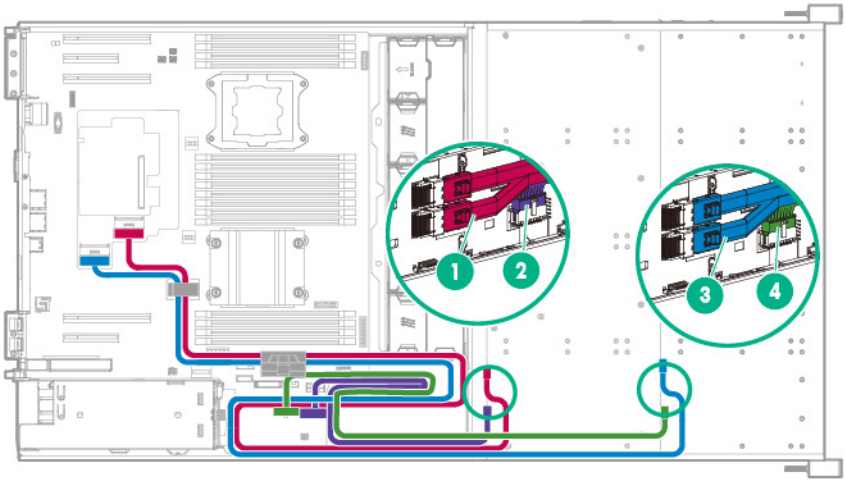
For information on cabling peripheral components, refer to the white paper on high-density deployment at the Hewlett Packard Enterprise website (http://www.hpe.com/products/servers/platforms).

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

Storage cabling

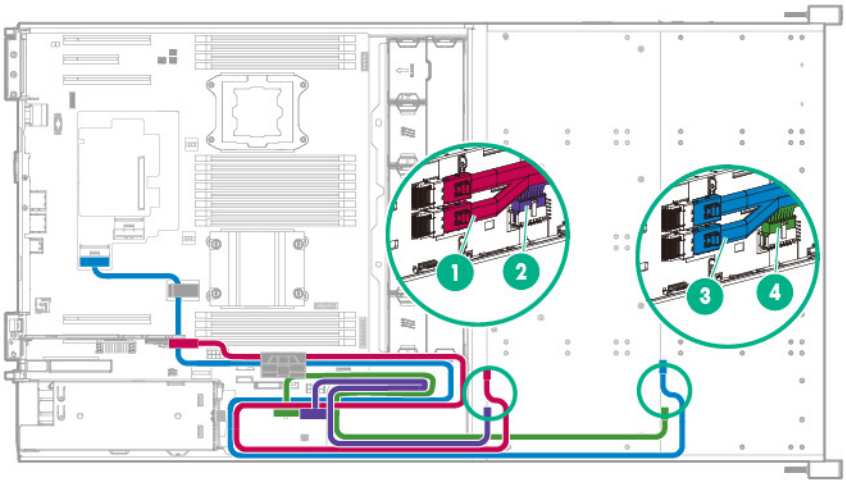
24-bay LFF hot-plug SAS/SATA front drive cabling

- Cabling for when both the front LFF drive cages 1 and 2 are connected to the Flexible HPE Smart Array P840ar Controller



Item	Description
1	Front LFF drive cage 2 Mini-SAS Y-cable
2	Front LFF drive cage 2 power cable
3	Front LFF drive cage 1 Mini-SAS Y-cable
4	Front LFF drive cage1 power cable

