Hewlett Packard
Enterprise

HPE ProLiant DL320 Gen11 Server Maintenance and Service Guide

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HPE ProLiant DL320 Gen11 Server Maintenance and Service Guide

Abstract

This document is for the person who installs, administers, and troubleshoots servers and storage systems. Hewlett Packard Enterprise assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels, and are familiar with the weight and stability precautions for rack installations.

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Notices

Acknowledgments

Revision history

Part number	Publication date	Edition	Summary of changes

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30-A629D674-003	July 2023	3	Updated the following spare part topics:
			• Drive blank spare parts
			• Rack rail spare parts
			• Right chassis ear assembly spare part
			• Drive backplane spare parts
			• System board spare part
			• Drive cable spare parts
			• Riser board spare part
			• In the Removing and replacing a drive blank topic, added E3.S drive blank.
			• Updated the following topics:
			  ◦ Remove the middle cover
			  ◦ Remove the fan wall
			• In the Front panel components, added GPU dense configurations.
			• In the Riser board components, added GPU riser.
			• In the Fan and heatsink requirements, added GPU dense configurations.
			• Updated the Drive power cabling topic.
			• Added the following topics:
			  ◦ Removing and replacing the 8 E3.S drive backplane
			  ◦ Removing and replacing a GPU riser
			  ◦ GPU riser slot numbering
			  ◦ EDSFF SSD LED definitions
			  ◦ E3.S drive bay numbering
			  ◦ 4 SFF drive controller cabling
			  ◦ 4 E3.S drive controller cabling
			  ◦ GPU riser cabling
			  ◦ HPE 1600 W Flex Slot -48 VDC Hot-plug Power Supply

30-A629D674-002	April 2023	2	• Added new spare parts to the following topics:
			  ◦ Power supply spare parts
			  ◦ Heatsink spare parts
			  ◦ Processor spare parts
			  ◦ Fan spare part
			• In the Removing the heatsink and Installing the heatsink topic, added support for standard heatsink.
			• Added the Fan and heatsink requirements topic.

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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 contact the Hewlett Packard Enterprise Support Center and a technician will help you over the telephone or by electronic means. Hewlett Packard Enterprise specifies in the materials shipped with a replacement CSR part whether a defective part must be returned to Hewlett Packard Enterprise. In cases where it is required to return the defective part to Hewlett Packard Enterprise, you must ship the defective part back to Hewlett Packard Enterprise within a defined period of time, normally five (5) business days. The defective part must be returned with the associated documentation in the provided shipping material. Failure to return the defective part may result in Hewlett Packard Enterprise billing you for the replacement. With a customer self repair, Hewlett Packard Enterprise will pay all shipping and part return costs and determine the courier/carrier to be used.

For more information about the Hewlett Packard Enterprise CSR program, contact your local service provider.

Parts only warranty service

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

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

Réparation par le client (CSR)

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

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

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

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

Pour plus d'informations sur le programme CSR de Hewlett Packard Enterprise, contactez votre Mainteneur Agrée local.

Service de garantie "pièces seules"

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

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

Riparazione da parte del cliente

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

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

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

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

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

Servizio di garanzia per i soli componenti

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

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

Customer Self Repair

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

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

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

CSR-Teile werden abhängig von der Verfügbarkeit und vom Lieferziel am folgenden Geschäftstag geliefert. Für bestimmte Standorte ist eine Lieferung am selben Tag oder innerhalb von vier Stunden gegen einen Aufpreis verfügbar. Wenn Sie Hilfe benötigen, können Sie das Hewlett Packard Enterprise Support Center anrufen und sich von einem Mitarbeiter per Telefon helfen lassen. Den Materialien von Hewlett Packard Enterprise, die mit einem CSR-Ersatzteil geliefert werden, können Sie entnehmen, ob das defekte Teil an Hewlett Packard Enterprise zurückgeschickt werden muss. Wenn es erforderlich ist, das defekte Teil an Hewlett Packard Enterprise zurückzuschicken, müssen Sie dies innerhalb eines vorgegebenen Zeitraums tun, in der Regel innerhalb von fünf (5) Geschäftstagen. Das defekte Teil muss mit

der zugehörigen Dokumentation in der Verpackung zurückgeschickt werden, die im Lieferumfang enthalten ist. Wenn Sie das defekte Teil nicht zurückschicken, kann Hewlett Packard Enterprise Ihnen das Ersatzteil in Rechnung stellen. Im Falle von Customer Self Repair kommt Hewlett Packard Enterprise für alle Kosten für die Lieferung und Rücksendung auf und bestimmt den Kurier-/Frachtdienst.

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

Parts-only Warranty Service (Garantieservice ausschließlich für Teile)

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

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

Reparaciones del propio cliente

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

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

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

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

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

Servicio de garantía exclusivo de componentes

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

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

Customer Self Repair

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

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

worden gebracht, afhankelijk van het type garantieservice voor het product.

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

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

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

Garantieservice "Parts Only"

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

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

Reparo feito pelo cliente

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

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

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

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

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

Serviço de garantia apenas para peças

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

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

カスタマーセルフリペア

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

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

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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

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

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

客户自行维修

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

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

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

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

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

仅部件保修服务

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

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

客戶自行維修

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

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

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

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

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

僅限零件的保固服務

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

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

고객 셀프 수리

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

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

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

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

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

부품 제공 보증 서비스

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

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

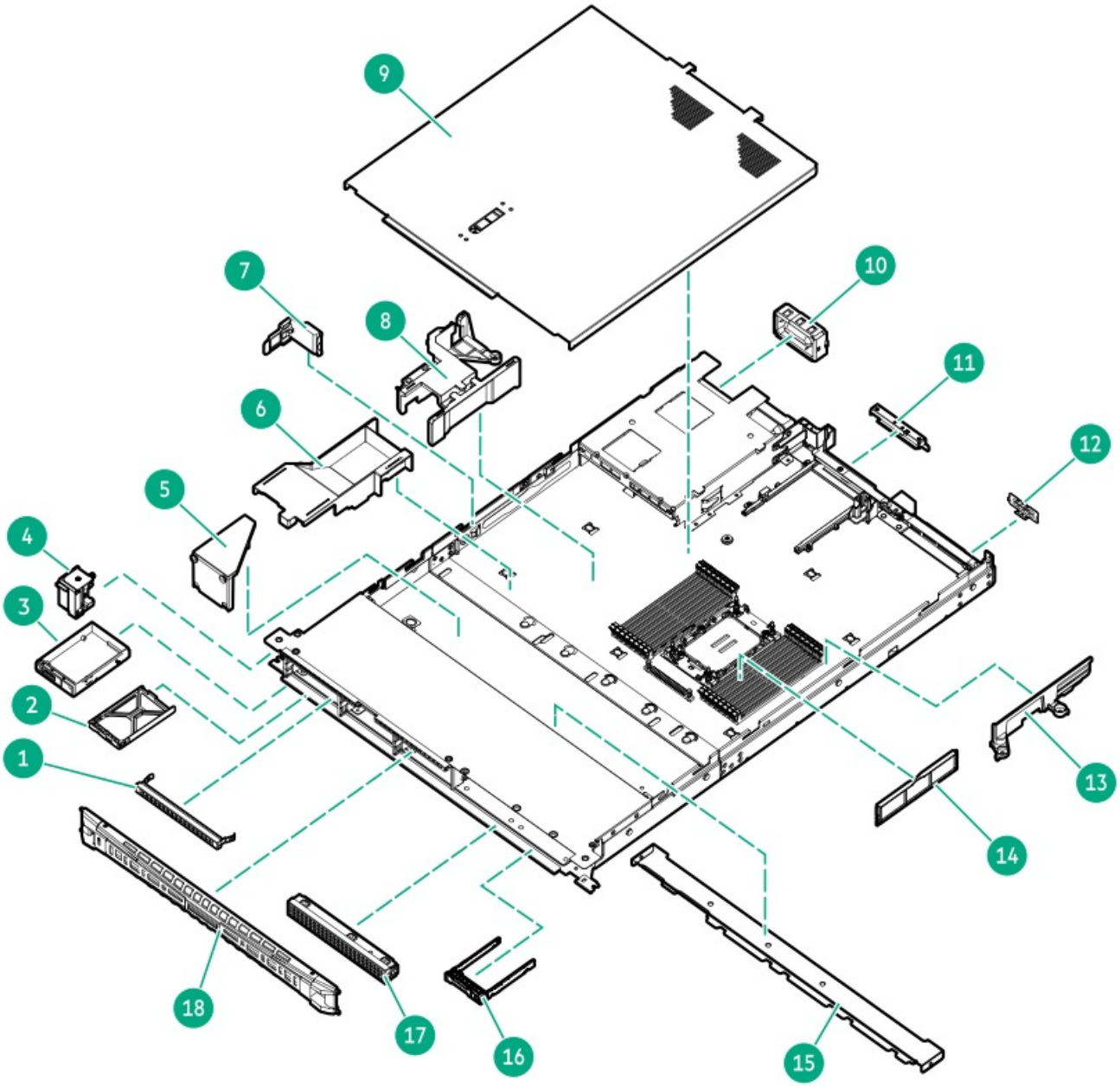
This chapter lists the hardware spare parts supported by the server.

Subtopics

Mechanical components

Hewlett Packard Enterprise continually improves and changes product parts. For complete and current supported spare parts information, see the Hewlett Packard Enterprise PartSurfer website:

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



Item	Description
1	Optical drive bay blank spare part
2	E3.S drive blank spare part
3	LFF drive blank spare part
4	Left chassis ear spare part
5	Fan blank spare part
6	M.2 air baffle spare part
7	Energy pack retention latch spare part
8	Middle DIMM guard spare part
9	Access panel spare part
10	Power supply blank spare part
11	OCP blank spare part
12	Serial port blank spare part
13	Left DIMM guard spare part
14	DIMM blank spare part
15	Middle cover spare part
16	SFF drive blank spare part
17	Universal media bay blank spare part
18	Front bezel spare part
19	Rack rail spare parts [1]
20	Cable management arm spare part [1]

[1] Not shown

Subtopics

Access panel spare part

Front bezel spare part

LFF drive configuration middle cover spare part

Drive blank spare parts

Drive bay blank spare parts

M.2 air baffle spare part

Left chassis ear spare part

Optical drive bay blank spare part

DIMM guard spare parts

DIMM blank spare part

Energy pack retention latch spare part

Cable management arm spare parts

Power supply blank part

Rack rail spare parts

Access panel spare part

Customer self repair: **Mandatory**

Description	Spare part number
Access panel	P58508-001

For more information on the removal and replacement procedures, see Removing and replacing the access panel.

Front bezel spare part

Customer self repair: **Mandatory**

Description	Spare part number
Front bezel	P60140-001

For more information on the removal and replacement procedures, see Removing and replacing the front bezel.

LFF drive configuration middle cover spare part

Customer self repair: **Mandatory**

Description	Spare part number
LFF drive configuration middle cover	P59453-001

For more information on the removal and replacement procedures, see Removing and replacing the middle cover.

Drive blank spare parts

Customer self repair: **Mandatory**

Description	Spare part number
LFF drive blank	809955-001 [1]
SFF drive blank	670033-001
E3.S drive blank	P52488-001

[1] This is a miscellaneous blank spare kit; only the component blanks listed in this table are used in this server.

For more information on the removal and replacement procedures, see Removing and replacing a drive blank.

Drive bay blank spare parts

Customer self repair: **Mandatory**

Description	Spare part number
Drive bay blank	P24101-001 [1]

[1] This is a miscellaneous blank spare kit; only the component blanks listed in this table are used in this server.

For more information on the removal and replacement procedures, see Removing and replacing a drive blank.

M.2 air baffle spare part

Customer self repair: **Mandatory**

Description	Spare part number
M.2 air baffle	P58522-001

For more information on the removal and replacement procedures, see Removing and replacing the M.2 air baffle.

Left chassis ear spare part

Customer self repair: **Mandatory**

Description	Spare part number
Left chassis ear	P56499-001

For more information on the removal and replacement procedures, see Removing and replacing the left chassis ear.

Optical drive bay blank spare part

Customer self repair: **Mandatory**

Description	Spare part number
Optical drive bay blank	707300-001

For more information on the removal and replacement procedures, see: Removing and replacing an optical drive bay blank.

DIMM guard spare parts

Customer self repair: **Mandatory**

Description	Spare part number
This spare kit includes two components: • Left DIMM guard • Middle DIMM guard	P58510-001

For more information on the removal and replacement procedures, see Removing and replacing a DIMM guard.

DIMM blank spare part

Customer self repair: **Mandatory**

Description	Spare part number
DIMM blank	812914-001

For more information on the removal and replacement procedures, see Removing and replacing a DIMM blank.

Energy pack retention latch spare part

Customer self repair: **Mandatory**

Description	Spare part number
Energy pack retention latch	P39788-001

For more information on the removal and replacement procedures, see Removing and replacing the energy pack retention latch.

Cable management arm spare parts

Customer self repair: **Mandatory**

Description	Spare part number
HPE cable management arm for friction rack rail #1, #2, #3 or #5	P38900-001
HPE cable management arm for friction rack rail #7 or #9	P22820-001

For more information on the removal and replacement procedures, see Removing and replacing the cable management arm.

Power supply blank part

Customer self repair: **Mandatory**

Description	Spare part number
Power supply blank	879518-001 [1]

[1] This is a miscellaneous blank spare kit; only the component blanks listed in this table are used in this server.

For more information on the removal and replacement procedures, see Removing and replacing a power supply blank.

Rack rail spare parts

Customer self repair: **Mandatory**

Description	Spare part number
Friction rack rail #1	P59489-001
Friction rack rail #2	P59490-001
Friction rack rail #5	P59872-001
Friction rack rail #9	P59491-001

For more information on the removal and replacement procedures, see Removing and replacing the rack rails.

Miscellaneous blank spare parts

Customer self repair: **Mandatory**

Description	Spare part number
• OCP slot blank • Serial port blank • Fan blank • Universal media bay blank	P56489-001 [1]

[1] This is a miscellaneous blank spare kit; only the component blanks listed in this table are used in this server.

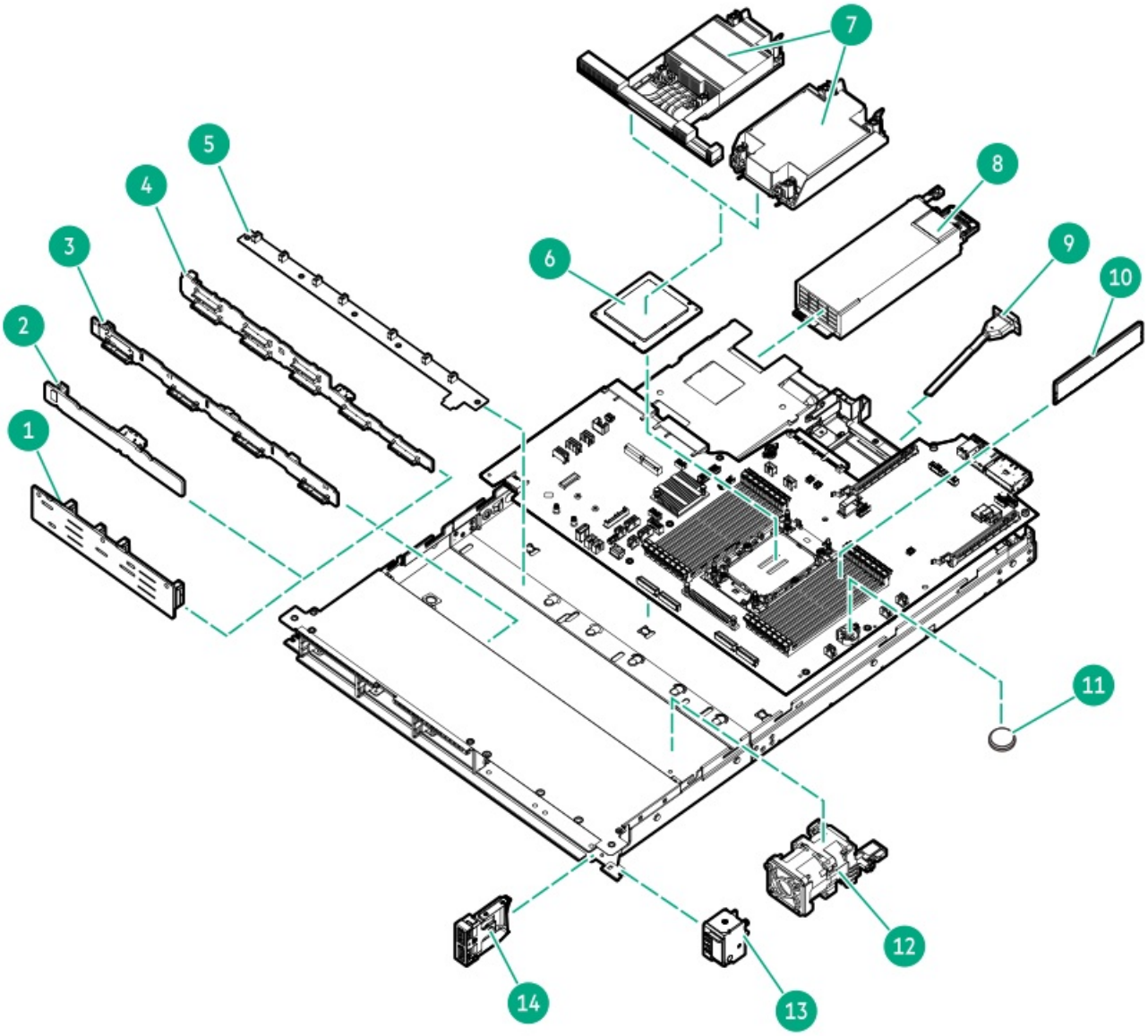
For more information on the removal and replacement procedures, see:

- Removing and replacing an OCP slot blank
- Removing and replacing the serial port blank
- Removing and replacing a fan blank
- Removing and replacing a universal media bay blank

System components

Hewlett Packard Enterprise continually improves and changes product parts. For complete and current supported spare parts information, see the Hewlett Packard Enterprise PartSurfer website:

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



Item	Description
1	8 E3.S drive backplane spare part
2	2 SFF drive backplane spare part
3	4 LFF drive backplane spare part
4	8 SFF drive backplane spare part
5	Fan board spare part
6	Processor spare parts
7	Heatsink spare part
8	Power supply spare part
9	VGA cable spare part
10	DIMM spare parts
11	System battery spare part
12	Fan spare part
13	Right chassis ear spare part
14	Front I/O spare part
15	Power cord spare part [1]
16	Drive cable spare parts [1]

[1] Not shown

Subtopics

Power supply spare parts

Right chassis ear assembly spare part

Drive backplane spare parts

VGA cable spare part

DIMM spare parts

Heatsink spare parts

Processor spare parts

Fan board spare part

System battery spare part

Fan spare part

System board spare part

Drive cable spare parts

Power cord spare part

Power supply spare parts

Customer self repair: **Mandatory**

Description	Spare part number
HPE 500 W Flex Slot Platinum Hot-plug Low Halogen Power Supply (94% efficiency)	866729-001
HPE 800 W Flex Slot Platinum Hot-plug Low Halogen Power Supply	P39385-001
HPE 1000 W Flex Slot Titanium Hot-plug Power Supply	P44412-001
HPE 1600 W Flex Slot -48 VDC Hot-plug Power Supply	P18510-001

For more information on the removal and replacement procedures, see Removing and replacing a flexible slot power supply .

Right chassis ear assembly spare part

Customer self repair: **Mandatory**

Description	Spare part number
Right chassis ear assembly spare part for a SFF or 4 LFF drive configuration [1]	P56500-001
Right chassis ear assembly spare part for the 4 SFF or 8 E3.S drive configuration	P52477-001

1 This spare part includes the front I/O and the right chassis ear.

Customer self repair: **Optional**

Description	Spare part number
Right chassis ear assembly spare part for a 12 LFF drive configuration	P58509-001

For more information on the removal and replacement procedures, see Removing and replacing the right chassis ear assembly .

Drive backplane spare parts

Customer self repair: **Mandatory**

Description	Spare part number
2 SFF 24G x4 NVMe / SAS / SATA UBM3 BC	P39783-001
2 SFF 24G x4 U.3 NVMe UBM6 BC	P62071-001
8 SFF 24G x1 U.3 NVMe / SAS / SATA UBM3 BC	P40444-001
8 SFF 24G x1 NVMe / SAS UBM6 BC	P62072-001
8 E3.S 32G x4 U.3 SAS / SATA UBM5 BC	P61485-001

Customer self repair: **Optional**

Description	Spare part number
4 LFF 12G x1 U.2 SAS / SATA UBM2 LP	P40451-001
4 LFF 12G x1 SAS / SATA UBM6 LP	P62075-001

For more information on the removal and replacement procedures, see:

- Removing and replacing the 2 SFF drive backplane
- Removing and replacing the 8 E3.S drive backplane
- Removing and replacing the 8 SFF drive backplane
- Removing and replacing the 4 LFF drive backplane

VGA cable spare part

Customer self repair: **Mandatory**

Description	Spare part number
VGA cable	P58520-001

DIMM spare parts

Customer self repair: **Mandatory**

Description	Spare part number
16 GB, single-rank x8 PC5-4800B-R	P48499-001
32 GB, single-rank x4 PC5-4800B-R	P48500-001
32 GB, dual-rank x8 PC5-4800B-R	P48501-001
64 GB, dual-rank x4 PC5-4800B-R	P48502-001
128 GB, dual-rank x4 PC5-4800B-R	P48503-001

For more information on the removal and replacement procedures, see Removing and replacing a DIMM.

Heatsink spare parts

Customer self repair: **Mandatory**

Description	Spare part number
Standard heatsink	P53219-001

Customer self repair: **Optional**

Description	Spare part number
Performance heatsink	P58507-001

For more information on the removal and replacement procedures, see:

- Removing a heatsink
- Replacing a heatsink

Processor spare parts

Customer self repair: **Optional**

Description	Spare part number
Intel SPR 6414U, 2.0 GHz, 32C, 250 W	P53123-001
Intel SPR 6430, 1.9 GHz, 32C, 270 W	P53120-001
Intel SPR 6454S, 2.2 GHz, 32C, 270 W	P53136-001
Intel Xeon Bronze processor family	–
Intel Xeon Bronze 3408U, 1.8 GHz, 8C, 125 W	P60439-001
Intel Xeon Gold 5400 processor family	–
Intel Xeon Gold 5411N, 2.0 GHz, 24C, 165 W	P60447-001
Intel Xeon Gold 5412U, 2.2 GHz, 24C,185 W	P60440-001
Intel Xeon Gold 5415, 2.9 GHz, 8C, 150 W	P60447-001
Intel Xeon Gold 5416S, 2.1 GHz, 16C, 150 W	P60452-001
Intel Xeon Gold 5418N, 2.0 GHz, 24C, 165 W	P60448-001
Intel Xeon Gold 5418Y, 2.1 GHz, 24C, 185 W	P60435-001
Intel Xeon Gold 5420+, 2.0 GHz, 28C, 205 W	P60436-001
Intel Xeon Gold 6400 processor family	–
Intel Xeon Gold 6416H, 2.2 GHz, 18C, 165 W	P60442-001
Intel Xeon Gold 6418H, 2.0 GHz, 24C 185 W	P60443-001
Intel Xeon Gold 6421N, 1.8 GHz, 32C, 185 W	P60449-001
Intel Xeon Gold 6426Y, 2.6 GHz, 16C, 185 W	P60427-001
Intel Xeon Gold 6434H, 4.0 GHz, 8C, 205 W	P60445-001
Intel Xeon Gold 6438M, 2.3 GHz, 32C, 205 W	P60451-001
Intel Xeon Gold 6438N, 2.0 GHz, 32C, 205 W	P60446-001
Intel Xeon Gold 6438Y+, 2.1 GHz, 32C, 205 W	P60437-001
Intel Xeon Gold 6442Y, 2.6 GHz, 24C, 225 W	P60428-001
Intel Xeon Gold 6448Y, 2.2 GHz, 32C, 225 W	P60429-001
Intel Xeon Gold 6434, 3.9 GHz, 8C, 205 W	P60430-001
Intel Xeon Gold 6444Y, 3.5 GHz, 16C, 270 W	P60431-001
Intel Xeon Gold 6448H, 2.2 GHz, 32C, 225 W	P60444-001
Intel Xeon Silver 4400 processor family	–
Intel Xeon Silver 4410Y, 2.0 GHz, 12C, 150 W	P60433-001
Intel Xeon Silver 4416+, 2.1 GHz, 20C,165 W	P60434-001

For more information on the removal and replacement procedures, see:

- Removing a processor
- Installing a processor

Fan board spare part

Customer self repair: **Mandatory**

Description	Spare part number
Fan board	P58506-001

For more information on the removal and replacement procedures, see Removing and replacing the fan board.

System battery spare part

Customer self repair: **Mandatory**

Description	Spare part number
3.3-V lithium battery coin (CR2032)	319603-001

For more information on the removal and replacement procedures, see Removing and replacing the system battery.

Fan spare part

Customer self repair: **Mandatory**

Description	Spare part number
Standard fan	P53226-001
High performance fan	P53227-001

For more information on the removal and replacement procedures, see Removing and replacing a fan.

System board spare part

Customer self repair: **Optional**

Description	Spare part number
The system board assembly includes: • System board • Metal subpan	P58504-001
The system board assembly for the 4 SFF and 8 E3.S drive configuration includes: • System board • Metal subpan	P65761-001

For more information on the removal and replacement procedures, see:

- Removing the system board assembly
- Installing the system board assembly

Drive cable spare parts

Customer self repair: **Mandatory**

Description	Cable part number	Cable spare part number
2 SFF drive power	869667-001	P56475-001
4 LFF drive power	P53988-001	P58517-001
4 LFF SAS drive to the system board	P53989-001	
4 SFF drive power cable	P54942-001	P62654-001
8 E3.S drive power cable	P54939-001	
4 or 8 E3.S signal cable	P62296-001	P62646-001
4 or 8 E3.S signal cable	P54940-001	P62647-001
8 SFF drive power	P53958-001	P58511-001
8 SFF drive port 1 to the system board	P53957-001	
8 SFF drive port 1 to the system board	P53959-001	P58512-001
8 SFF drive port 2 to the system board	P53960-001	
8 SFF drive port 3 to the system board	P53961-001	
2 SFF drive port 1 to the system board	P53967-001	P58513-001
2 SFF drive port 1 to the system board — Y-cable	P53969-001	
2 SFF drive port 1 to a primary riser re-timer card port 1	P53984-001	
8 + 2 SFF drive port 3 to a primary riser type-p controller	P53972-001	P58514-001
8 + 2 SFF drive port 4 to a primary riser type-p controller	P53976-001	P58515-001
8 SFF drive port 1 and port 2 to a primary riser type-p controller—Y-cable	P53977-001	
8 SFF drive port 3 and port 4 to a primary riser type-p controller—Y-cable	P53978-001	
8 SFF drive port 1 and port 2 to the OCP port	P53979-001	P58516-001
8 SFF drive port 1 or port 2 to a primary riser type-p controller	P45611-001	P53222-001
4 SFF signal cable	P45610-001	

Customer self repair: **Optional**

Description	Cable part number	Cable spare part number
12 LFF drive box 1 drive power	P54925-001	P58518-001
12 LFF drive box 3 drive power	P54926-001	
12 LFF drive box 5 drive power	P54927-001	
12 LFF drive box 1 and box 3 to a secondary riser type-p controller	P54930-001	
12 SFF drive box 5 to a secondary riser type-p controller	P54931-001	
12 LFF drive box 1 and 3 to the system board	P54928-001	P58519-001
12 LFF drive box 5 to the system board	P54929-001	

Power cord spare part

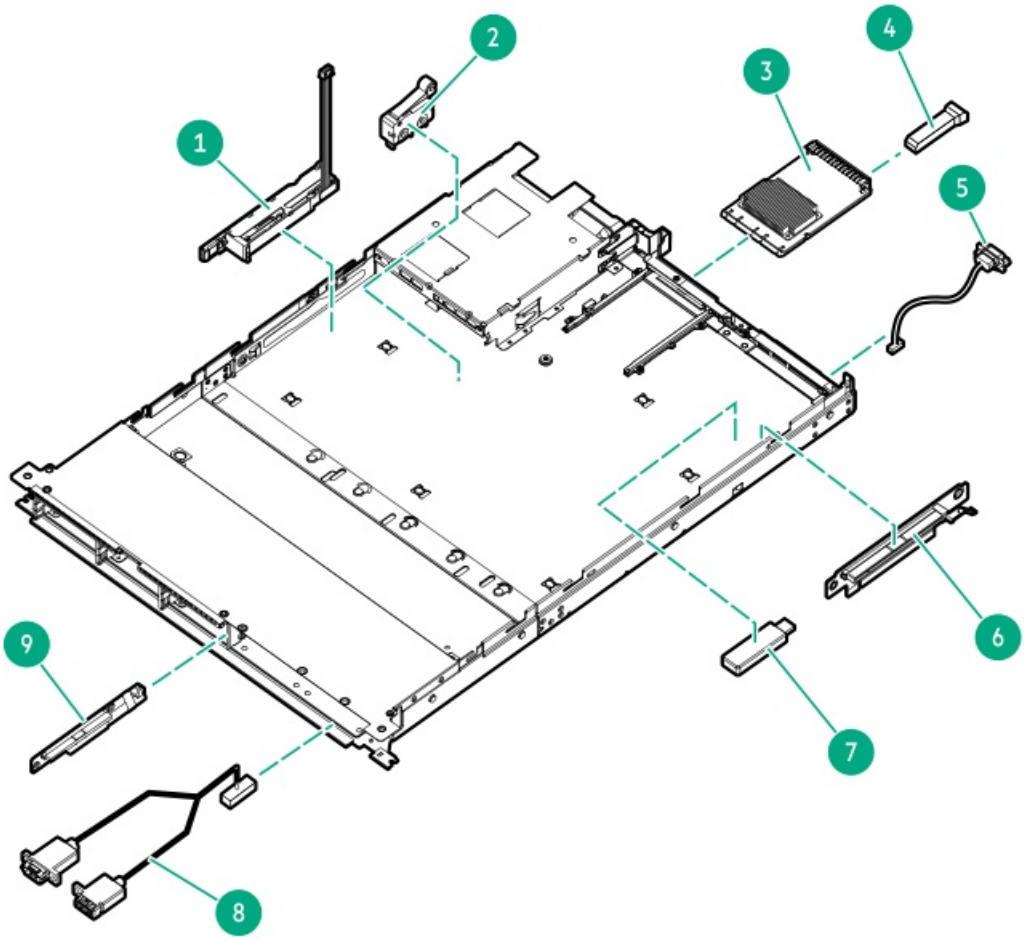
Customer self repair: **Mandatory**

Description	Spare part number
Power cord	142258-002

Server options

Hewlett Packard Enterprise continually improves and changes product parts. For complete and current supported spare parts information, see the Hewlett Packard Enterprise PartSurfer website:

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



Item	Description
1	Energy pack spare part
2	Chassis intrusion detection switch spare part
3	OCP NIC 3.0 adapter spare part For more information on this spare part, see Removing and replacing an OCP NIC 3.0 adapter.
4	Transceiver spare part For more information on this spare part, see Removing and replacing a transceiver.
5	Serial port cable spare part
6	Riser board spare part
7	Internal USB spare part For more information on this spare part, see Removing and replacing an internal USB device.
8	Front USB and display port and optical drive spare parts
9	GPU riser spare part
10	GPU cable spare parts [1]
11	Storage controller spare parts [1]
12	Storage controller power cable spare part [1]
13	HPE HPE NS204i-u Boot Device spare part [1]
14	Ethernet adapter spare part [1]

1 Not shown

Subtopics

Energy pack spare parts

Customer self repair: **Mandatory**

Description	Spare part number
HPE 96 W Smart Storage Battery with 145 mm (5.7-inch) cable	878643-001
HPE Smart Hybrid Capacitor with 145 mm (5.7-inch) cable	P07473-001

For more information on the removal and replacement procedures, see Removing and replacing an energy pack.

Serial port cable spare part

Customer self repair: **Mandatory**

Description	Spare part number
Serial port cable	P57842-001

For more information on the removal and replacement procedures, see Removing and replacing a serial port.

Storage controller spare parts

Customer self repair: **Mandatory**

Description	Spare part number
HPE Gen11 type-o controllers	–
HPE MR416i-o Gen11 controller	P47952-001
HPE MR408i-o Gen11 controller	P58543-001
HPE MR216i-o Gen11 controller	P47954-001
HPE Gen11 type-p controllers	–
HPE MR216i-p Gen11 controller	P47953-001
HPE MR416i-p Gen11 controller	P47951-001
HPE SR932i-p Gen11 controller	P47623-001
HPE P408i-p Gen11 controller	836269-001
HPE Gen10 type-p controller	–
HPE Smart Array E208e-p SR Gen10 Controller	836267-001
Other	
HPE NS204i-u Boot Device	P14379-001

For more information on the removal and replacement procedures, see:

- Removing and replacing a type-o storage controller
- Removing and replacing a type-p storage controller

Storage controller spare part

Customer self repair: **Mandatory**

Description	Spare part number
Storage controller power cable	878645-001

Riser board spare part

Customer self repair: **Mandatory**

Description	Spare part number
One-slot PCIe5 x16 riser board	P58505-001
x8 re-timer PCIe card	P24035-001
x16 re-timer PCIe card	P24041-001

Customer self repair: **Optional**

Description	Spare part number
GPU riser	P60488-001

For more information on the removal and replacement procedures, see:

- Removing and replacing the riser board
- Removing and replacing a GPU riser

.

GPU cable spare parts

Customer self repair: **Optional**

Description	Cable part number	Spare part number
GPU riser power cables	P60489-001	P62652-001
	P60490-001	

Chassis intrusion detection switch spare part

Customer self repair: **Mandatory**

Description	Spare part number
Chassis intrusion detection switch	875570-001

For more information on the removal and replacement procedures, see Removing and replacing the chassis intrusion detection switch .

HPE NS204i-u Boot Device spare parts

Customer self repair: **Mandatory**

Description	Part number	Spare part number
HPE NS204i-u Boot Device SlimSAS cable	P56364-001	P58521-001
HPE NS204i-u Boot Device latch	P55261-001	
HPE NS204i-u Boot Device SlimSAS cable	P54087-001	P56479-001 [1]
HPE NS204i-u Boot Device power cable	P54088-001	

[1] This is a miscellaneous cable spare kit; only the cables listed in this table are used in this server.

For more information on the removal and replacement procedures, see HPE NS204i-u boot device replacement.

Front USB and display port and optical drive spare parts

Customer self repair: **Mandatory**

Description	Part number	Spare part number
Display port/USB option for the LFF drive chassis	P51928-001	P60077-001
Optical drive cable for the SFF drive chassis	P45622-001	P56486-001
Front USB display port cable for the SFF chassis	P45620-001	

For more information on the removal and replacement procedures, see:

- Removing and replacing an optical drive from the LFF chassis
- Removing and replacing an optical drive from the optical drive cage
- Removing and replacing the front USB and DisplayPort

Ethernet adapter spare part

Customer self repair: **Mandatory**

Description	Spare part number
HPE 1GbE 4p BASE-T I350-T4 Adapter	P22200-001

Removal and replacement procedures

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

Subtopics

Safety considerations

Preparation procedures

Removing and replacing the front bezel

Removing and replacing the access panel

Removing and replacing the cable management arm

Removing and replacing a hot-plug SAS, SATA or NVMe drive

Removing and replacing a drive blank

Drive backplane replacement

Removing and replacing the universal media bay blank

Flexible Slot power supply replacement

Removing and replacing the rack rails

Removing and replacing the middle cover

Removing and replacing a DIMM

Safety considerations

Before performing service procedures, review all the safety information.

Subtopics

Electrostatic discharge

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

To prevent electrostatic damage:

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

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

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

Symbols on equipment

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

This symbol in conjunction with any of the following symbols indicates the presence of a potential hazard. The potential for injury exists if warnings are not observed. Consult your documentation for specific details.

該符號與以下任意符號組合使用，指示存在潛在的危險。如果不遵守警告，可能會造成人身傷害。詳細信息請參閱相關文檔。

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.

此符號表明存在危險電路或觸電的危險。所有維修工作應由具有相關資格的人員來完成。
警告：為了減少觸電造成人身傷害的危險，請不要打開此外殼。所有維護、升級和維修工作都應由具有相關資格的人員來完成。

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 risk of injury from electric shock hazards, do not open this enclosure.

此符號表明存在觸電的危險。在這一區域內沒有用戶可以現場維修的部件。一定不要打開。警告：為了減少觸電造成人身傷害的危險，請不要打開此外殼。

This symbol on an RJ-45 receptacle indicates a Network Interface Connection.

WARNING:

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

RJ-45 插孔上的該符號指示網絡接口連接。
警告：為了減少觸電、火災或設備損壞的危險，不要將電話或電信連接設備插入此插孔。

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

WARNING:

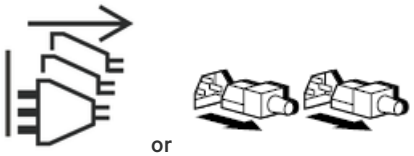
To reduce the risk of injury from a hot component, allow the surface to cool before touching.

此符號表明表面或組件過熱。如果觸摸此表面，可能會造成人身傷害。警告：為了減少因組件過熱而造成人身傷害的危險，應等到表面降溫後再觸摸。

This symbol indicates the presence of a moving fan blade. If the spinning blades are contacted, the potential for injury exists.

> **WARNING:**
> Hazardous moving parts. Keep away from moving fan blades. To reduce the risk of injury from a hot component, allow the surface to cool before touching.

此符號表明存在運動風扇葉片的危險。如果觸摸旋轉葉片，可能會造成人身傷害。警告：危險的運動部件。請遠離運動風扇刀片。為減少被高溫組件燙傷的危險，應在表面冷卻之後再接觸。



or

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.

電源或系統上的這些符號表明設備由多個電源供電。
警告：為了減少觸電造成人身傷害的危險，應拔下所有電源線插頭，完全斷開系統的電源。

Weight in kg.
Weight in lb.

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.

此符號表明組件的重量超出了建議值，一個人無法安全取放。
警告：為了減少人身傷害或設備損壞的危險，應遵守當地有關人工取放物品的職業保健與安全規定及準則。

A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

手指或其它導體所釋放的靜電可能損壞主板或其它對靜電敏感的設備。為防止發生損壞，請遵守防靜電預防措施。

This symbol indicates the presence of a laser device in the product that may exceed Class 1 limits. Refer to the product documentation for more information.

此符號表明在可能會超出 1 類限制的產品中存在激光設備。有關詳細信息，請參閱產品文檔。

This symbol indicates the presence of moving parts inside the product that may present a pinch point if improperly contacted.

WARNING:

Hazardous moving parts. Do not insert any tools or any part of your body into the product while it is operating or in any openings.

Rack warnings and cautions

WARNING:

When all components are removed, the server weighs 12.00 kg (26.45 lb). When all components are installed, the server can weigh up to 29.60 kg (65.23 lb).

Before configuring your rack solution, be sure to check the rack manufacturer weight limits and specifications. Failure to do so can result in physical injury or damage to the equipment and the facility.

WARNING:

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

- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Get help to lift and stabilize the product during installation or removal, especially when the product is not fastened to the rails. The server weighs more than 12.00 kg (26.45 lb), so at least two people must lift the server into the rack together. An additional person may be required to help align the server if the server is installed higher than chest level.
- Use caution when installing the server in or removing the server from the rack.
- Adequately stabilized 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.
- Do not stack anything on top of rail-mounted component or use it as a work surface when extended from the rack.

WARNING:
To reduce the risk of personal injury or damage to the equipment, be sure that:

- The rack has anti-tip measures in place. Such measures include floor-bolting, anti-tip feet, ballast, or a combination as specified by the rack manufacturer and applicable codes.
- The leveling jacks (feet) are extended to the floor.
- The full weight of the rack rests on the leveling jacks (feet).
- The stabilizing feet are attached to the rack if it is a single-rack installation.
- The racks are coupled together in multiple rack installations.

WARNING:
To reduce the risk of personal injury or equipment damage when unloading a rack:

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

CAUTION:
Always plan the rack installation so that the heaviest item is on the bottom of the rack. Install the heaviest item first, and continue to populate the rack from the bottom to the top.

CAUTION:
Before installing the server in a rack, be sure to properly scope the limitations of the rack. Before proceeding with the installation, consider the following:

- You must fully understand the static and dynamic load carrying capacity of the rack and be sure that it can accommodate the weight of the server.
- Be sure sufficient clearance exists for cabling, installation and removal of the server, and movement of the rack doors.

Server warnings and cautions

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

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

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

- Do not disassemble, crush, or puncture the energy pack.
- Do not short external contacts.
- Do not dispose of the energy pack in fire or water.
- Do not expose the energy pack to low air pressure as it might lead to explosion or leakage of flammable liquid or gas.
- Do not expose the energy pack to temperatures higher than 60°C (140°F).

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

CAUTION:

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

CAUTION:

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

CAUTION:

To avoid data loss, Hewlett Packard Enterprise recommends that you back up all server data before installing or removing a hardware option, or performing a server maintenance or troubleshooting procedure.

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

Preparation procedures

Prerequisites

Before powering down the server for an upgrade, maintenance, or service procedure, perform a backup of critical server data.

About this task

To access components and perform certain upgrade, maintenance, or service procedure, you must perform one or more of the procedures described in this section.

Subtopics

Server data backup

To avoid data loss, make sure to back up all server data before installing or removing a hardware option, performing a server maintenance, or a troubleshooting procedure.

Server data in this context refers to information that may be required to return the system to a normal operating environment after completing a hardware maintenance or troubleshooting procedure. This information may include:

- User data files
- User account names and passwords
- Application settings and passwords
- Component drivers and firmware
- TPM recovery key/password
- BIOS configuration settings—Use the backup and restore function in UEFI System Utilities. For more information, see the UEFI user guide (**https://www.hpe.com/info/UEFI-manuals**).
  - Custom default system settings
  - Security passwords including those required for power-on and BIOS admin access, persistent memory, and Server Configuration Lock (for HPE Trusted Supply Chain servers)
  - Server serial number and the product ID
- iLO-related data—Use the iLO backup and restore function. For more information, see the iLO user guide (**https://www.hpe.com/support/ilo6**).
  - iLO license
  - Customer iLO user name, password, and DNS name
  - iLO configuration settings
- For servers managed by HPE GreenLake for Compute Ops Management, make sure that you have your HPE GreenLake account ID. For more information, see **HPE GreenLake for Compute Ops Management Getting Started Guide**.

Power up the server

About this task

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

- Press the Power On/Standby button.
- Use the virtual power button through iLO 6.

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 activates a controlled shutdown of applications and the OS before the server enters standby mode. It can also activate a shutdown behavior governed by an OS configuration or policy.

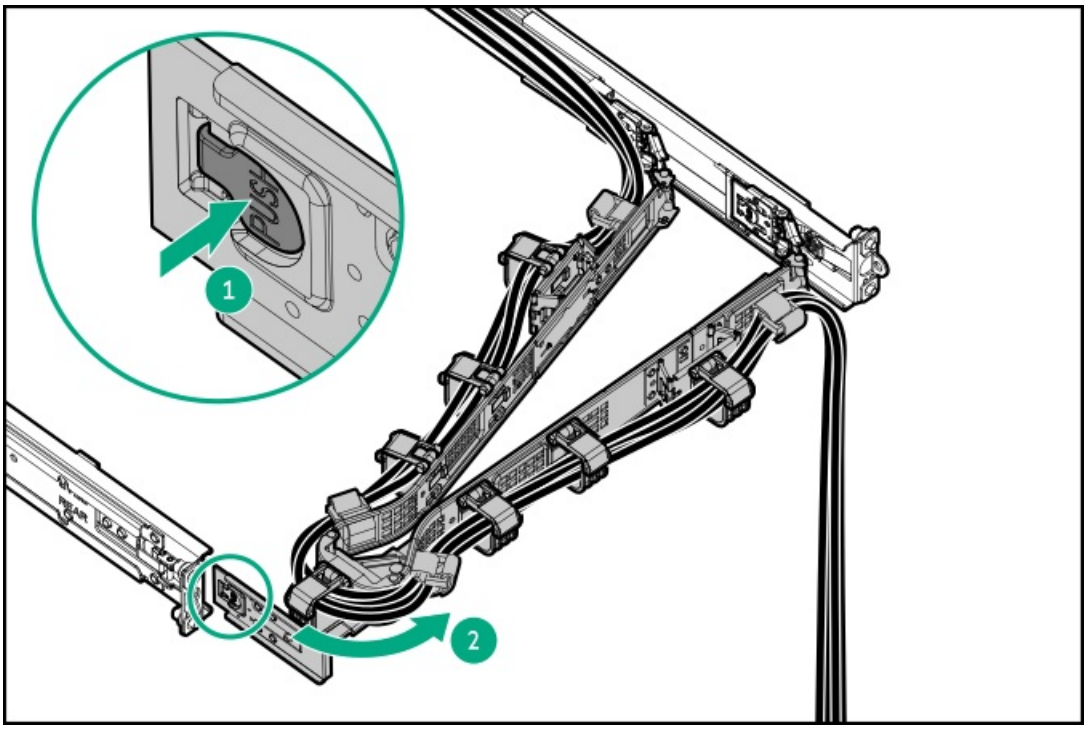
- Press and hold the Power On/Standby button for more than 4 seconds to force the server to enter standby mode.
  This method forces the server to enter standby mode without properly exiting applications and the OS. If an application stops responding, you can use this method to force a shutdown.
- Use a virtual power button selection through iLO 6.
  This method initiates a controlled remote shutdown of applications and the OS before the server enters standby mode.

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

Open the cable management arm

Procedure

1. Press and hold the blue **PUSH** button on the retention bracket.
2. Swing the arm away from the rear panel.



Extend the server out of the rack

Prerequisites

- Before you perform this procedure, review the Rack warnings and cautions.
- T-25 Torx screwdriver—This tool is required if the shipping screws located inside the chassis ears are secured.

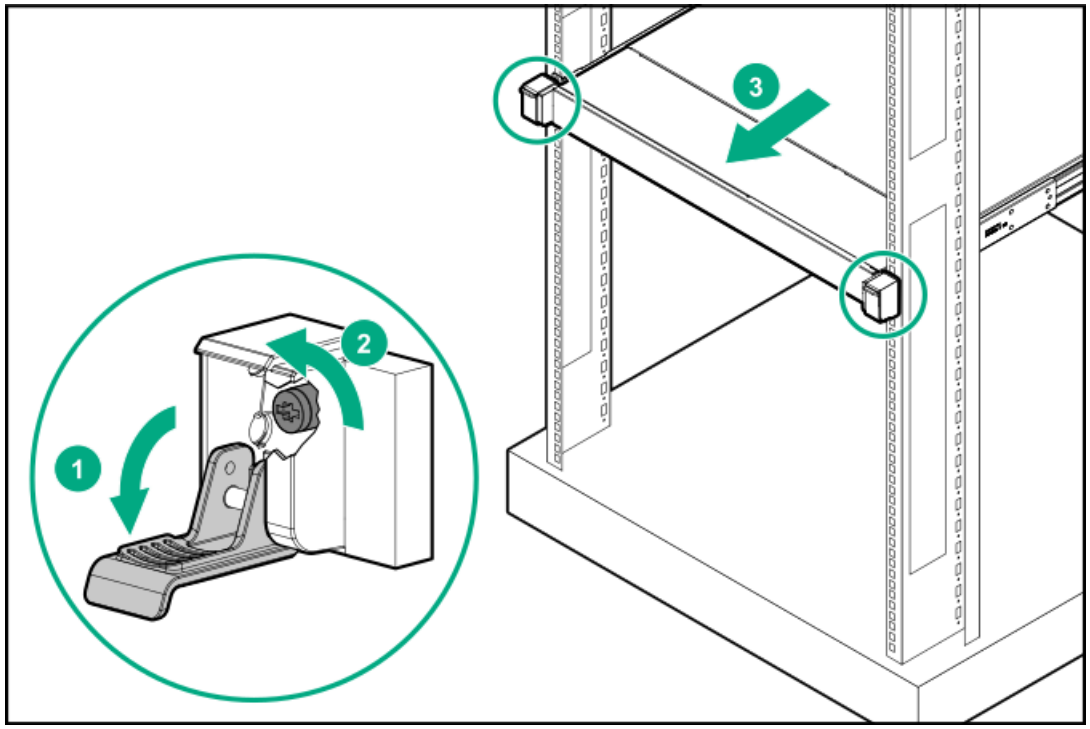
About this task

WARNING:

To reduce the risk of personal injury, be careful when pressing the server rail-release latches. The inner rails could pinch your fingers.