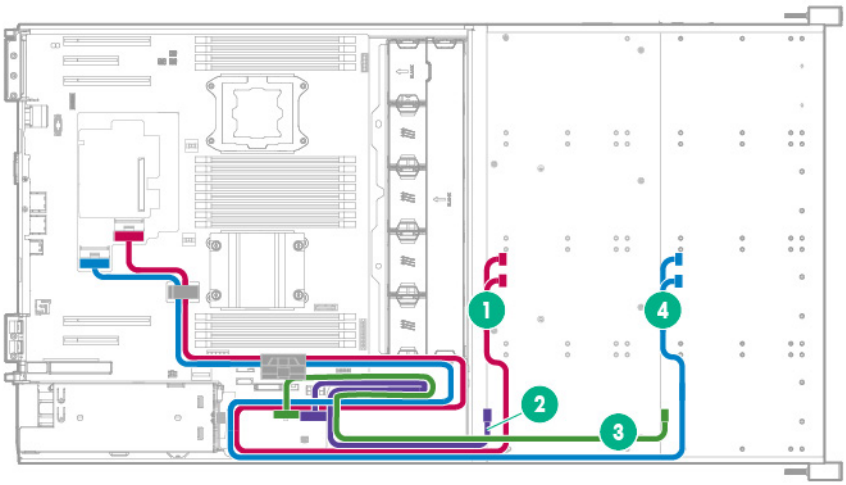
- Cabling for when the front LFF drive cage 1 is connected to the Flexible Smart Array P840ar Controller and the front LFF drive cage 2 is connected to the HPE Smart Array P440 Controller option



Item	Description
1	LFF front drive cage 2 Mini-SAS Y-cable
2	LFF front drive cage2 power cable
3	LFF front drive cage 1 Mini-SAS Y-cable
4	LFF front drive cage1 power cable

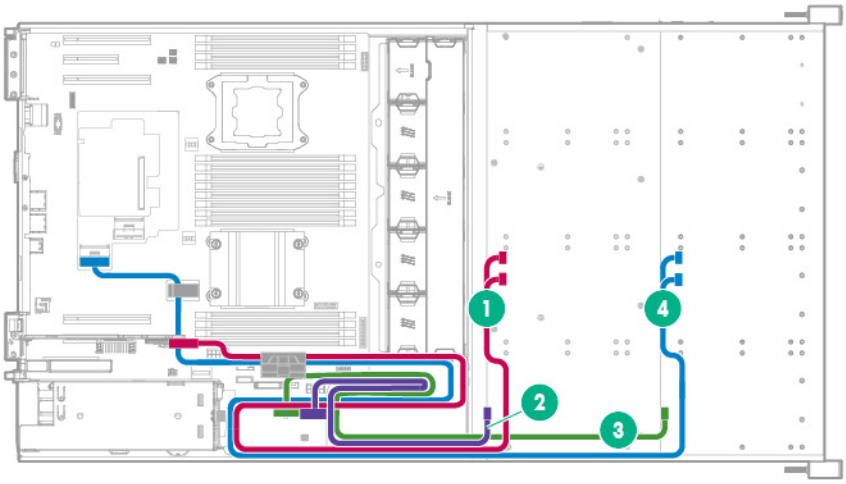
48-bay SFF hot-plug SAS/SATA front drive cabling

- Cabling for when both the front SFF drive cages 1 and 2 are connected to the Flexible Smart Array P840ar Controller



Item	Description
1	Front SFF drive cage 2 Mini-SAS Y-cable
2	Front SFF drive cage 2 power cable
3	Front SFF drive cage 1 power cable
4	Front SFF drive cage 1 Mini-SAS Y-cable

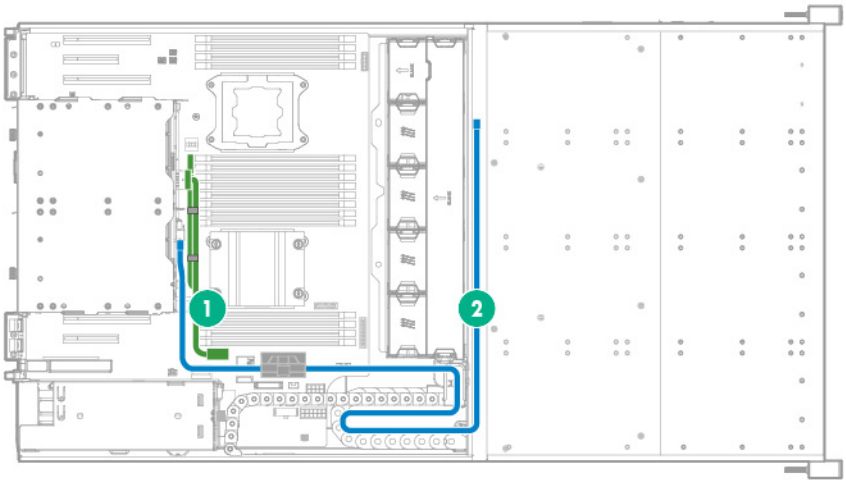
- Cabling for when the front SFF drive cage 1 is connected to the Flexible Smart Array P840ar Controller and the front SFF drive cage 2 is connected to the Smart Array P440 Controller option



Item	Description
1	Front SFF drive cage 2 Mini-SAS Y-cable
2	Front SFF drive cage 2 power cable
3	Front SFF drive cage 1 power cable
4	Front SFF drive cage 1 Mini-SAS Y-cable

Four-bay LFF hot-plug SAS/SATA rear drive cabling

- Cabling for when the rear LFF drive cage is connected to the front LFF drive cage 2 backplane



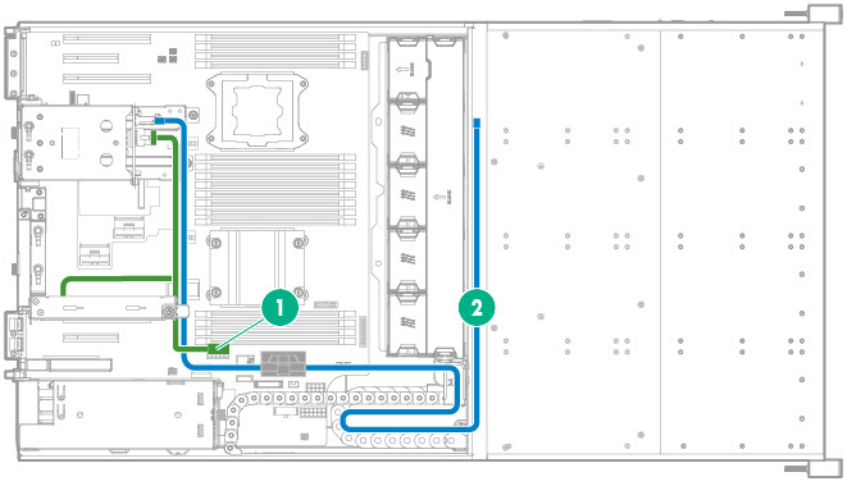
Item	Description
1	Rear LFF drive cage power cable
2	Rear LFF drive cage Mini-SAS cable

- Cabling for when the rear LFF drive cage is connected to the onboard SATA connector 1

Item	Description
1	Rear LFF drive cage SATA cable
2	Rear LFF drive cage power cable

Two-bay SFF hot-plug SAS/SATA rear drive cabling

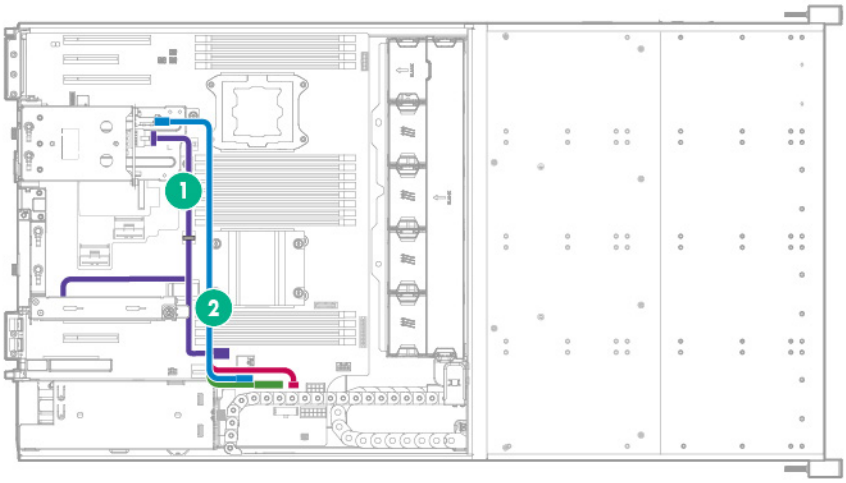
- Cabling for when the rear SFF drive cage is connected to the front SFF drive cage 2 backplane



Item	Description
1	Rear SFF drive cage and two-slot PCI riser board power cable
2	Rear SFF drive cage Mini-SAS cable

- Cabling for when the rear SFF drive cage is connected to the onboard SATA connector 1

For clarity of the multi-connector signal cable connections, the cable management holder image is removed from the illustration below.