Procedure

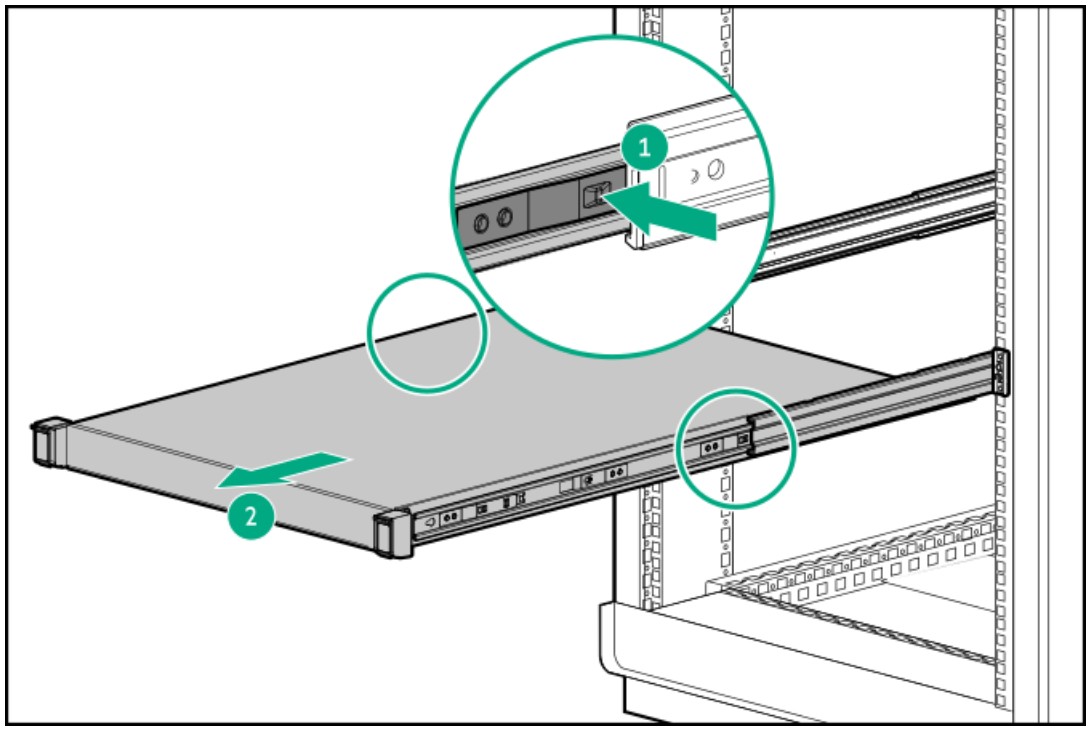
1. If needed, loosen the shipping screws, and then use the chassis ear latches to slide the server out of the rack until the rail-release latches are engaged.



2. **WARNING:**

   To reduce the risk of personal injury, be careful when pressing the server rail-release latches. The inner rails could pinch your fingers.

Press and hold the rear-end rail-release latches (callout 1), and then slide the server out of the rack until it is fully extended (callout 2).



Remove the front bezel

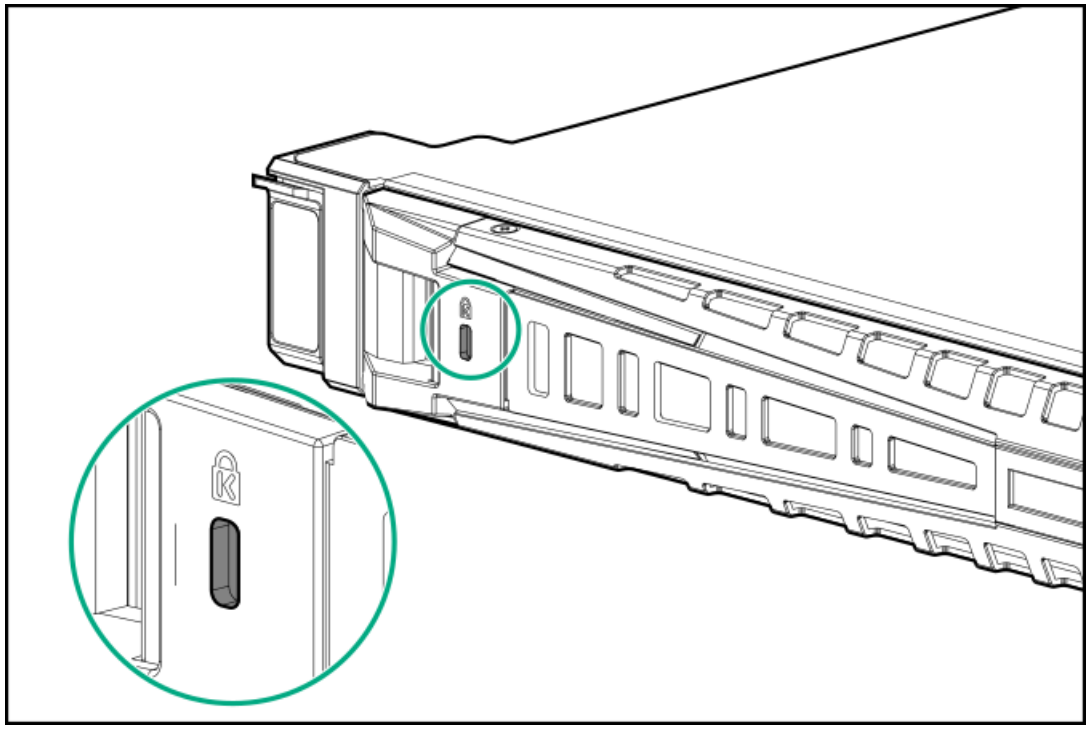
About this task

If you are using the virtual power button in iLO to power the server on/off, you do not need to remove the front bezel. Remove the front bezel only if you need to access the front panel components.

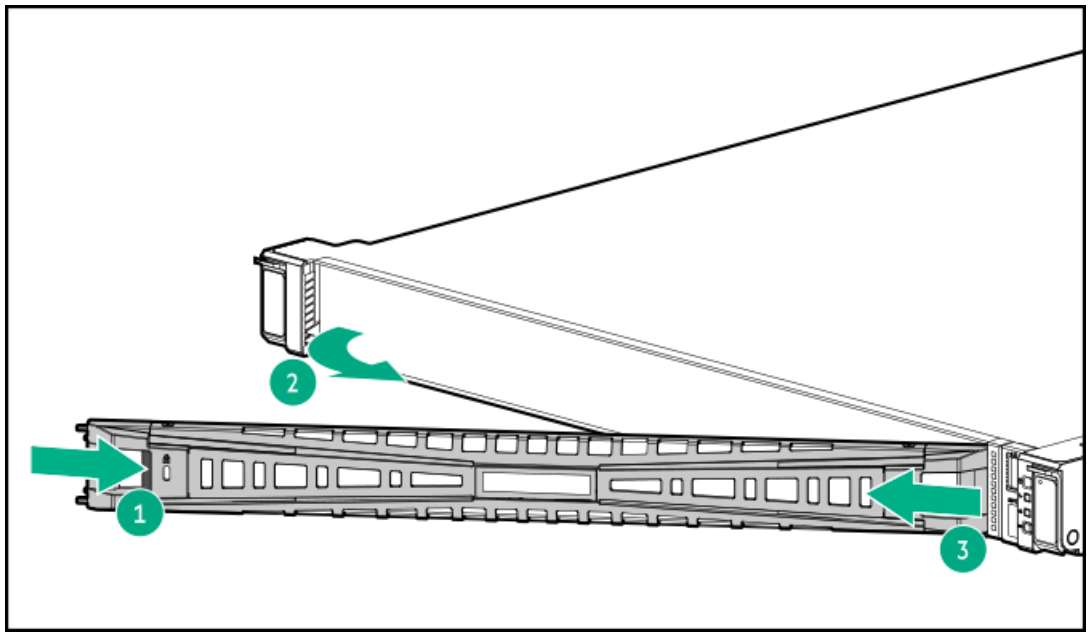
Procedure

1. If installed, remove the Kensington security lock.

   For more information, see the lock documentation.



2. Press the bezel release latch (callout 1), and then pivot the bezel open (callout 2).
3. Release the right side of the bezel from the front panel (callout 3).



Remove the middle cover

Prerequisites

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

This tool is required to remove the middle cover from the GPU dense configuration.

About this task

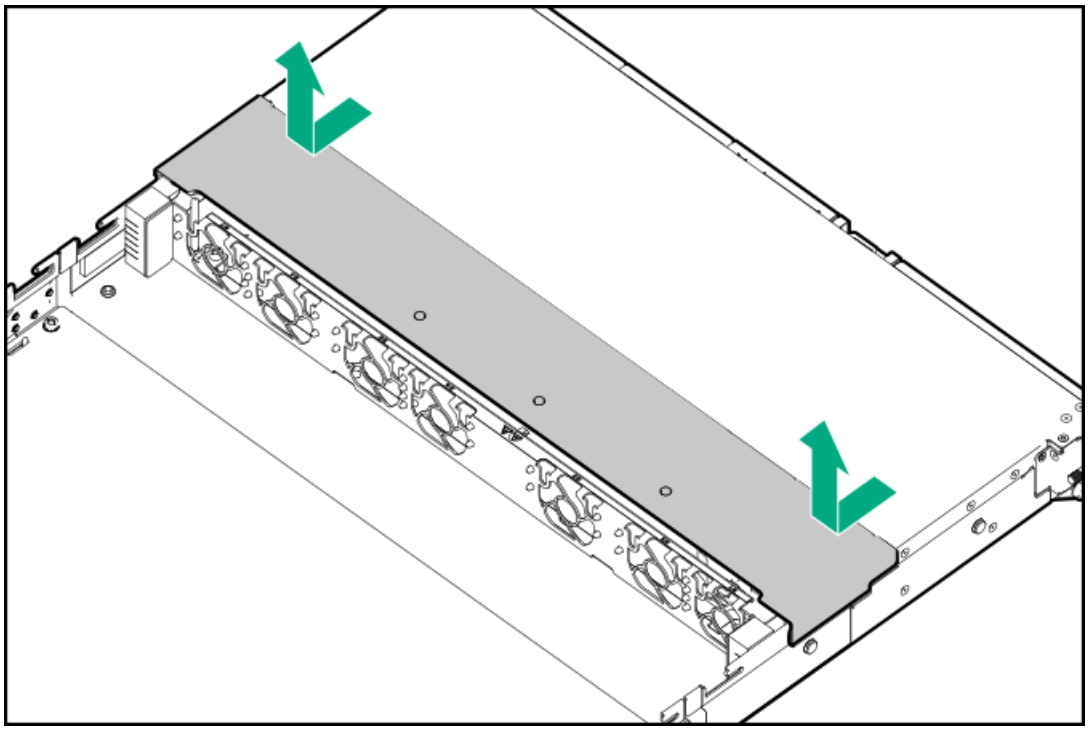
CAUTION: For proper cooling, do not operate the server without the access panel, baffles, expansion slot covers, or blanks installed.

CAUTION:

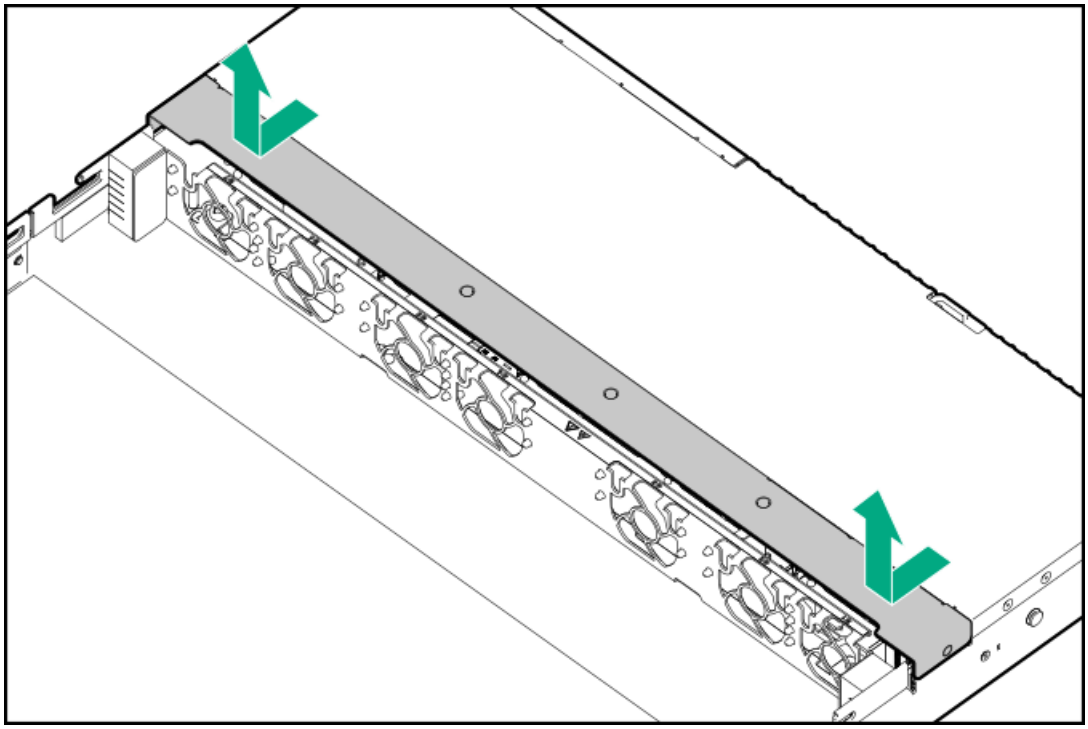
To prevent damage to electrical components, properly ground the server before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

Procedure

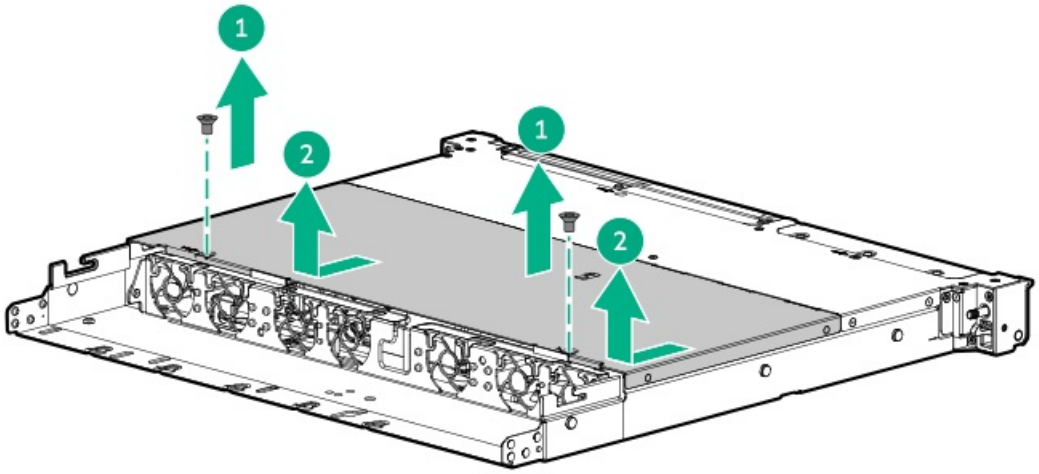
1. Power down the server.
2. If installed, open the cable management arm.
3. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
4. Disconnect all peripheral cables from the server.
5. Remove the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. To remove the middle cover from the LFF and the SFF drive configuration, take both sides of the middle cover and detach from the server.
   - LFF drive configuration



- SFF drive configuration



9. To remove the middle cover from a server with the accelerator-optimized configuration:
   a. Remove the screws (callout 1).
   b. Take both sides of the middle cover and detach from the server (callout 2).



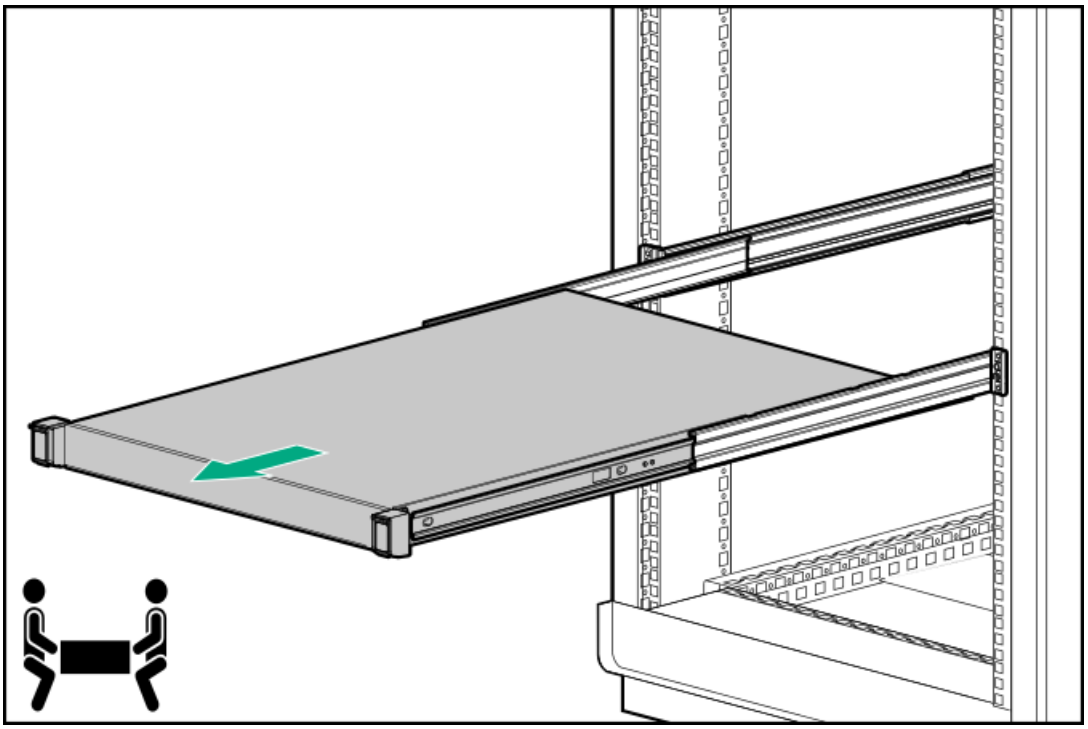
Remove the server from the rack

Prerequisites

- Get help to lift and stabilize the server during removal from the rack. **If the server is installed higher than chest level, an additional person might be required to help remove the server:** One person to support the server weight, and the other to slide the server out of the rack.
- Before you perform this procedure, review the:
  - Rack warnings and cautions
  - Server warnings and cautions
- A fully populated server is heavy. Hewlett Packard Enterprise recommends removing the external chassis components before removing the server from the rack.

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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. Fully extend the server out of the rack.
6. Slide the server completely out of the rack.



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

Remove the access panel

Prerequisites

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

About this task

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

CAUTION:

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

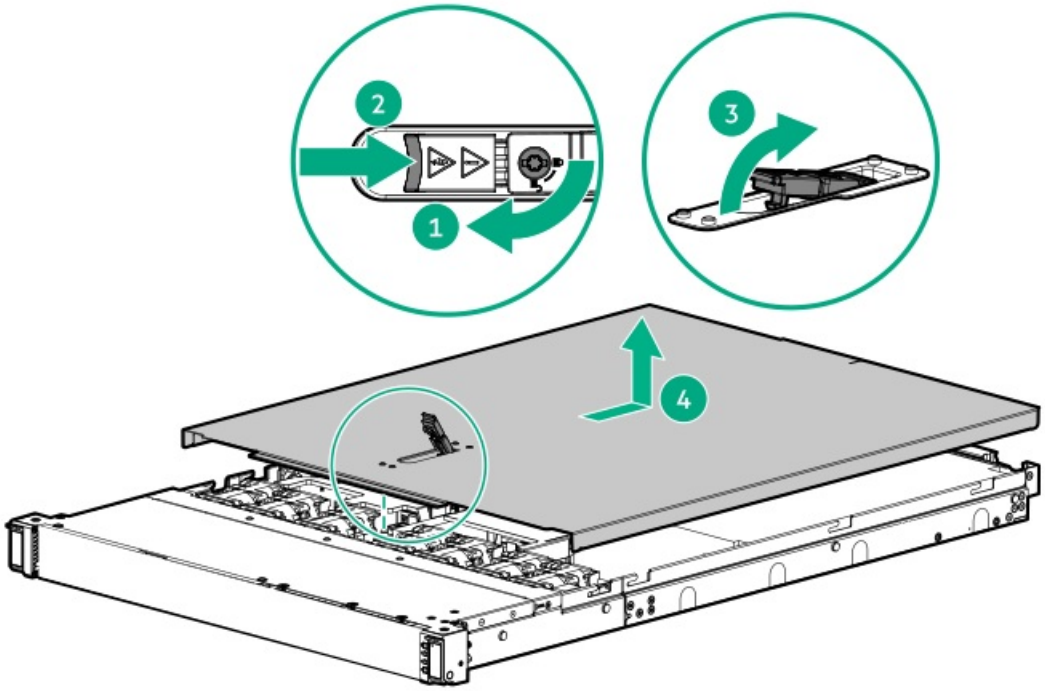
CAUTION:

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

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.

6. Place the server on a flat, level work surface.
7. Remove the access panel:
   a. If necessary, unlock the access panel latch (callout 1).
   b. To disengage the access panel from the chassis, press the release button and pull up the latch (callouts 2 and 3).
   c. Lift the access panel (callout 4).



Remove the riser cage

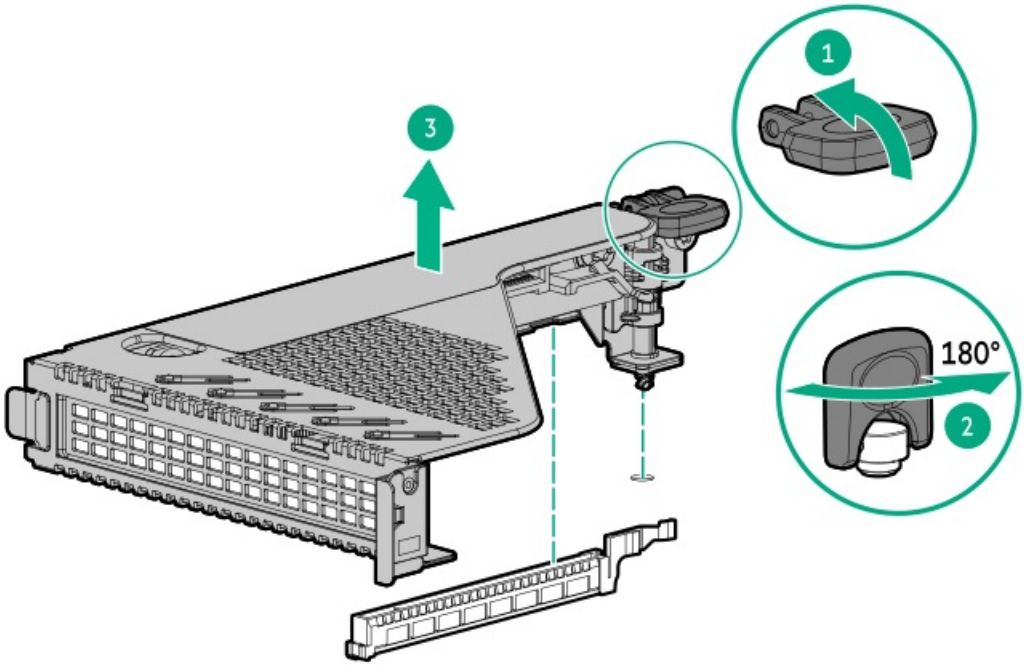
About this task

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

Procedure

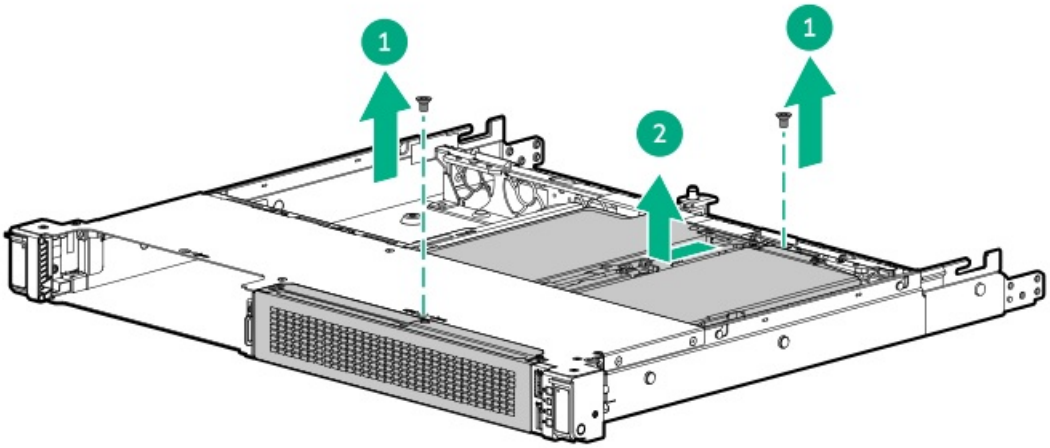
1. Power down the server.
2. If installed, open the cable management arm.
3. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
4. Disconnect all peripheral cables from the server.
5. Remove the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. If an expansion card with internal cables is installed on the riser, disconnect the cables from the card.

9. If the storage controller backup cable is connected, disconnect the cable .
10. To remove the rear riser cage, do the following:
    a. Release the half-turn spring latch (callouts 1 and 2).
    b. Lift the riser cage off the system board (callout 3).



11. To remove the front GPU riser cage, do the following:
    a. Remove the two screws (callout 1).

       Retain the screws for future use.
    b. Push the riser cage forward and slide it out (callout 2).



Remove the fan

About this task

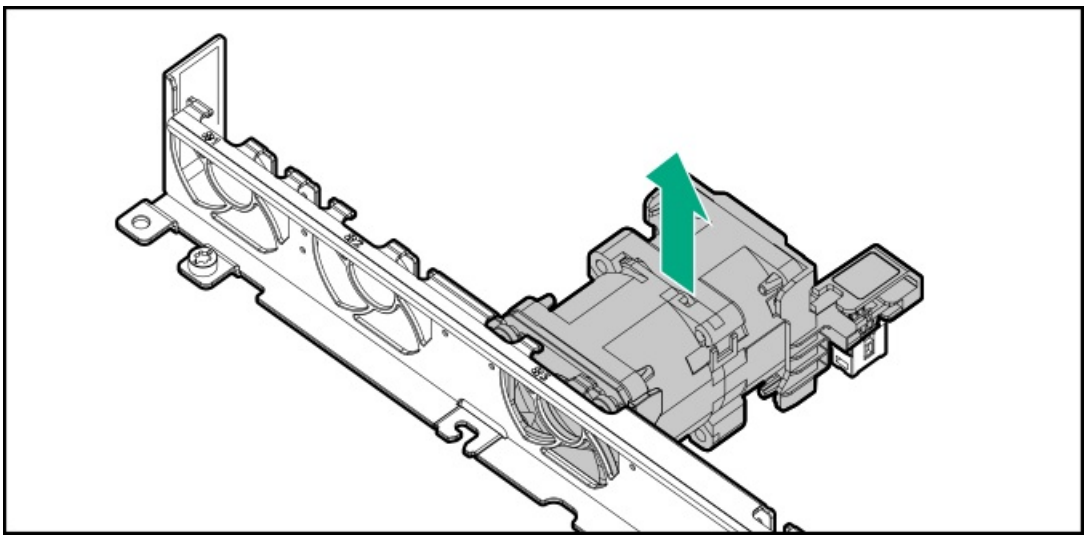
CAUTION: To prevent improper cooling and thermal damage, do not operate the server unless all bays are populated with either a component or a blank.

IMPORTANT:

The fan setup can either be standard, single-rotor fans or high performance, dual-rotor fans. Do not mix fan types in the same server.

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
3. Do one of the following:
   a. Extend the server from the rack.
   b. Remove the server from the rack.
4. Remove the access panel.
5. Remove a high performance fan.



Remove the fan wall

Prerequisites

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

- T-15 Torx screwdriver
- T-10 Torx screwdriver—This tool is required if you plan to remove the fan wall from the 10 or 12 LFF drive configuration or the GPU dense configuration.

Procedure

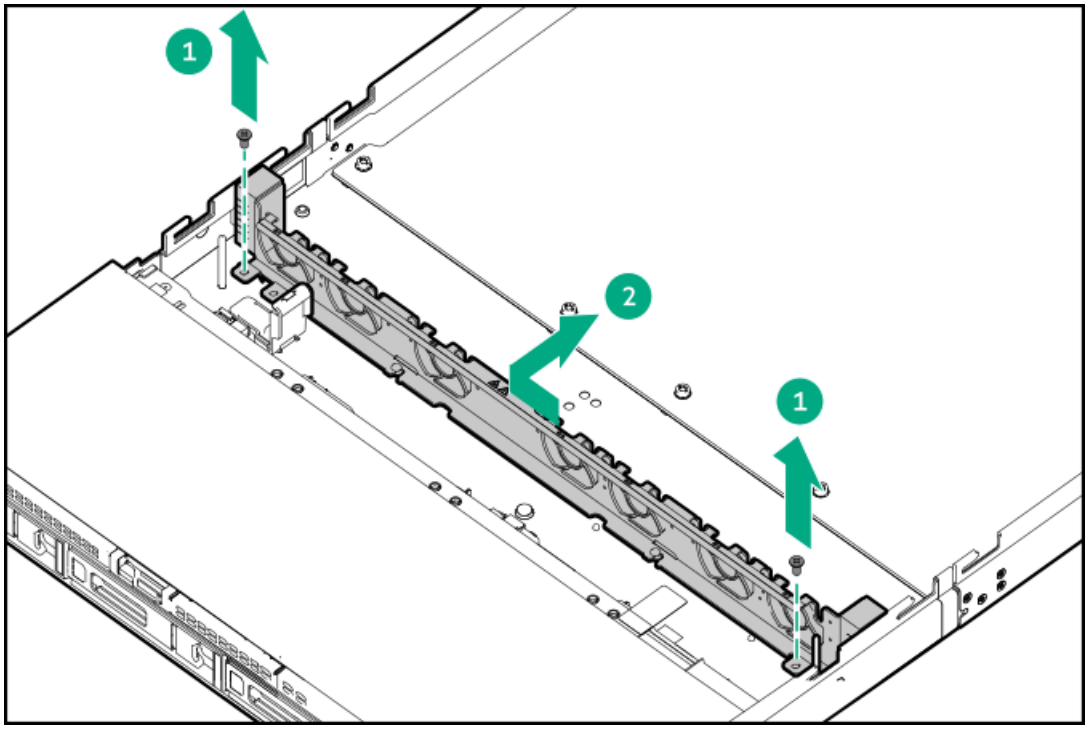
1. Power down the server.
2. If installed, open the cable management arm.
3. Remove all power:
   a. Disconnect each power cord from the power source.

b. Disconnect each power cord from the server.

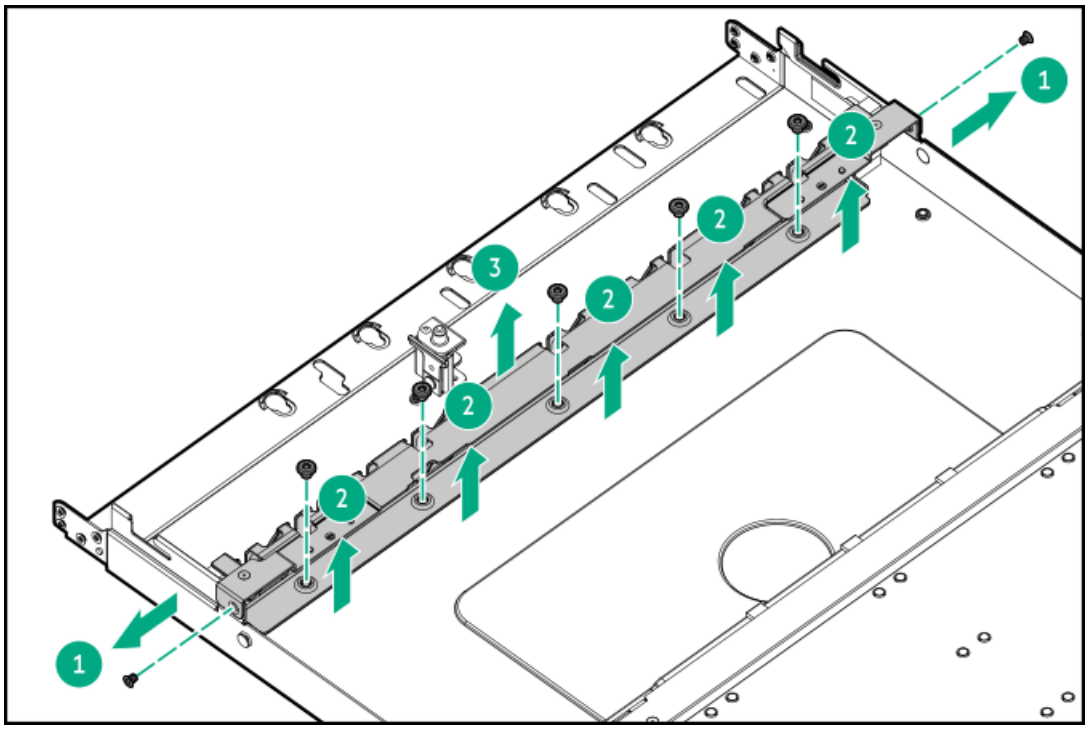
4. Disconnect all peripheral cables from the server.
5. Remove the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the middle cover.
9. Remove the fans.
10. Remove the fan wall.

    Retain the screws and fan wall. These screws will be used to secure the fan wall after replacing or installing the internal component.

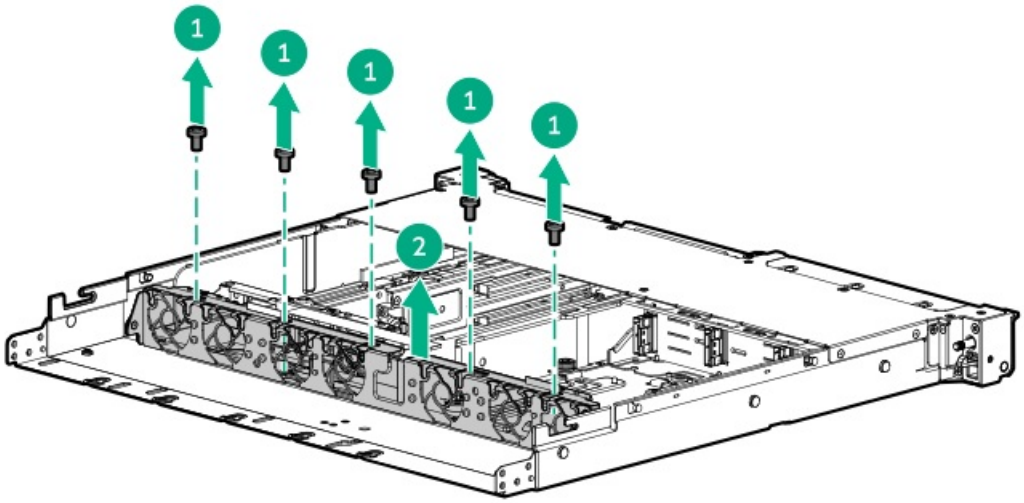
    - SFF or 4 LFF drive configuration:



    - 12 LFF drive configuration:



- GPU dense configuration:



Remove the front energy pack retention latch

About this task

> **CAUTION:**
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
3. Remove all power:

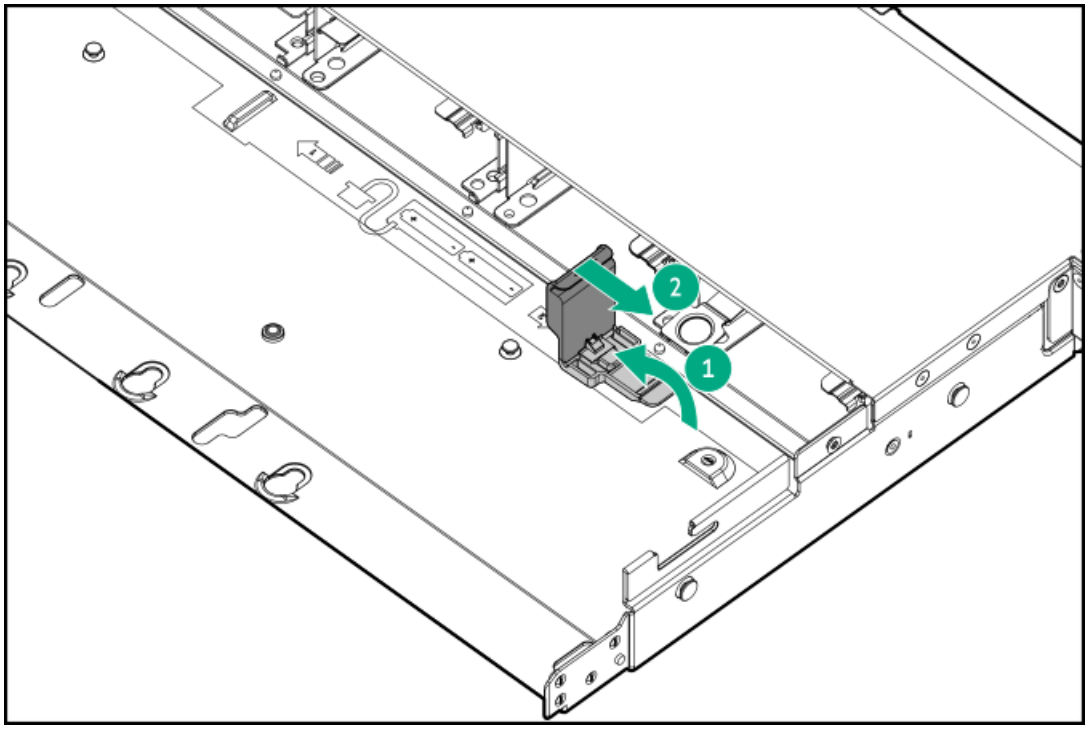
a. Disconnect each power cord from the power source.

b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.
5. Remove the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the middle cover.
9. Remove the fans.
10. Remove the fan wall.
11. Remove the front energy pack retention latch:

    a. Pull up and hold the latch (callout 1).

    b. Push the latch to detach from the chassis (callout 2).

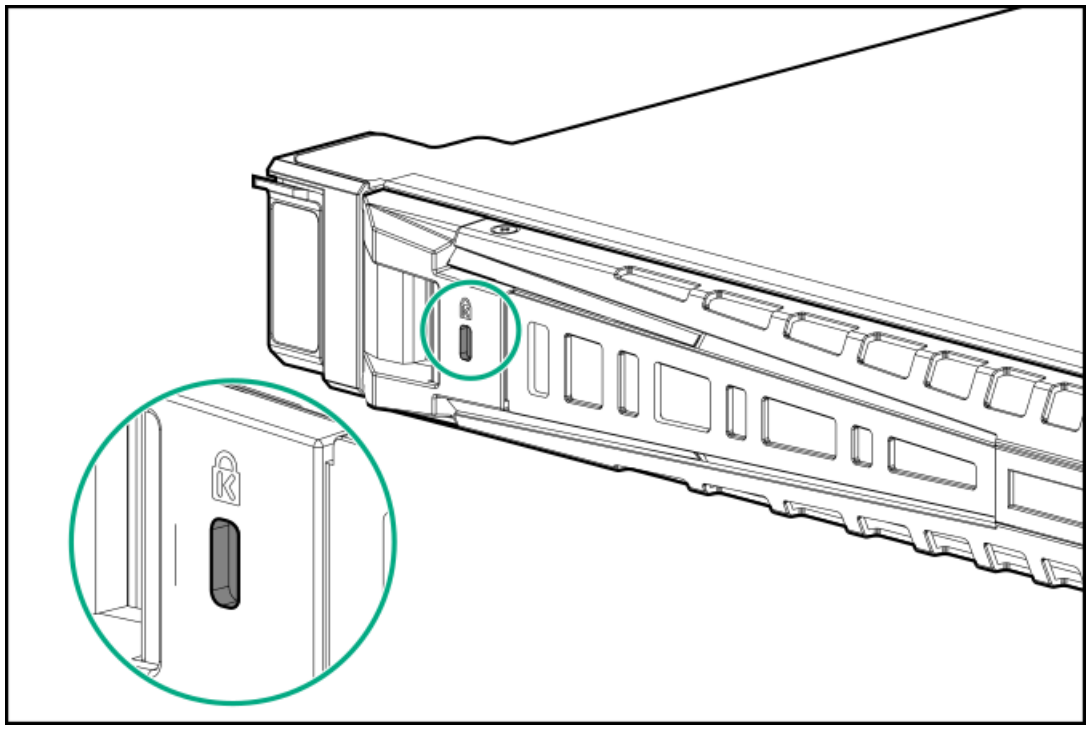


Removing and replacing the front bezel

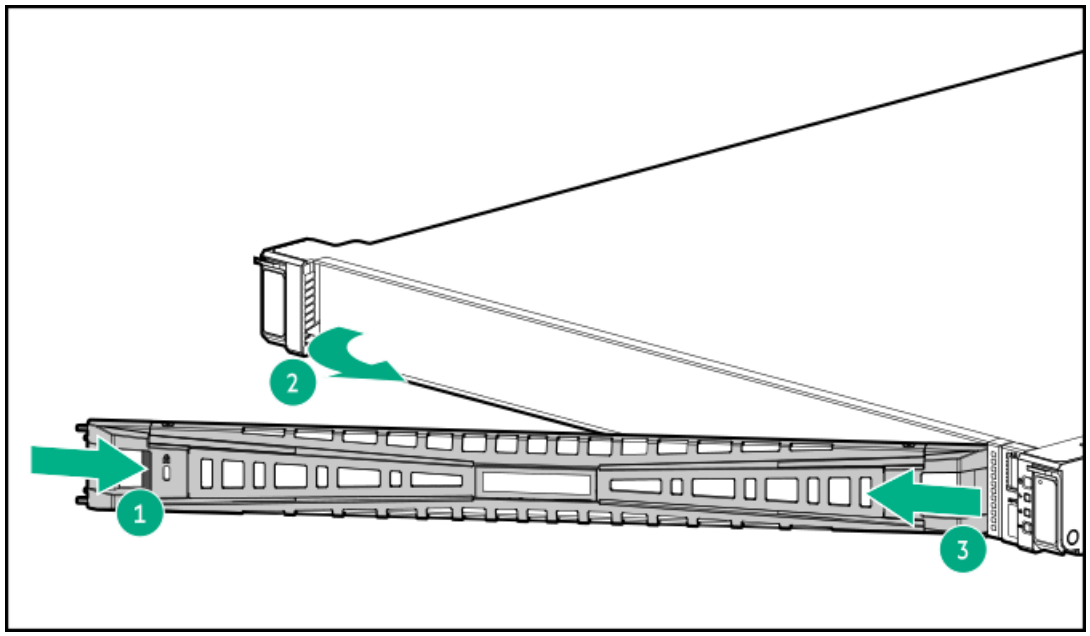
Procedure

1. If installed, remove the Kensington security lock.

   For more information, see the lock documentation.



2. Press the bezel release latch (callout 1), and then pivot the bezel open (callout 2).
3. Release the right side of the bezel from the front panel (callout 3).



Results

To replace the component, reverse the removal procedure.

Removing and replacing the access panel

Prerequisites

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

About this task

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

CAUTION:

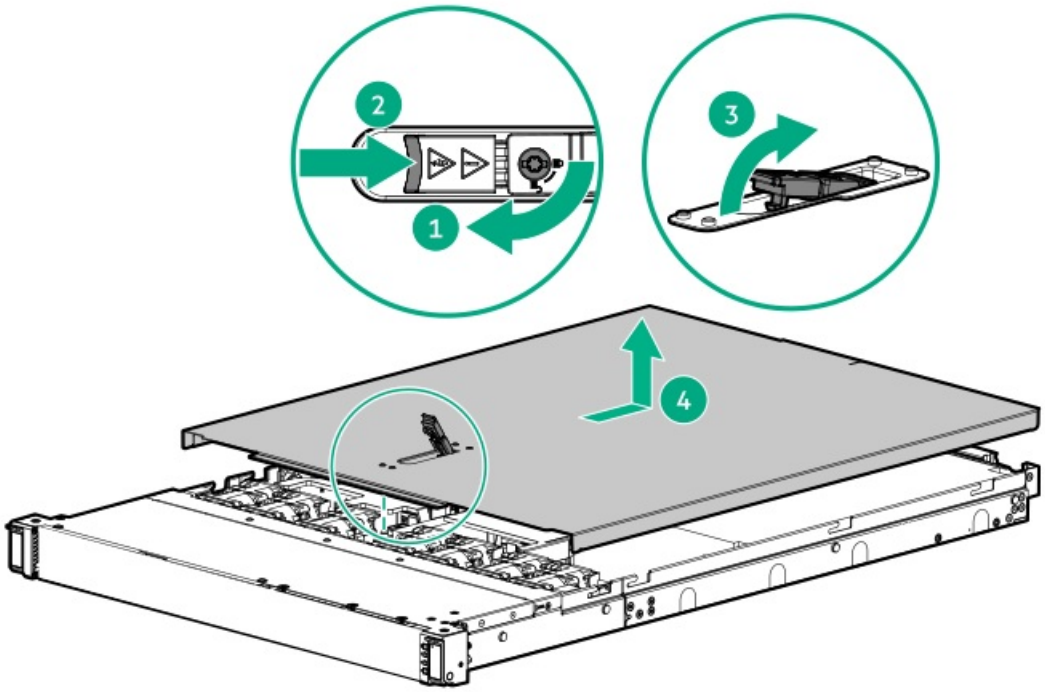
To prevent damage to electrical components, properly ground the server before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

CAUTION:

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

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel:
   a. If necessary, unlock the access panel latch (callout 1).
   b. To disengage the access panel from the chassis, press the release button and pull up the latch (callouts 2 and 3).
   c. Lift the access panel (callout 4).



Results

To replace the component, reverse the removal procedure.

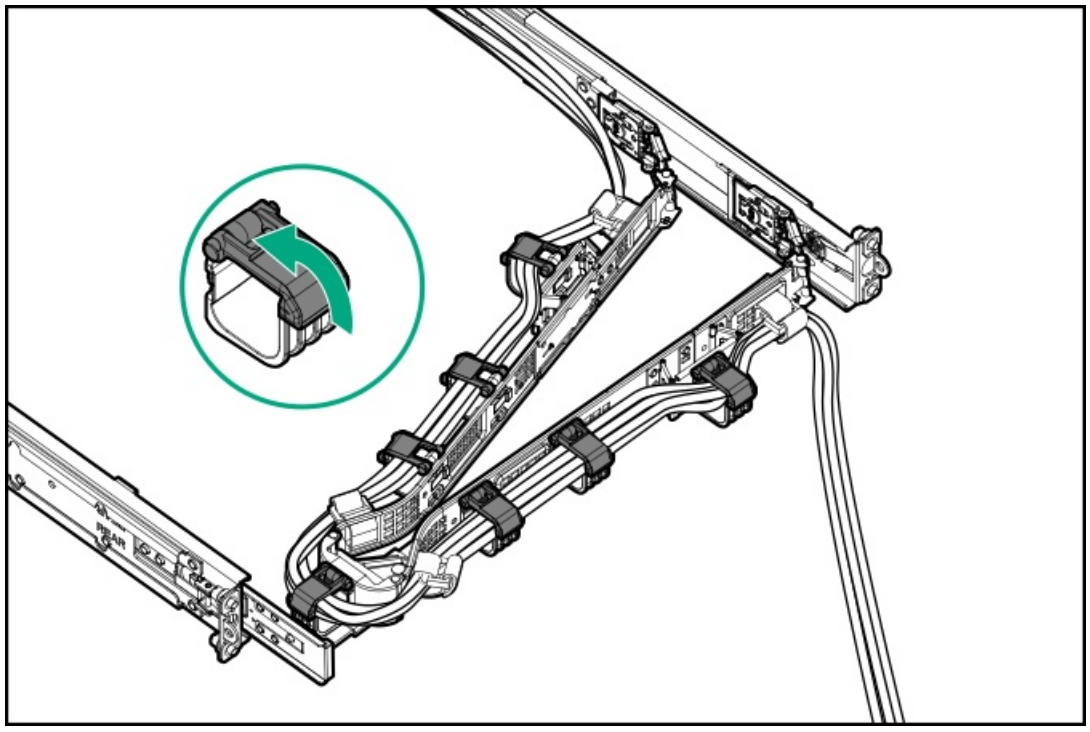
Removing and replacing the cable management arm

About this task

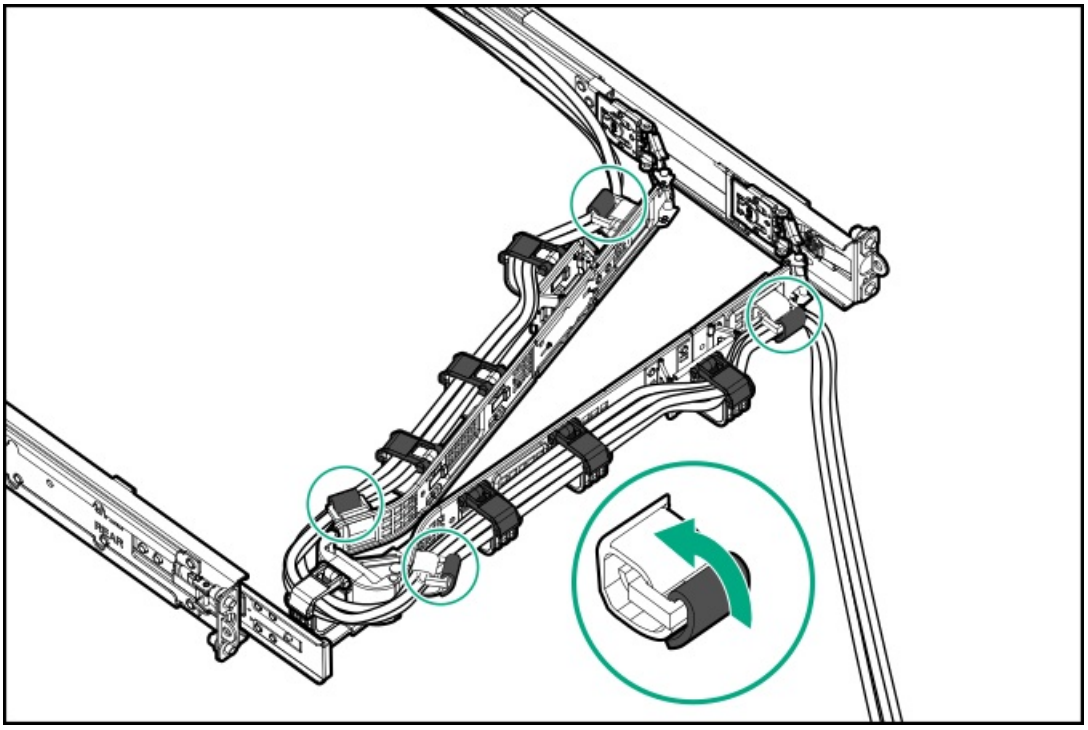
> **CAUTION:**
> Support the CMA during the removal and replacement procedures. Do not allow the CMA to hang by its own weight during the procedure.

Procedure

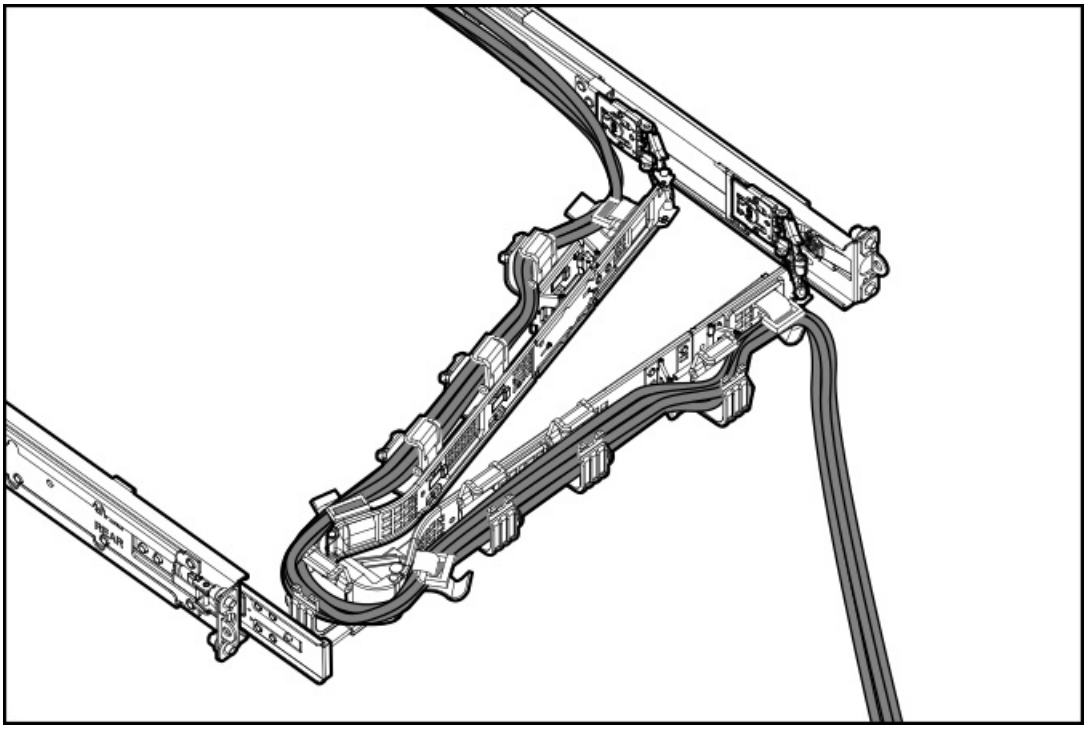
1. Open the cable clamps.



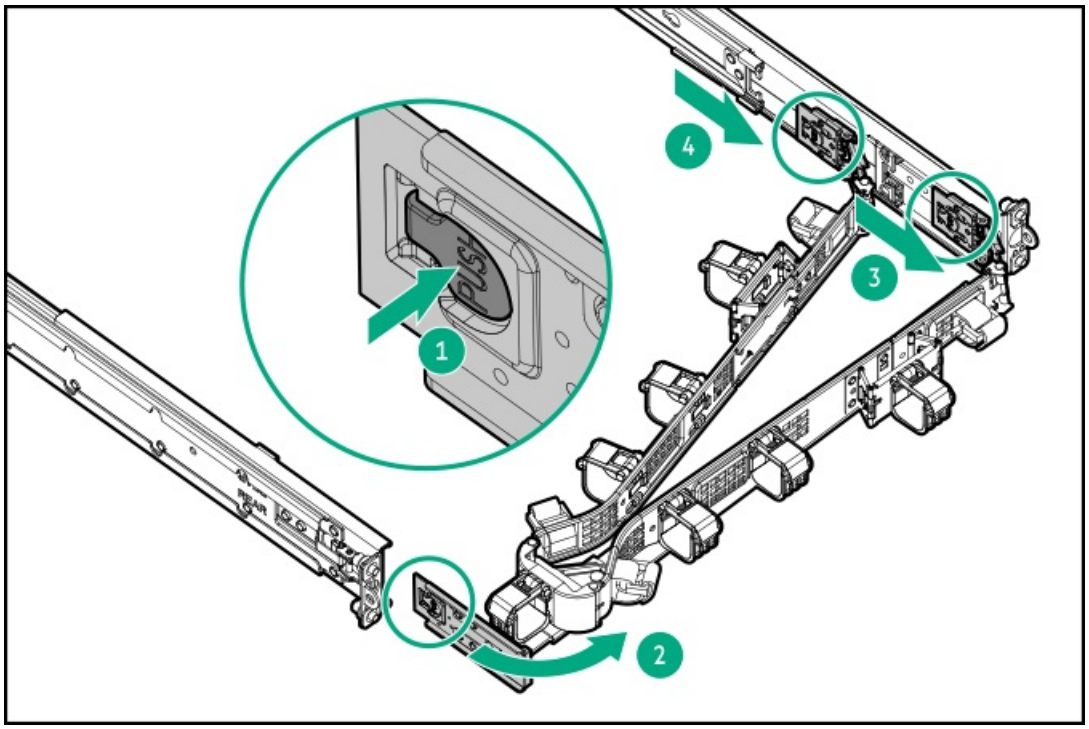
2. (Optional) If your CMA has cable straps, unwrap the straps.



3. Remove the peripheral cables and power cords from the CMA.



4. Remove the cable management arm:
   a. Press and hold the blue **PUSH** button on the retention bracket (callout 1).
   b. Swing the arm away from the mounting rail (callout 2).
   c. Press and hold the blue **PUSH** buttons on the outer and inner tabs and detach from the rack rails (callouts 3 and 4).



Results

To replace the component, reverse the removal procedure.

Removing and replacing a hot-plug SAS, SATA or NVMe drive

About this task

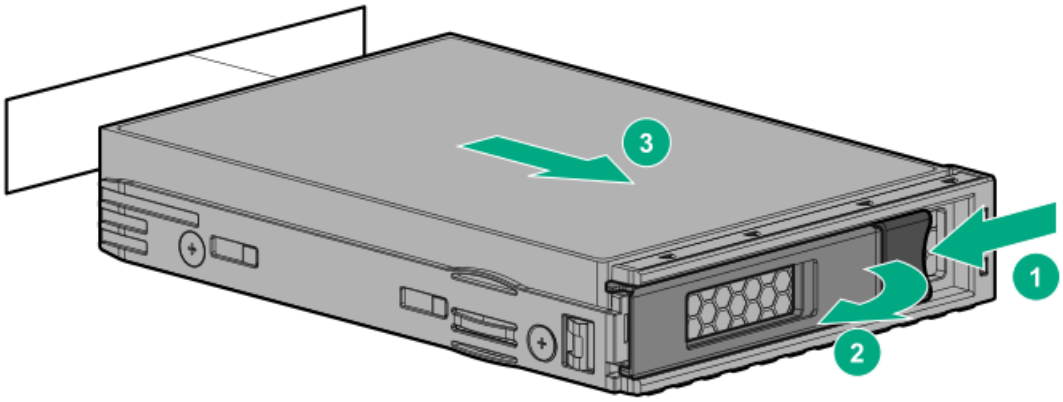
CAUTION: To prevent improper cooling and thermal damage, do not operate the server unless all bays are populated with either a component or a blank.

CAUTION:

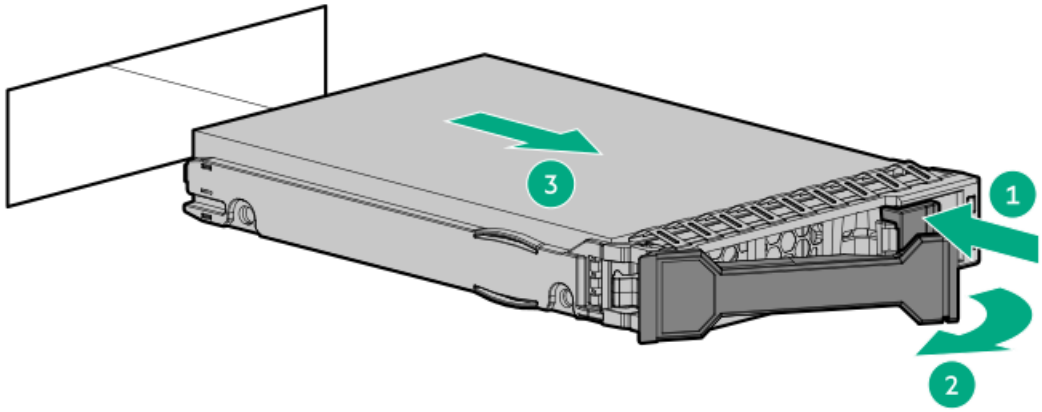
A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

1. Back up all server data.
2. If installed, remove the front bezel.
3. Observe the drive LED status and determine if the drive can be removed.
4. Remove the drive.
   - LFF drive



- SFF drive



Results

To replace the component, reverse the removal procedure.

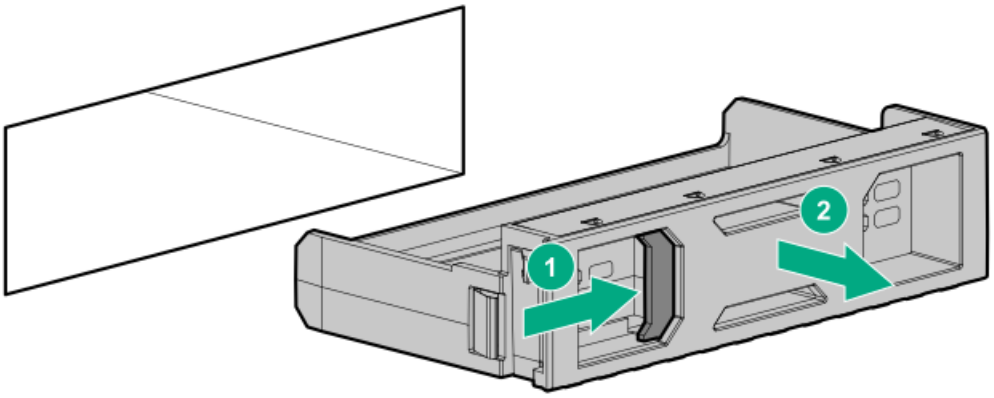
Removing and replacing a drive blank

About this task

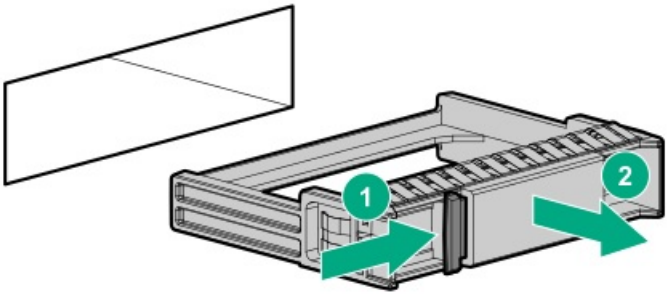
> **CAUTION:** To prevent improper cooling and thermal damage, do not operate the server unless all bays are populated with either a component or a blank.

Procedure

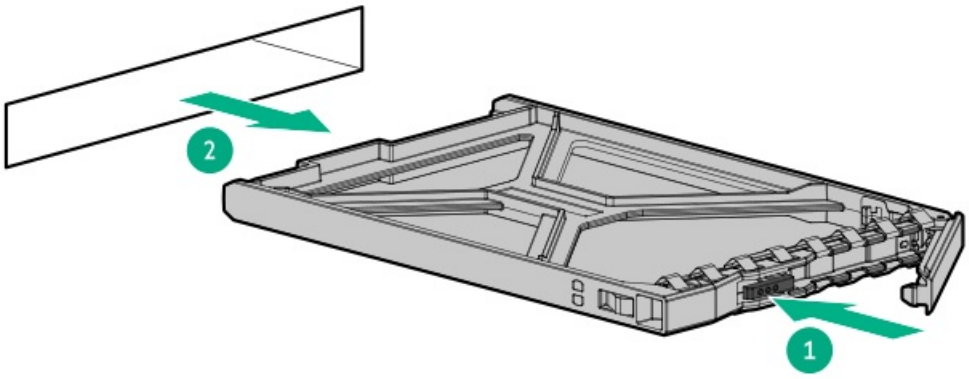
1. If installed, remove the front bezel.
2. Remove the drive blank.
   - LFF drive blank



- SFF drive blank



- E3.S drive blank



Results

To replace the component, reverse the removal procedure.

Drive backplane replacement

For more information on the drive backplane description, see Drive backplane naming.

Subtopics

Removing and replacing the 2 SFF drive backplane

Removing and replacing the 8 SFF drive backplane

Removing and replacing the 8 E3.S drive backplane

Removing and replacing the 4 LFF drive backplane

Removing and replacing the 2 SFF drive backplane

Prerequisites

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

About this task

CAUTION:
A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

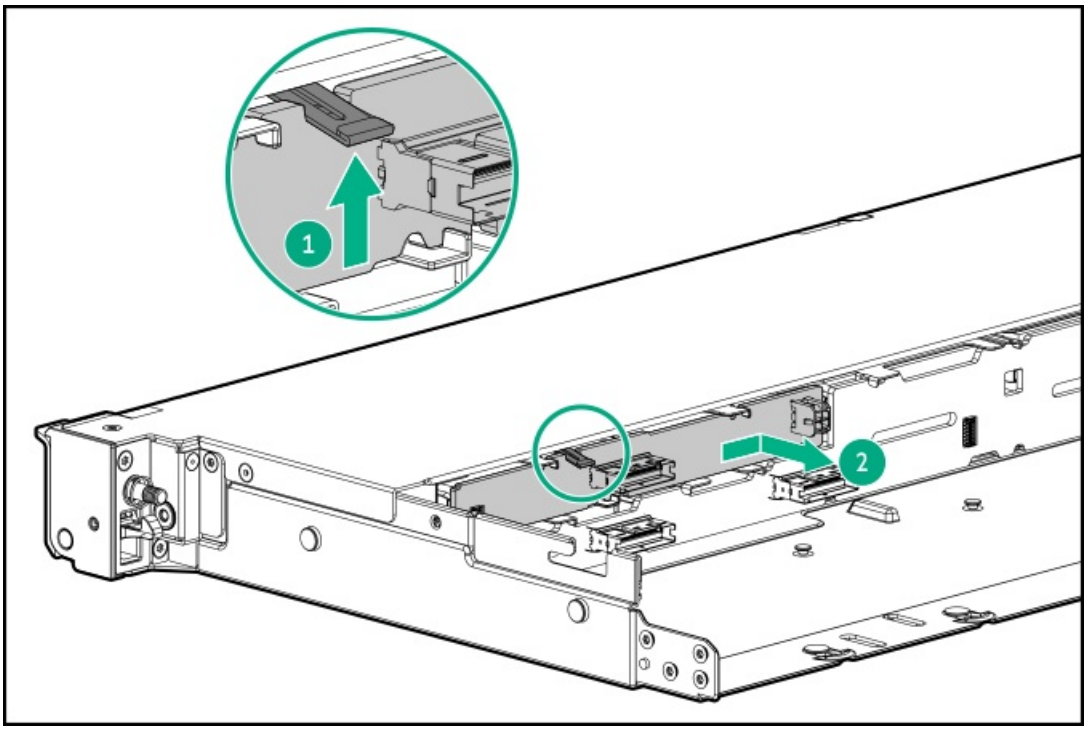
CAUTION:
Before replacing a DIMM, backplane, expansion card, riser board, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot.

When installing the replacement component:

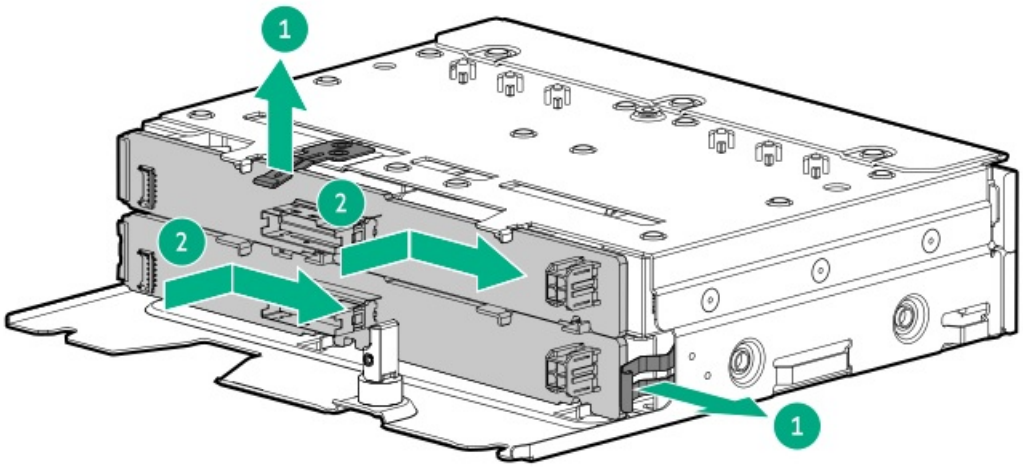
- Observe antistatic precautions.
- Handle the PCA only along the edges.
- Do not touch the components and connectors on the PCA.
- Do not bend or flex the PCA.

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the middle cover.
9. Remove the fans.
10. Remove the fan wall.
11. Remove the energy pack retention latch.
12. Remove all drives from the 2 SFF drive cage.
13. Disconnect all cables from the drive backplane.
    - Drive power cable
    - Drive controller cable
14. Pull up the release latch (callout 1) and detach the backplane (callout 2).



15. To remove the 2 SFF drive backplanes from a server with a GPU riser cage, pull up the release latches (callout 1) and detach the backplanes (callout 2).



Results

To replace the component, reverse the removal procedure.

Removing and replacing the 8 SFF drive backplane

Prerequisites

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

About this task

CAUTION:

A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

CAUTION:

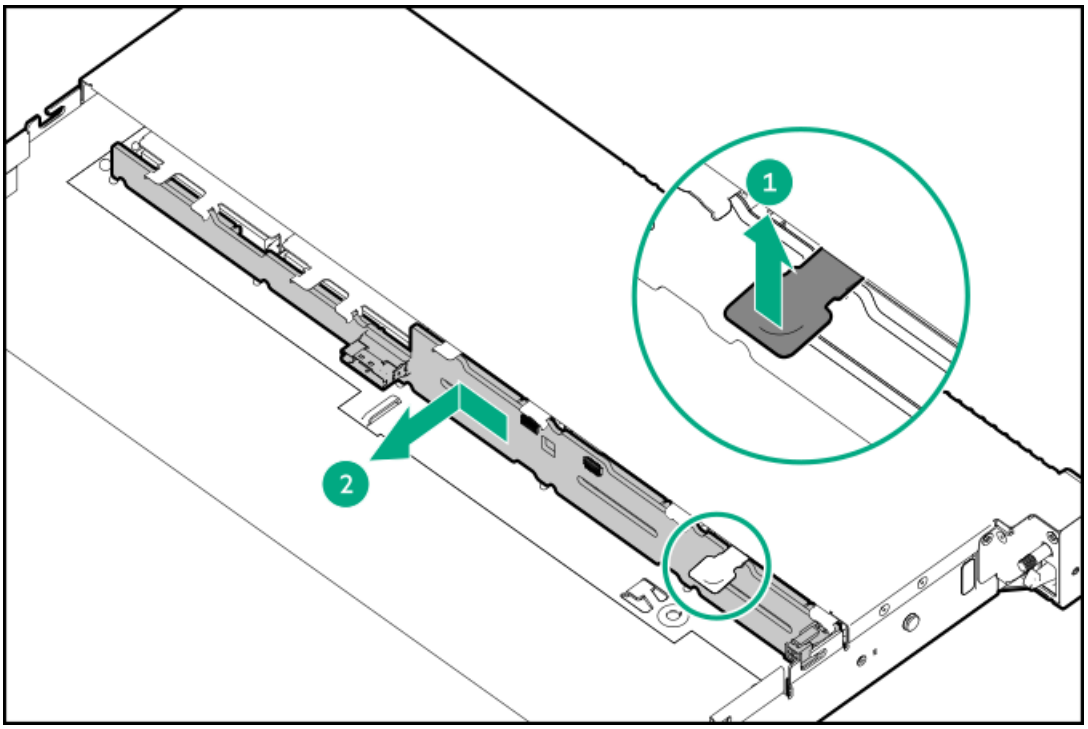
Before replacing a DIMM, backplane, expansion card, riser board, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot.

When installing the replacement component:

- Observe antistatic precautions.
- Handle the PCA only along the edges.
- Do not touch the components and connectors on the PCA.
- Do not bend or flex the PCA.

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the middle cover.
9. Remove the fans.
10. Remove the fan wall.
11. Remove the energy pack retention latch.
12. Remove all drives.
13. Disconnect all cables from the drive backplane.
    - Drive power cable
    - Drive controller cable
14. Pull up the release latch (callout 1) and detach the backplane (callout 2).



Results

To replace the component, reverse the removal procedure.

Removing and replacing the 8 E3.S drive backplane

Prerequisites

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

About this task

CAUTION:

A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

CAUTION:

Before replacing a DIMM, backplane, expansion card, riser board, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot.

When installing the replacement component:

- Observe antistatic precautions.
- Handle the PCA only along the edges.
- Do not touch the components and connectors on the PCA.
- Do not bend or flex the PCA.

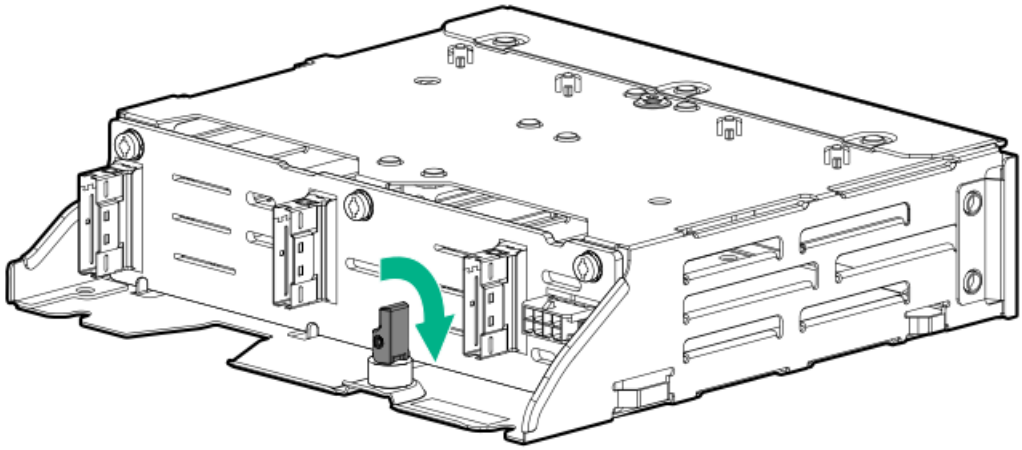
Procedure

1. Power down the server.
2. If installed, open the cable management arm.
3. Remove all power:

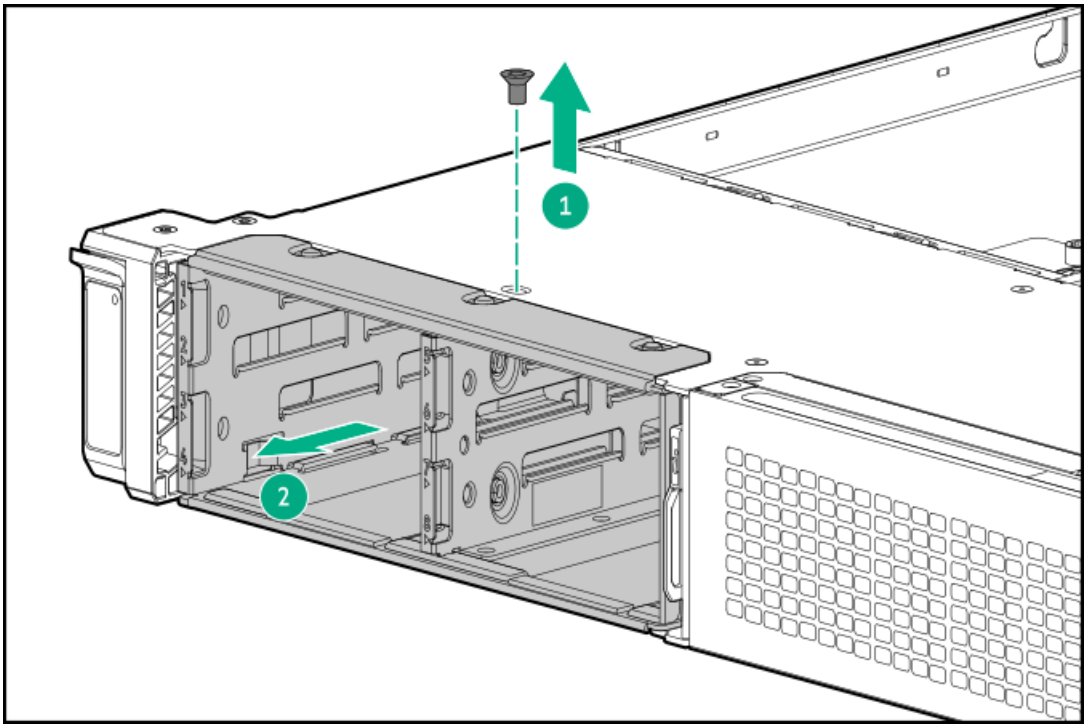
a. Disconnect each power cord from the power source.

b. Disconnect each power cord from the server.

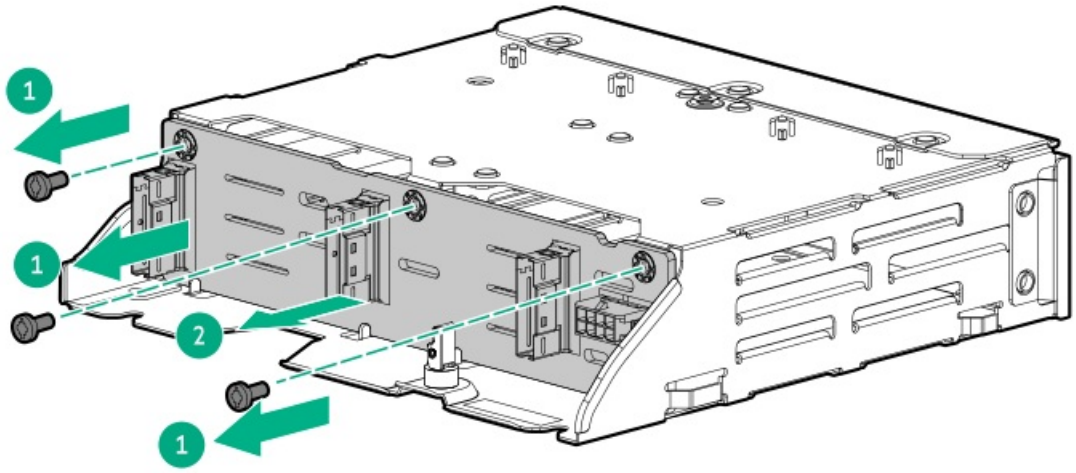
4. Disconnect all peripheral cables from the server.
5. Remove the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the middle cover.
9. Remove all drives.
10. Disconnect all cables from the drive backplane.
    - Drive power cable
    - Drive controller cable
11. If locked, unlock the E3.S drive cage.



12. Remove the E3.S drive cage.



13. Remove the 8 E3.S drive backplane.



Results

To replace the component, reverse the removal procedure.

Removing and replacing the 4 LFF drive backplane

Prerequisites

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

About this task

CAUTION:

A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

CAUTION:

Before replacing a DIMM, backplane, expansion card, riser board, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot.

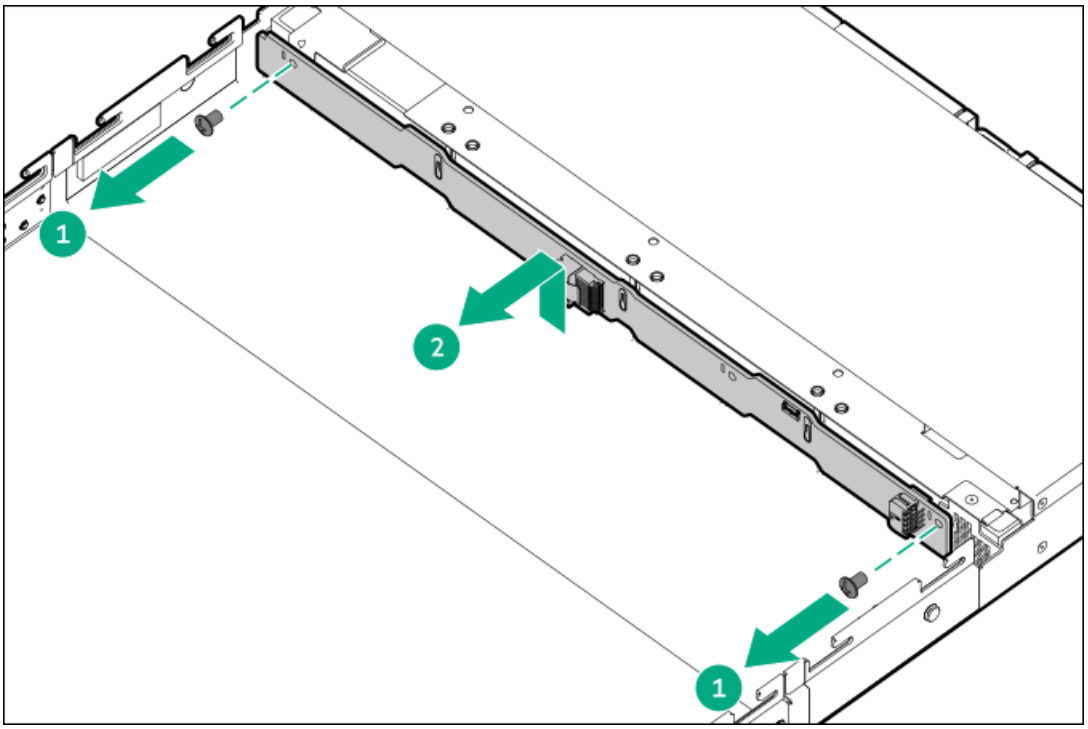
When installing the replacement component:

- Observe antistatic precautions.
- Handle the PCA only along the edges.
- Do not touch the components and connectors on the PCA.
- Do not bend or flex the PCA.

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the middle cover.
9. Remove the fans.
10. Remove the fan wall.
11. Remove the energy pack retention latch.
12. Remove all drives.
13. Disconnect all cables from the drive backplane.
    - Drive power cable
    - Drive controller cable
14. Remove the 4 LFF drive backplane.

    Retain the screws. These screws will be used to secure the new drive backplane spare.



Results

To replace the component, reverse the removal procedure.

Removing and replacing the universal media bay blank

Prerequisites

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

About this task

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

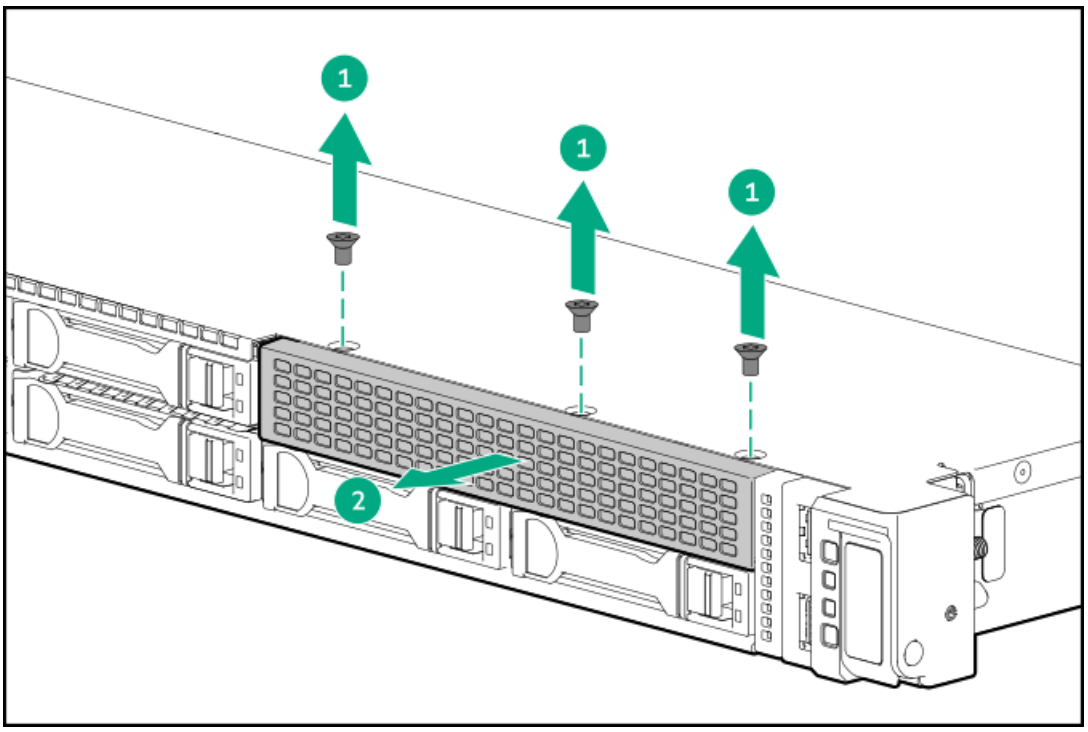
> **CAUTION:**
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

1. If installed, remove the front bezel.
2. Power down the server.
3. If installed, open the cable management arm.
4. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
5. Disconnect all peripheral cables from the server.
6. Remove the server from the rack.
7. Place the server on a flat, level work surface.

8. Remove the universal media bay blank.

   Retain the screws and blank. These screws will be used to secure the new optical drive cage.



Results

To replace the component, reverse the removal procedure.

Flexible Slot power supply replacement

Depending on the configuration and the regional location where the server was purchased, the server can be configured with one of the supported Power supply specifications.

Subtopics

Power supply warnings and cautions

DC power supply warnings and cautions

Removing and replacing a Flexible Slot power supply

Removing and replacing a power supply blank

Power supply warnings and cautions

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

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

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

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

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

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

DC power supply warnings and cautions

WARNING: To reduce the risk of electric shock, be sure that the cable grounding kit is properly installed and connected to a suitable protective earth terminal before connecting the power source to the rack.

CAUTION: This equipment is designed to permit the connection of the earthed conductor of the DC supply circuit to the earthing conductor at the equipment. If this connection is made, all the following must be met:

- This equipment must be connected directly to the DC supply system earthing electrode conductor or to a bonding jumper from an earthing terminal bar or bus to which the DC supply system earthing electrode conductor is connected.
- This equipment must be located in the same immediate area (such as adjacent cabinets) as any other equipment that has a connection between the earthed conductor of the same DC supply circuit and the earthing conductor, and also the point of earthing of the DC system. The DC system must be earthed elsewhere.
- The DC supply source is to be located within the same premises as the equipment.
- Switching or disconnecting devices must not be in the earthed circuit conductor between the DC source and the point of connection of the earthing electrode conductor.

Removing and replacing a Flexible Slot power supply

Prerequisites

- Before replacing a power supply, review the following:
  - Power supply warnings and cautions
  - DC power supply warnings and cautions
- If you are replacing a DC power supply:
  - Make sure that you have a Phillips No.2 screwdriver available.

- Identify the wire color and corresponding wire slots on the DC power supply:

Wire color	Description	Wire slot
Red	Positive return wire	RTN
Black	Negative input wire	-48V
Green + yellow	Ground wire	Ground

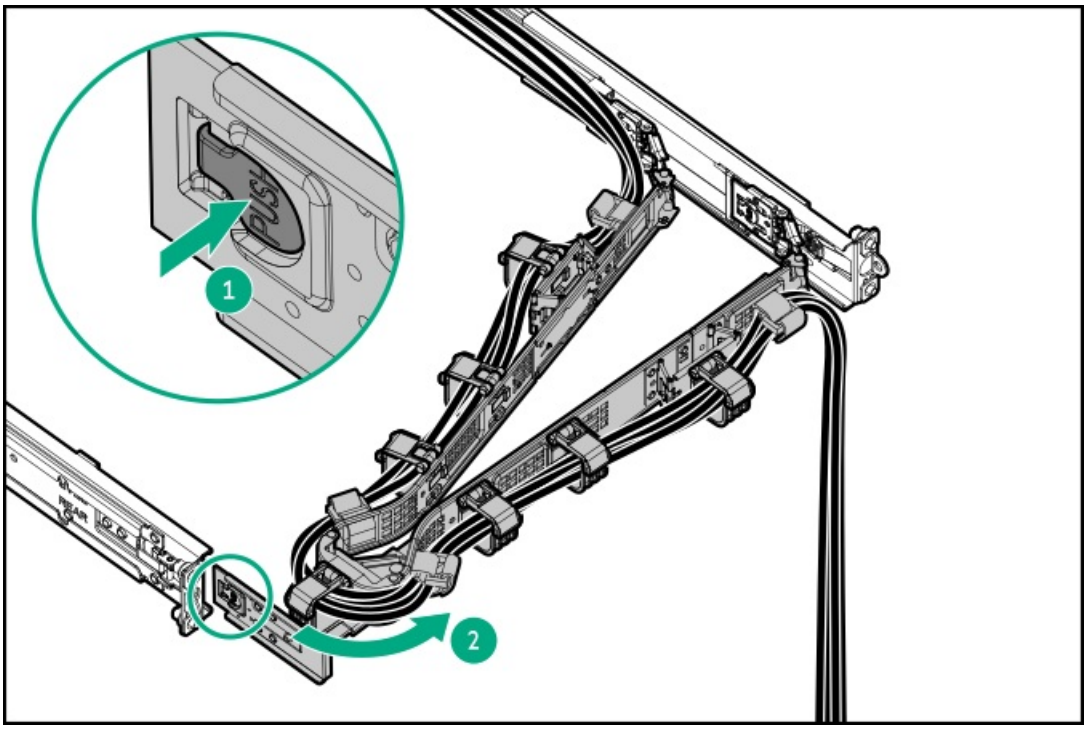
About this task

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

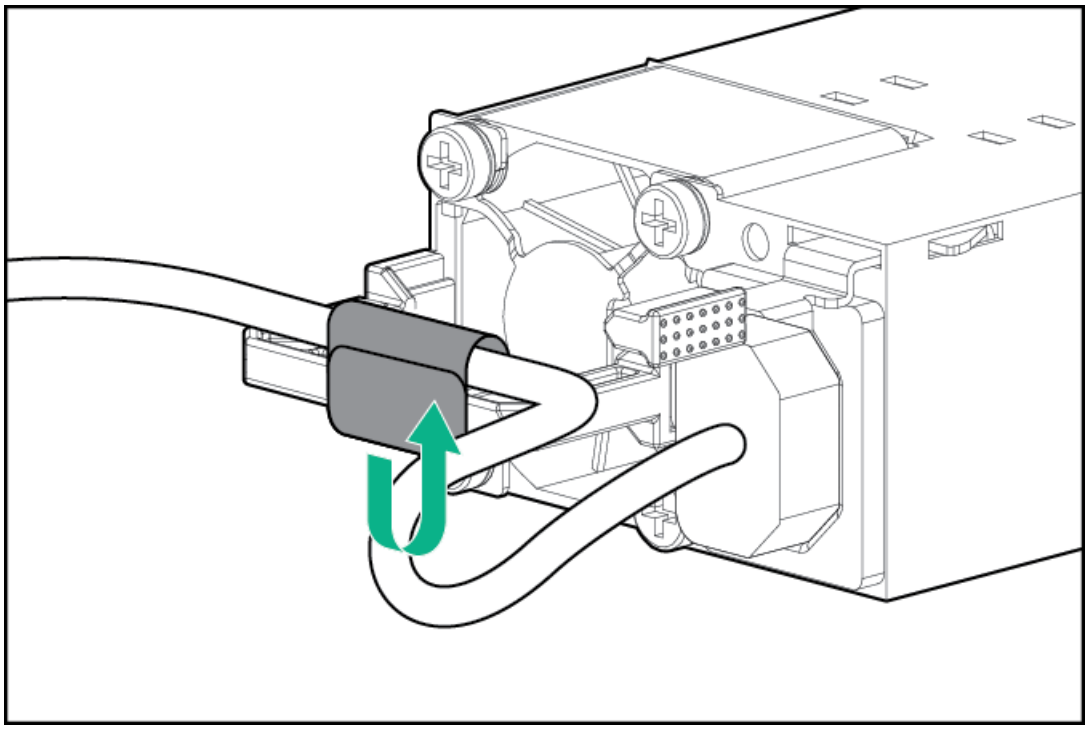
CAUTION: To prevent improper cooling and thermal damage, do not operate the server unless all bays are populated with either a component or a blank.

Procedure

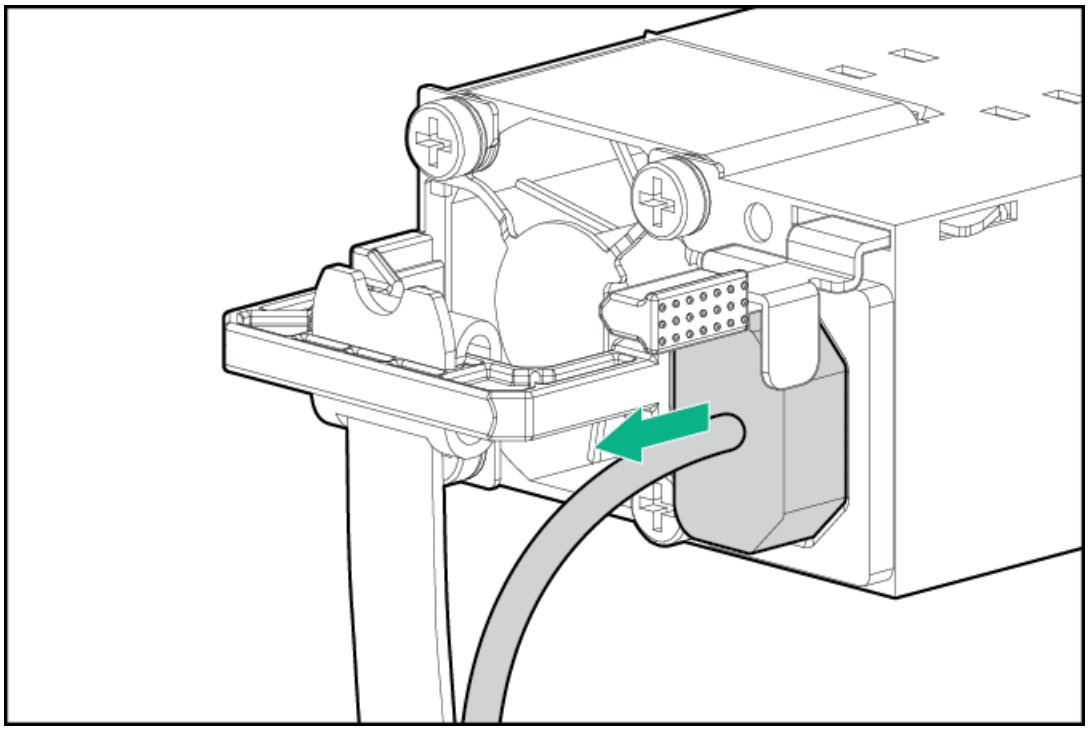
1. Power down the server.
2. If installed, open the cable management arm.



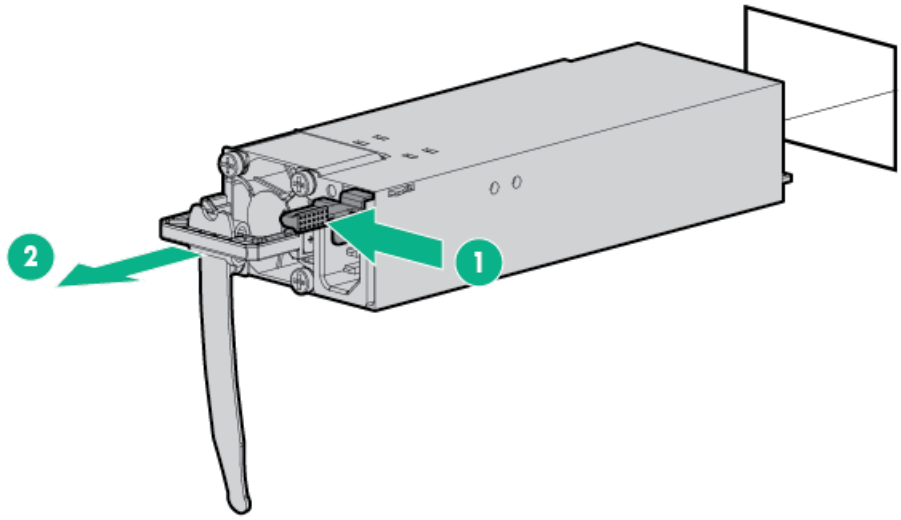
3. To remove an AC power supply, do the following:
   a. Release the power cords, wires, and cables from the strain relief strap.



b. Disconnect the power cord from the power supply.

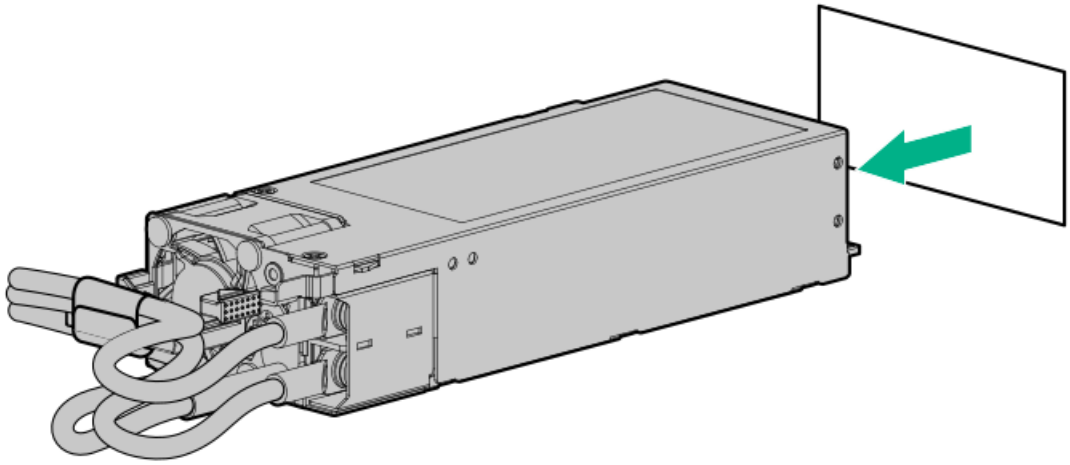


c. Remove the power supply.