Item	Description
1	Rear SFF drive cage and two-slot PCI riser board power cable
2	Rear SFF drive cage multi-connector signal cable

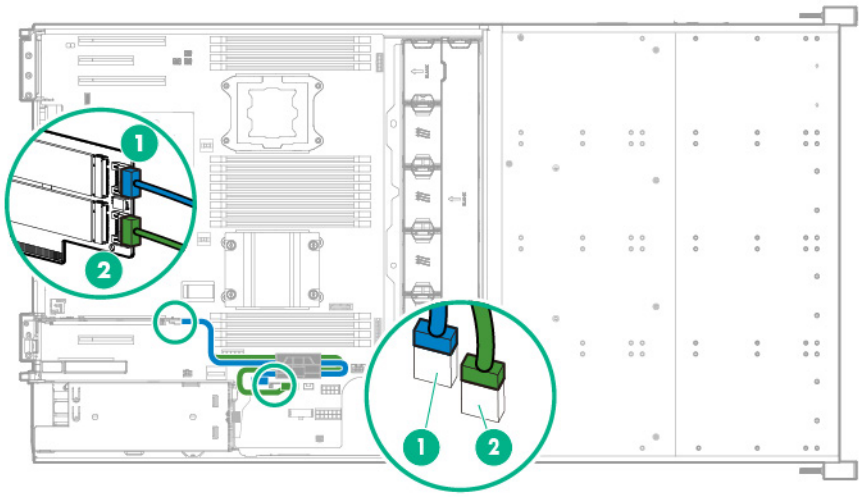
M.2 SSD cabling

For clarity of the SATA cable connections, part of the cable management holder image is removed from this section's illustrations.

- M.2 SSD cabling from the onboard PCIe3 x8 expansion slot 1

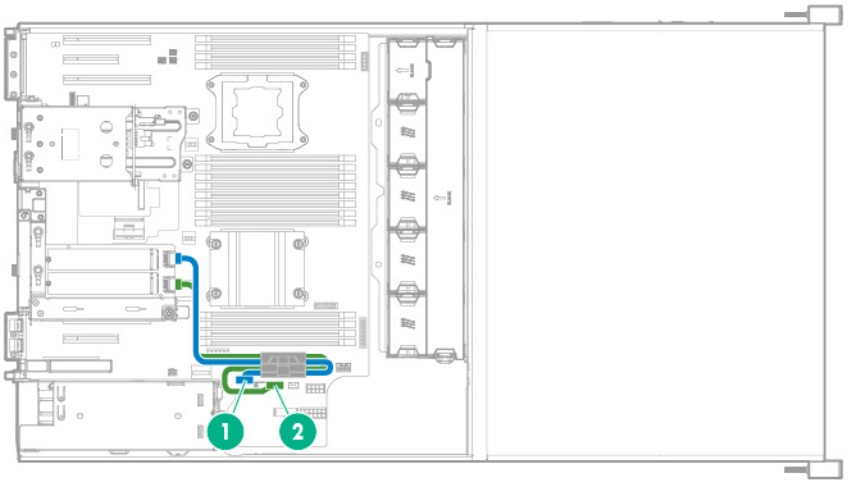
Item	Description
1	M.2 SSD 1 SATA cable
2	M.2 SSD 2 SATA cable