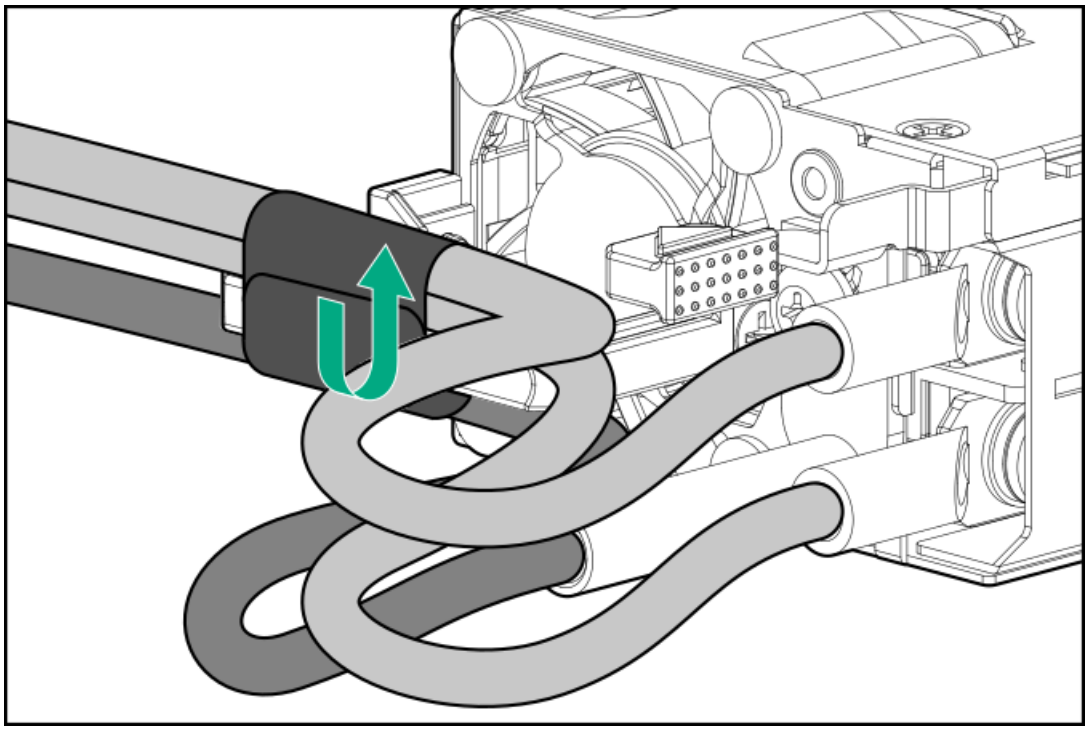


4. To remove the DC power supply, do the following:

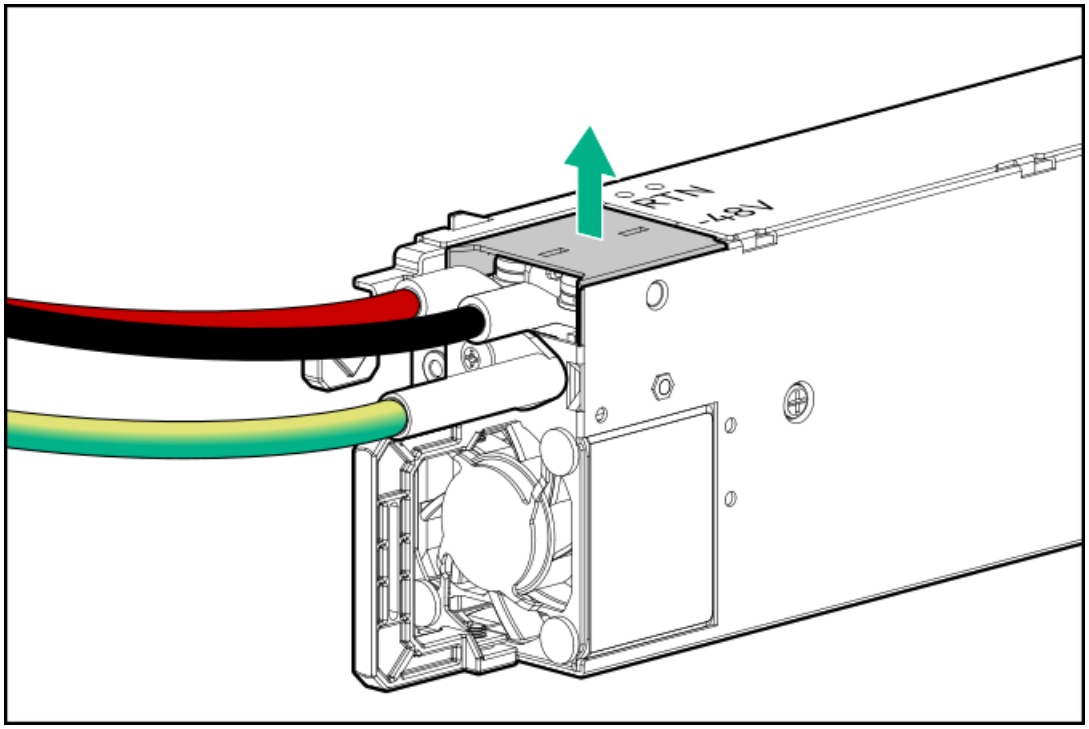
   a. Remove the power supply.



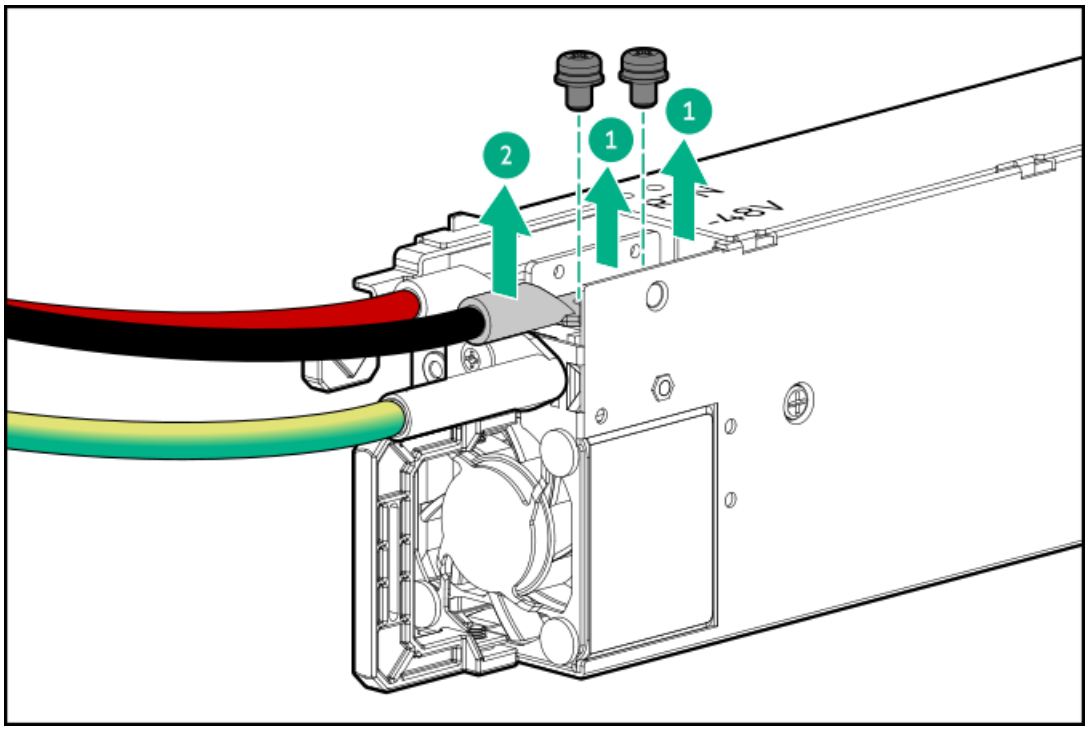
   b. Release the ground, positive return, and negative input wires from the strain relief strap.



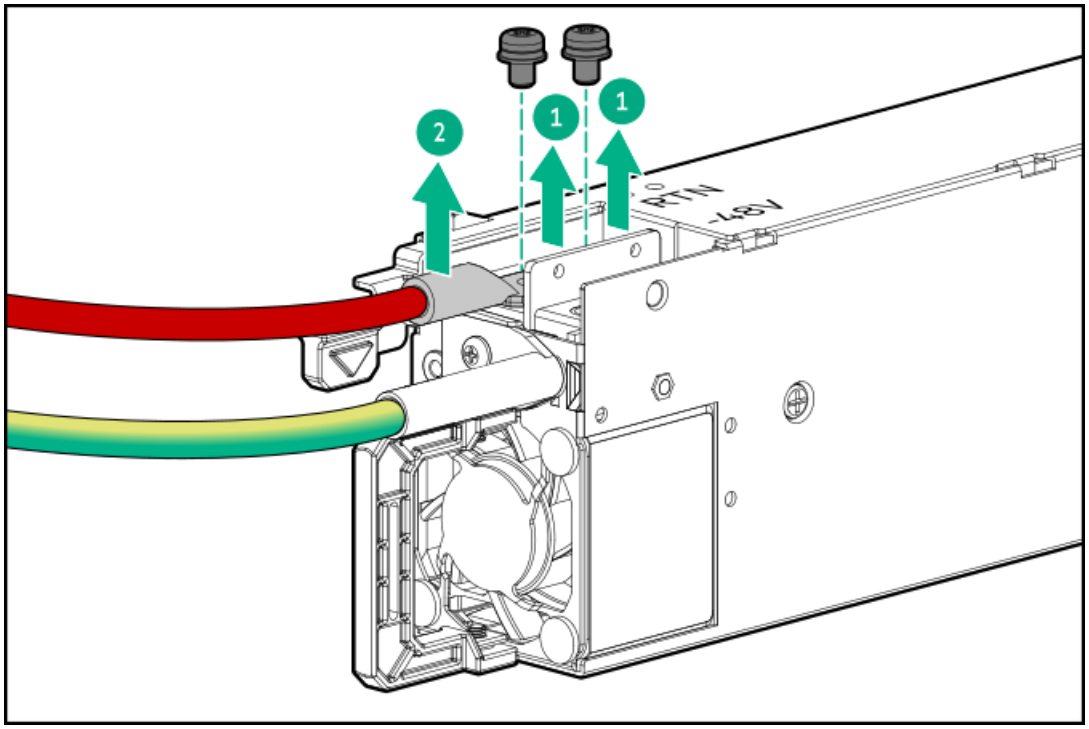
c. Remove the protective cover from the power supply.



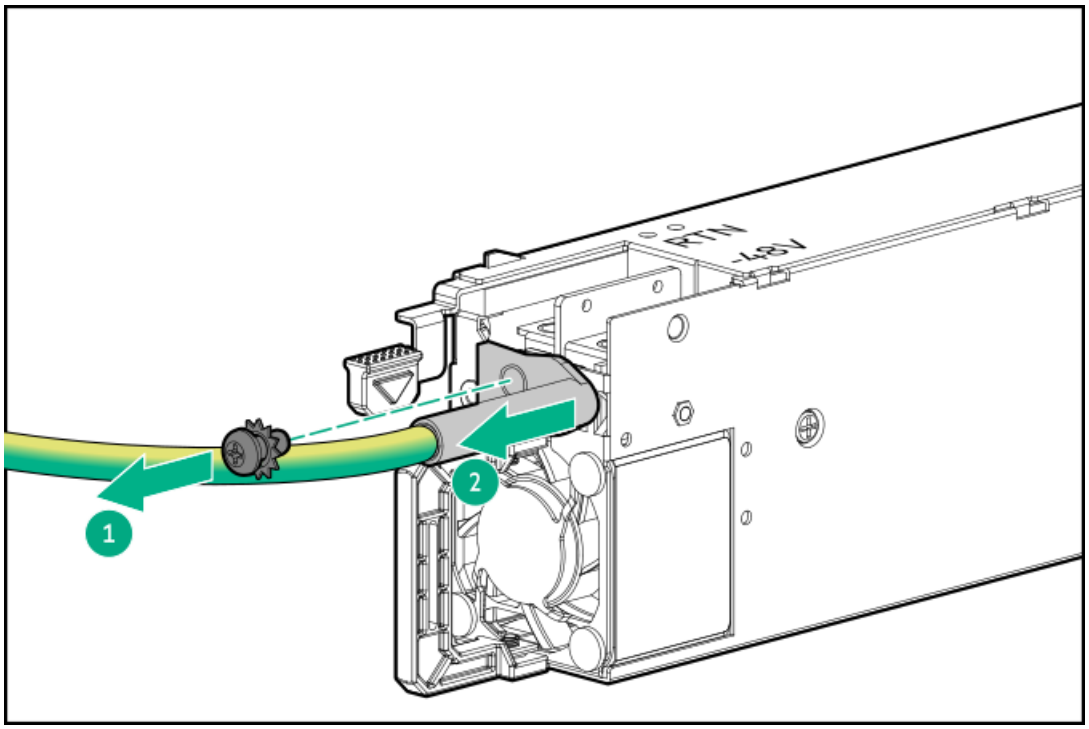
d. Remove the negative input wire (black) from the -48V slot on the DC power supply.



e. Remove the positive return wire (red) from the RTN slot on the DC power supply.



f. Remove the ground wire (green and yellow) from the DC power supply.



Results

To replace the component, reverse the removal procedure.

Removing and replacing a power supply blank

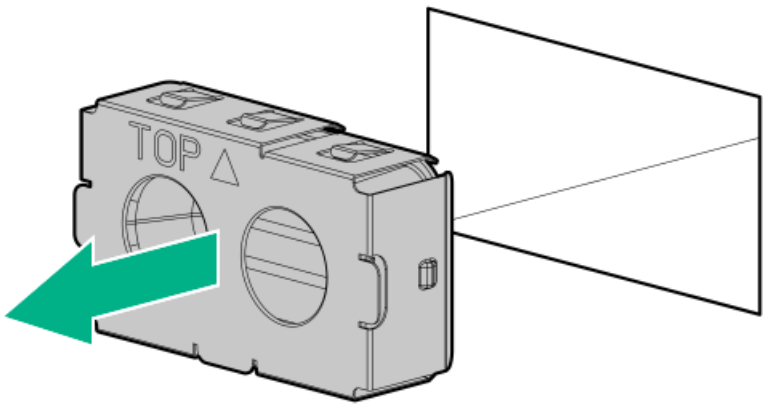
About this task

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

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

Procedure

1. Remove the power supply blank.



2. Immediately install the new power supply blank.

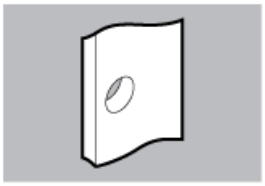
Removing and replacing the rack rails

Prerequisites

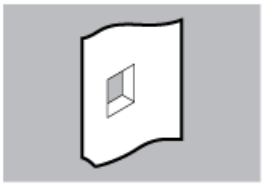
If you are replacing the rack mounting rails from a threaded-hole rack, make sure that you have a T-25 Torx screwdriver available.

About this task

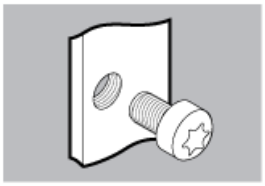
The illustrations used in this procedure show an icon on the upper right corner of the image. This icon indicates whether the action shown in the image is for a round-hole, square-hole, or a threaded-hole rack.



Round-hole rack



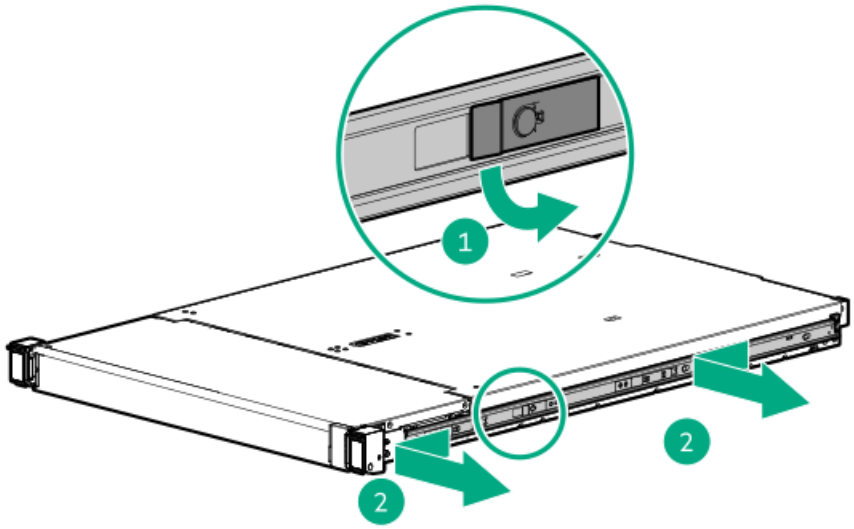
Square-hole rack



Threaded-hole rack

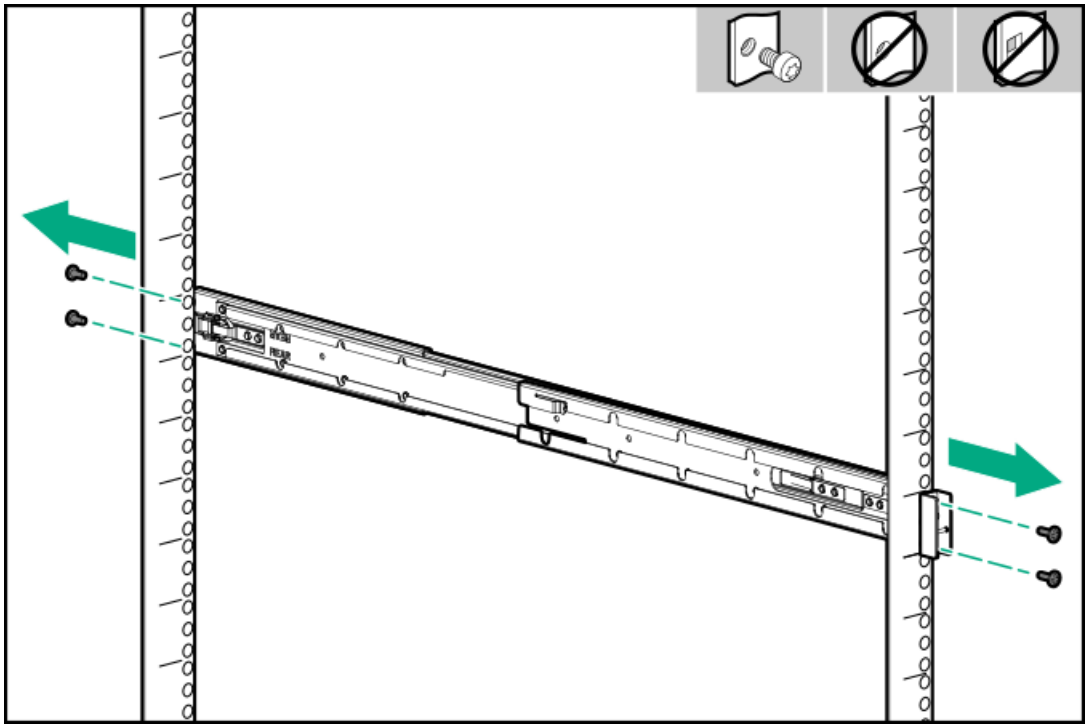
Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. If you are replacing the inner rails, do the following:
   a. Pull and hold the release tab (callout 1).
   b. Slide the rail towards the front panel and pull it away from the server (callout 2).

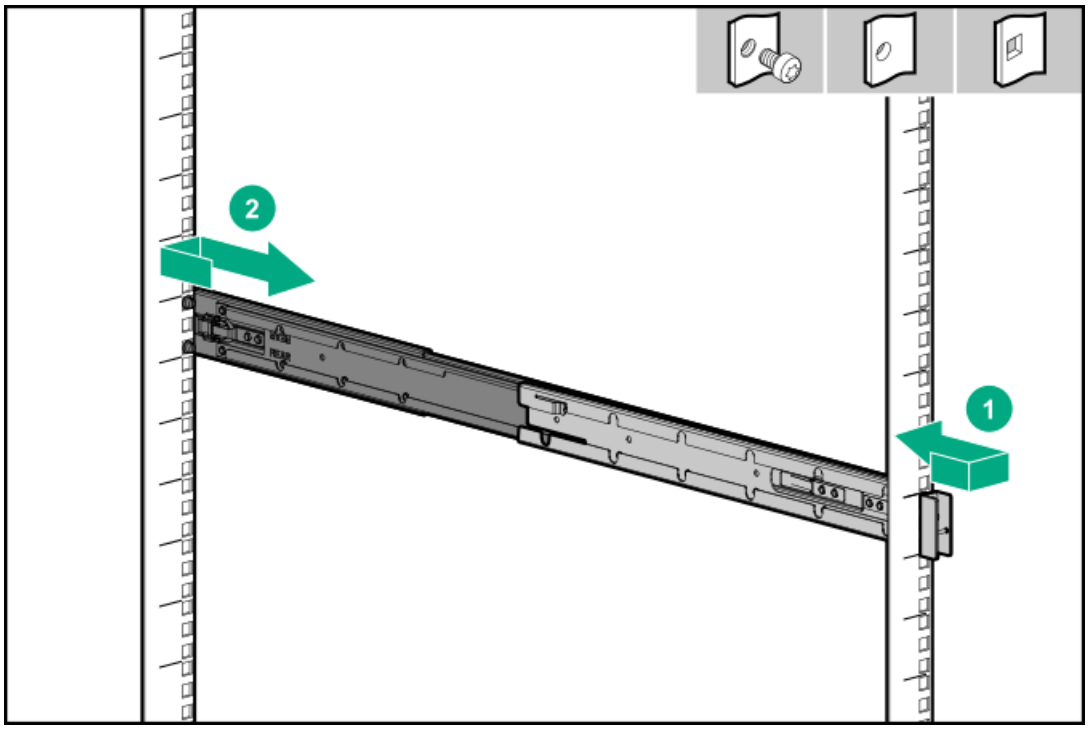


8. To remove the rack mounting rails, do the following:

   a. In a threaded-hole rack, remove the rail screws.



   b. Disengage the rail pins from the rack columns (callouts 1 and 2).



c. Repeat steps a and b to remove the other rack rail.

Results

To replace the component, reverse the removal procedure.

Removing and replacing the middle cover

About this task

This middle cover is used in the LFF drive chassis.

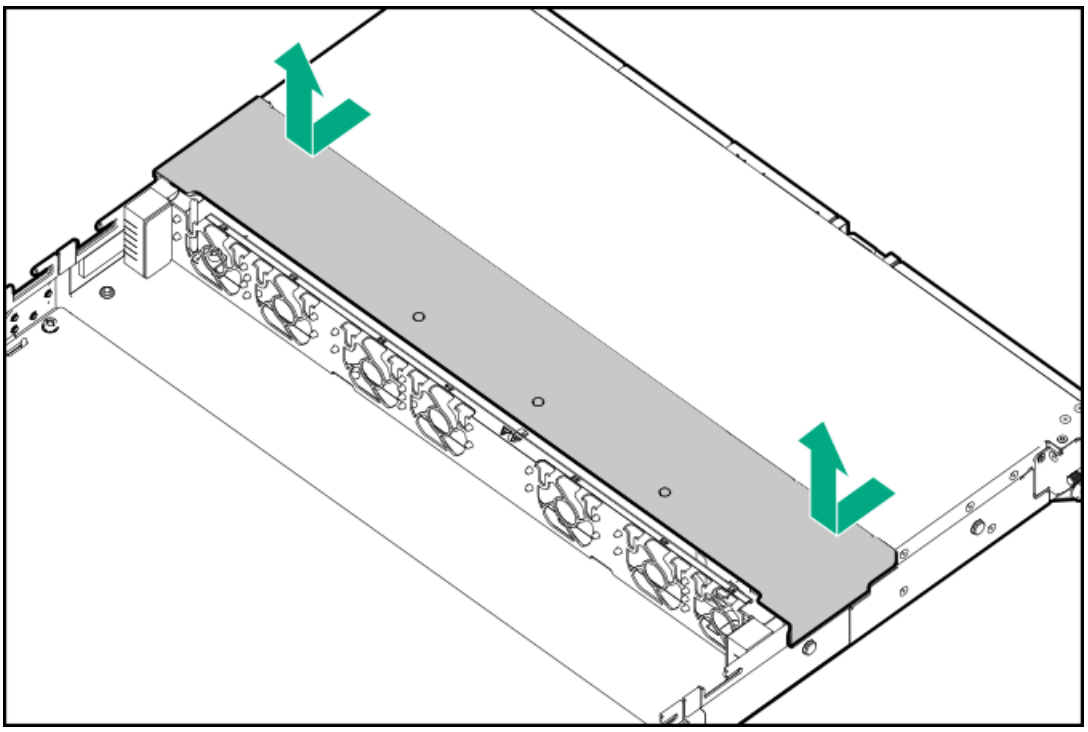
> **CAUTION:** For proper cooling, do not operate the server without the access panel, baffles, expansion slot covers, or blanks installed.

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

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.

7. Remove the access panel.
8. Take both sides of the middle cover and detach from the server.



Results

To replace the component, reverse the removal procedure.

Removing and replacing a DIMM

About this task

CAUTION:

A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

CAUTION:

Before replacing a DIMM, backplane, expansion card, riser board, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot.

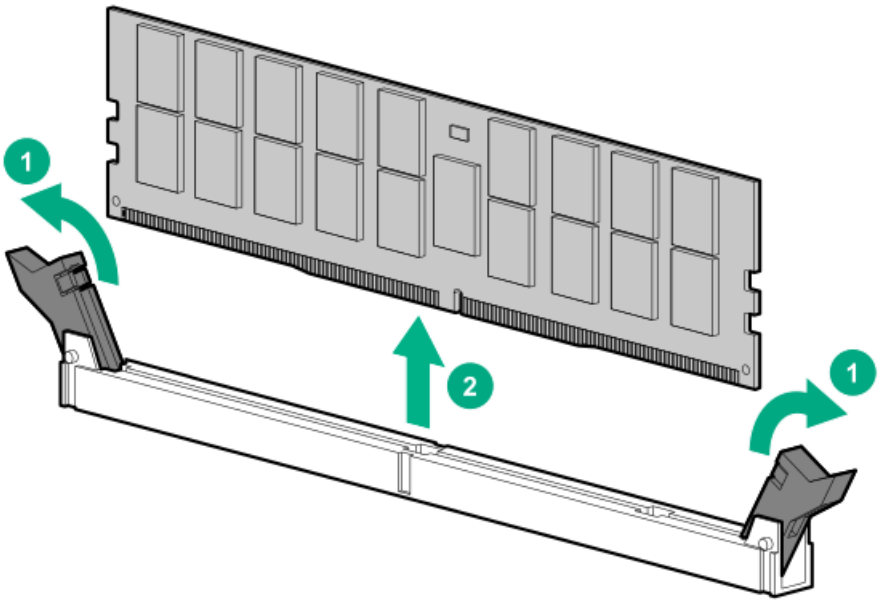
When installing the replacement component:

- Observe antistatic precautions.
- Handle the PCA only along the edges.
- Do not touch the components and connectors on the PCA.
- Do not bend or flex the PCA.

Procedure

1. Power down the server.

2. If installed, open the cable management arm.
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. Do one of the following:
   a. Extend the server from the rack.
   b. Remove the server from the rack.
6. Remove the access panel.
7. Remove the DIMM.
   a. Open the DIMM slot latches (callout 1).
   b. Lift the DIMM out of the slot (callout 2).



Results

To replace the component, reverse the removal procedure.

Removing and replacing a DIMM guard

Prerequisites

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

About this task

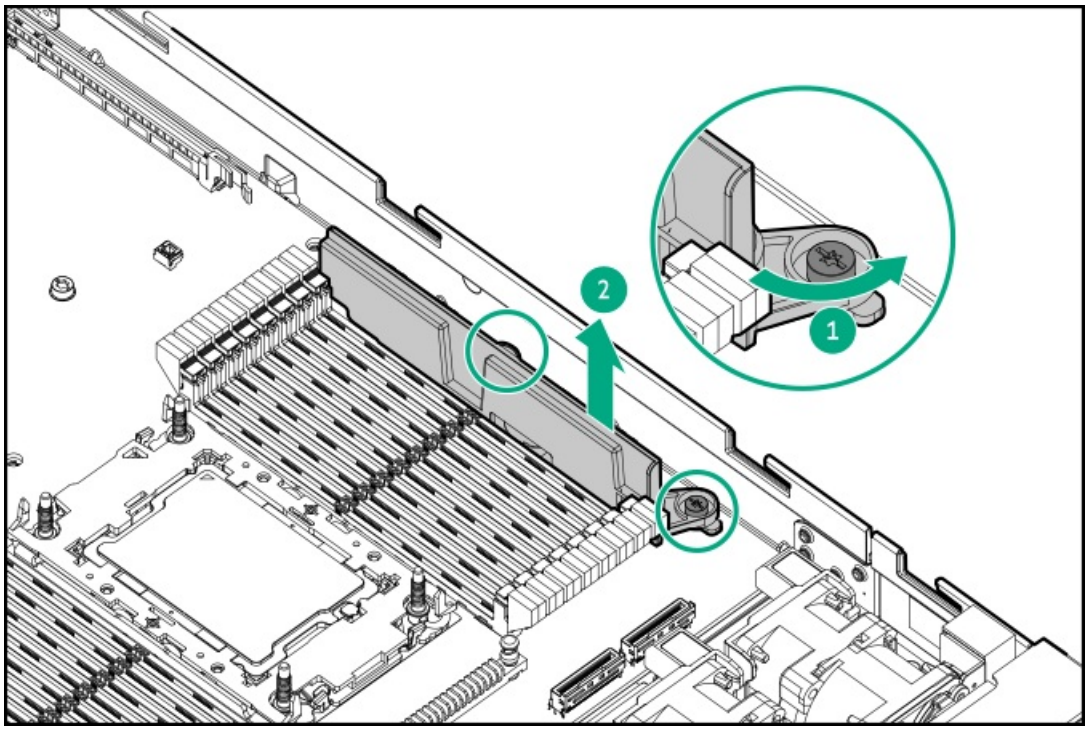
CAUTION:

A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

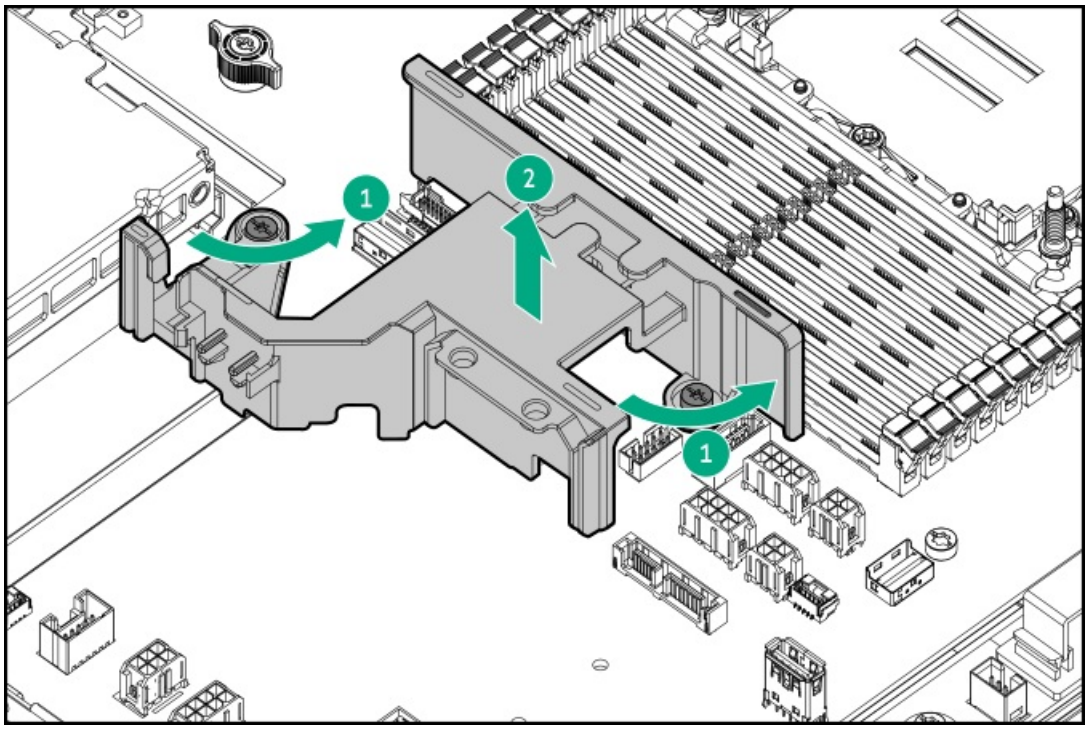
Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the DIMM guard.

   Retain all screws for future use.
   - Left



   - Middle



Results

To replace the component, reverse the removal procedure.

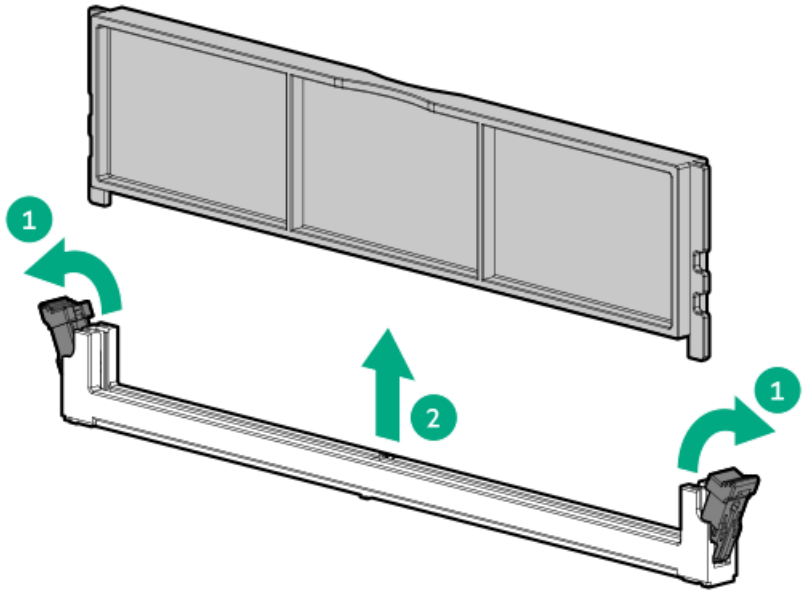
Removing and replacing a DIMM blank

About this task

> **CAUTION:**
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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. Do one of the following:
   a. Extend the server from the rack.
   b. Remove the server from the rack.
6. Remove the access panel.
7. Remove the DIMM blank.



Results

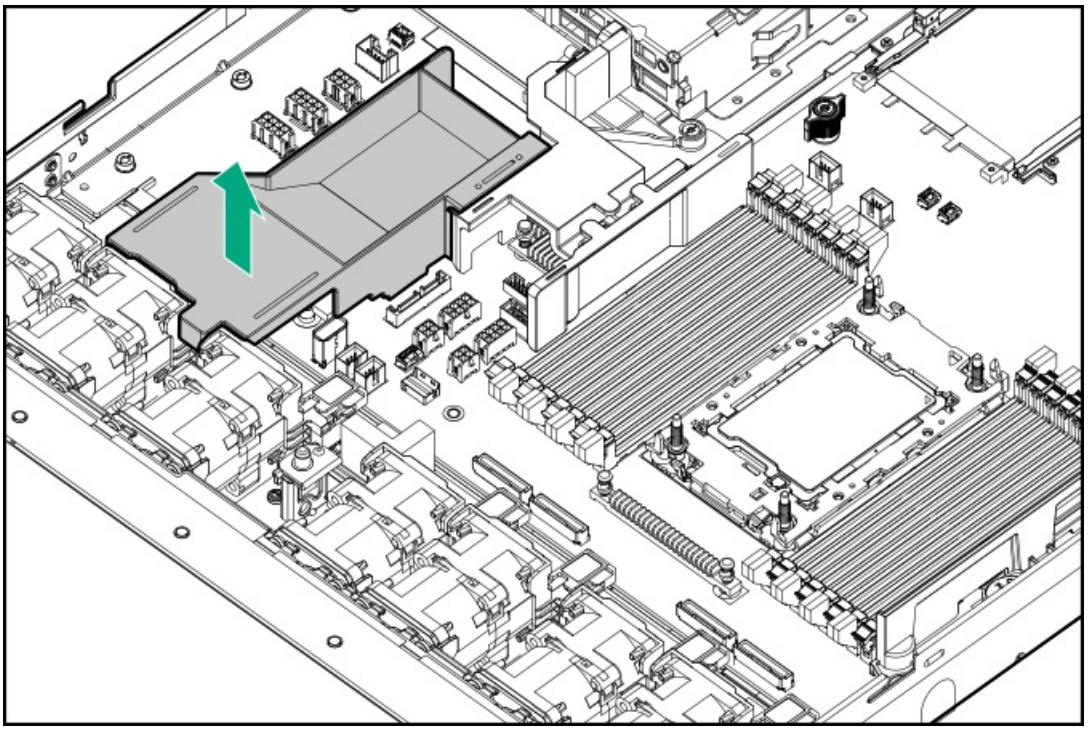
To replace the component, reverse the removal procedure.

Removing and replacing the M.2 air baffle

About this task

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the M.2 air baffle.



Results

To replace the component, reverse the removal procedure.

Removing and replacing the left chassis ear

Prerequisites

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

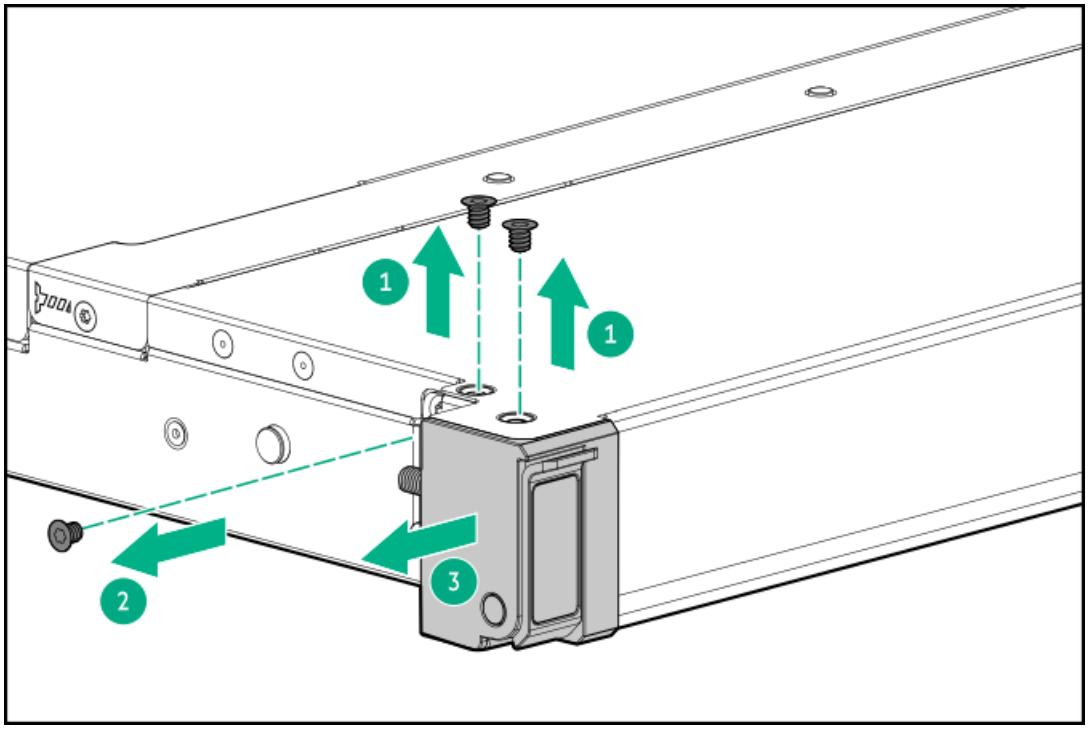
About this task

Procedure

1. If installed, remove the front bezel.
2. Power down the server.
3. If installed, open the cable management arm.
4. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
5. Disconnect all peripheral cables from the server.
6. Remove the server from the rack.
7. Place the server on a flat, level work surface.
8. Remove the left chassis ear:
   a. Remove left chassis ear screws (callouts 1 and 2).

      Retain the screws. These screws will be used to secure the new left chassis ear spare.

b. Detach the left chassis ear (callout 3).



Results

To replace the component, reverse the removal procedure.

Removing and replacing the front I/O and right chassis ear assembly

Prerequisites

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

About this task

Procedure

1. If installed, remove the front bezel.
2. Power down the server.
3. If installed, open the cable management arm.
4. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
5. Disconnect all peripheral cables from the server.
6. Remove the server from the rack.
7. Place the server on a flat, level work surface.
8. Remove the access panel.
9. Disconnect the front I/O cable from the system board.

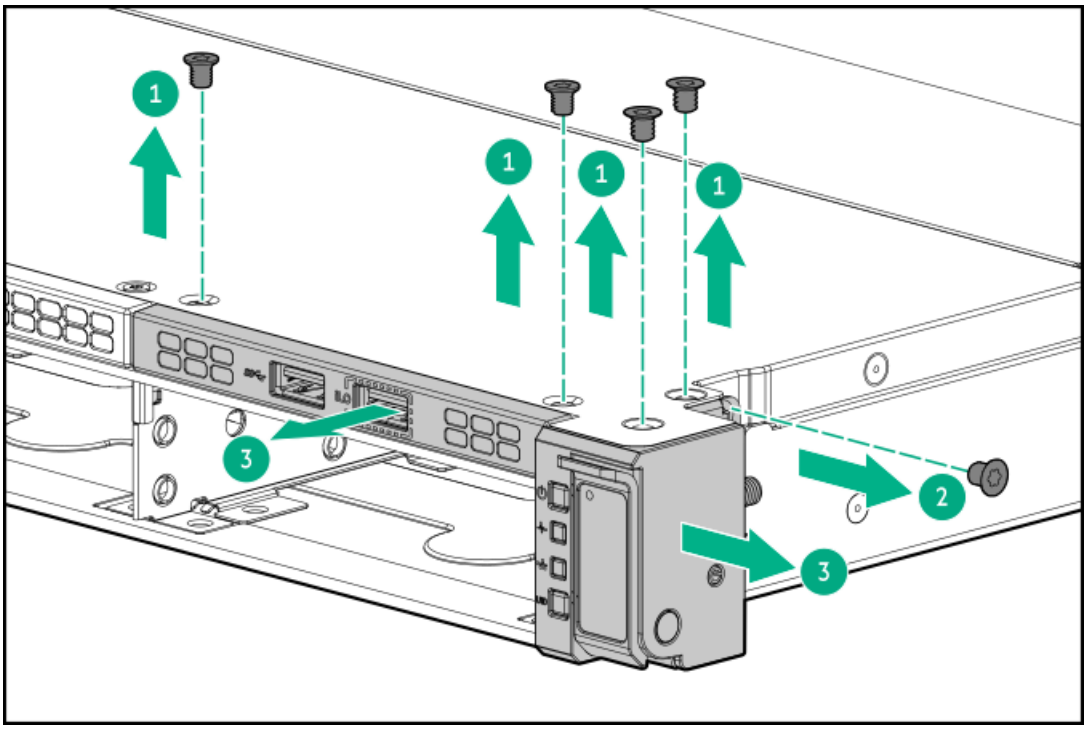
10. Remove the right chassis ear assembly:

a. Remove T-10 screws (callouts 1 and 2).

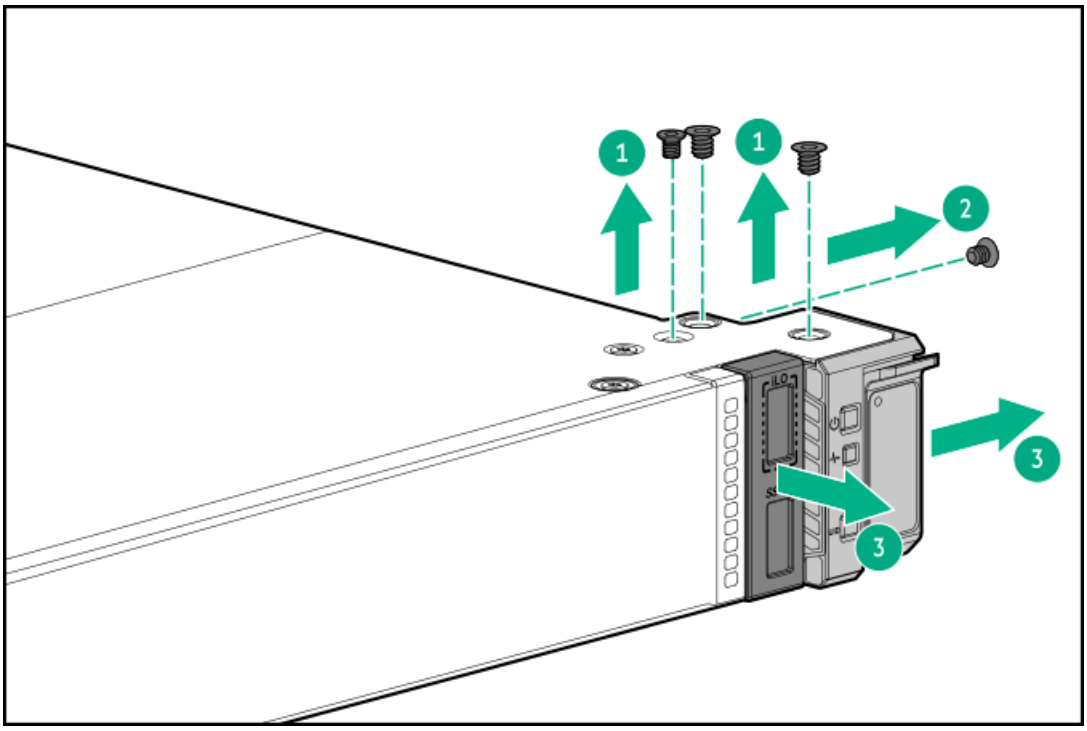
Retain the screws. These screws will be used to secure the new right chassis ear assembly spare.

b. Pull the right ear and front I/O port assembly simultaneously (callout 3).

- LFF drive configuration



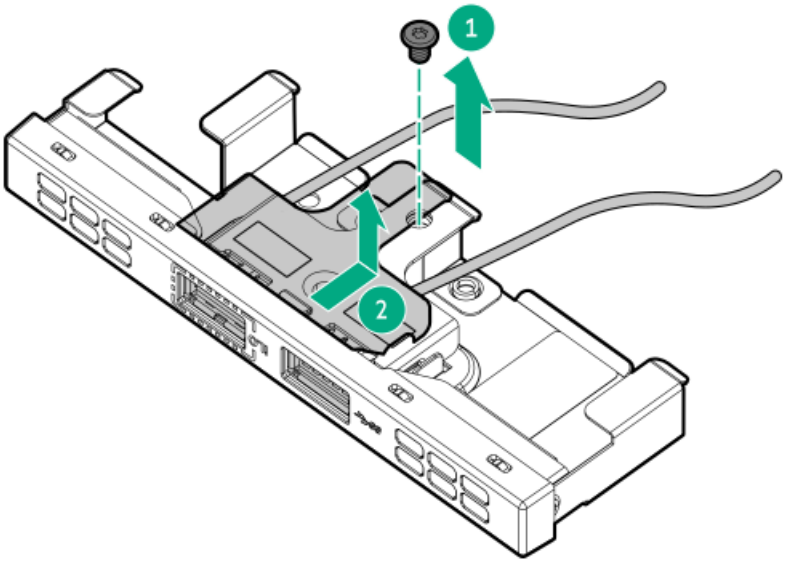
- SFF drive configuration



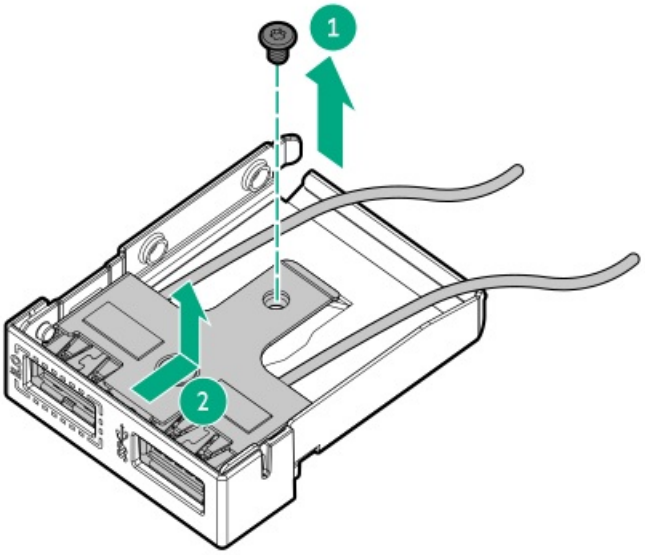
c. Remove the front I/O port assembly from the cage.

Retain the screw and the cage. This screw will be used to secure the new front I/O port assembly spare on the cage.

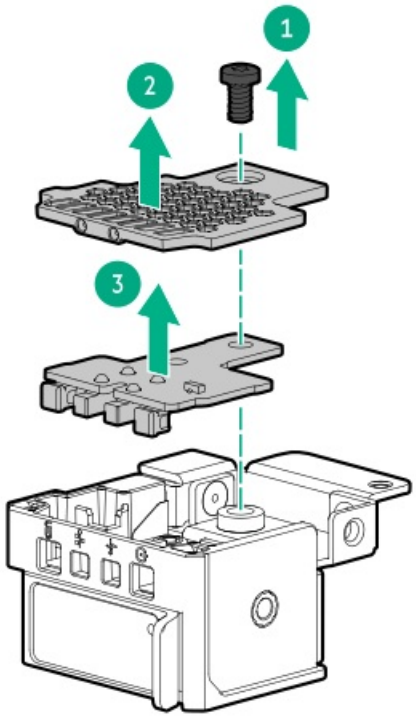
- LFF drive configuration



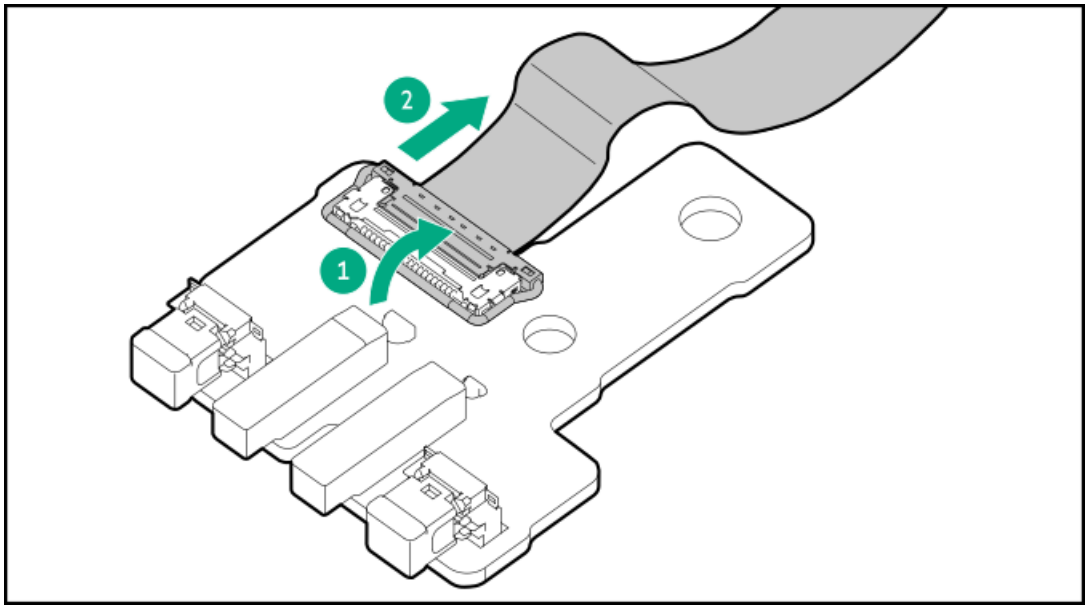
- SFF drive configuration



11. Remove the FIO cable from the switch board.
    a. Remove the screw and the bracket (callouts 1 and 2).
    b. Remove the switch board (callout 3).



c. Flip the switch board and remove the FIO cable.



Results

To replace the component, reverse the removal procedure.

Accelerator replacement

Subtopics

Removing and replacing an accelerator from the GPU riser cage

Removing and replacing an accelerator from the rear riser cage

Removing and replacing an accelerator from the GPU riser cage

Prerequisites

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

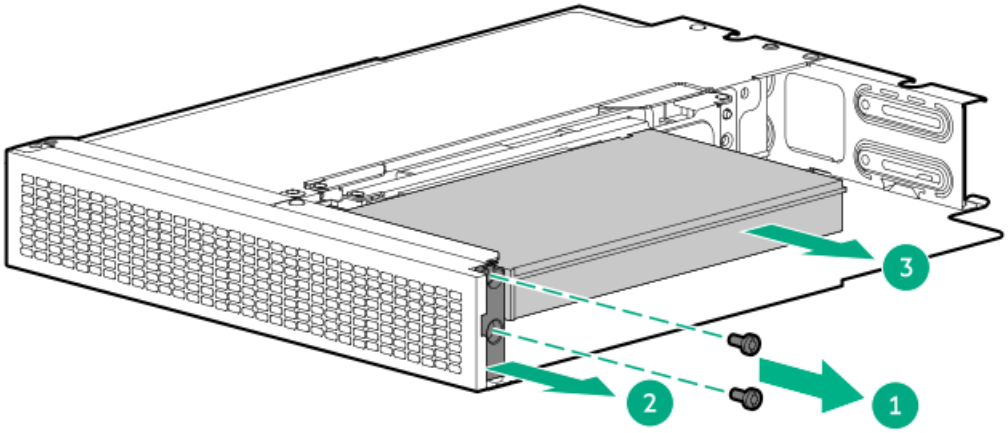
About this task

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

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

Procedure

1. Back up all server data.
2. Power down the server.
3. If installed, open the cable management arm.
4. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
5. Disconnect all peripheral cables from the server.
6. Remove the server from the rack.
7. Place the server on a flat, level work surface.
8. Remove the access panel.
9. Remove the middle cover.
10. Remove the GPU riser cage.
11. Remove the GPU bracket retainer (callouts 1 and 2) and the accelerator (callout 3).



Results

To replace the component, reverse the removal procedure.

Removing and replacing an accelerator from the rear riser cage

Prerequisites

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

About this task

CAUTION:

A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

CAUTION:

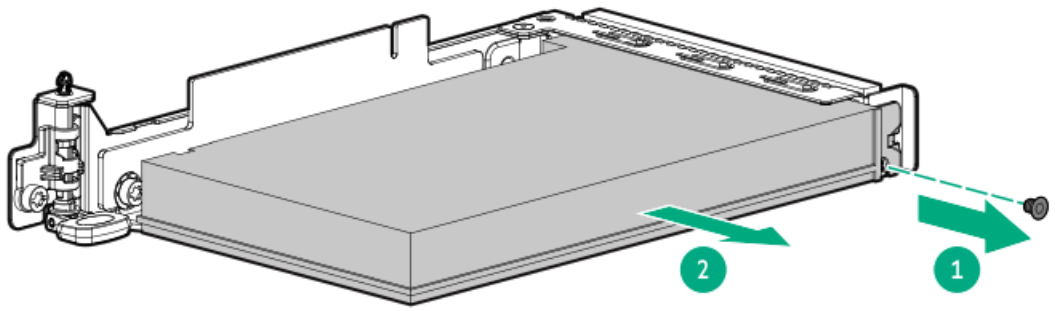
Before replacing a DIMM, backplane, expansion card, riser board, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot.

When installing the replacement component:

- Observe antistatic precautions.
- Handle the PCA only along the edges.
- Do not touch the components and connectors on the PCA.
- Do not bend or flex the PCA.

Procedure

1. Back up all server data.
2. Power down the server.
3. If installed, open the cable management arm.
4. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
5. Disconnect all peripheral cables from the server.
6. Remove the server from the rack.
7. Place the server on a flat, level work surface.
8. Remove the access panel.
9. Remove the riser cage.
10. Remove the existing rear guide bracket from the accelerator, if installed.
11. Remove the accelerator from the riser cage.



Results

To replace the component, reverse the removal procedure.

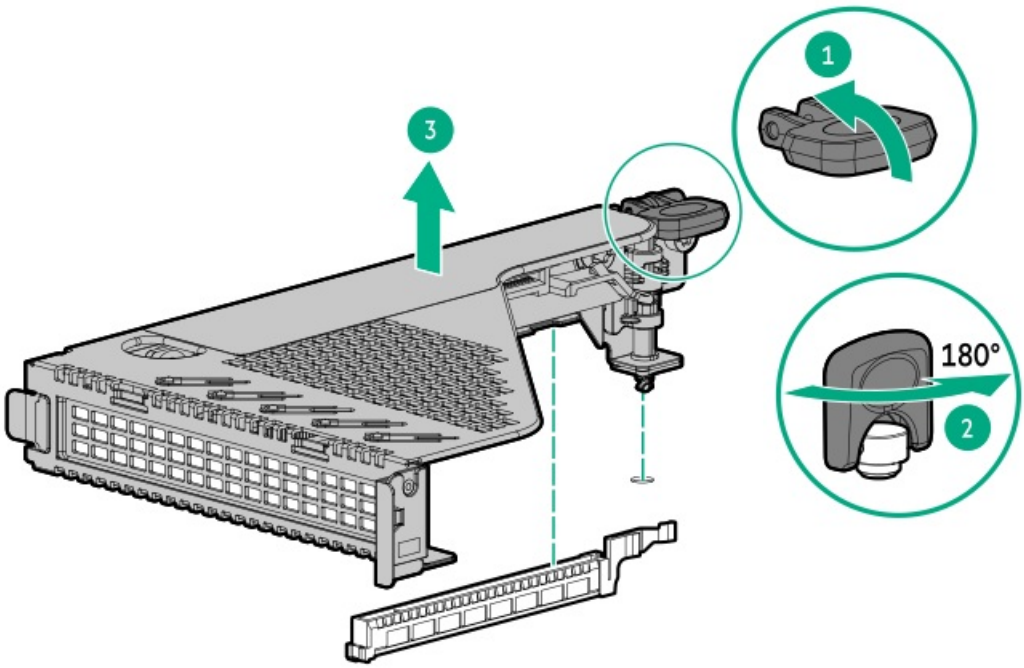
Removing and replacing the riser cage

About this task

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

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. If an expansion card with internal cables is installed on the riser, disconnect the cables from the card.
9. To remove the rear riser cage, do the following:
   a. Release the half-turn spring latch (callouts 1 and 2).
   b. Lift the riser cage off the system board (callout 3).



Results

To replace the component, reverse the removal procedure.

Riser board replacement

Subtopics

Removing and replacing a riser board

Removing and replacing a GPU riser

Removing and replacing a riser board

Prerequisites

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

About this task

CAUTION:

A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

CAUTION:

Before replacing a DIMM, backplane, expansion card, riser board, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot.

When installing the replacement component:

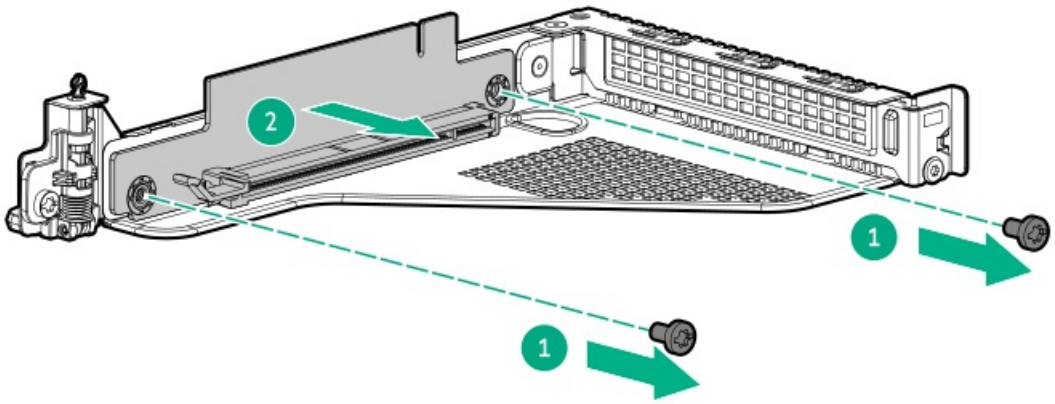
- Observe antistatic precautions.
- Handle the PCA only along the edges.
- Do not touch the components and connectors on the PCA.
- Do not bend or flex the PCA.

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the riser cage.

9. If installed, remove any expansion card from the riser .
10. Remove the riser board.

    Retain all screws for future use.



Results

To replace the component, reverse the removal procedure.

Removing and replacing a GPU riser

Prerequisites

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

About this task

CAUTION:

A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

CAUTION:

Before replacing a DIMM, backplane, expansion card, riser board, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot.

When installing the replacement component:

- Observe antistatic precautions.
- Handle the PCA only along the edges.
- Do not touch the components and connectors on the PCA.
- Do not bend or flex the PCA.

Procedure

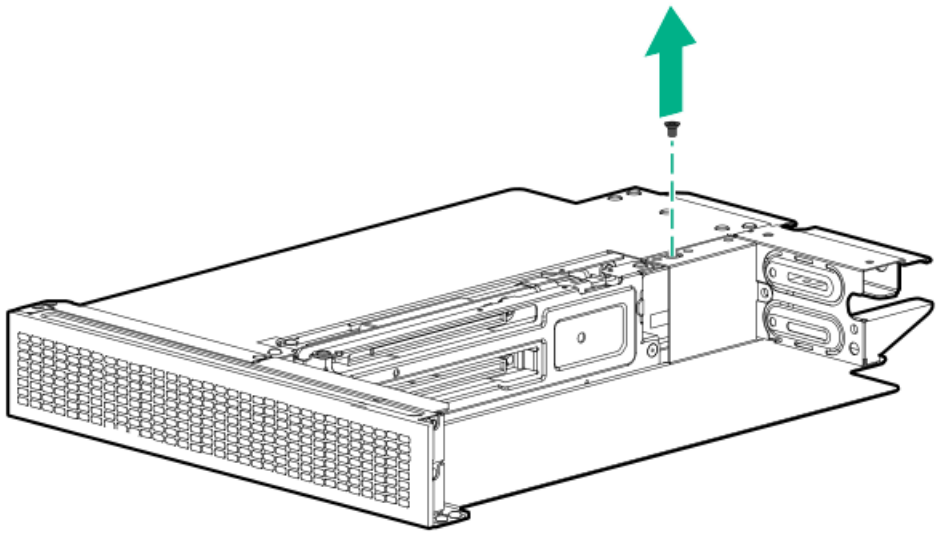
1. If installed, remove the front bezel.
2. Power down the server.
3. If installed, open the cable management arm.
4. Remove all power:

a. Disconnect each power cord from the power source.

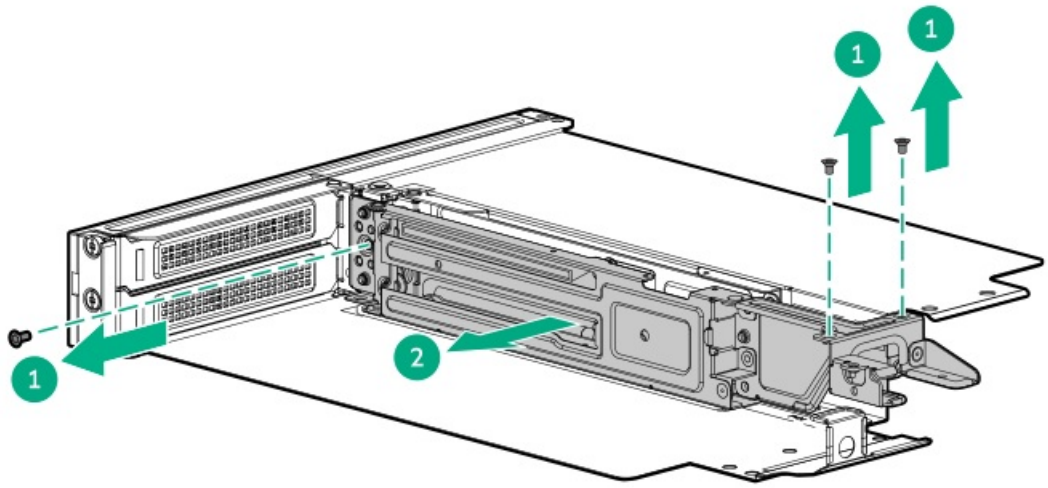
b. Disconnect each power cord from the server.

5. Disconnect all peripheral cables from the server.
6. Remove the server from the rack.
7. Place the server on a flat, level work surface.
8. Remove the access panel.
9. Remove the GPU riser cage.
10. Remove the accelerator.
11. Flip the riser cage and remove the screw on the bottom.

    Hold the riser cage on either side with both hands.

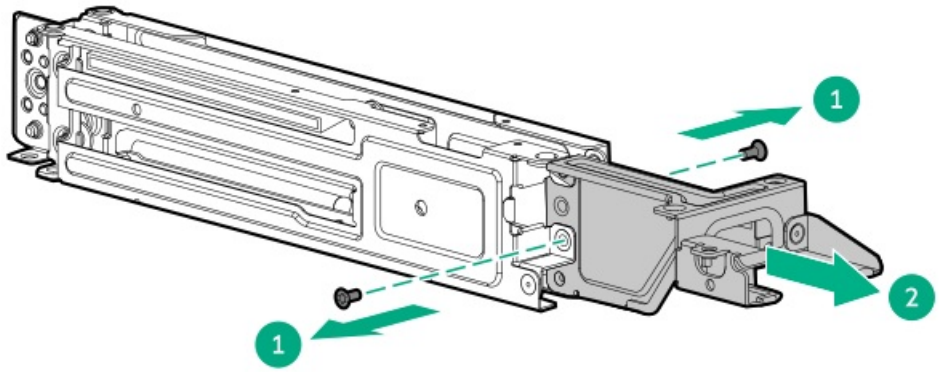


12. Remove the GPU riser bracket.

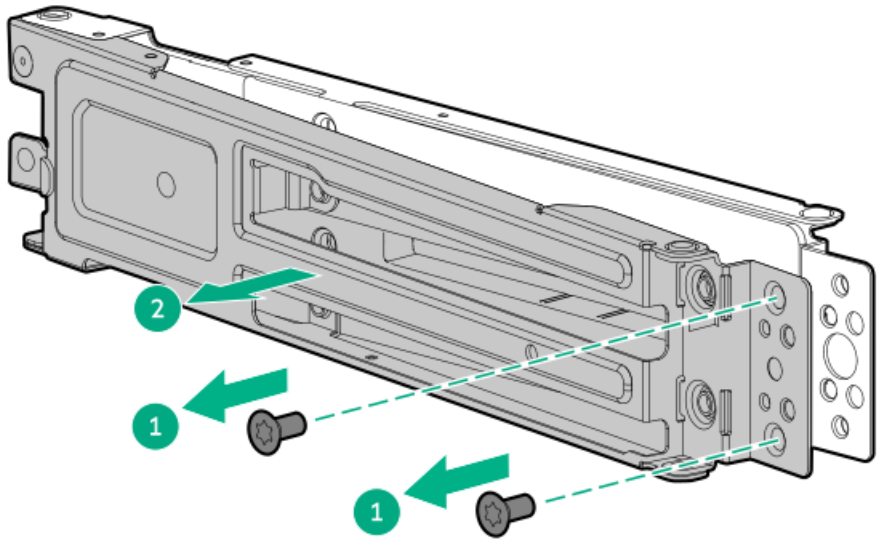


13. Separate the GPU riser bracket:

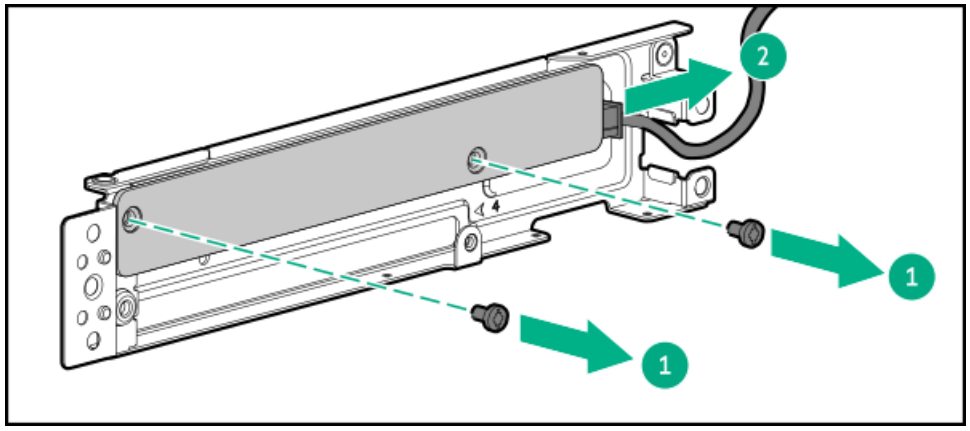
    a. Remove the GPU cable divider.



    b. Remove the two screws (callout 1) and separate the riser cage bracket (callout 2).



14. Remove the GPU riser board (callout 1) and disconnect the power cable (callout 2).



Results

To replace the component, reverse the removal procedure.

Removing and replacing an OCP slot blank

Prerequisites

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

- T-10 Torx screwdriver
- Spudger or any small prying tool

About this task

CAUTION:

A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

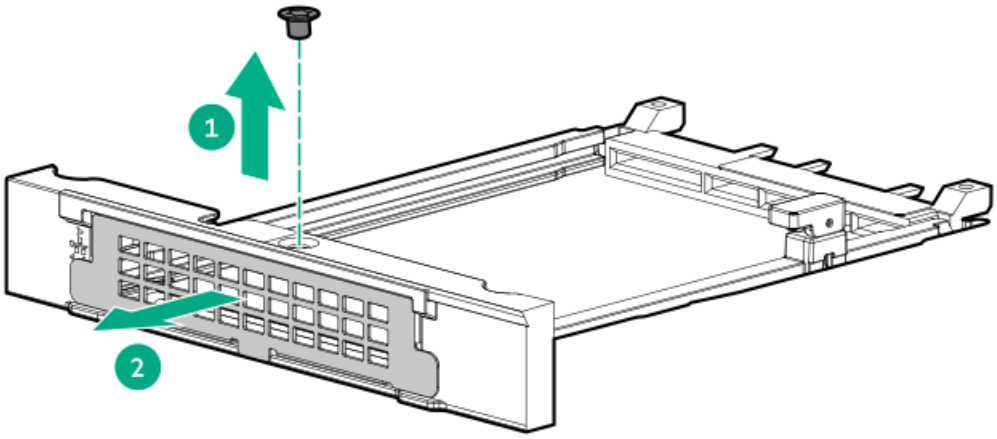
CAUTION:

The port blank provides EMI shielding and helps maintain proper thermal status inside the server. Do not operate the server when a port blank is removed without the corresponding I/O port option installed.

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the OCP slot blank:
   a. Remove the blank screw (callout 1).
   b. Remove the blank (callout 2).

      Retain the screw and blank for future use.



Results

To replace the component, reverse the removal procedure.

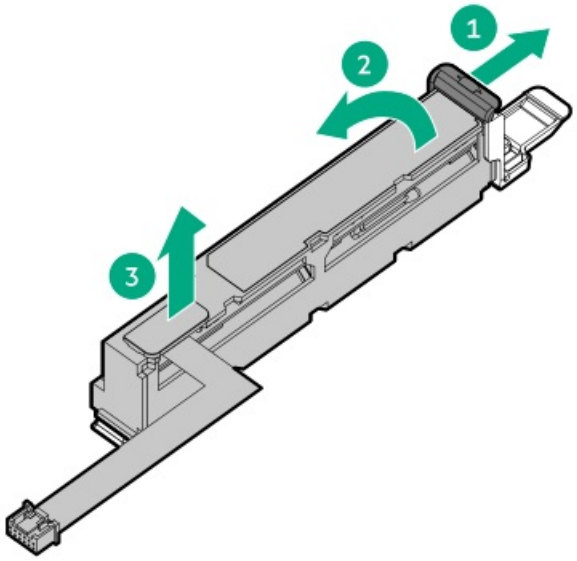
Removing and replacing an energy pack

About this task

CAUTION:
A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. To remove the energy pack from the retention latch, do the following:
   a. Disconnect the energy pack cable from the system board.
   b. Press and hold the retention latch (callout 1).
   c. Lift one end of the energy pack and release it from the latch (callout 2).
   d. Detach the energy pack from the chassis (callout 3).



Results

To replace the component, reverse the removal procedure.

Removing and replacing the energy pack retention latch

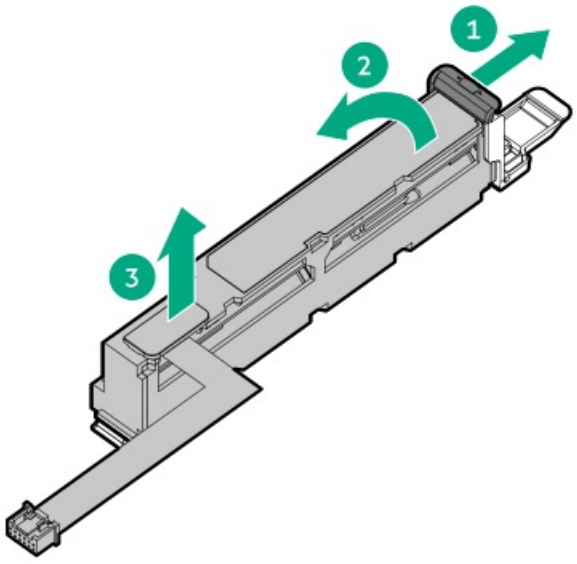
About this task

CAUTION:

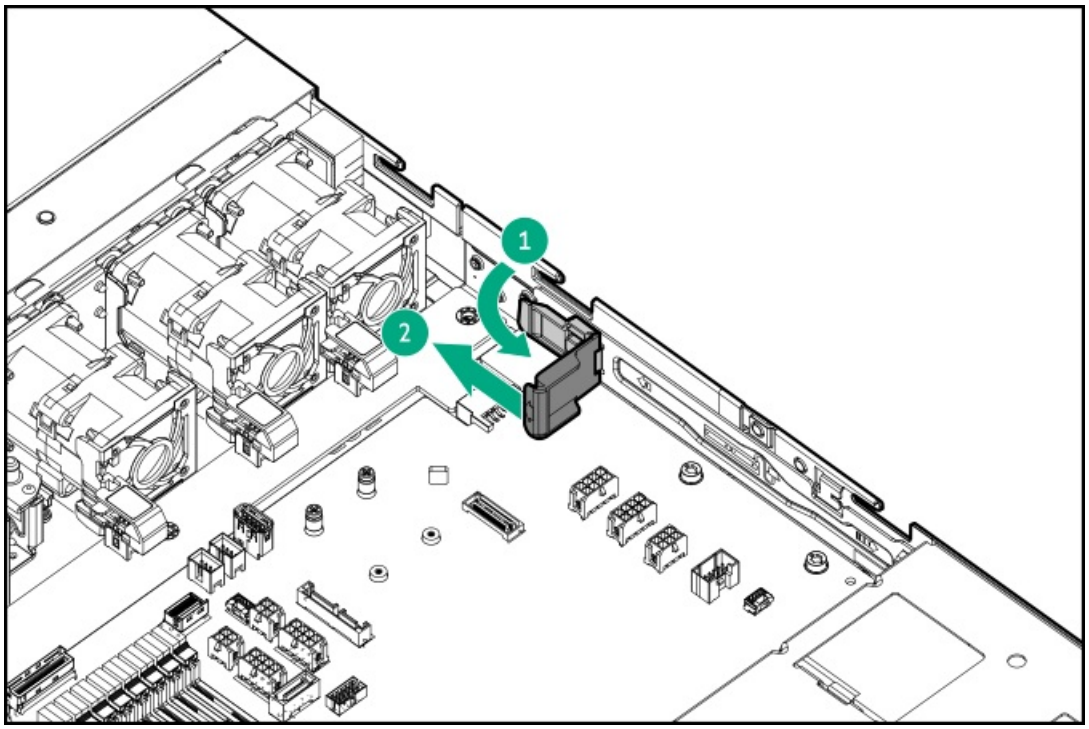
A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. To remove the energy pack from the retention latch, do the following:
   a. Disconnect the energy pack cable from the system board.
   b. Press and hold the retention latch (callout 1).
   c. Lift one end of the energy pack and release it from the latch (callout 2).
   d. Detach the energy pack from the chassis (callout 3).



9. Remove the energy pack retention latch:
   a. Pull up and hold the latch (callout 1).
   b. Push the latch to detach from the chassis (callout 2).



Results

To replace the component, reverse the removal procedure.

Removing and replacing an OCP adapter

About this task

CAUTION:
A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

CAUTION:
Before replacing a DIMM, backplane, expansion card, riser board, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot.

When installing the replacement component:

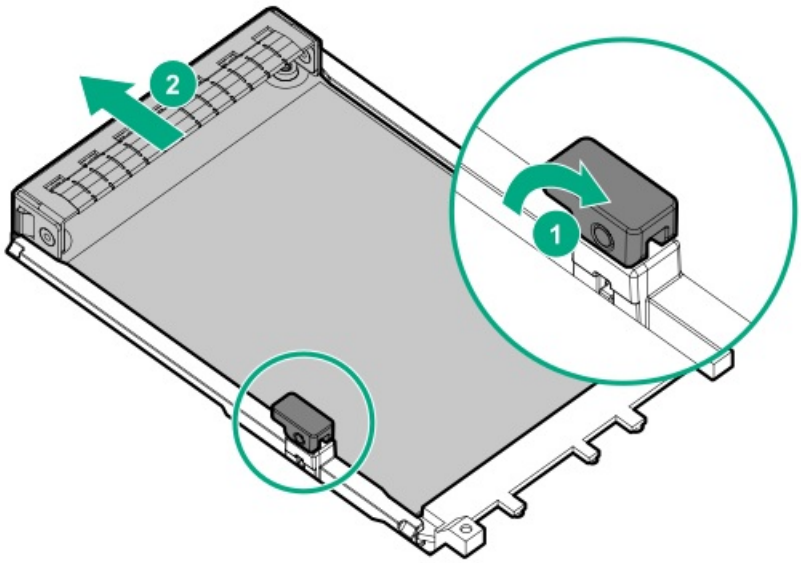
- Observe antistatic precautions.
- Handle the PCA only along the edges.
- Do not touch the components and connectors on the PCA.
- Do not bend or flex the PCA.

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the riser cage.
9. Remove the OCP NIC 3.0 adapter.
   a. Rotate the locking pin to the open (vertical) position (callout 1).
   b. Pull the OCP 3.0 NIC adapter out of the bay (callout 2).



Results

To replace the component, reverse the removal procedure.

Removing and replacing an expansion card

Prerequisites

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

About this task

CAUTION:
A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

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

CAUTION:

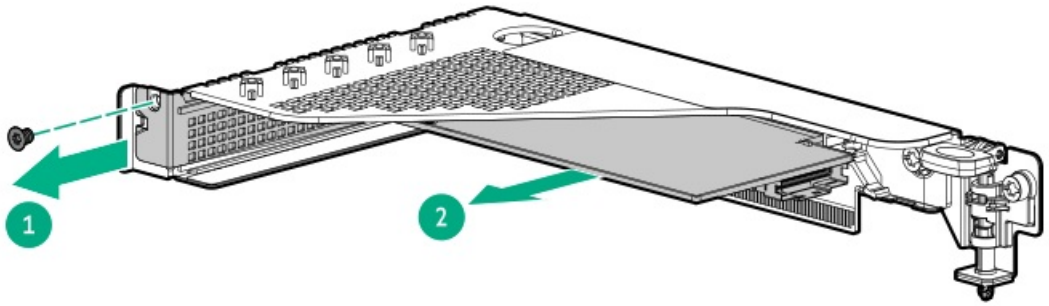
Before replacing a DIMM, backplane, expansion card, riser board, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot.

When installing the replacement component:

- Observe antistatic precautions.
- Handle the PCA only along the edges.
- Do not touch the components and connectors on the PCA.
- Do not bend or flex the PCA.

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Disconnect all cables connected to the expansion card.
9. Remove the riser cage.
10. Remove the expansion card.
    a. Remove the screw (callout 1).
    b. Detach the expansion card from the riser (callout 2).



Results

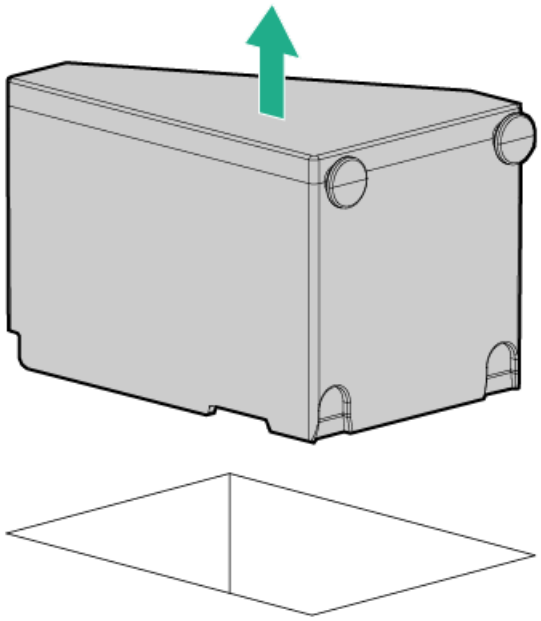
To replace the component, reverse the removal procedure.

Removing and replacing a fan blank

About this task

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove fan blanks from the fan bays, if installed.



Results

To replace the component, reverse the removal procedure.

Removing and replacing a fan

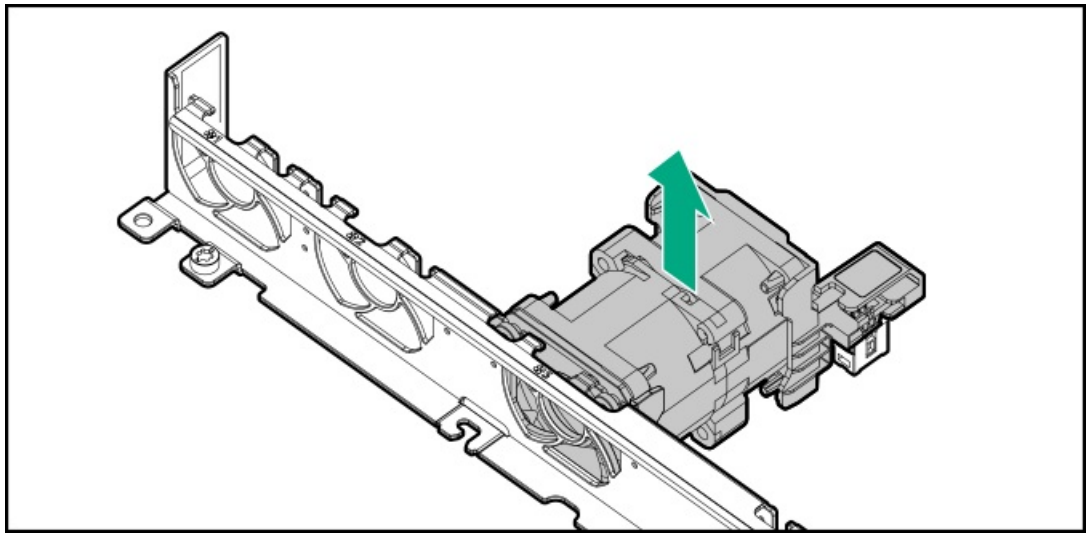
About this task

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

IMPORTANT: The fan setup can either be all 7 of standard or high performance fans. Do not mix fan types in the same server.

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the M.2 air baffle.
9. Remove the fan.



Results

To replace the component, reverse the removal procedure.

Removing and replacing the fan board

Prerequisites

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

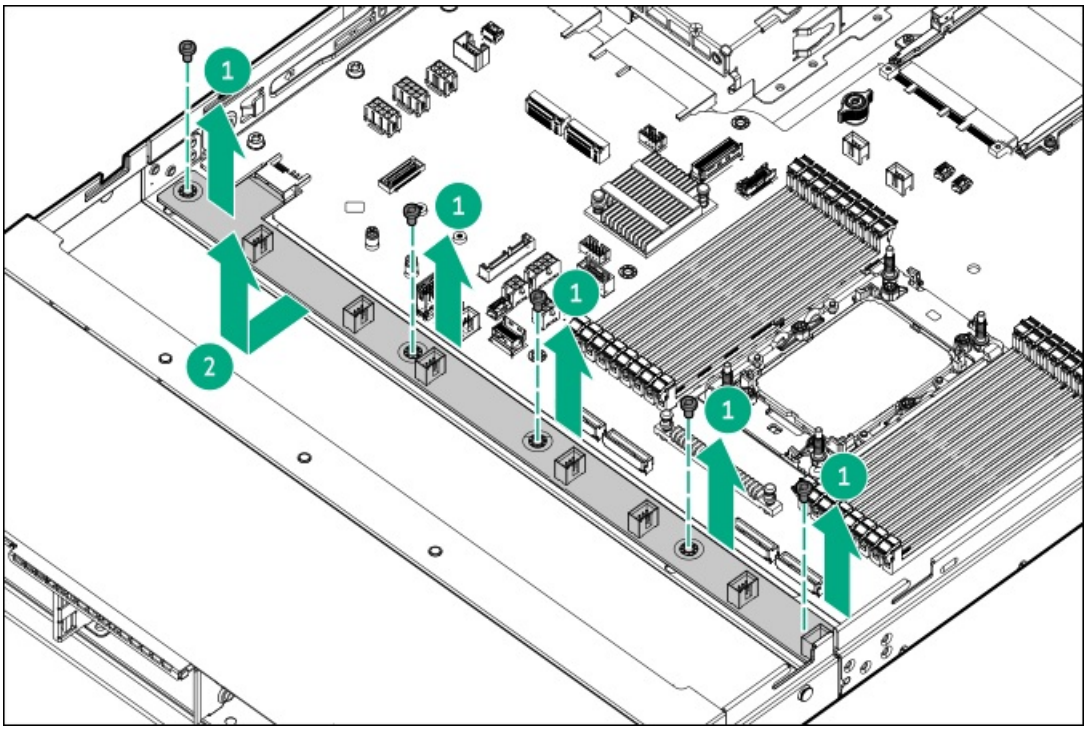
About this task

Procedure

1. Power down the server.
2. If installed, open the cable management arm.

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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the M.2 air baffle.
9. Remove the fans.
10. Remove the fan board.

    Retain the screws for further use.



Results

To replace the component, reverse the removal procedure.

Removing and replacing a serial port

Prerequisites

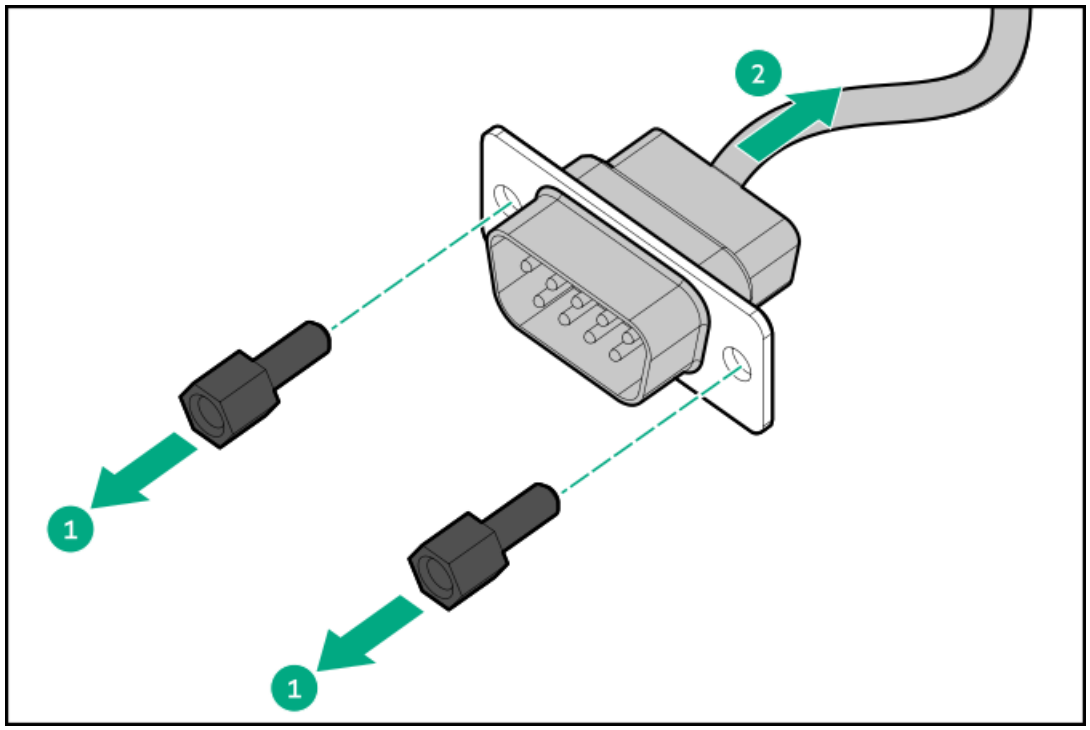
Before you perform this procedure, make sure that you have a hex screwdriver available.

About this task

Procedure

1. Power down the server.

2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the riser cage.
9. Disconnect the serial port cable from the system board .
10. Remove the serial port:
    a. Remove the hex screws (callout 1).
    b. Detach the serial port from the rear panel (callout 2).



Results

To replace the component, reverse the removal procedure.

Removing and replacing the serial port blank

Prerequisites

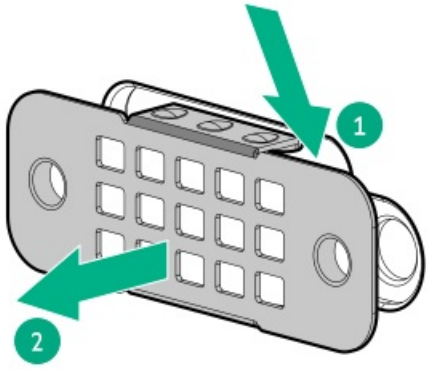
Before you perform this procedure, make sure that you have a spudger or any small prying tool available.

About this task

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

Procedure

1. Remove the serial port blank:
   a. Detach the right side of the blank (callout 1).
   b. Repeat step a on the left side to remove the blank (callout 2).



2. Immediately install the new serial port blank.

Optical drive replacement

Subtopics

Removing and replacing the optical drive cage

Removing and replacing an optical drive from the LFF drive chassis

Removing and replacing the optical drive from the optical drive cage

Removing and replacing an optical drive blank

Removing and replacing the optical drive cage

Prerequisites

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

- T-10 Torx screwdriver
- T-15 Torx screwdriver
- Phillips No. 1 screwdriver

About this task

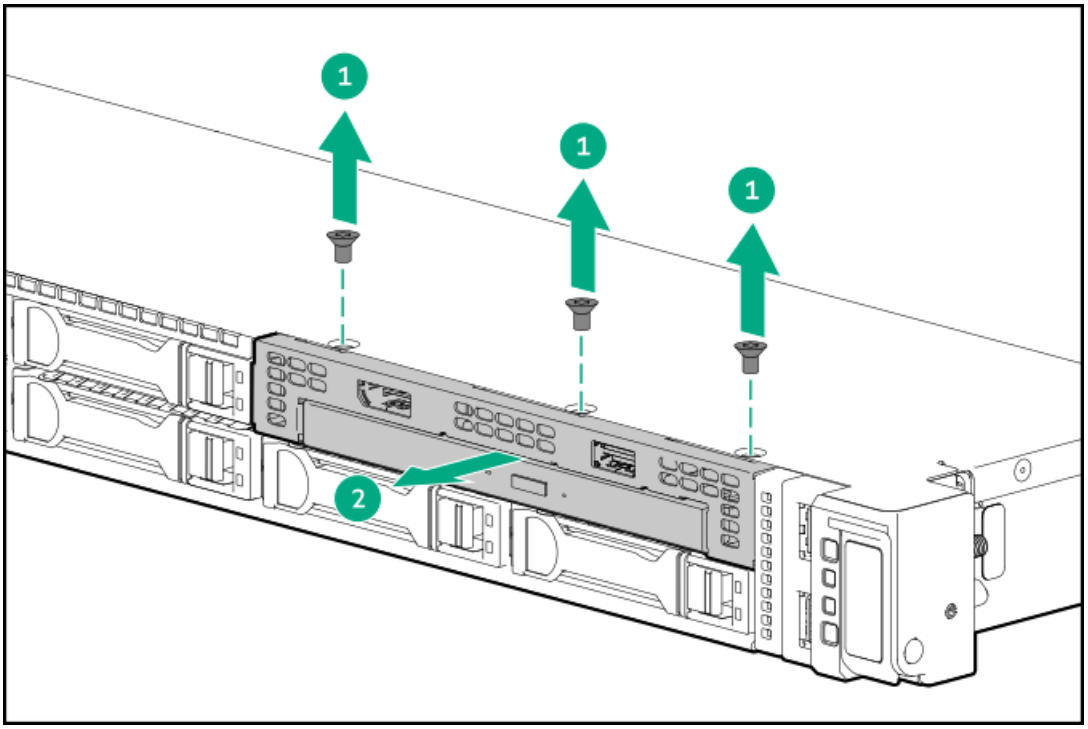
CAUTION:
A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

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

Procedure

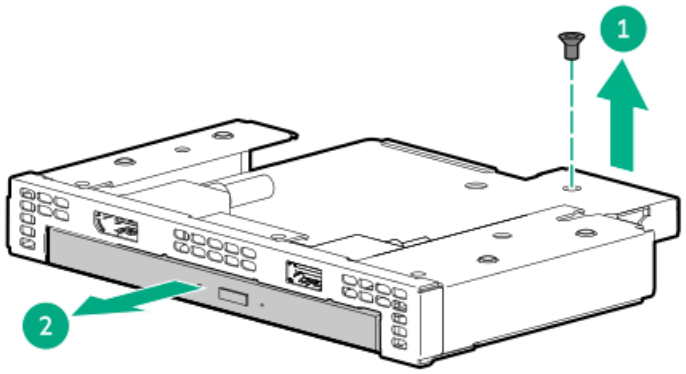
1. If installed, remove the front bezel.
2. Power down the server.
3. If installed, open the cable management arm.
4. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
5. Disconnect all peripheral cables from the server.
6. Remove the server from the rack.
7. Place the server on a flat, level work surface.
8. Remove the access panel.
9. Remove the middle cover.
10. Disconnect following cables from the system board:
    - Optical drive SlimSAS-power Y-cable
    - Front USB and Display port cable
11. Remove the optical drive cage from the universal media bay.

    Retain the screws. These screws will be used to secure the cage after new optical drive replacement.



12. Remove the optical drive from the drive cage.

    Retain the screw. This screw will be used to secure the new optical drive spare.



Results

To replace the component, reverse the removal procedure.

Removing and replacing an optical drive from the LFF drive chassis

Prerequisites

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

- T-10 Torx screwdriver
- Phillips No. 1 screwdriver

About this task

> **CAUTION:**
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

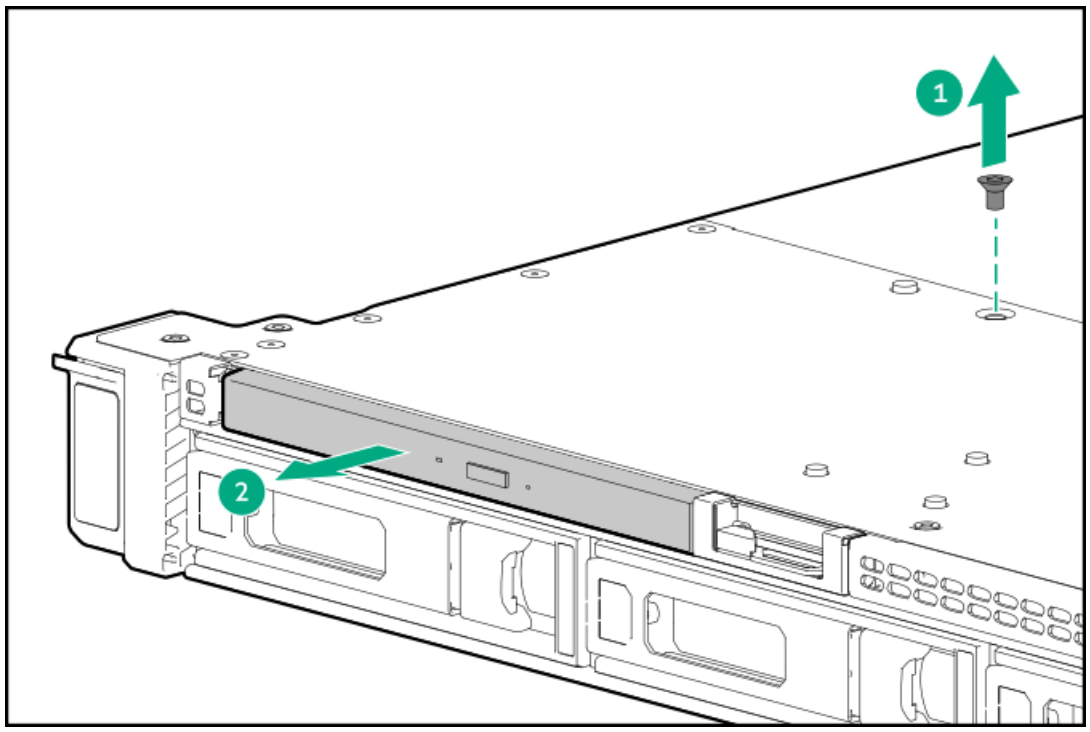
> **CAUTION:** To prevent improper cooling and thermal damage, do not operate the server unless all bays are populated with either a component or a blank.