- M.2 SSD cabling from the onboard PCIe3 x16 expansion slot 2



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

- M.2 SSD cabling from the PCI riser cage



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

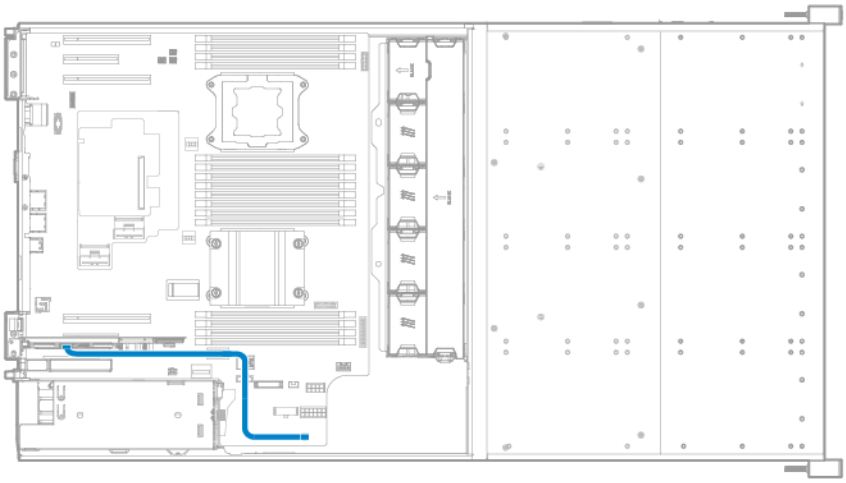
FBWC module backup power cabling

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

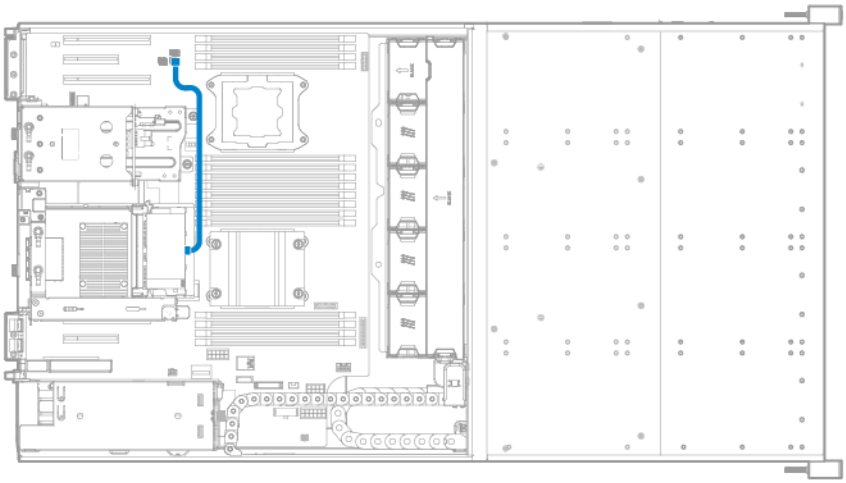
Depending on the controller option installed, the actual storage controller connectors might look different from what is shown in this section.

- FBWC module backup power cabling from a standup, Smart Array P44x Controller installed in the onboard PCIe3 x8 expansion slot 1

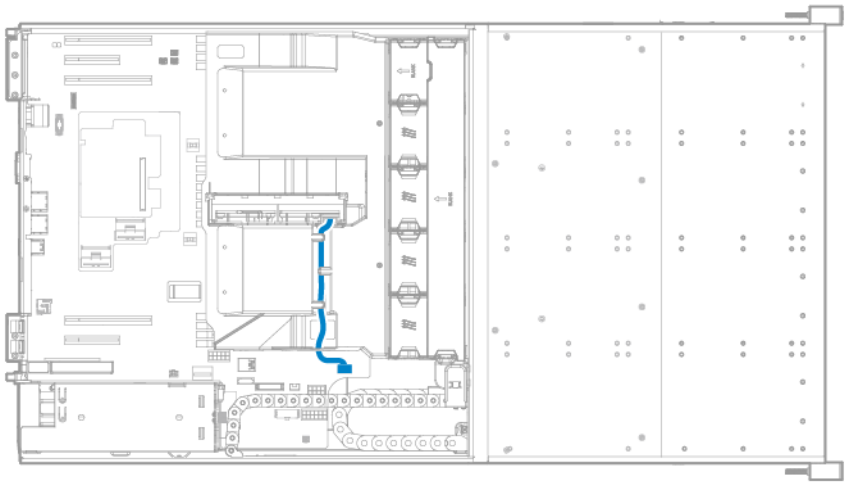
For clarity of the FBWC module backup power cabling connection, the cable management holder image is removed from the illustration below.