Procedure

1. If installed, remove the front bezel.
2. Power down the server.
3. If installed, open the cable management arm.
4. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
5. Disconnect all peripheral cables from the server.
6. Remove the server from the rack.
7. Place the server on a flat, level work surface.
8. Remove the access panel.
9. Remove the middle cover.
10. Disconnect the optical drive-M.2 SSD splitter cable from the optical drive .

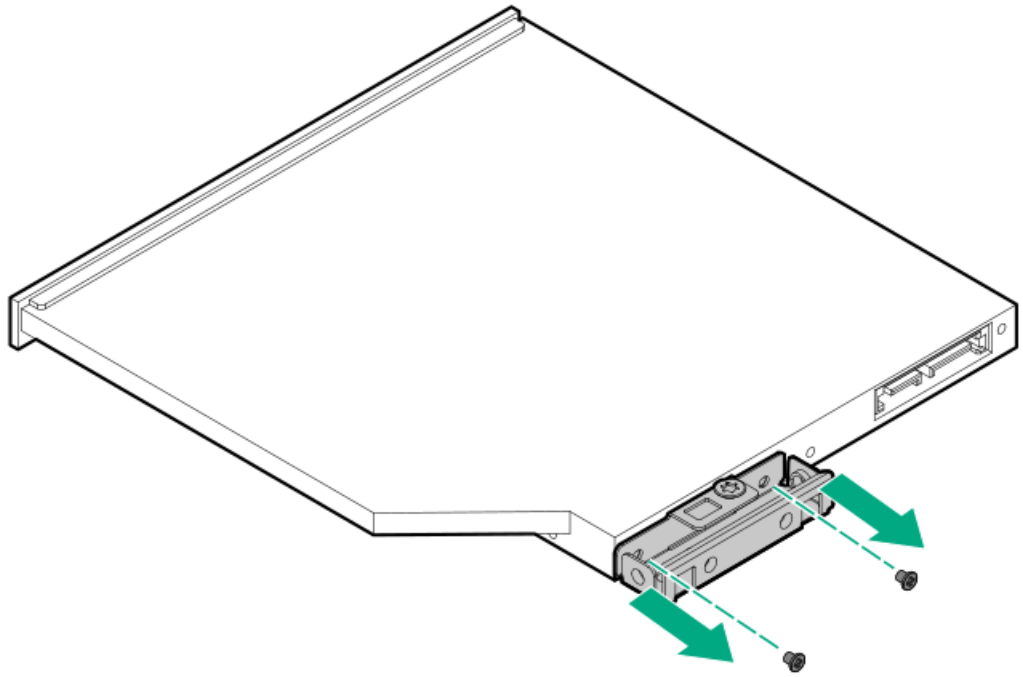
11. Remove the optical drive.

    Retain the screw. The screw will be used to secure the new optical drive spare.



12. Remove the optical drive bracket.

    Retain the screws and bracket. These screws will be used to secure the bracket on the new optical drive spare.



Results

To replace the component, reverse the removal procedure.

Removing and replacing the optical drive from the optical drive cage

Prerequisites

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

- T-10 Torx screwdriver
- T-15 Torx screwdriver
- Phillips No. 1 screwdriver

About this task

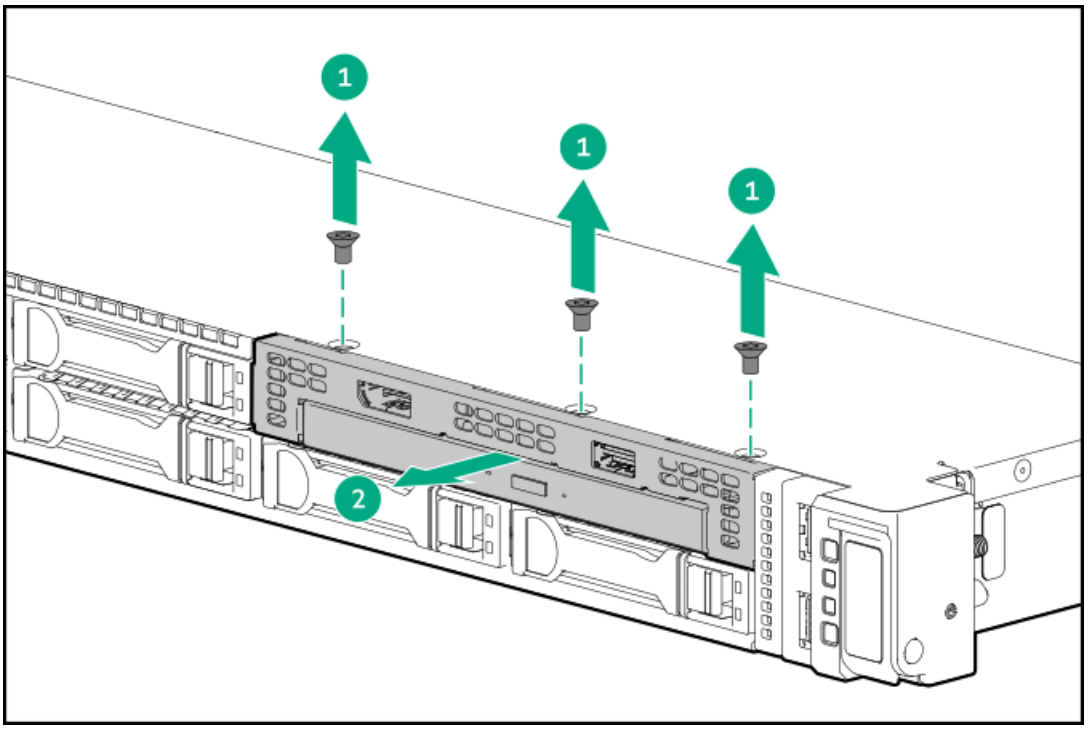
CAUTION:
A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

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

Procedure

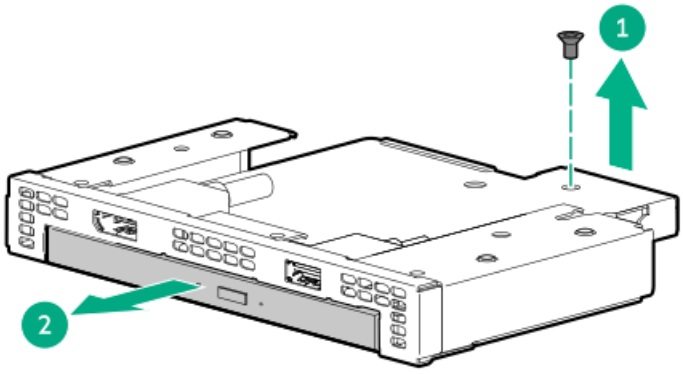
1. If installed, remove the front bezel.
2. Power down the server.
3. If installed, open the cable management arm.
4. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
5. Disconnect all peripheral cables from the server.
6. Remove the server from the rack.
7. Place the server on a flat, level work surface.
8. Remove the access panel.
9. Remove the middle cover.
10. Disconnect following cables from the system board:
    - Optical drive SlimSAS-power Y-cable
    - Front USB and Display port cable
11. Remove the optical drive cage from the universal media bay.

    Retain the screws. These screws will be used to secure the cage after new optical drive replacement.



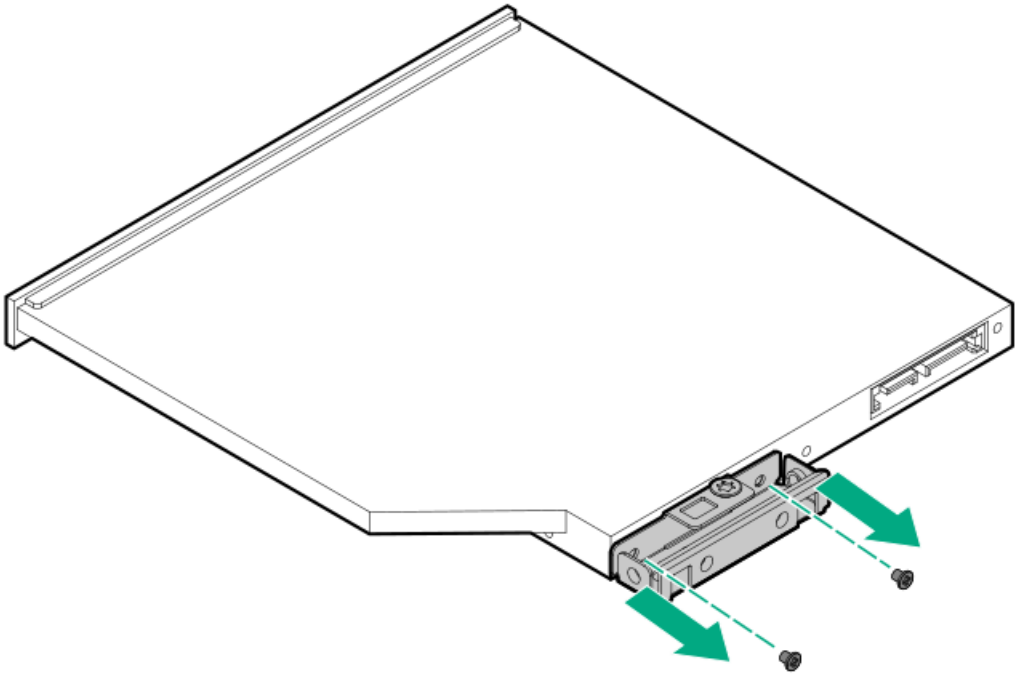
12. Remove the optical drive from the drive cage.

    Retain the screw. This screw will be used to secure the new optical drive spare.



13. Remove the optical drive bracket.

    Retain the screws and bracket. These screws will be used to secure the bracket on the new optical drive spare.



Results

To replace the component, reverse the removal procedure.

Removing and replacing an optical drive blank

Prerequisites

Before you perform this procedure, make sure that you have a spudger or any small prying tool available.

About this task

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

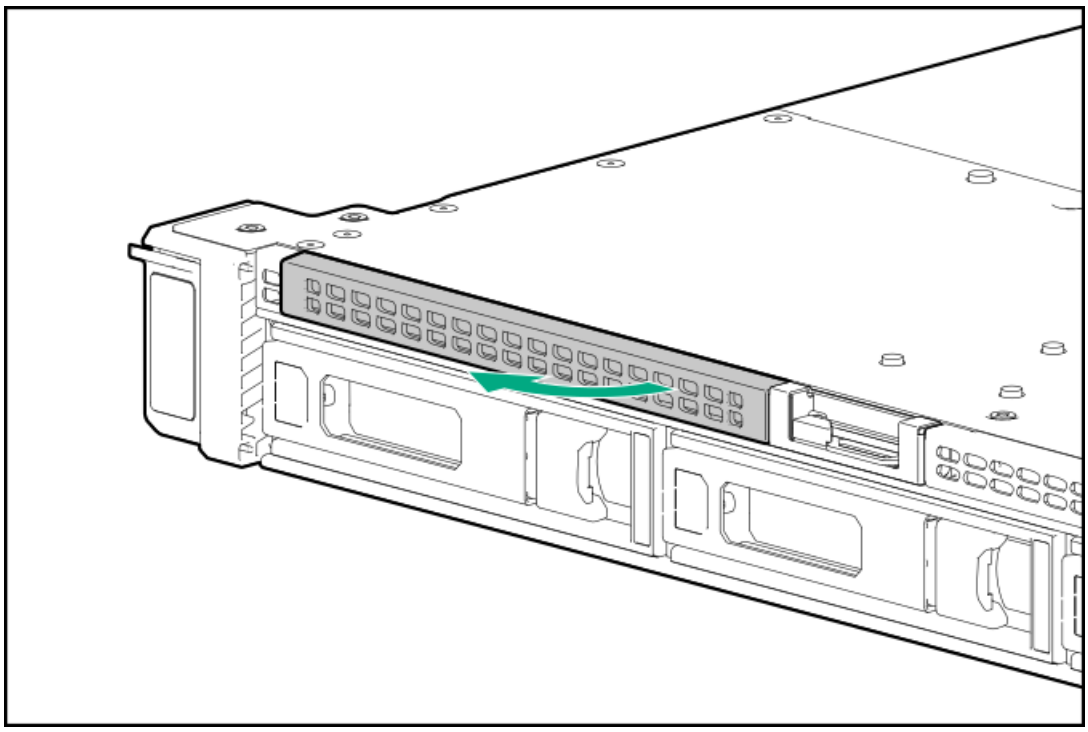
> **CAUTION:**
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

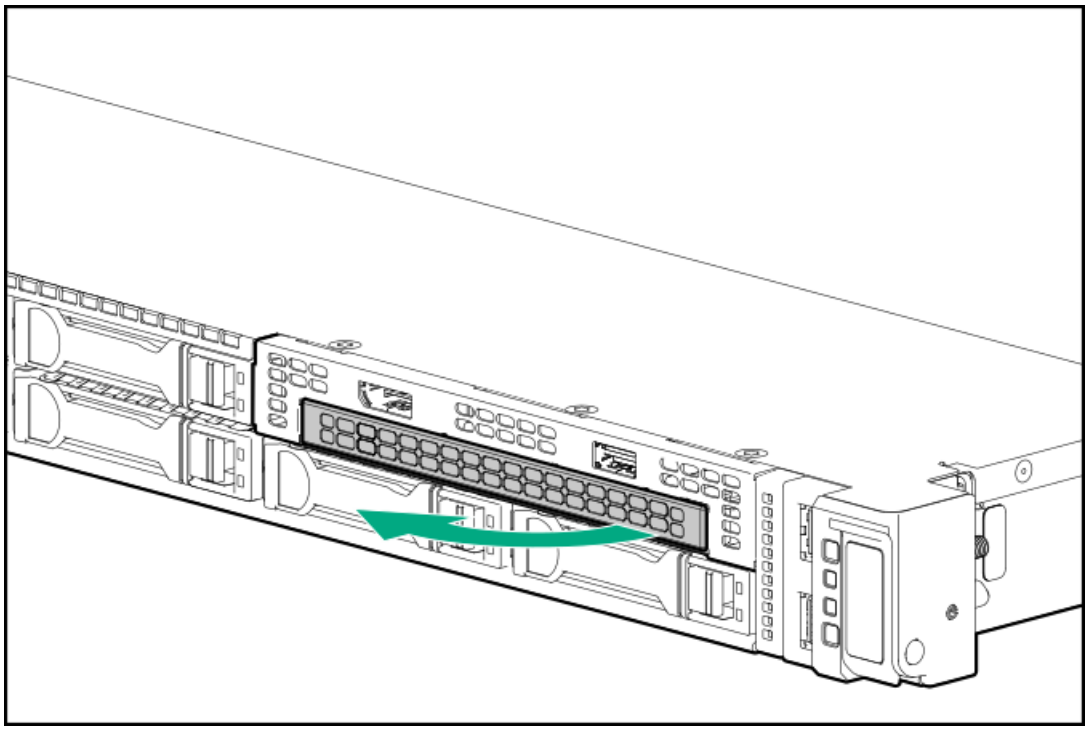
1. If installed, remove the front bezel.
2. Power down the server.
3. If installed, open the cable management arm.
4. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
5. Disconnect all peripheral cables from the server.
6. Remove the server from the rack.
7. Place the server on a flat, level work surface.

8. Remove the optical drive bay blank.

- LFF drive configuration



- SFF drive configuration



Results

To replace the component, reverse the removal procedure.

Transceiver replacement

Subtopics

Transceiver warnings and cautions

WARNING:

Fiber-optic transceivers and fiber-optic cables connected to transceivers emit laser light that can damage your eyes. To avoid eye injuries, avoid direct eye exposure to the beam from the fiber-optic transceiver or into the ends of fiber-optic cables when they are powered-up.

CAUTION:

The presence of dust in transceiver ports can cause poor cable connectivity. To prevent dust from entering, install a dust plug in an unused transceiver port.

CAUTION:

Supported transceivers can be hot-swapped—removed and installed while the server is powered-on. However, to prevent potential damage to the transceiver or the fiber-optic cable, disconnect the cable from the transceiver before hot-swapping it.

CAUTION:

Do not remove and install transceivers more often than is necessary. Doing so can shorten the useful life of the transceiver.

IMPORTANT:

When you replace a transceiver with another of a different type, the server might retain selected port-specific configuration settings that were configured for the replaced transceiver. Be sure to validate or reconfigure port settings as required.

Removing and replacing a transceiver

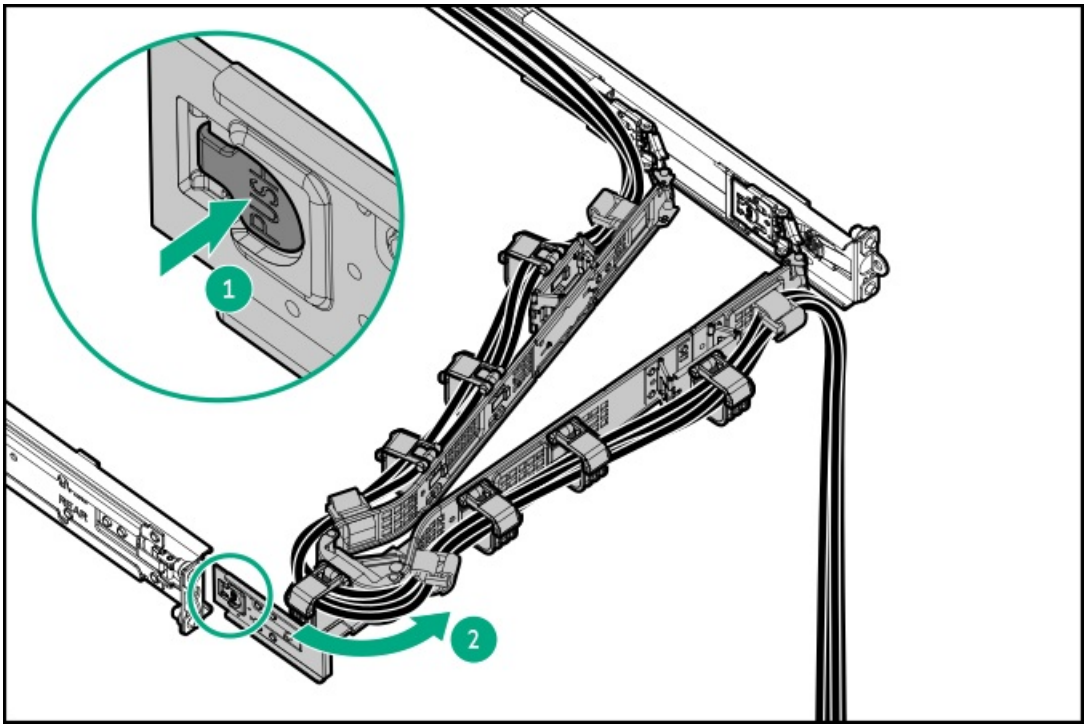
Prerequisites

Before replacing a transceiver, review the following:

- Transceiver warnings and cautions
- Transceiver documentation for specific operational and cabling requirements

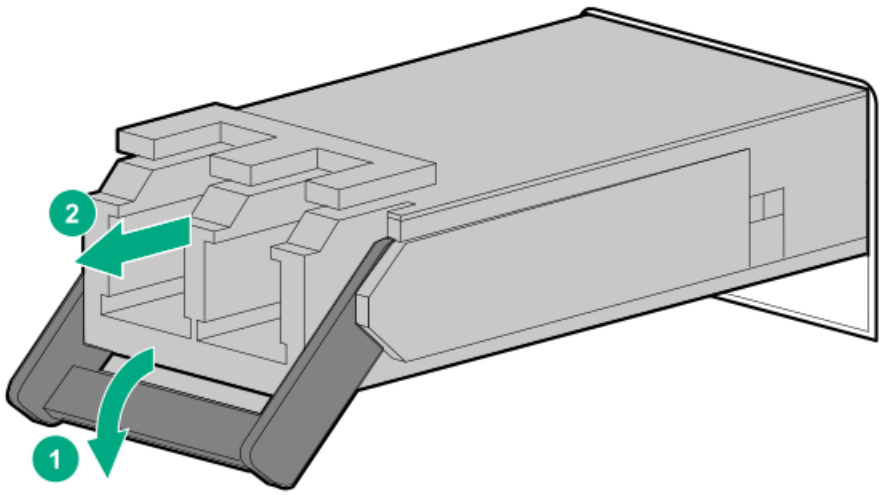
Procedure

1. If installed, open the cable management arm.



2. Disconnect the network cable from the transceiver.
3. Slide the transceiver out of the network adapter port.

   See the transceiver documentation for model-specific release mechanism for removing the transceiver.



Results

To replace the component, reverse the removal procedure.

Heatsink replacement

Subtopics

Removing the heatsink

Installing the heatsink

Removing the heatsink

Prerequisites

Before you perform this procedure, make sure that you have a T-30 Torx screwdriver available.

About this task

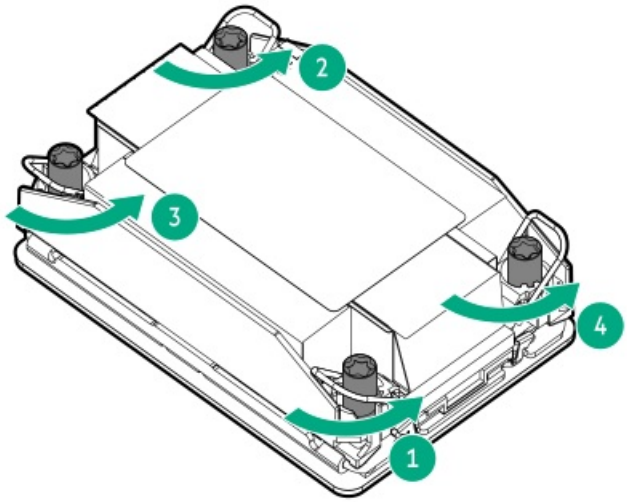
> **CAUTION:**
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

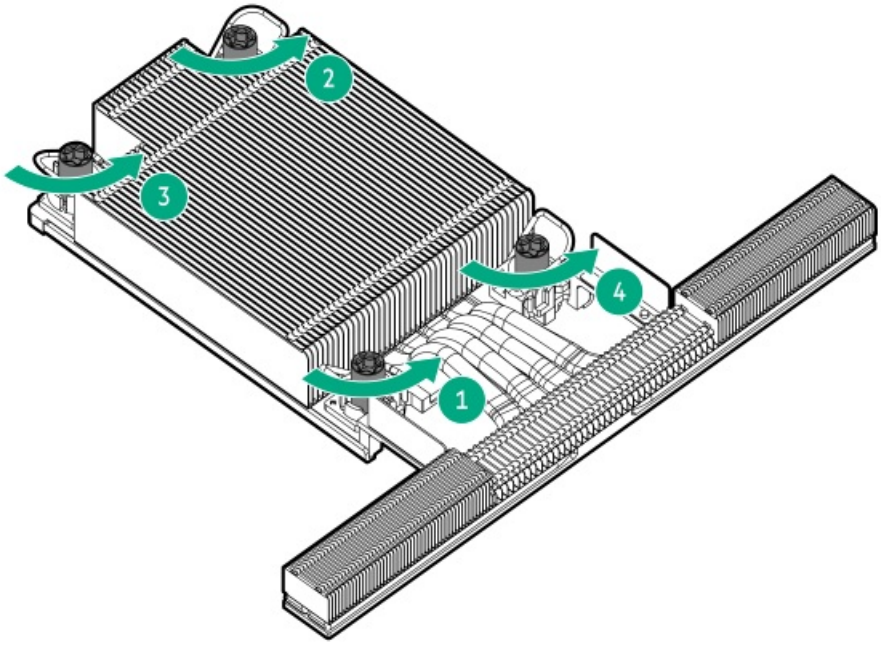
1. Power down the server.
2. If installed, open the cable management arm.
3. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
4. Disconnect all peripheral cables from the server.
5. Remove the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Allow all internal system components to cool before continuing.
9.
> **CAUTION:**
> Heatsink screws must be tightened and loosened in alternating sequence. Do not overtighten the screws as this might damage the system board or the processor socket.

   Use a T-30 Torx screwdriver to loosen one pair of diagonally opposite screws (callouts 1 and 2), and then loosen the other pair of screws (callouts 3 and 4).

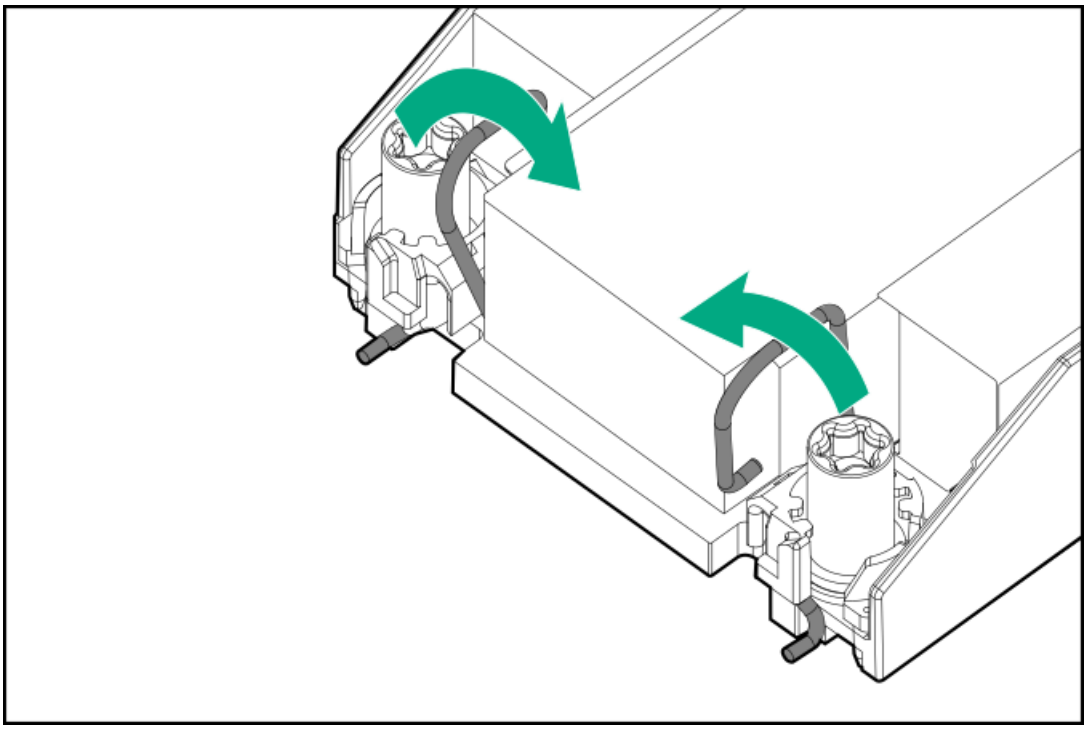
   - Standard heatsink



- Performance heatsink



10. Set the anti-tilt wires to the unlocked position.

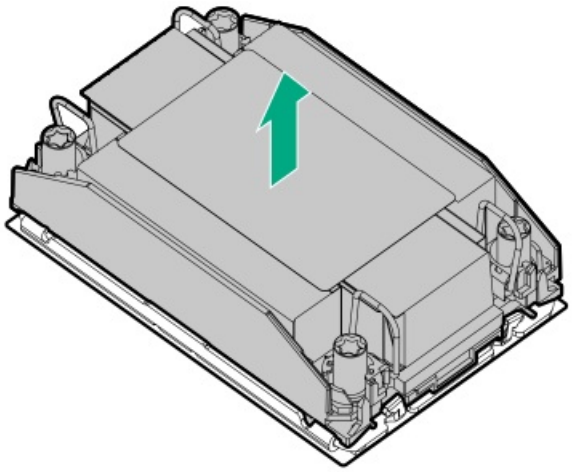


11. **CAUTION:**

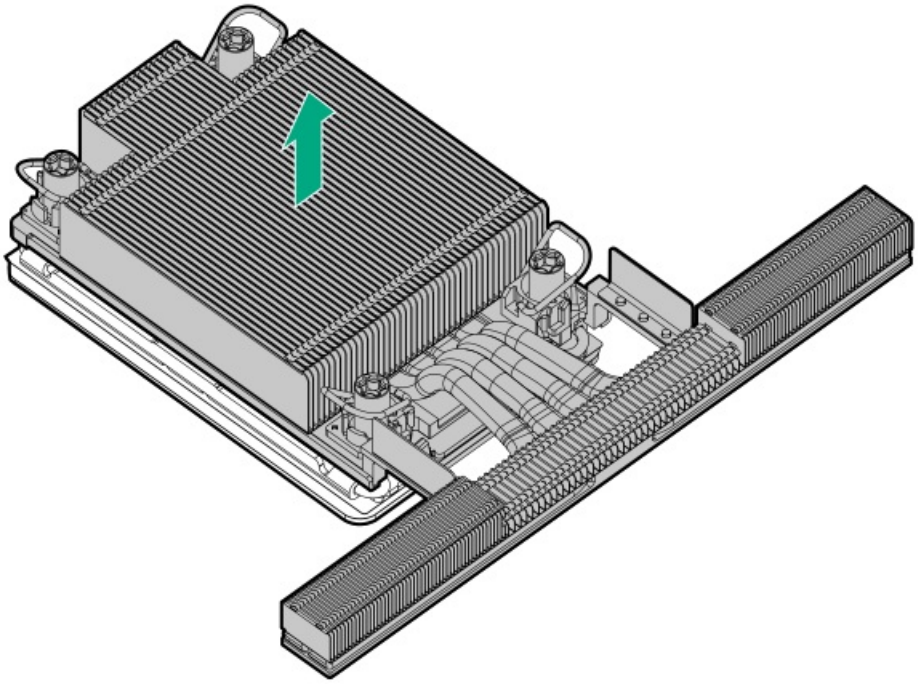
    To prevent mechanical damage or depositing oil on your hands or other contaminant to the heatsink contact surface, hold the heatsink only by the edge of its base plate. Do not touch the heatsink fins.

Lift the processor-heatsink module straight up from the system board.

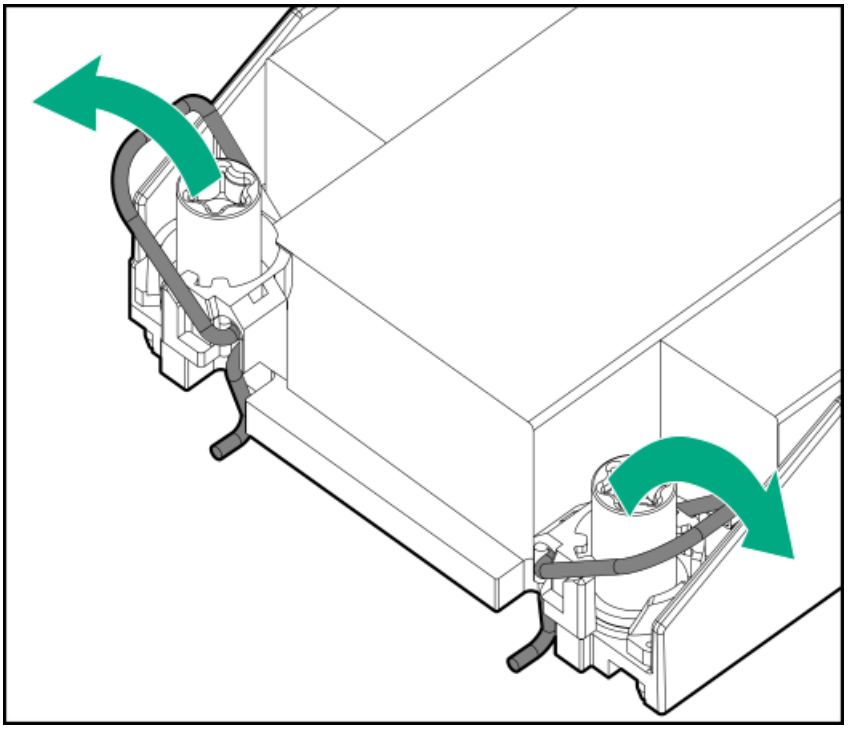
- Standard heatsink



- Performance heatsink



12. Set the anti-tilt wires to the locked position.



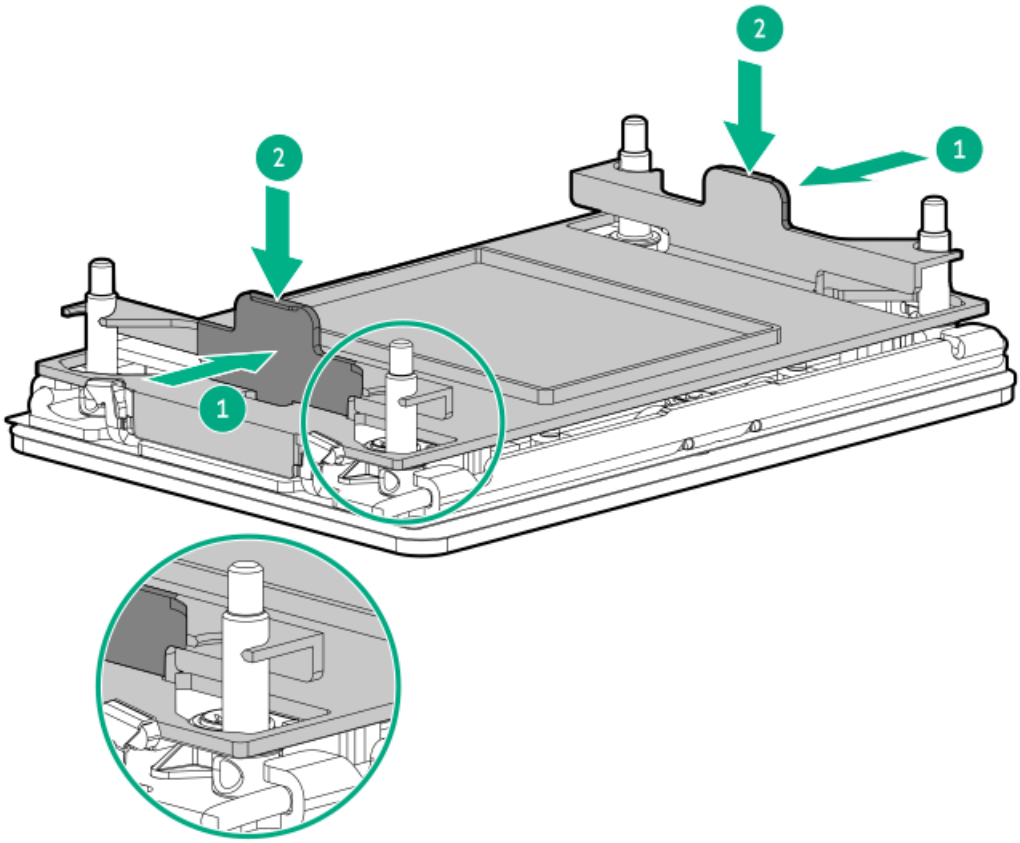
13. Place the processor-heatsink module on a flat work surface with its contact side facing up.
14. **CAUTION:** Do not press down on the dust cover. Pressing down on the dust cover might damage the processor socket.

    If you are not immediately installing the replacement processor-heatsink module, install the dust cover on the empty processor socket:

    a. Press and hold the grip tabs on the dust cover (callout 1).

    b. Carefully lower the dust cover onto the bolster plate guide posts (callout 2).

       Make sure that the corner holes of the dust cover are properly engaged with the guide posts on the bolster plate.

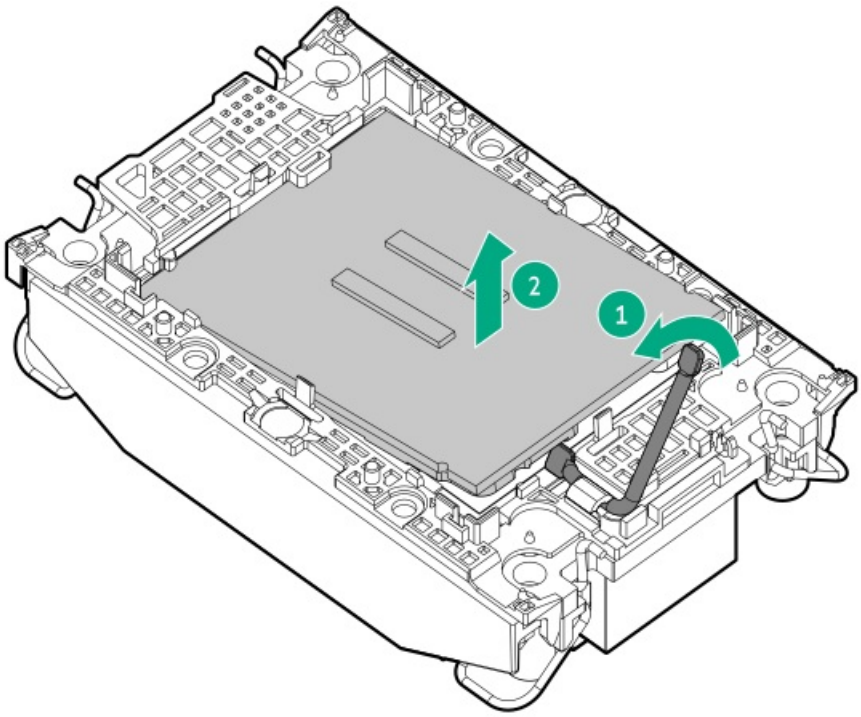


15. Remove the processor from the heatsink:

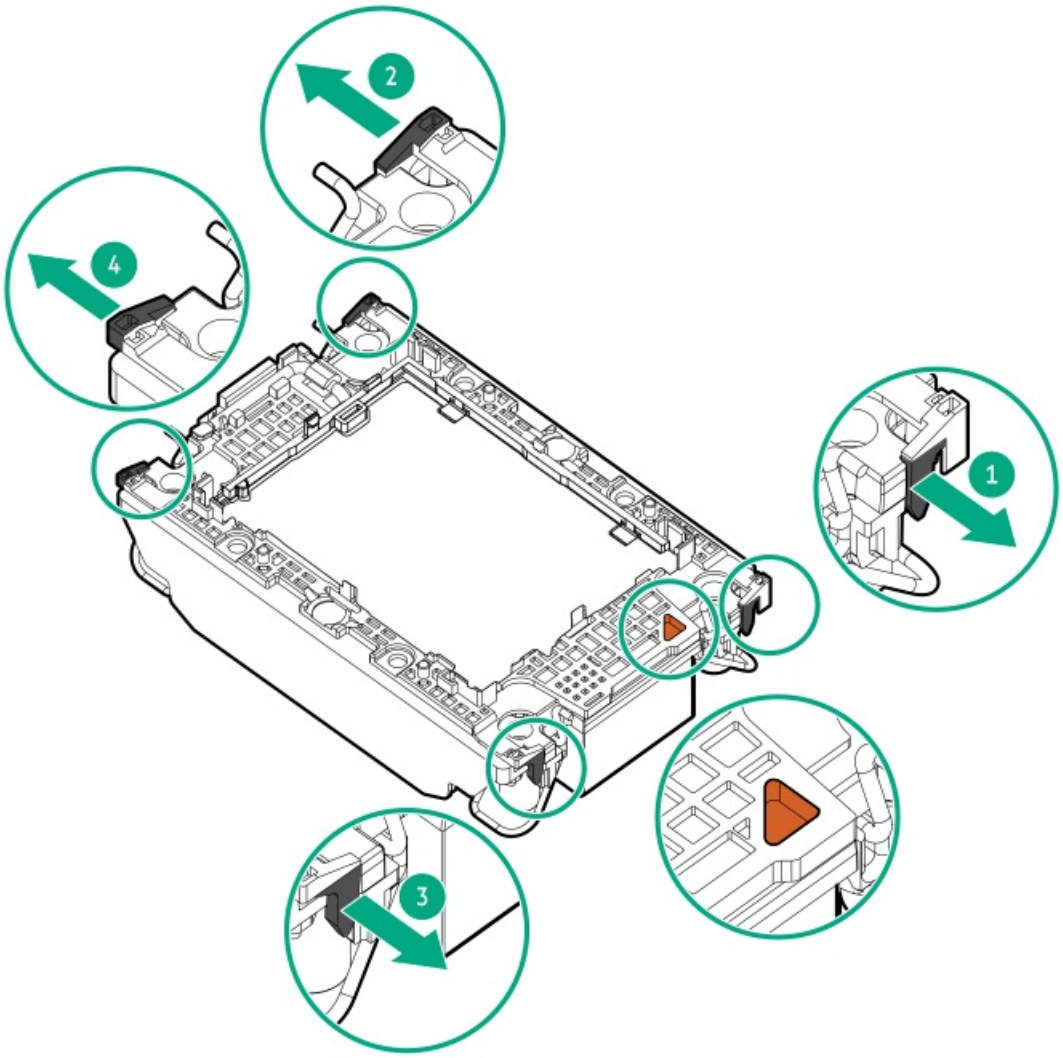
    a. Open the TIM breaker lever (callout 1).

       This action breaks the adhesion between the processor and the heatsink.

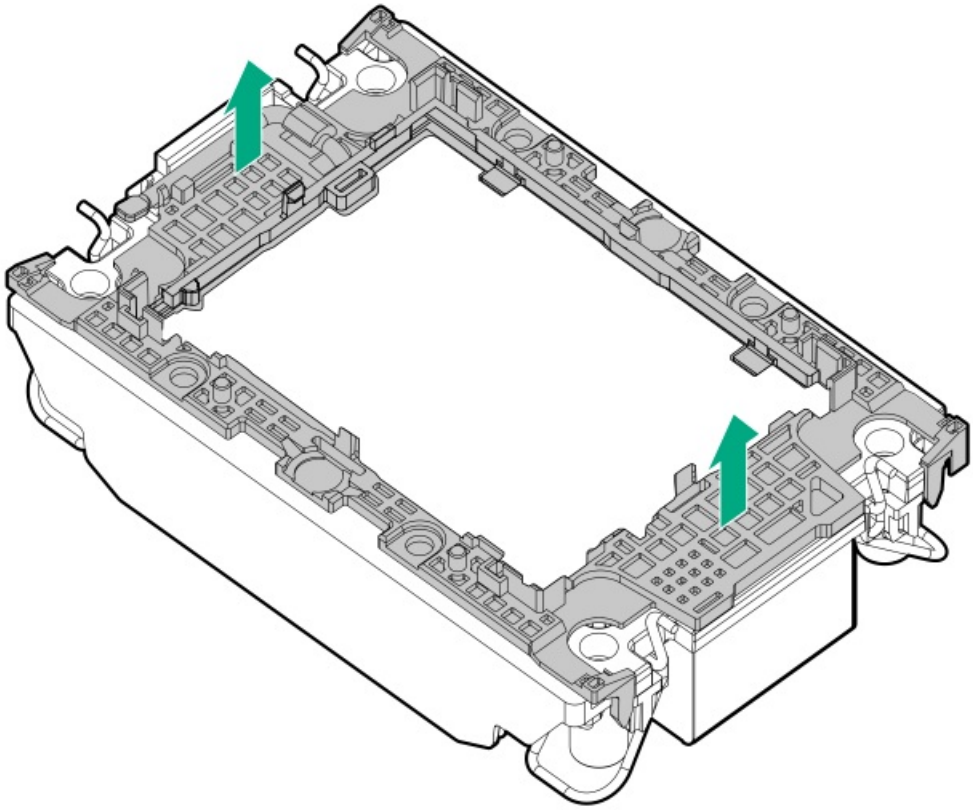
    b. Hold the processor on its edges, and then remove it from the carrier (callout 2).



    c. Starting from the pin 1 corner and moving in an opposite manner, disengage the processor carrier release tabs from the heatsink (callouts 1–4).



d. Lift the processor carrier away from the heatsink.



16. Using an alcohol wipe to remove the existing thermal grease from the processor and heatsink.

    Allow the alcohol to evaporate before continuing.

Installing the heatsink

Prerequisites

Before you perform this procedure, make sure that you have a T-30 Torx screwdriver available.

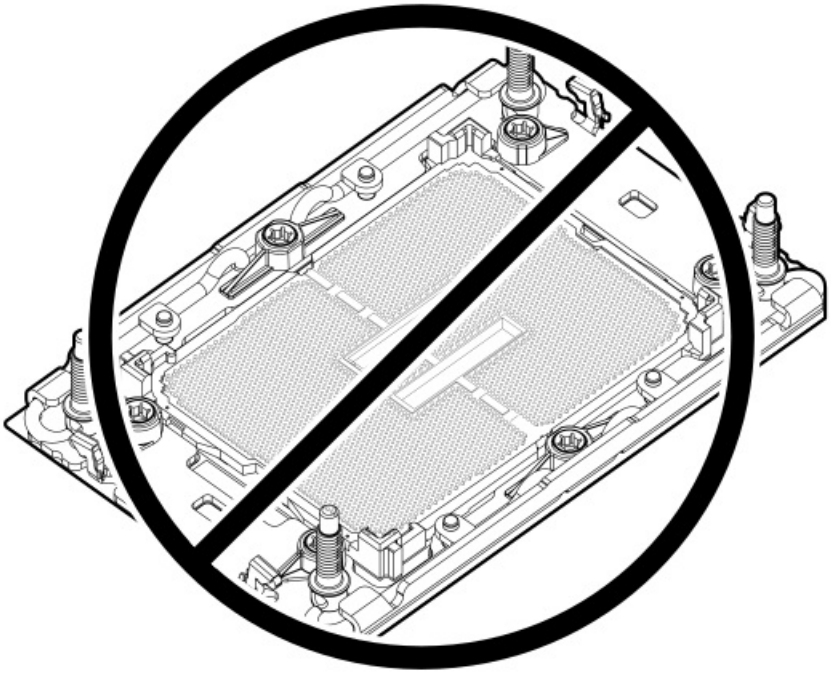
About this task

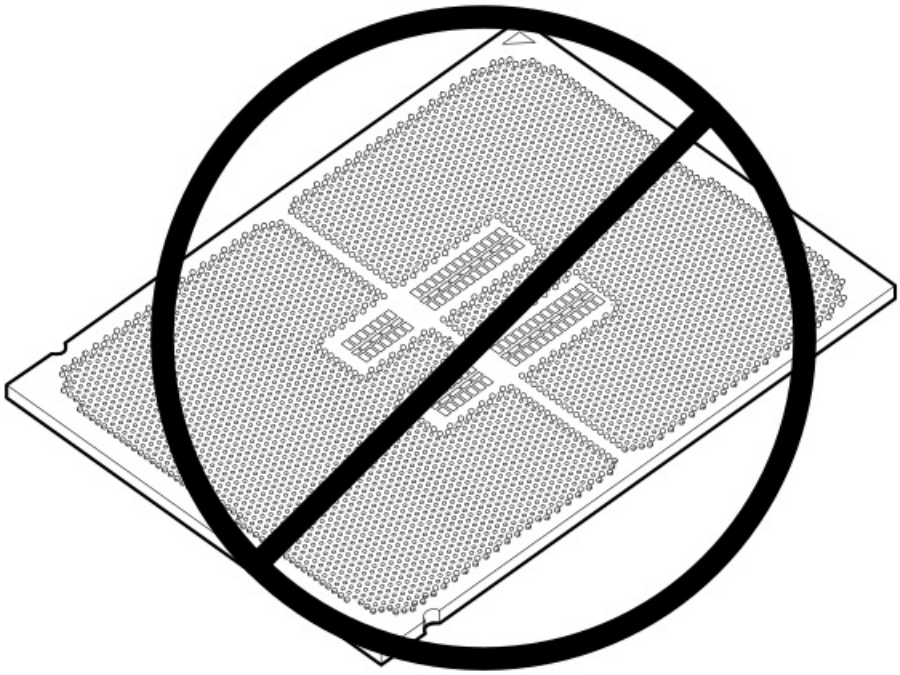
> **CAUTION:**
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

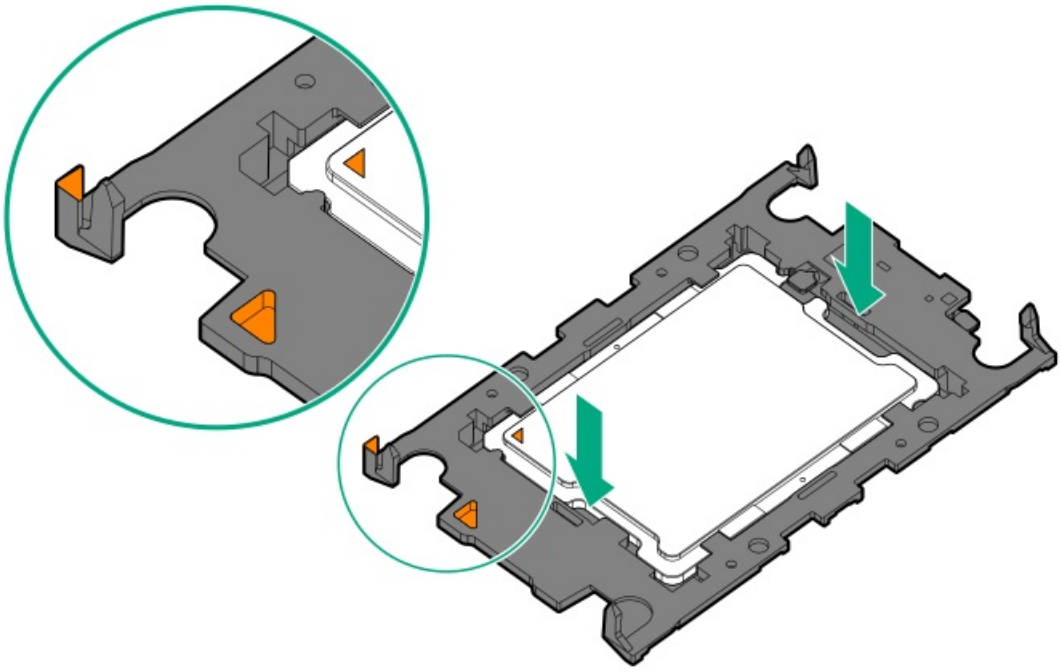
1. > **CAUTION:**
   > **THE PINS ON THE PROCESSOR SOCKET AND ON THE PROCESSOR ARE VERY FRAGILE AND EASILY DAMAGED.** Any damage to them might require replacing the system board.

   Do not touch the pins on the processor socket and the processor.

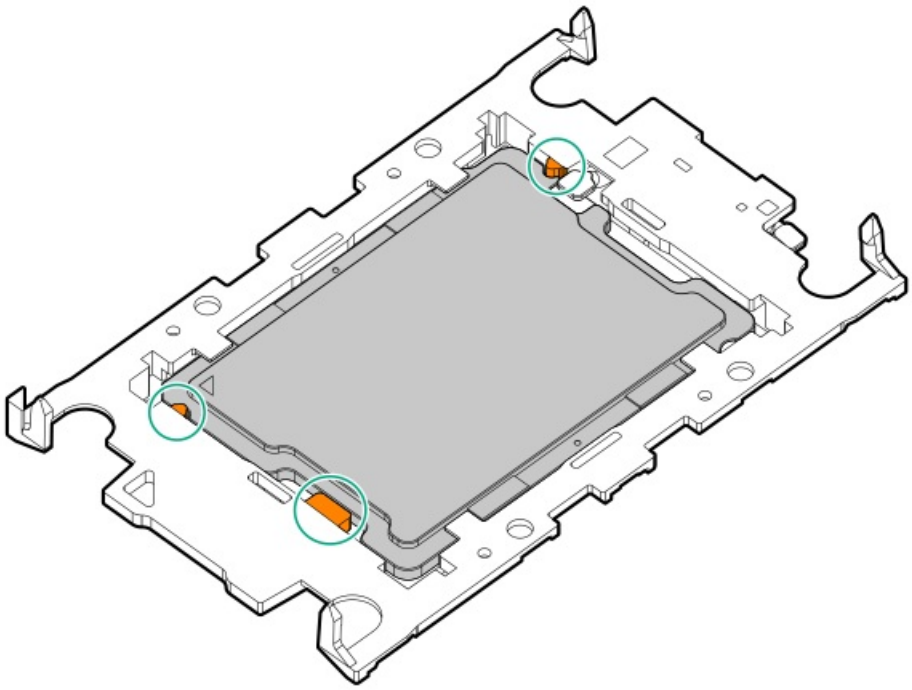




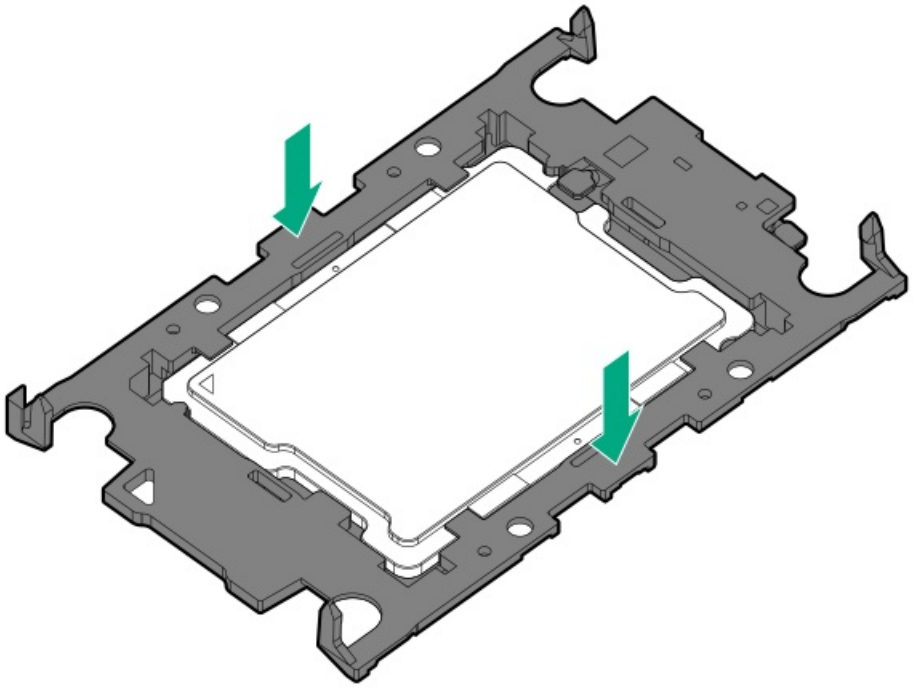
2. Install the processor carrier on the processor:
   a. Align the pin 1 indicator on the processor carrier with that on the processor, and then press on the pair of opposite sides on the TIM breaker lever of the processor carrier until it clicks into place.



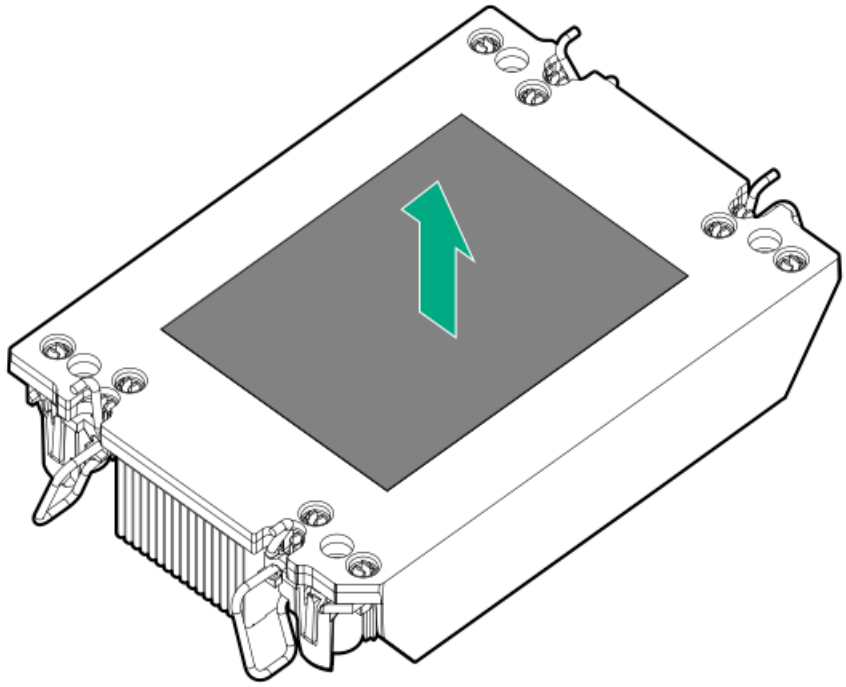
b. Verify that the processor is properly latched on the processor carrier.



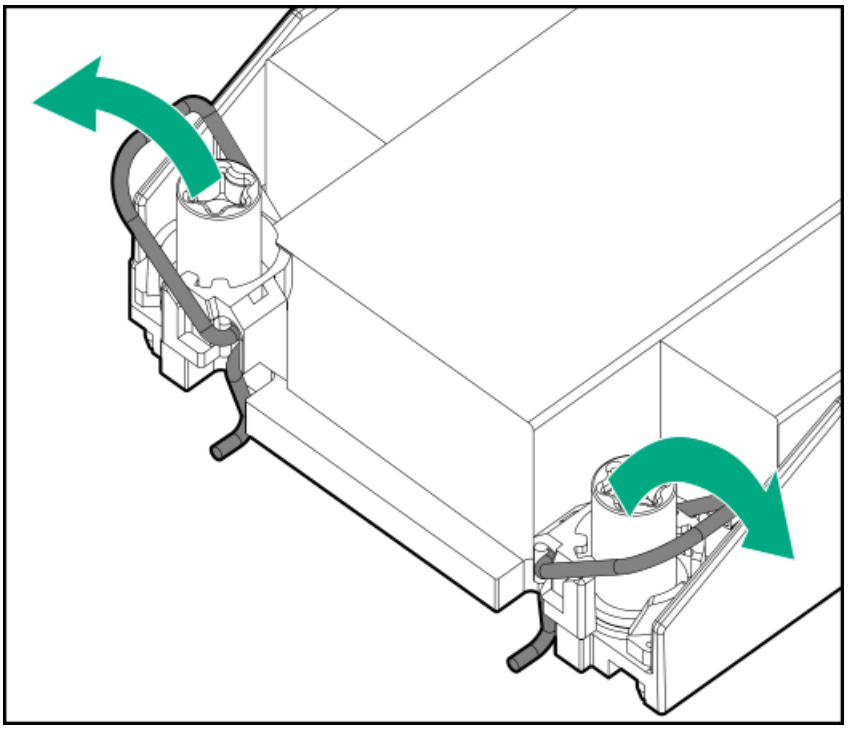
If not, press the other pair of opposite sides of the processor carrier until it clicks into place.



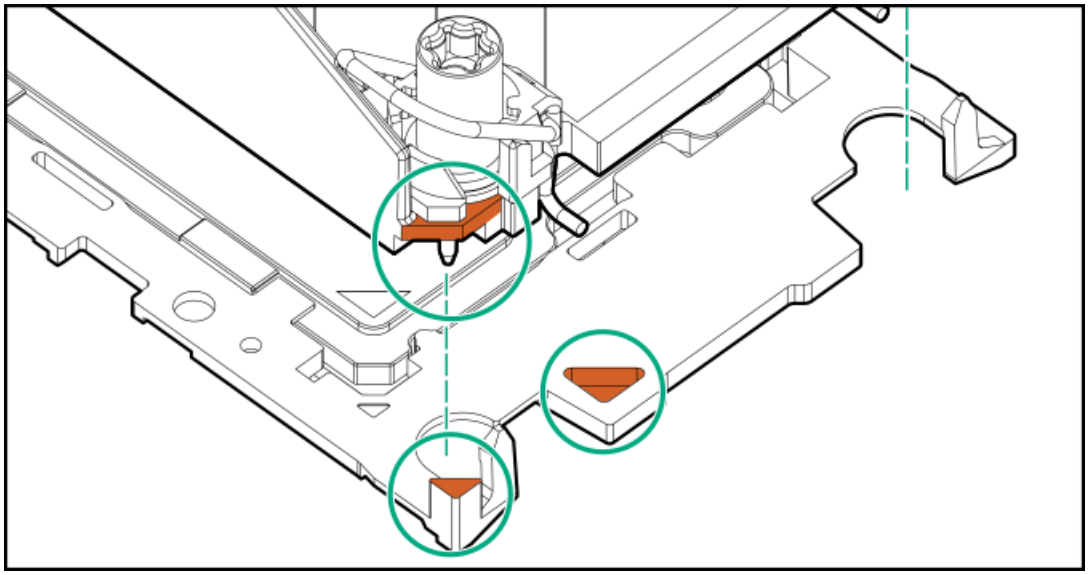
3. Remove the protective film from the thermal interface material.



4. Set the anti-tilt wires to the locked position.



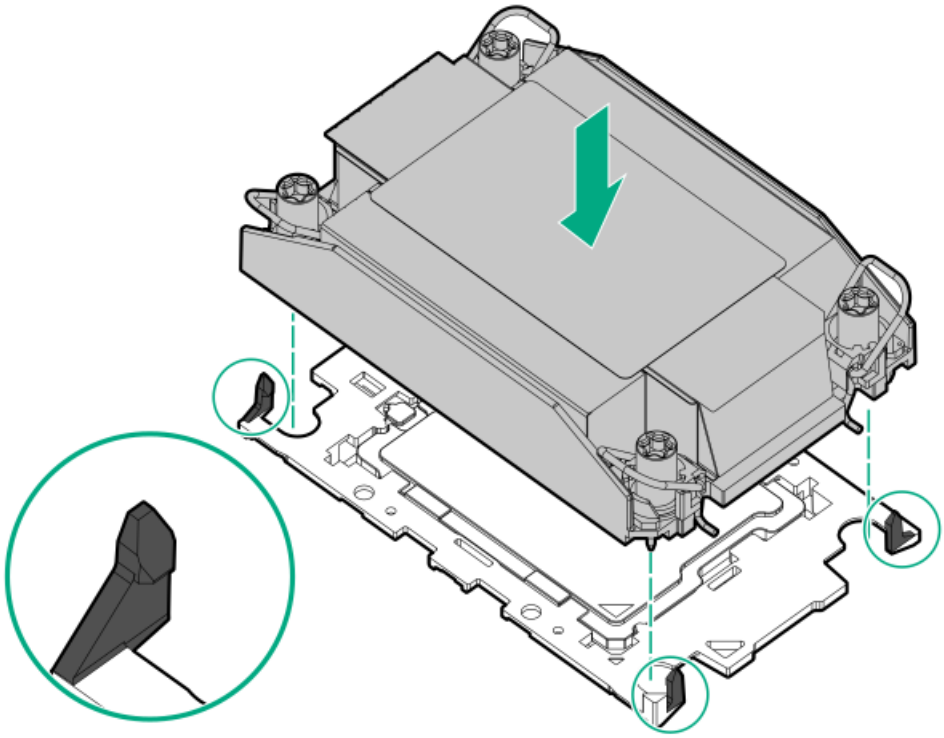
5. Attach the heatsink to the processor carrier:
   a. Align the pin 1 indicator on the processor carrier with that on the heatsink.



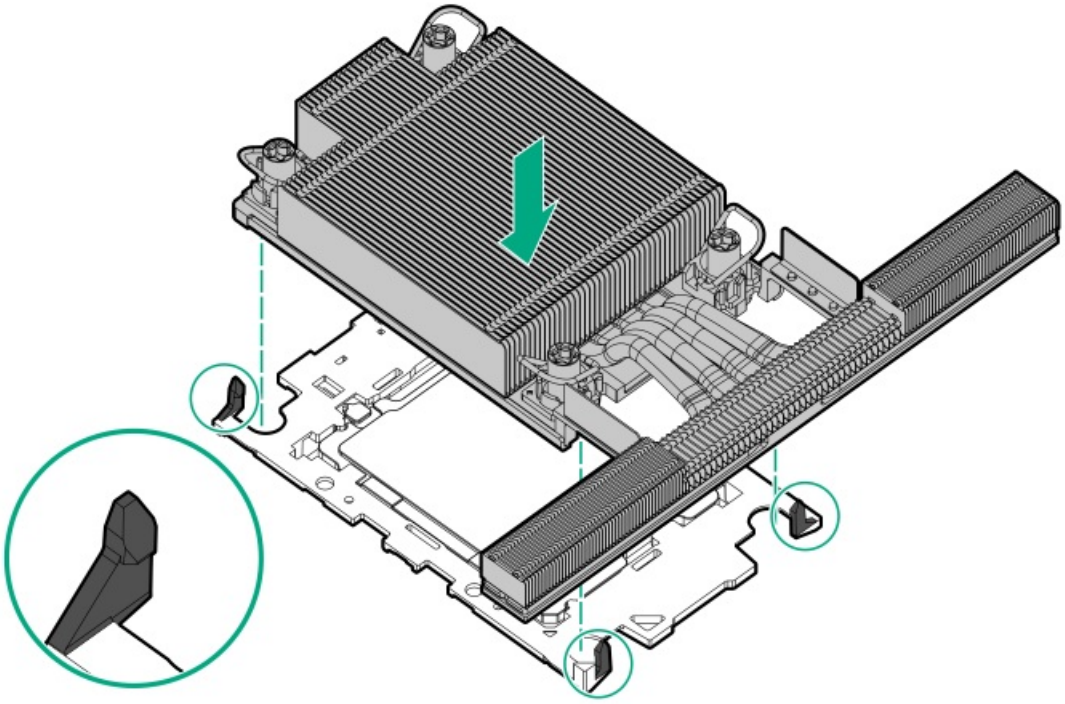
   b. Lower the heatsink on the processor carrier until the carrier tabs snap into place.

      There will be an audible click to indicate that the heatsink is properly latched on the processor carrier.

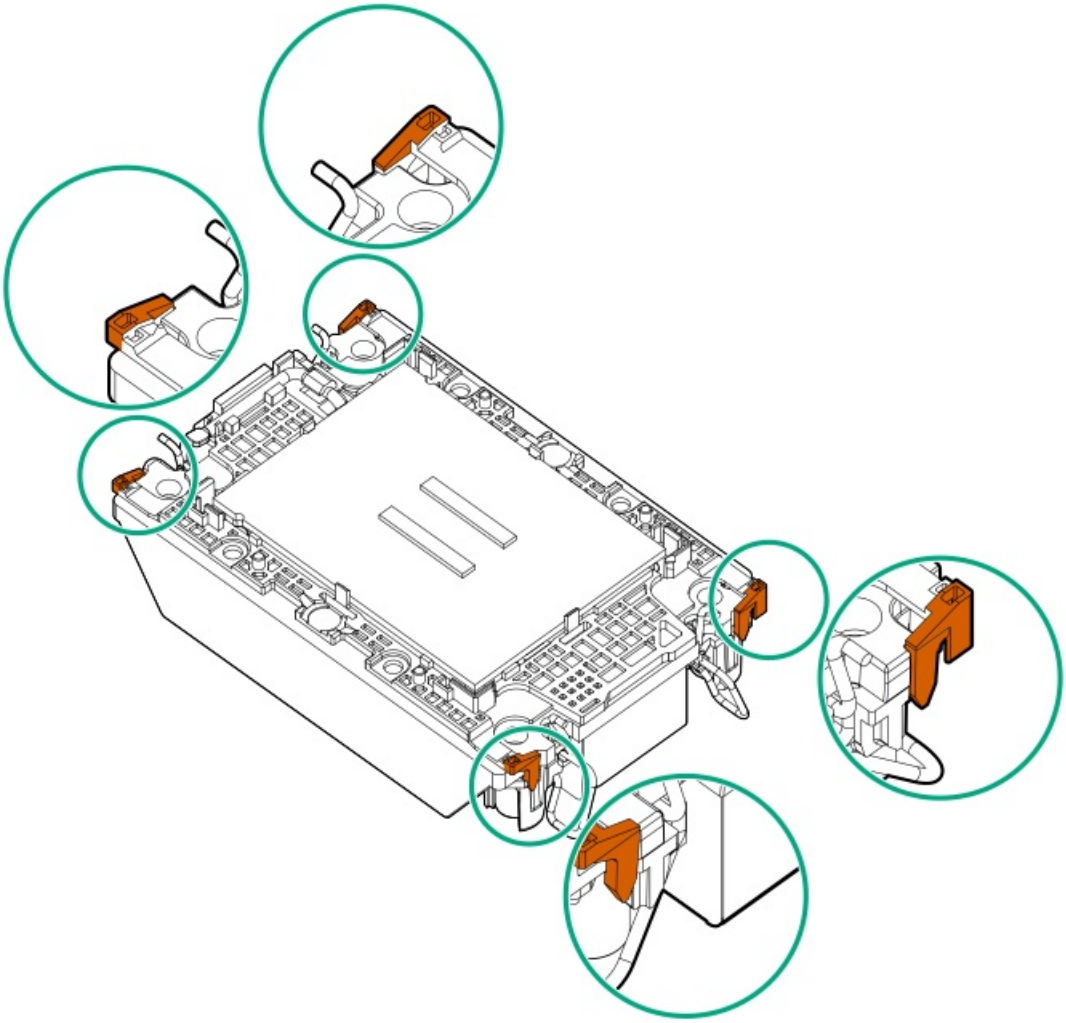
      - Standard heatsink



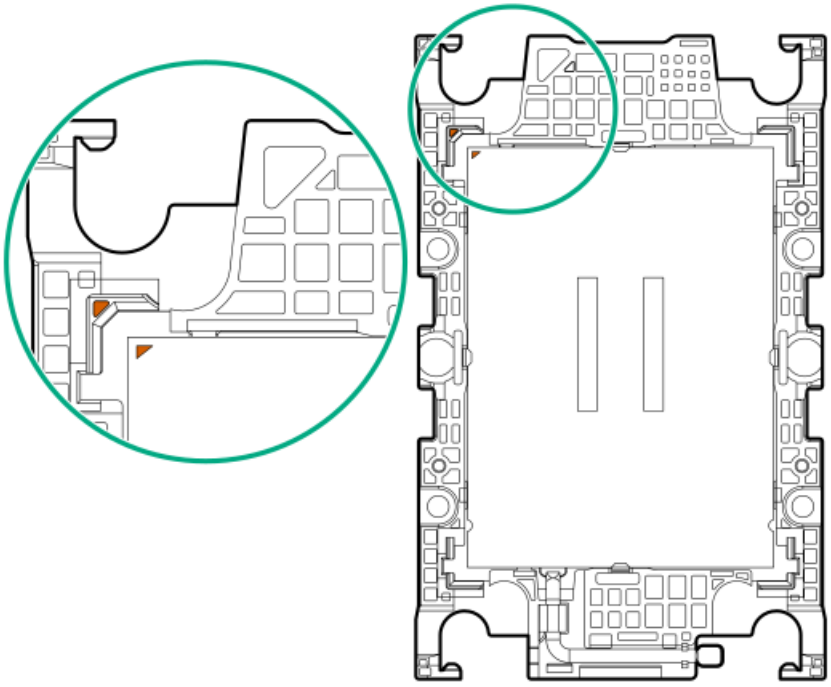
- Performance heatsink



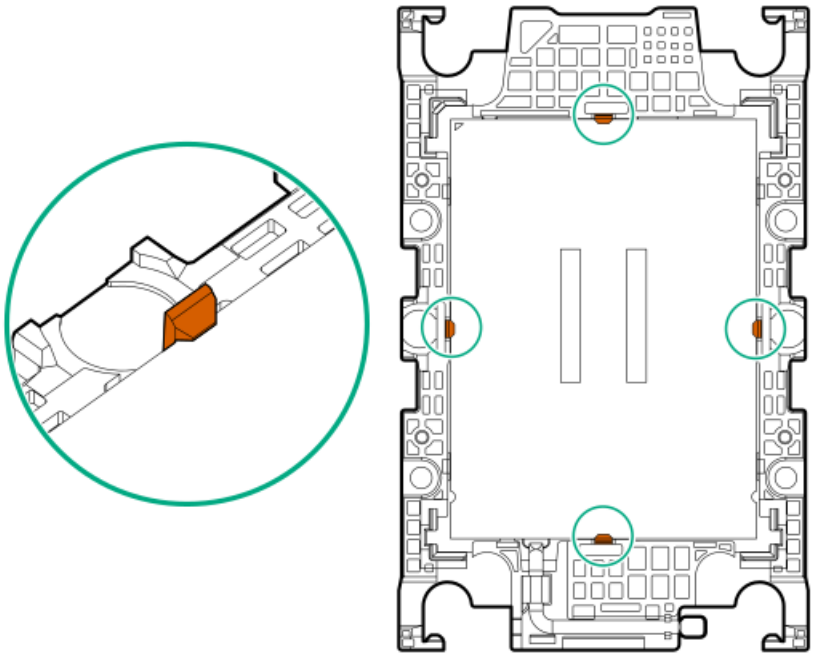
6. Perform the following verification steps:
   a. Verify that the tabs on the processor carrier are securely latched on the heatsink.



b. Verify that the pin 1 indicators on the processor and processor carrier are aligned.



c. Verity that the processor is properly secured by the carrier snaps.



7. Install the processor-heatsink module:

> **CAUTION:**
>
> To prevent mechanical damage or depositing oil on your hands or other contaminant to the heatsink contact surface, hold the heatsink only by the edge of its base plate. Do not touch the heatsink fins.

> **CAUTION:**
>
> To prevent thermal failure or component damage, do not move the heatsink once the bottom of its base plate touches the top of the processor. Excessive heatsink movement can cause the thermal grease to smear and become uneven. Voids in the compound can adversely impact the transfer of heat away from the processor.

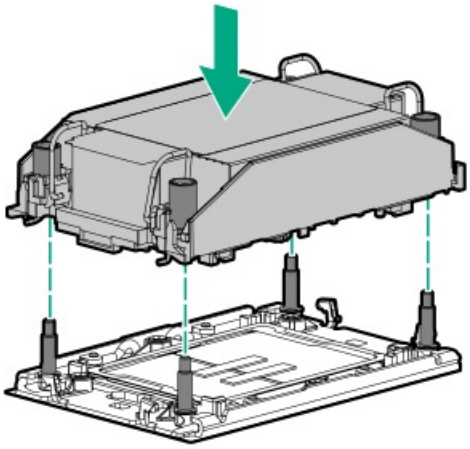
a. When using a torque wrench to tighten the heatsink screws, set it to 0.9 N-m (8 lbf-in) of torque .

b. Note the **Front of server** text on the heatsink label to correctly orient the processor-heatsink module over the bolster plate.

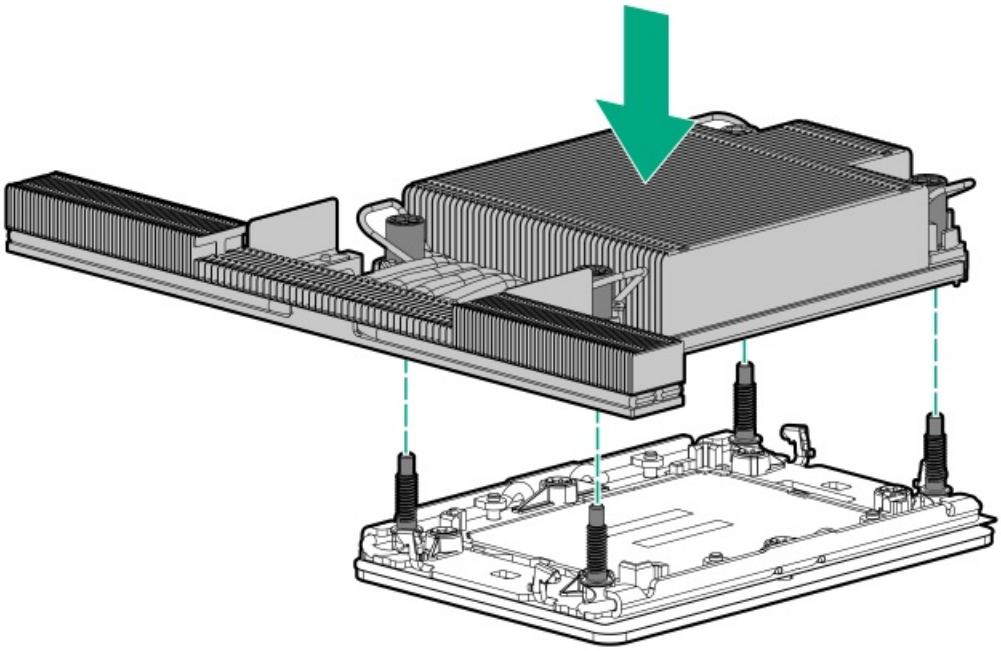
c. Carefully lower the processor-heatsink module straight down onto the bolster plate guide posts.

   The posts are keyed so that the module can only be installed one way. Make sure that the module is properly seated on the bolster plate before securing the screws.

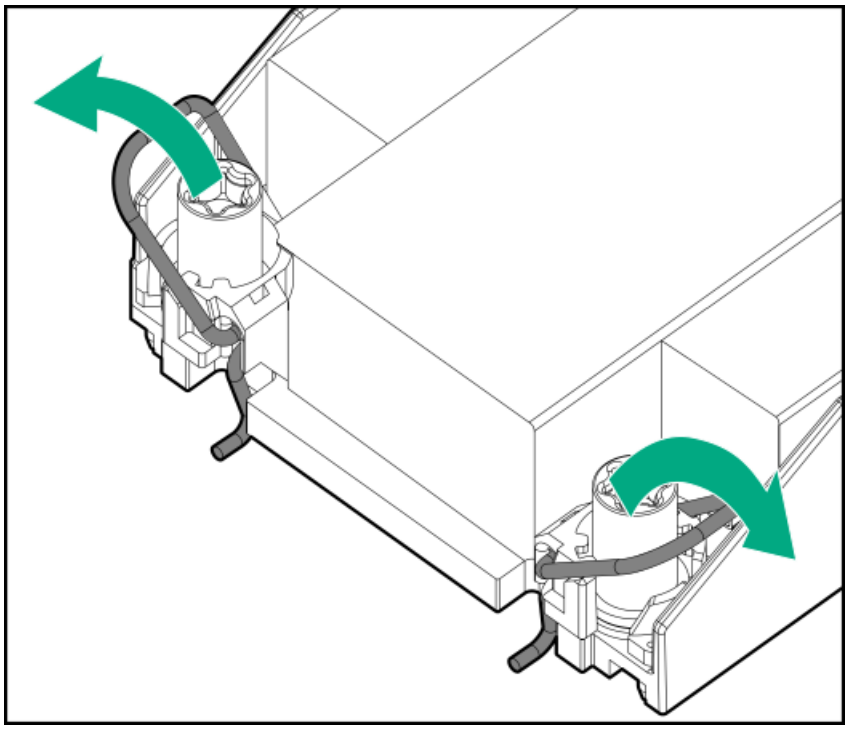
   - Standard heatsink



- Performance heatsink

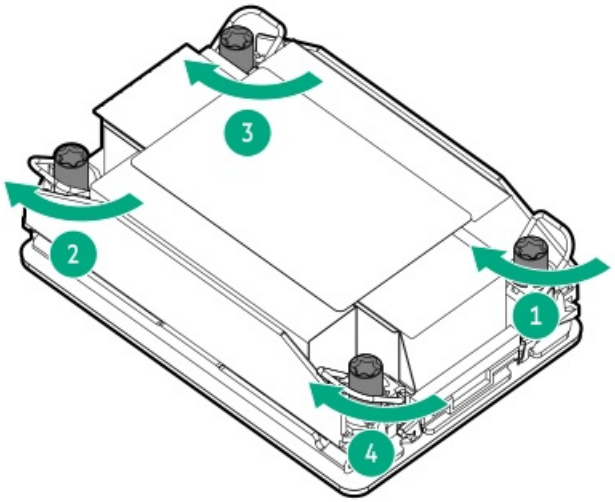


d. Set the anti-tilt wires to the locked position.

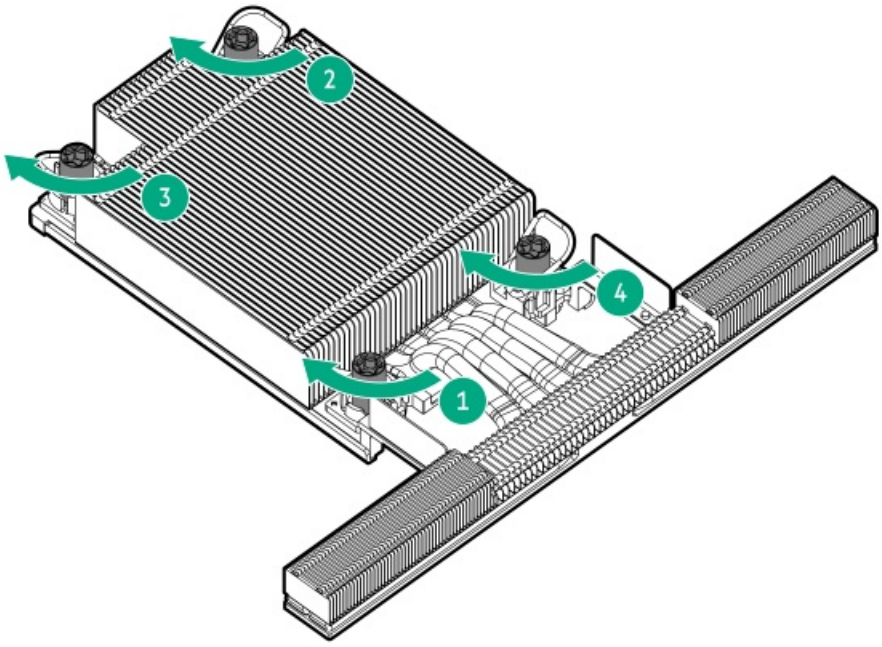


e. Use a T-30 Torx screwdriver to tighten one pair of diagonally opposite heatsink screws (callouts 1 to 2), and then tighten the other pair of heatsink screws (callouts 3 to 4).

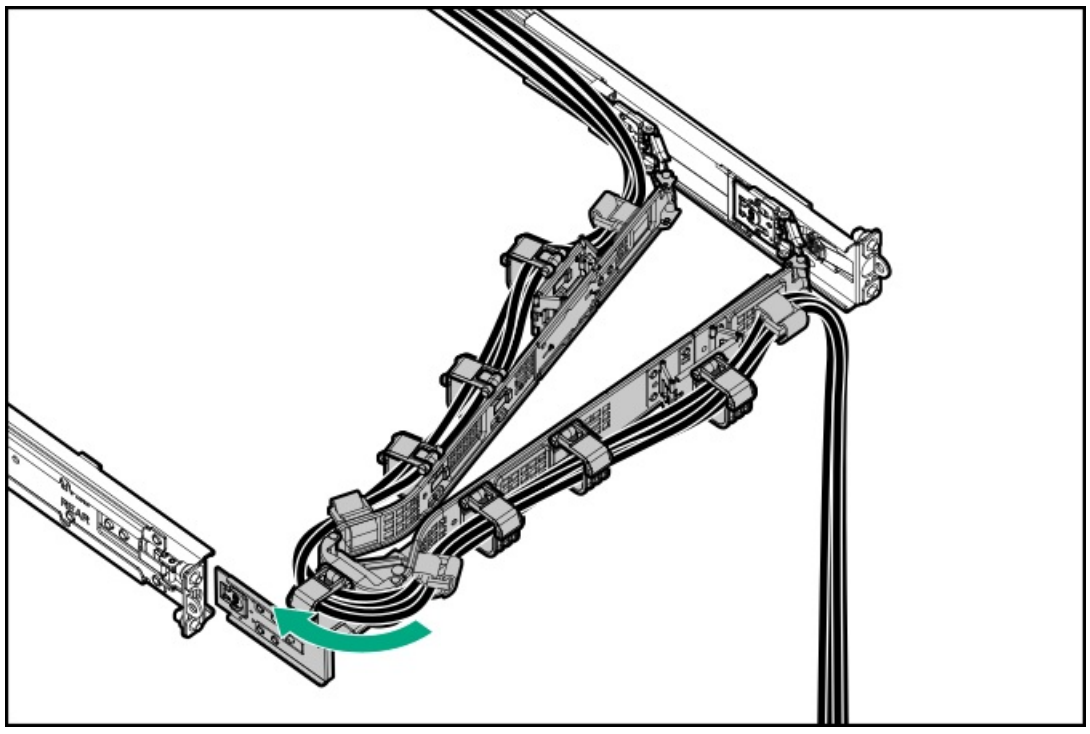
- Standard heatsink



- Performance heatsink



8. Install the access panel.
9. Install the server into the rack.
10. Connect all peripheral cables to the server.
11. Connect the power cords:
    a. Connect each power cord to the server.
    b. Connect each power cord to the power source.
12. If installed, close the cable management arm.



13. Power up the server.

Processor replacement

Subtopics

Processor cautions

Removing the processor

Installing the processor

Processor cautions

CAUTION: To avoid damage to the processor or 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: The pins on the processor socket and on the processor are very fragile and easily damaged . To avoid component damage, **do not touch these pins**. Any damage to them might require replacing the system board and/or processor.

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

IMPORTANT: If installing a processor with a faster speed, update the system ROM before installing the processor. To download firmware, see Updating firmware or system ROM .

Removing the processor

Prerequisites

- Identify the heatsink and processor socket components .
- Review the processor cautions .
- Before you perform this procedure, make sure that you have the following items available:
  - T-30 Torx screwdriver
  - Alcohol wipe

About this task

Procedure

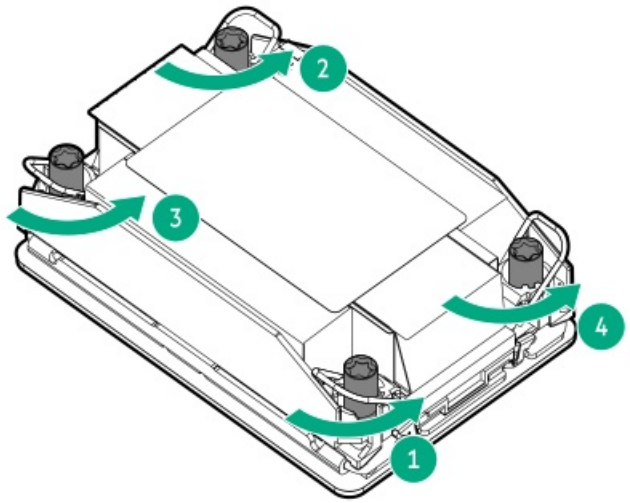
1. Power down the server.
2. If installed, open the cable management arm .
3. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.

4. Disconnect all peripheral cables from the server.
5. Remove the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Allow all internal system components to cool before continuing.
9. **CAUTION:**

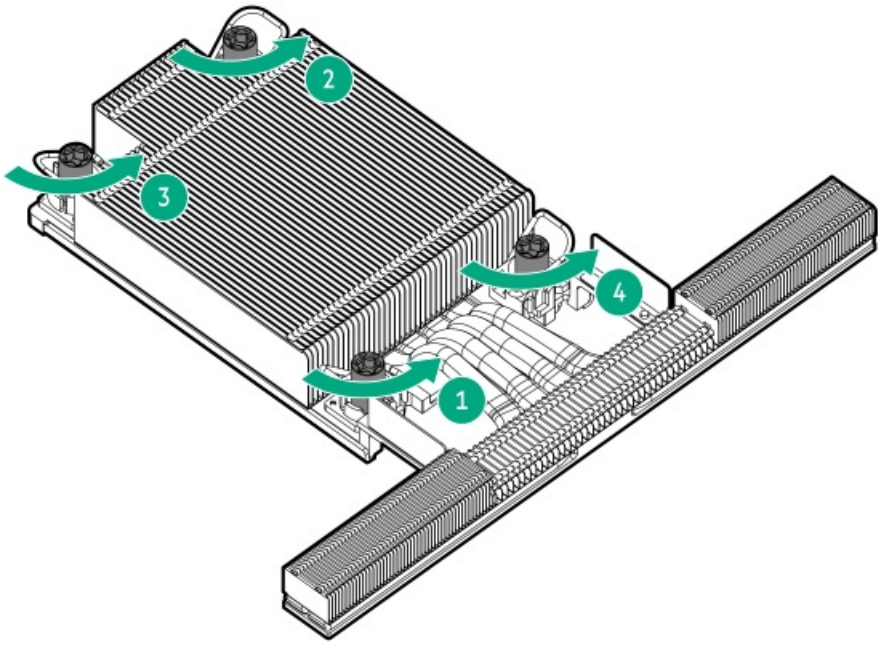
   Heatsink screws must be tightened and loosened in alternating sequence. Do not overtighten the screws as this might damage the system board or the processor socket.

   Use a T-30 Torx screwdriver to loosen one pair of diagonally opposite screws (callouts 1 and 2), and then loosen the other pair of screws (callouts 3 and 4).

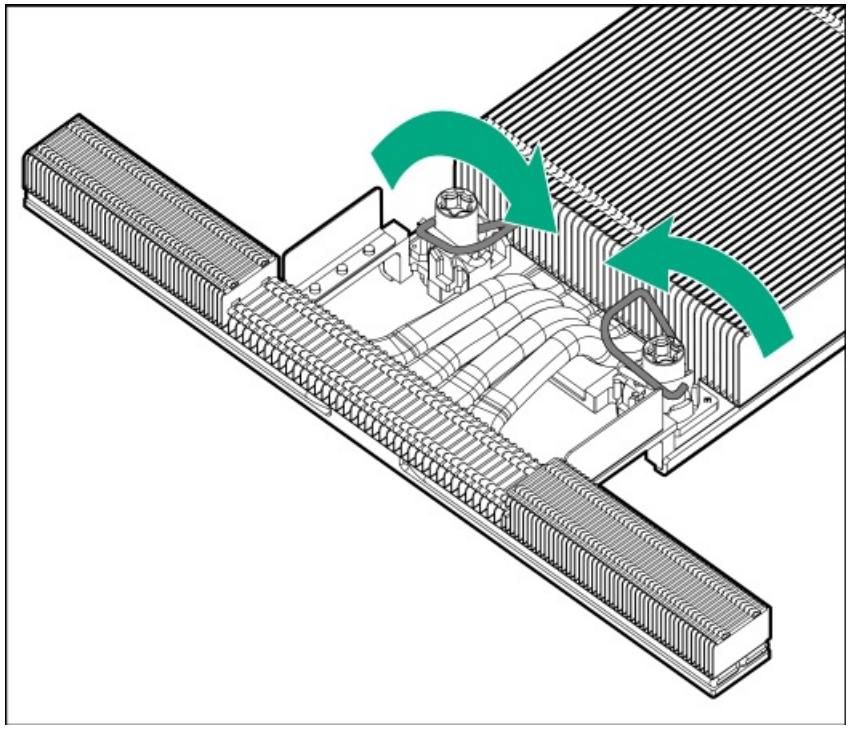
   - Standard heatsink



   - Performance heatsink



10. Set the anti-tilt wires to the unlocked position.

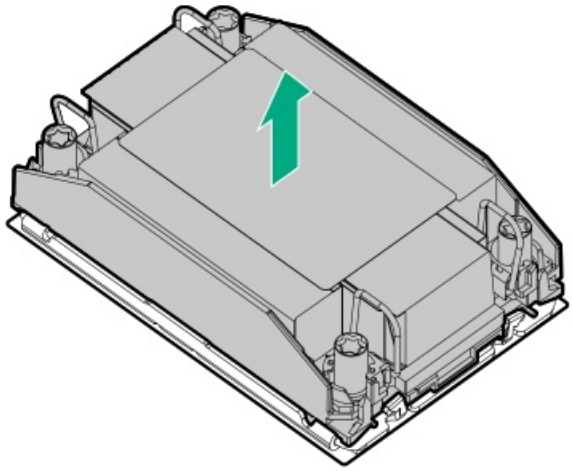


11. **CAUTION:**

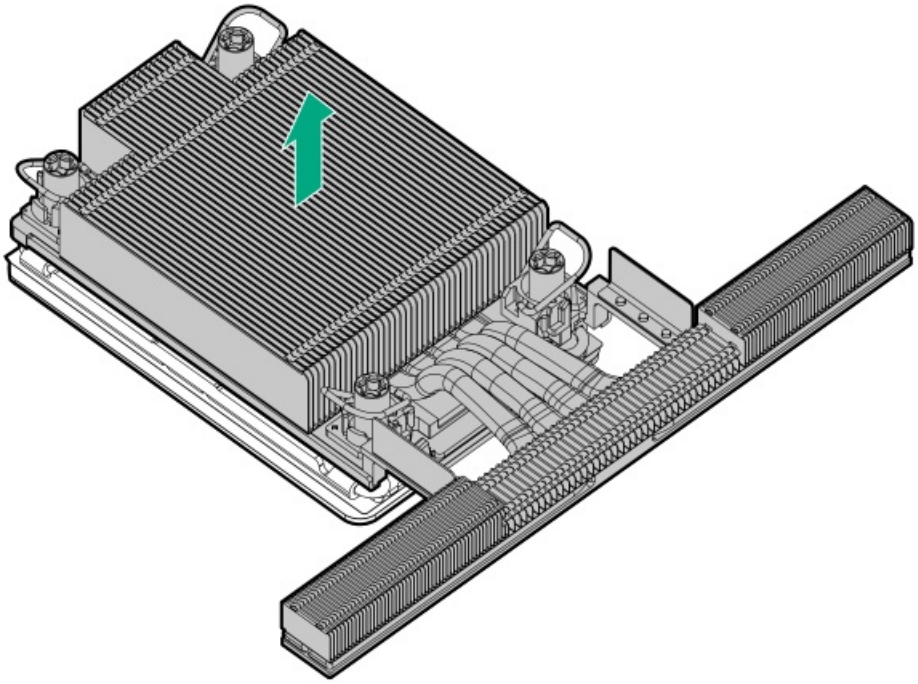
    To prevent mechanical damage or depositing oil on your hands or other contaminant to the heatsink contact surface, hold the heatsink only by the edge of its base plate. Do not touch the heatsink fins.

Lift the processor-heatsink module straight up from the system board.