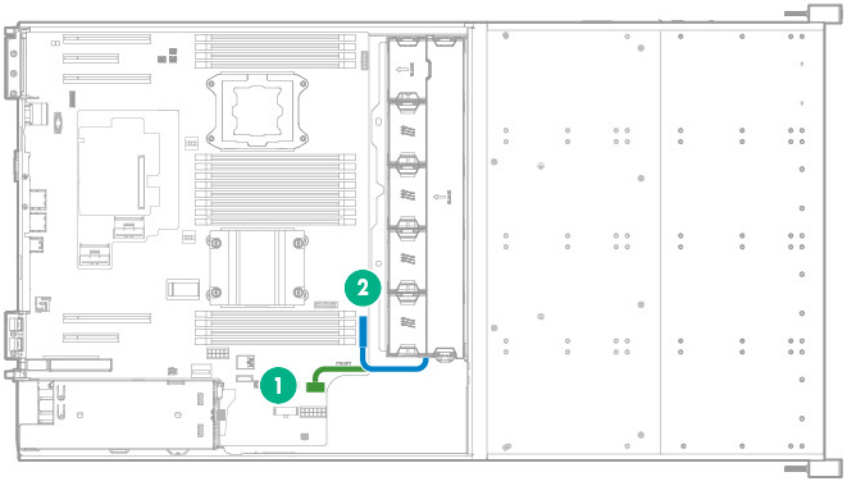
- FBWC module backup power cabling from an HPE Smart Array P841 Controller installed in the PCI riser cage



HPE Smart Storage Battery cabling



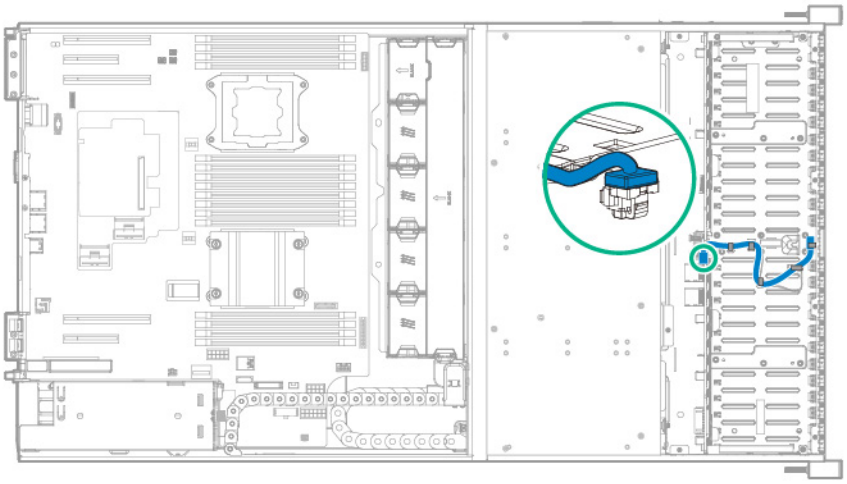
Fan assembly cabling



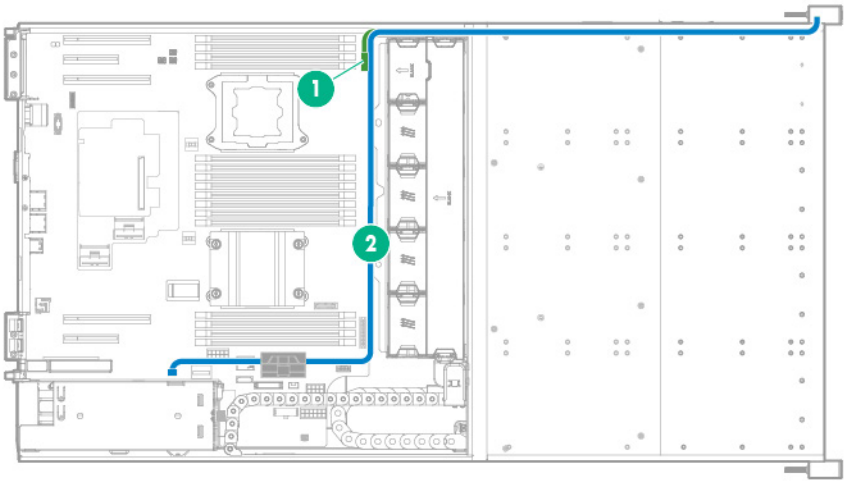
Item	Description
1	Fan assembly power cable
2	Fan assembly signal cable

Ambient temperature sensor cabling

This cable is present in SFF drive configurations only; the ambient temperature sensor function in LFF drive configurations is integrated in the front LFF drive cage 1 backplane.



Front panel cabling



Item	Description
1	Front I/O cable
2	Front USB 2.0 cable

Specifications

Environmental specifications

Specification	Value
Temperature range*	—
Operating	10°C to 35°C (50°F to 95°F)
Nonoperating	-30°C to 60°C (-22°F to 140°F)
Relative humidity (noncondensing)	—
Operating	Minimum to be the higher (more moisture) of -12°C (10.4°F) dew point or 8% relative humidity Maximum to be 24°C (75.2°F) dew point or 90% relative humidity
Nonoperating	5% to 95% 38.7°C (101.7°F), maximum wet bulb temperature

* All temperature ratings shown are for sea level. An altitude derating of 1.0°C per 304.8 m (1.8°F per 1000 ft) to 3048 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 3048 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 3048 m (10,000 ft).

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

Mechanical specifications

Dimension	Value
Height	812.8 mm (32.00 in)
Depth	87.5 mm (3.44 in)
Width	448 mm (17.63 in)
Weight (approximate values)	—
24-bay LFF drive model (minimum)	23.20 kg (51.15 lb)
24-bay LFF drive model (maximum)	40.60 kg (89.50 lb)
48-bay SFF drive model (minimum)	21.20 kg (46.74 lb)
48-bay SFF drive model (maximum)	35.00 kg (77.16 lb)

Power supply specifications

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

- HPE 1400 W Flex Slot Platinum Plus Hot-plug Power Supply (PN 720620-B21)
- HPE 800 W Flex Slot Platinum Hot-plug Power Supply (PN 720479-B21)
- HPE 800 W Flex Slot Titanium Hot-plug Power Supply (PN 720482-B21)
- HPE 800 W Flex Slot -48 V DC Hot-plug Power Supply (PN 720480-B21)
- HPE 800 W Flex Slot Universal Hot-plug Power Supply (PN 720484-B21)

These are HPE Flexible Slot Power Supply products for ProLiant servers. For more information about the power supply features, specifications, and compatibility, see the Hewlett Packard Enterprise website (http://www.hpe.com/info/proliant/powersupply).

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

IMPORTANT: Mixing different types of power input modules in the same server might limit or disable some power supply features including support for power redundancy. To ensure access to all available features, all power input modules in the same server should have the same output and efficiency ratings.

Hot-plug power supply calculations

For hot-plug power supply specifications and calculators to determine electrical and heat loading for the server, see the Hewlett Packard Enterprise Power Advisor website (http://www.hpe.com/info/rackandpower).

Acronyms and abbreviations

ABEND

abnormal end

ACU

Array Configuration Utility

AMP

Advanced Memory Protection

ASHRAE

American Society of Heating, Refrigerating and Air-Conditioning Engineers

ASR

Automatic Server Recovery

CSR

Customer Self Repair

FBWC

flash-backed write cache

HBA

host bus adapter

HPE SIM

HPE Systems Insight Manager

HPE SSA

HPE Smart Storage Administrator

iLO

Integrated Lights-Out

IML

Integrated Management Log

LFF

large form factor

LOM

Lights-Out Management

NMI

nonmaskable interrupt

NVRAM

nonvolatile memory

PCIe

Peripheral Component Interconnect Express

POST

Power-On Self Test

RBSU

ROM-Based Setup Utility

SAS

serial attached SCSI

SATA

serial ATA

SD

Secure Digital

SPP

Service Pack for ProLiant

SSD

solid-state drive

TPM

Trusted Platform Module

UEFI

Unified Extensible Firmware Interface

UID

unit identification

USB

universal serial bus

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