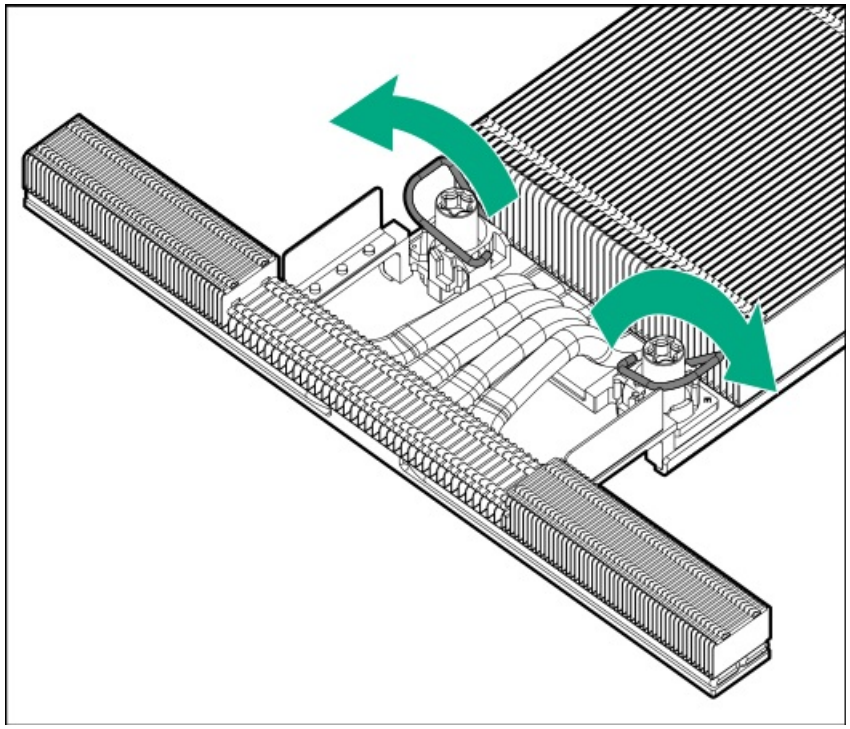
- Standard heatsink



- Performance heatsink



12. Set the anti-tilt wires to the locked position.



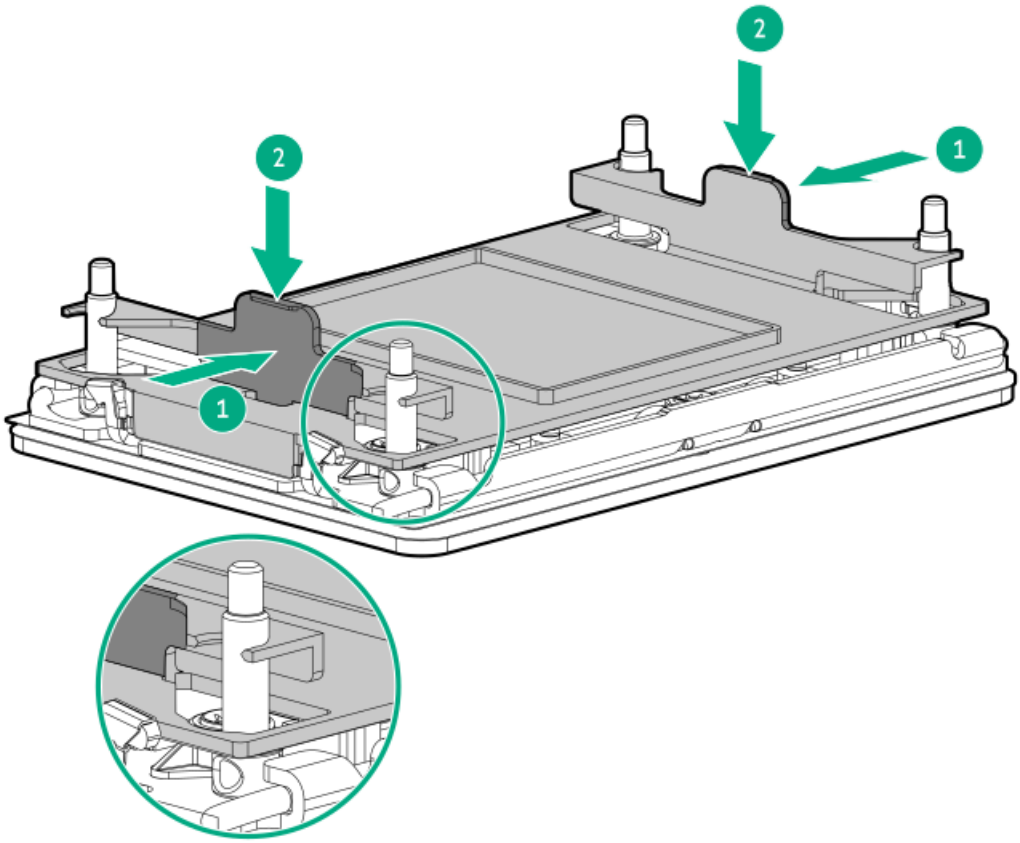
13. Place the processor-heatsink module on a flat work surface with its contact side facing up.
14. **CAUTION:** Do not press down on the dust cover. Pressing down on the dust cover might damage the processor socket.

    If you are not immediately installing the replacement processor-heatsink module, install the dust cover on the empty processor socket:

    a. Press and hold the grip tabs on the dust cover (callout 1).

    b. Carefully lower the dust cover onto the bolster plate guide posts (callout 2).

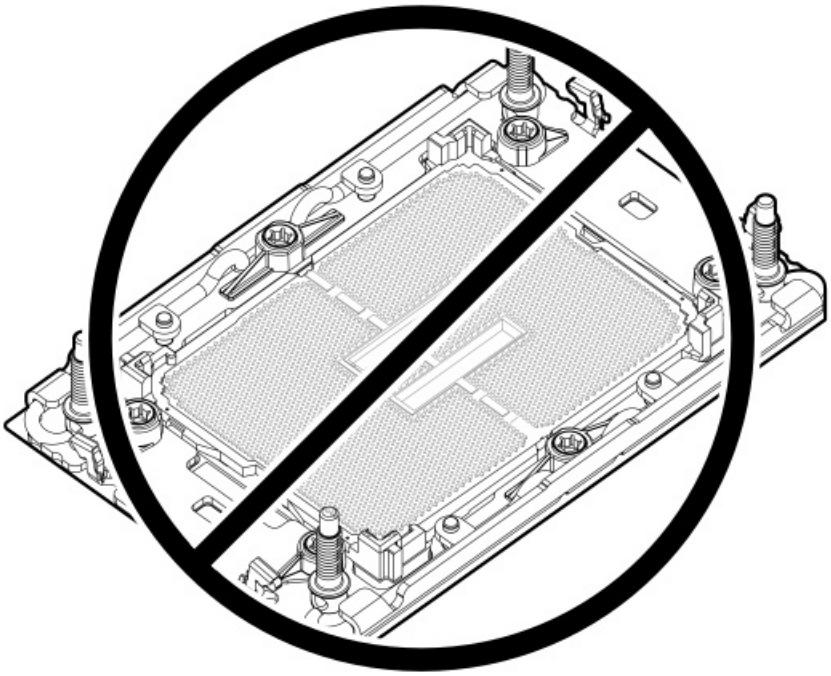
       Make sure that the corner holes of the dust cover are properly engaged with the guide posts on the bolster plate.

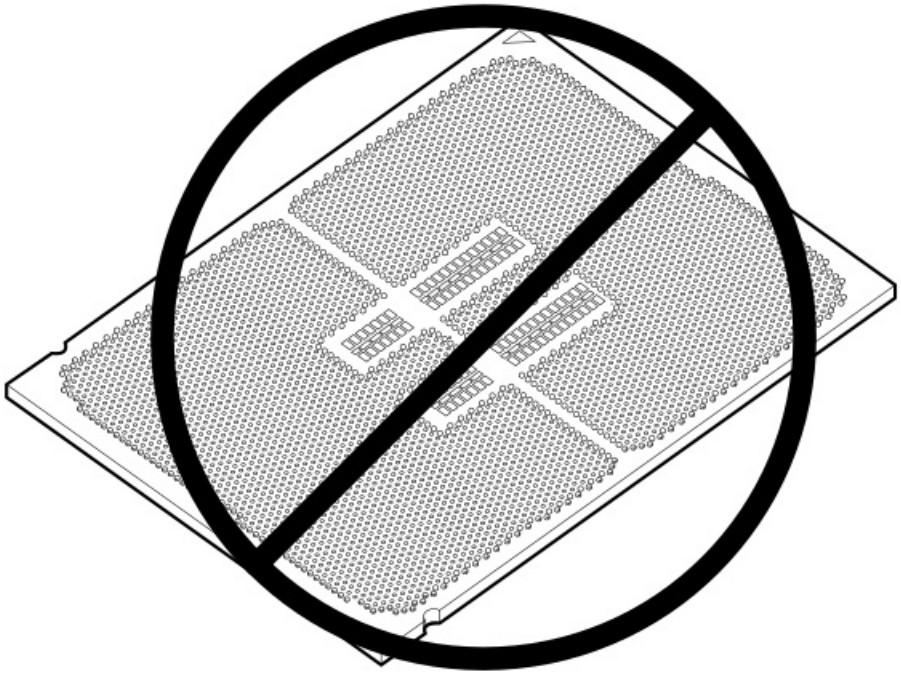


15. **CAUTION:**

THE PINS ON THE PROCESSOR SOCKET AND ON THE PROCESSOR ARE VERY FRAGILE AND EASILY DAMAGED. Any damage to them might require replacing the system board.

Do not touch the pins on the processor socket and the processor.

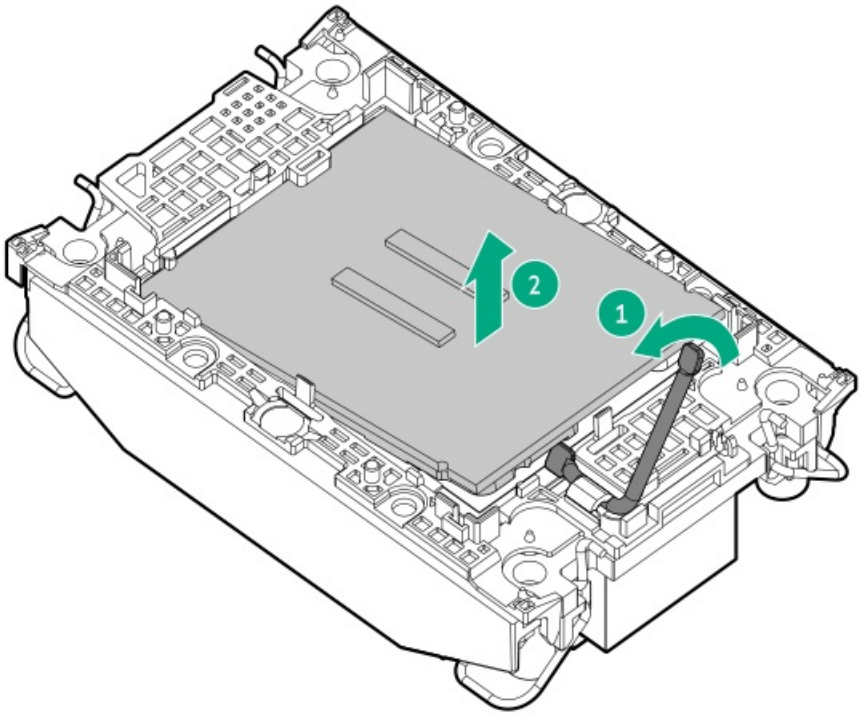




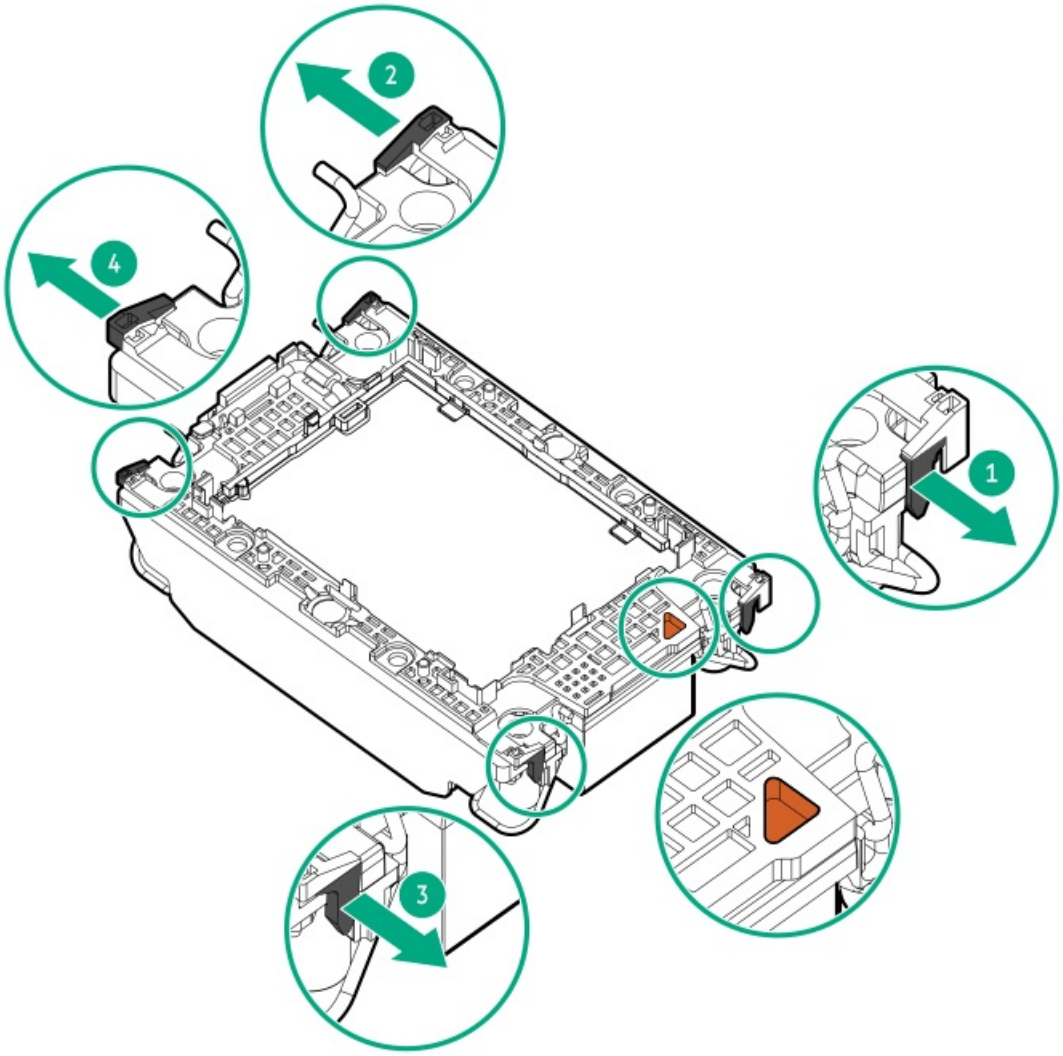
16. Remove the processor from the heatsink:
    a. Open the TIM breaker lever (callout 1).

       This action breaks the adhesion between the processor and the heatsink.

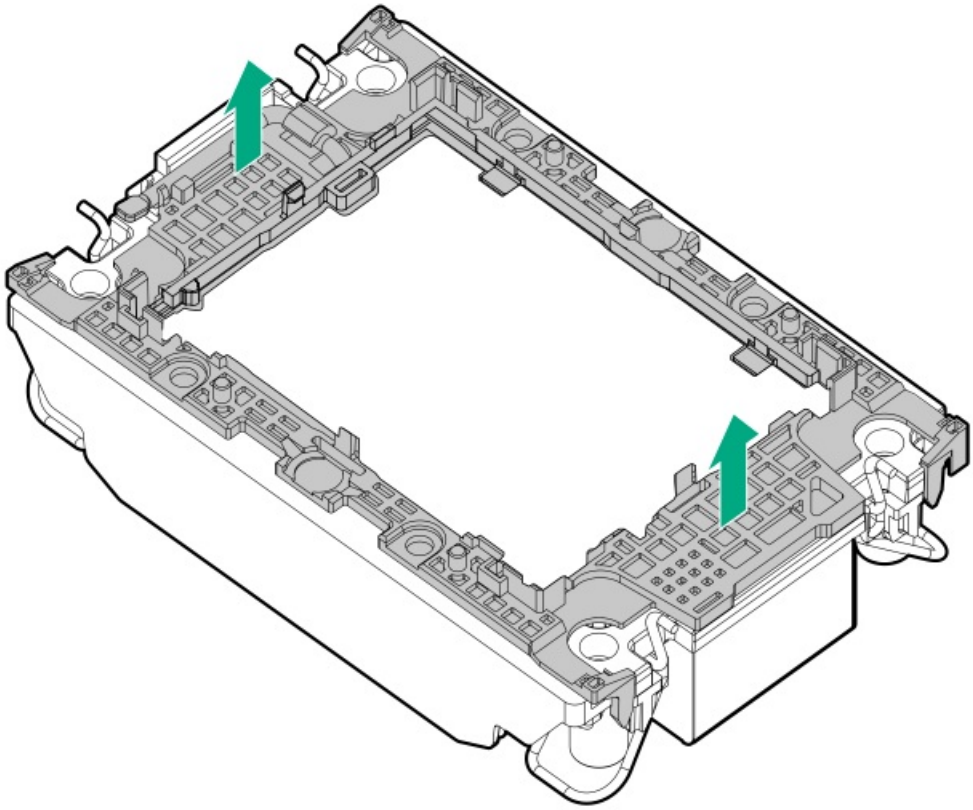
    b. Hold the processor on its edges, and then remove it from the carrier (callout 2).



    c. Starting from the pin 1 corner and moving in an opposite manner, disengage the processor carrier release tabs from the heatsink (callouts 1–4).



d. Lift the processor carrier away from the heatsink.



17. Use an alcohol wipe to remove the existing thermal grease from the heatsink and processor.

    Allow the alcohol to evaporate before continuing.

Installing the processor

Prerequisites

- Identify the heatsink and processor socket components.
- Review the processor cautions.
- Before you perform this procedure, make sure that you have the following items available:
  - T-30 Torx screwdriver
  - Two 1.0 gm (0.5 ml) of thermal grease

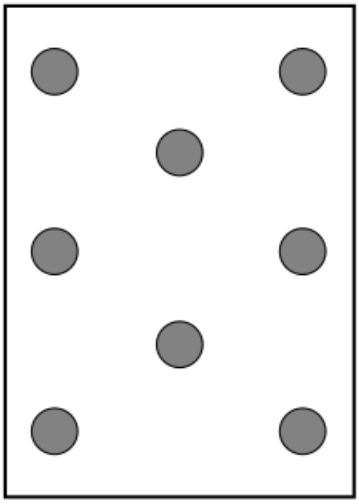
About this task

This server supports Intel® Xeon® Scalable Processor XCC and Intel® Xeon® Scalable Processor MCC where the keying features are different between the two processors. The processor carrier clip for an Intel® Xeon® Scalable Processor XCC is E1A. The processor carrier clip for an Intel® Xeon® Scalable Processor MCC is E1B.

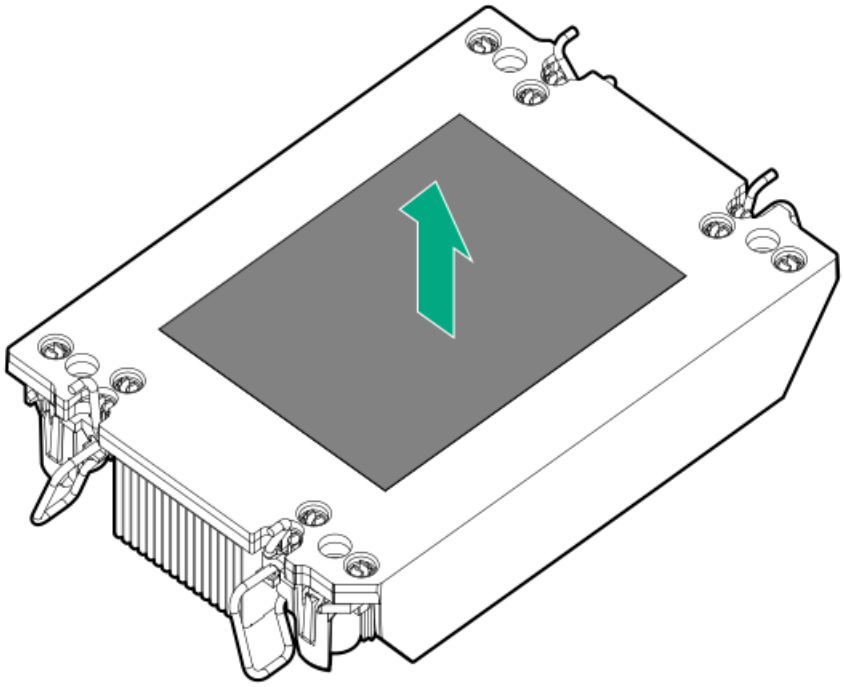
> **CAUTION:** To prevent possible server overheating, always populate each processor socket with a processor socket cover and a processor blank, or a processor and a heatsink.

Procedure

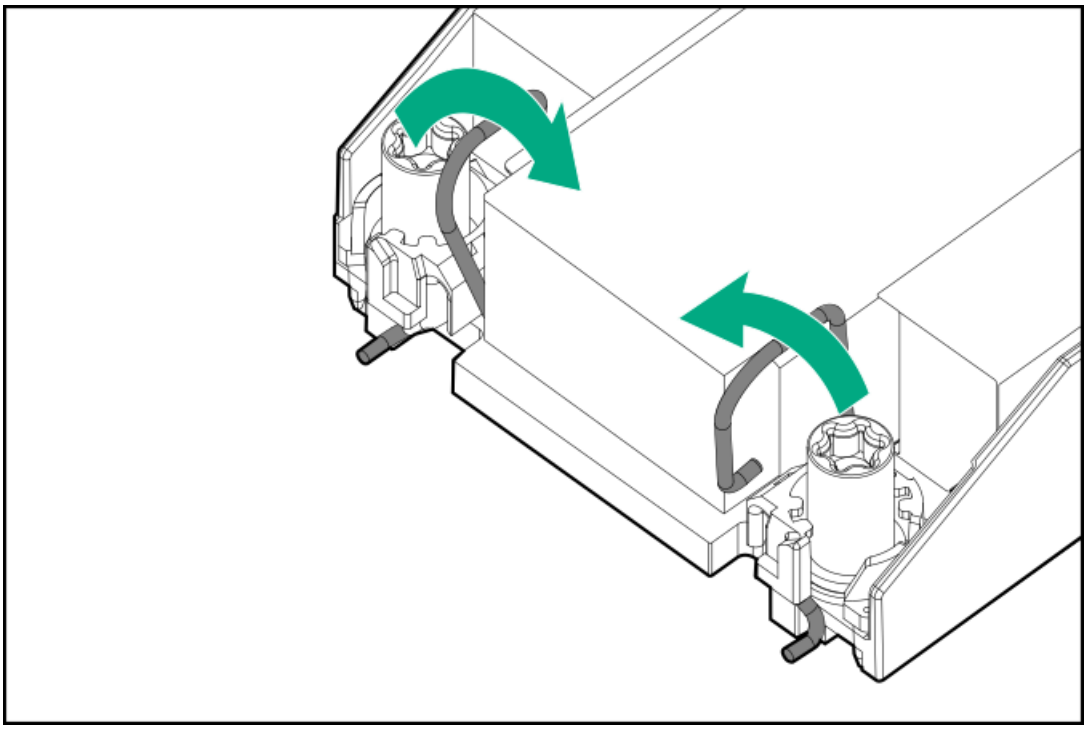
1. If you are using the same heatsink, apply the full content of the thermal grease syringes on top of the processor. Follow the pattern shown in the following image.



2. If you are using a new heatsink, remove the protective film from the thermal interface material.

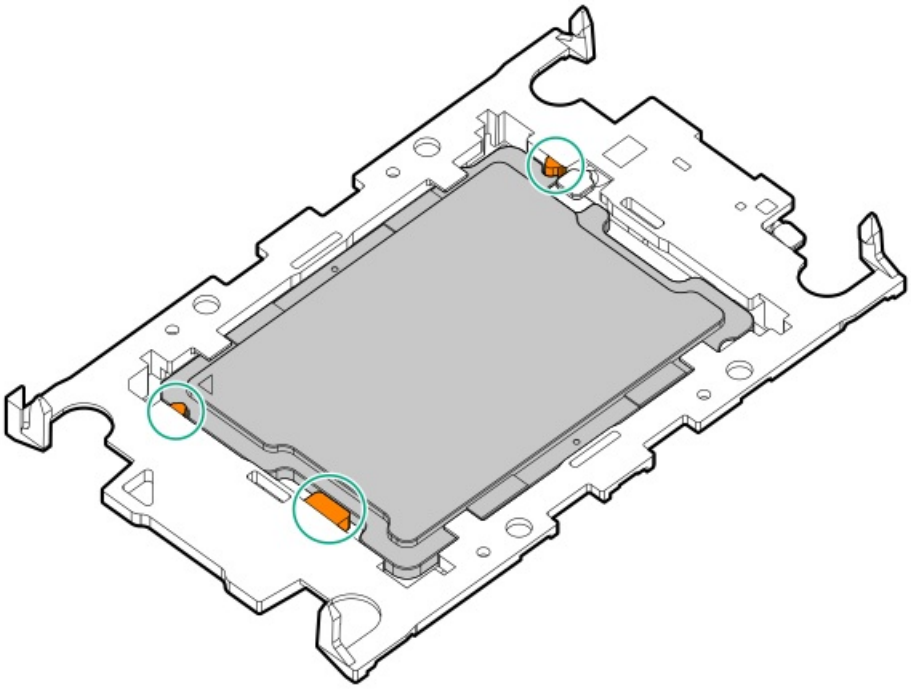


3. Set the anti-tilt wires to the unlocked position.



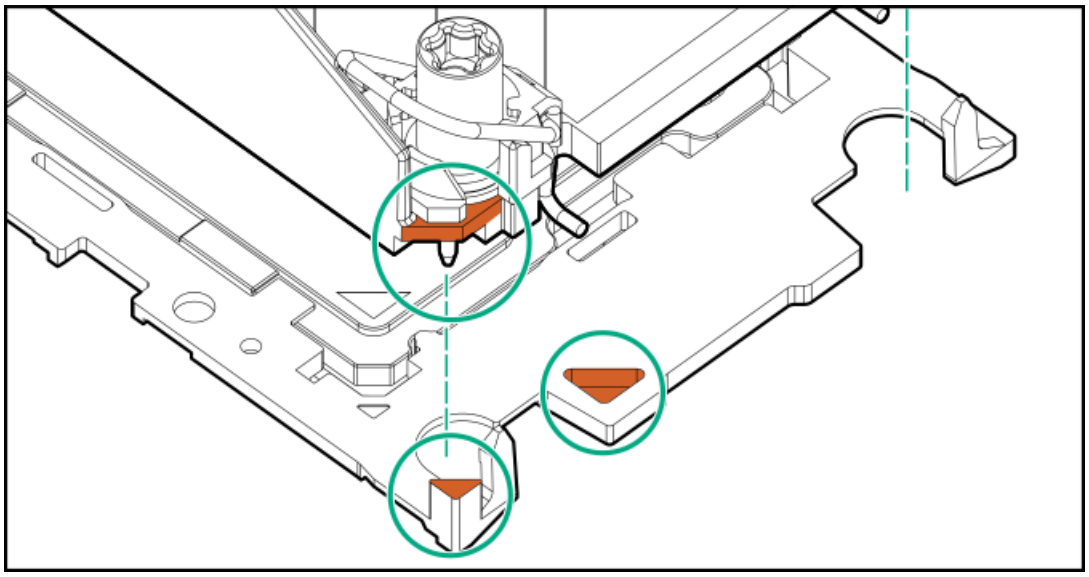
4. Verify that the processor is securely latched to the processor carrier.

   The following illustration calls out the keying feature tabs that secure the processor. Different processor carriers will have these tabs in different locations.



5. Attach the heatsink to the processor carrier:

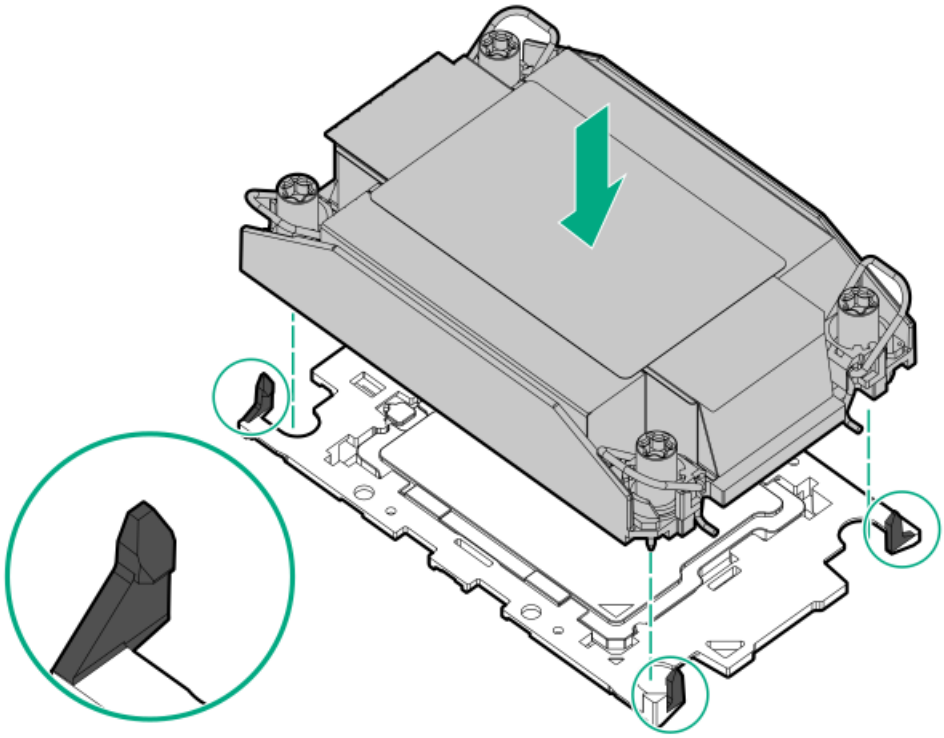
   a. Align the pin 1 indicator on the processor carrier with that on the heatsink.



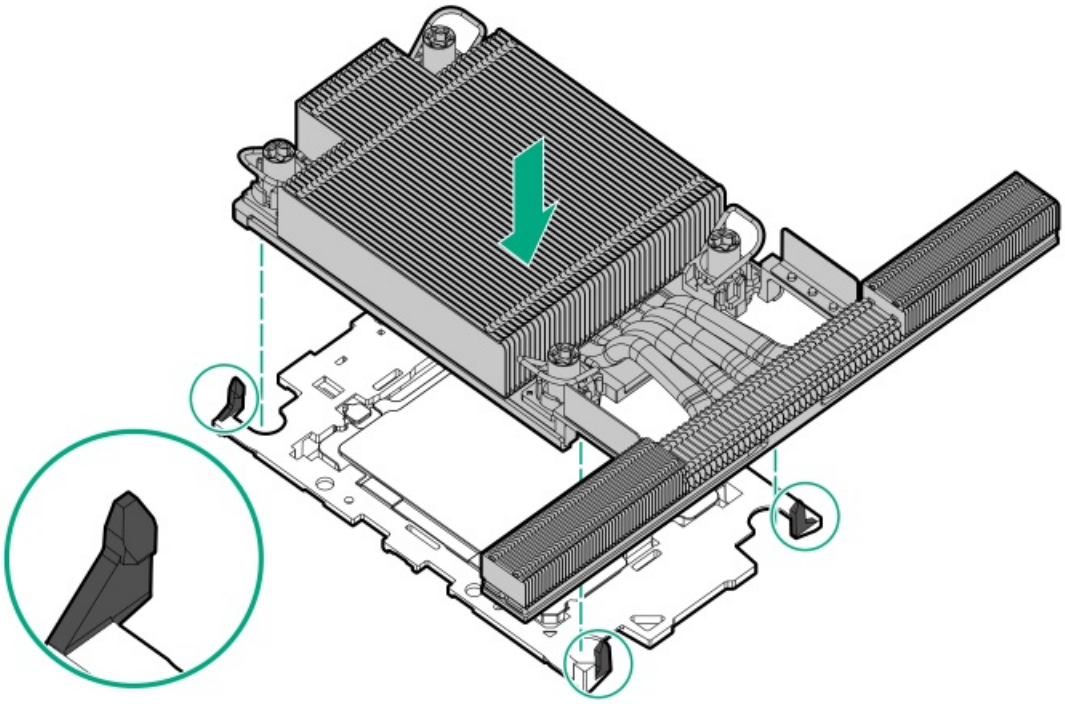
b. Lower the heatsink on the processor carrier until the carrier tabs snap into place.

   There will be an audible click to indicate that the heatsink is properly latched on the processor carrier.

   - Standard heatsink

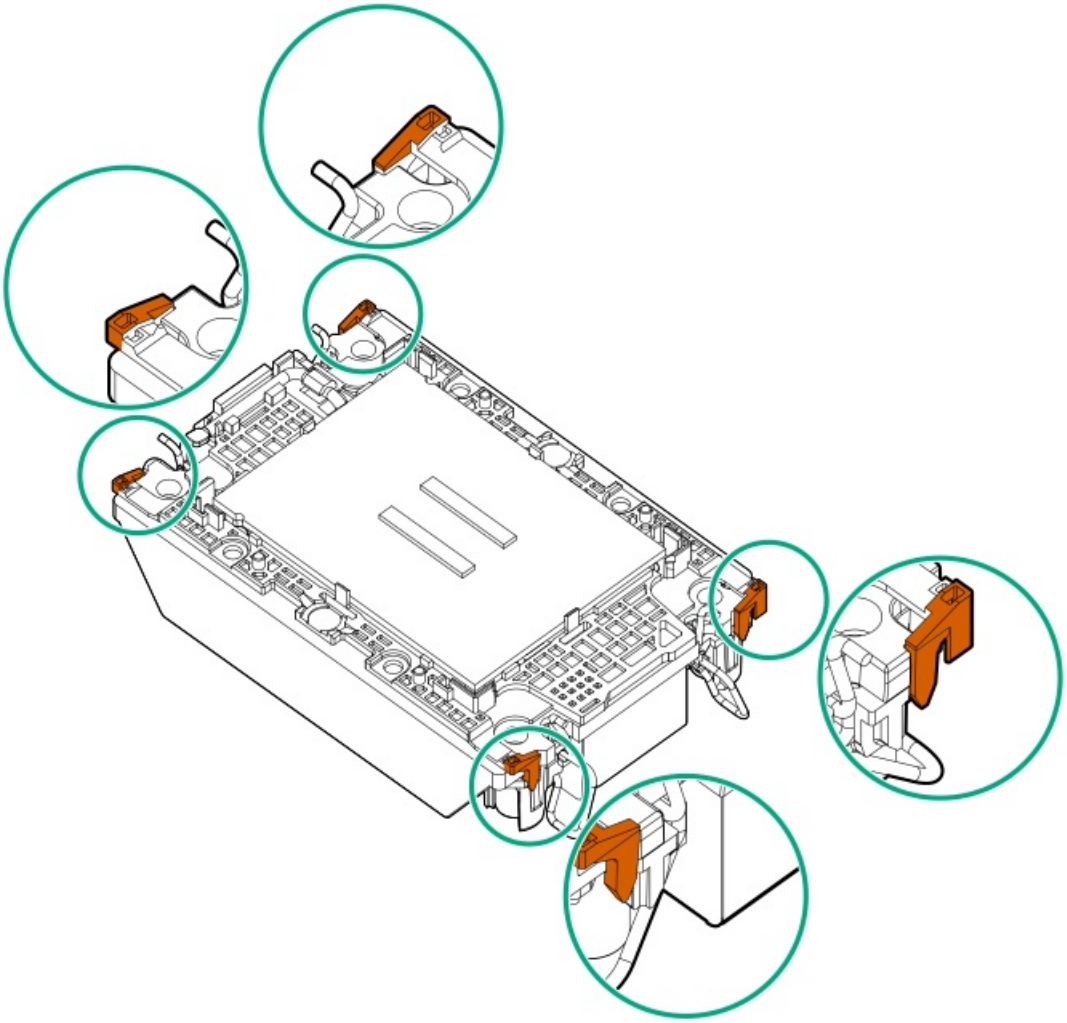


   - Performance heatsink

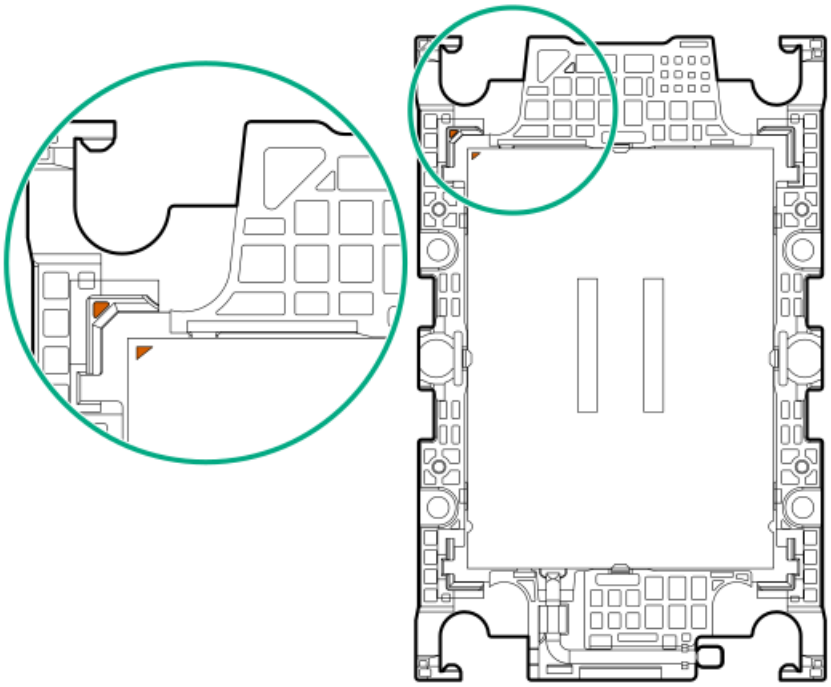


6. Perform the following verification steps:

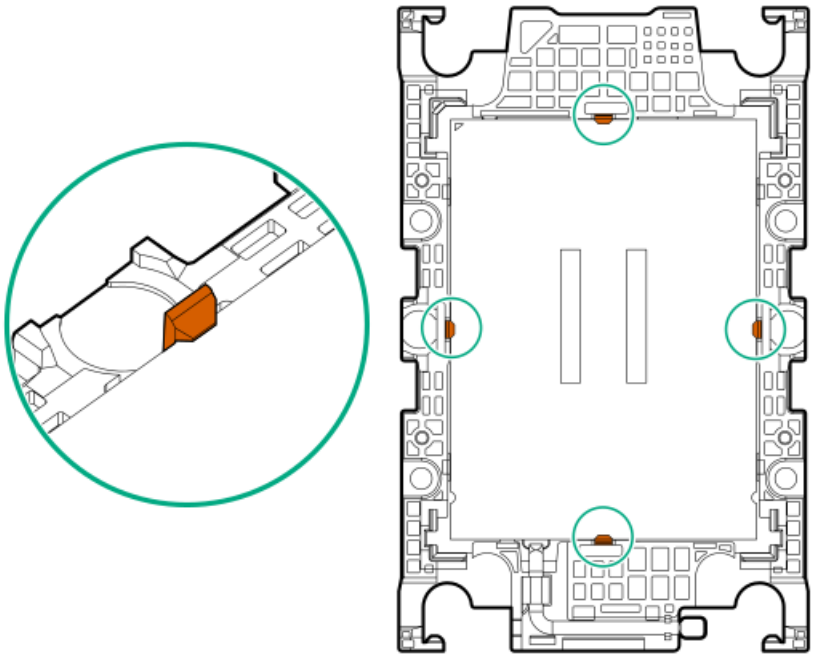
   a. Verify that the tabs on the processor carrier are securely latched on the heatsink.



b. Verify that the pin 1 indicators on the processor and processor carrier are aligned.



c. Verity that the processor is properly secured by the carrier snaps.



7. Install the processor-heatsink module:

> **CAUTION:**
>
> To prevent mechanical damage or depositing oil on your hands or other contaminant to the heatsink contact surface, hold the heatsink only by the edge of its base plate. Do not touch the heatsink fins.

CAUTION:

To prevent thermal failure or component damage, do not move the heatsink once the bottom of its base plate touches the top of the processor. Excessive heatsink movement can cause the thermal grease to smear and become uneven. Voids in the compound can adversely impact the transfer of heat away from the processor.

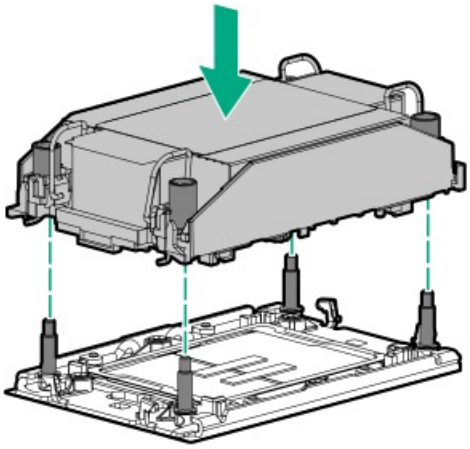
a. When using a torque wrench to tighten the heatsink screws, set it to 0.9 N-m (8 lbf-in) of torque .

b. Note the **Front of server** text on the heatsink label to correctly orient the processor-heatsink module over the bolster plate.

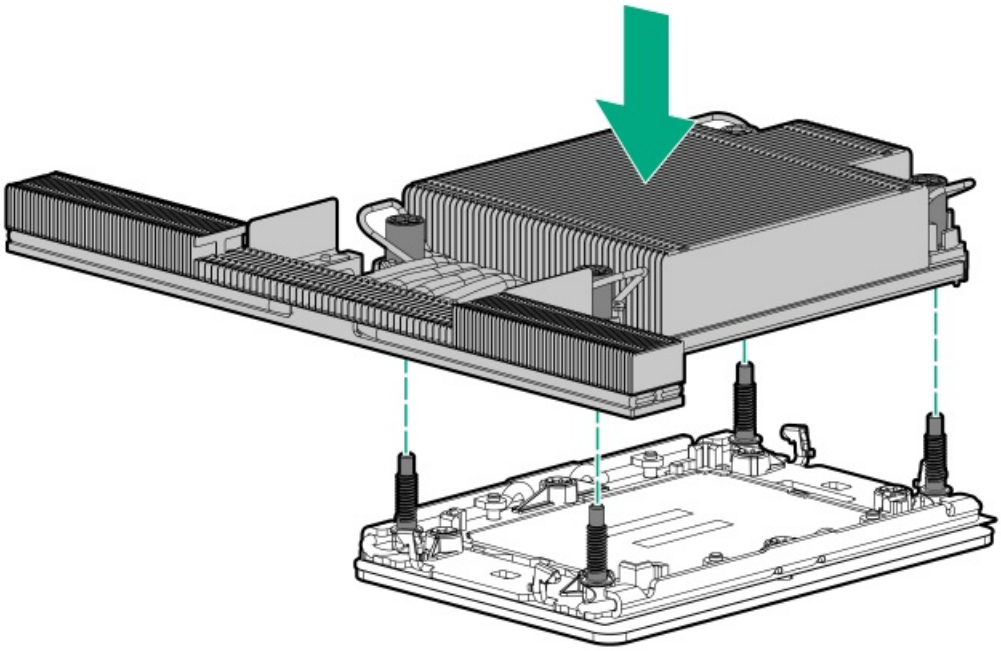
c. Carefully lower the processor-heatsink module straight down onto the bolster plate guide posts.

   The posts are keyed so that the module can only be installed one way. Make sure that the module is properly seated on the bolster plate before securing the screws.

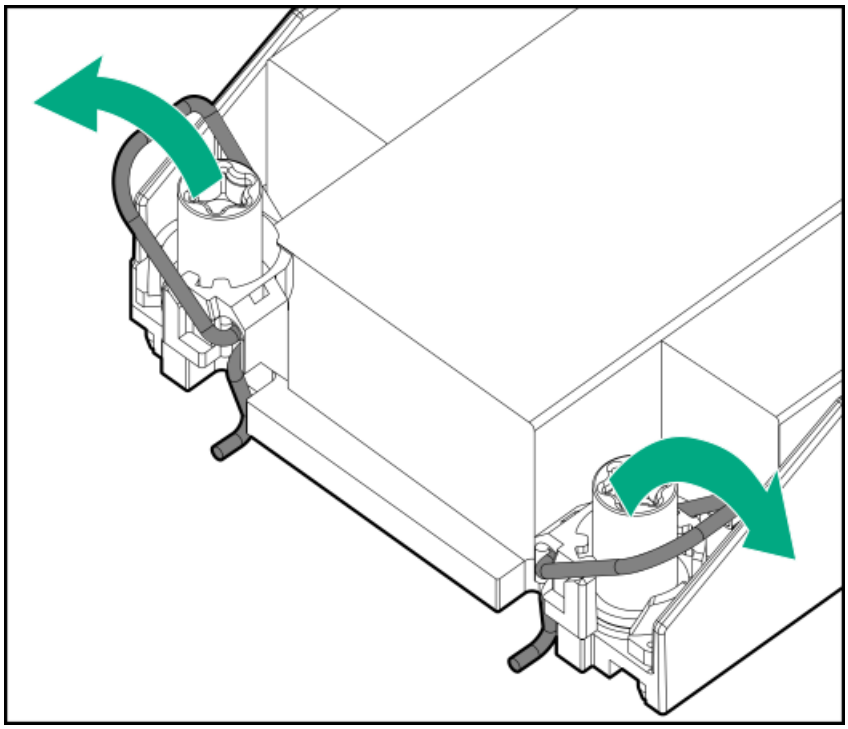
   - Standard heatsink



   - Performance heatsink

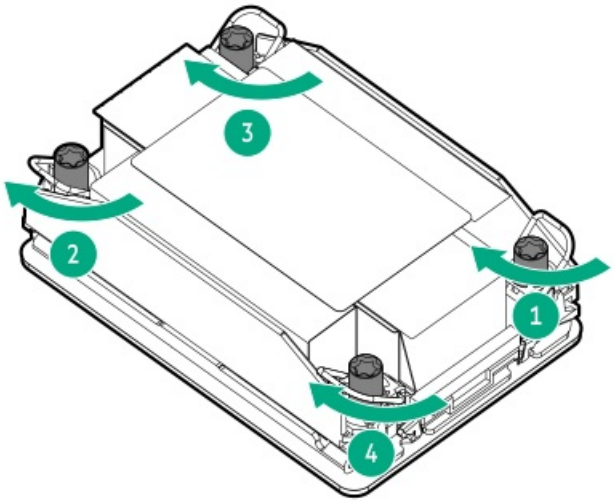


d. Set the anti-tilt wires to the locked position.

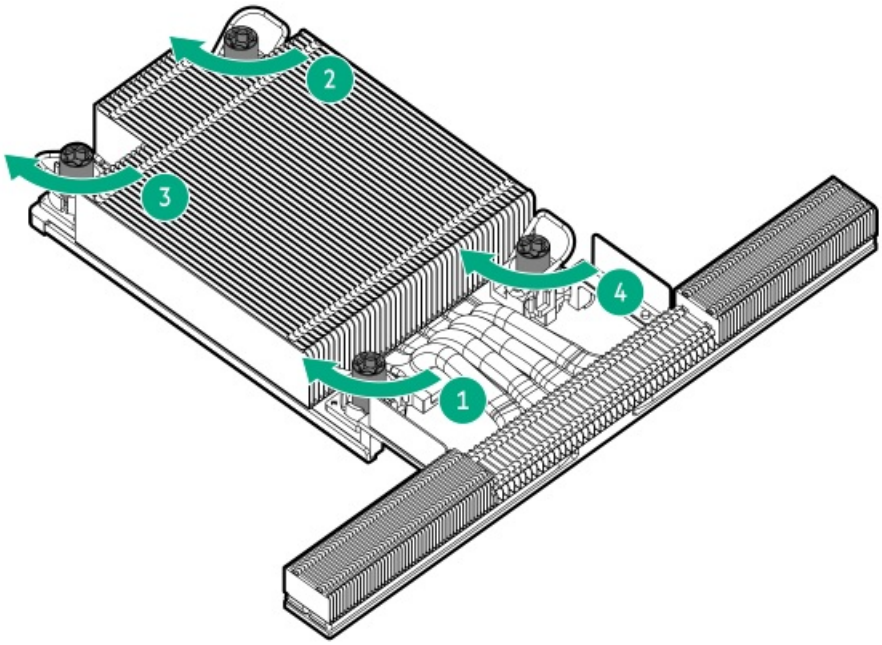


e. Use a T-30 Torx screwdriver to tighten one pair of diagonally opposite heatsink screws (callouts 1 to 2), and then tighten the other pair of heatsink screws (callouts 3 to 4).

- Standard heatsink



- Performance heatsink



8. Install the access panel.
9. Install the server into the rack.
10. Connect all peripheral cables to the server.
11. Connect the power cords:
    a. Connect each power cord to the server.
    b. Connect each power cord to the power source.
12. Power up the server.

Removing and replacing a type-p storage controller

Prerequisites

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

About this task

> **CAUTION:**
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

CAUTION:

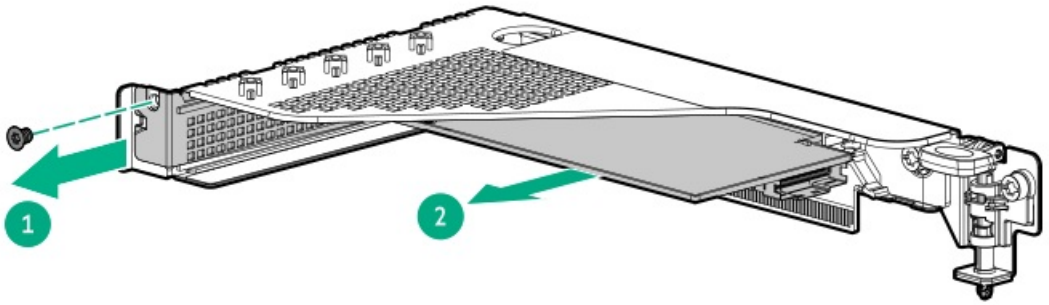
Before replacing a DIMM, backplane, expansion card, riser board, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot.

When installing the replacement component:

- Observe antistatic precautions.
- Handle the PCA only along the edges.
- Do not touch the components and connectors on the PCA.
- Do not bend or flex the PCA.

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the riser cage.
9. Disconnect all cables from the type-p storage controller .
10. Remove the type-p storage controller.



Results

To replace the component, reverse the removal procedure.

Removing and replacing a type-o storage controller

About this task

CAUTION:

A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

CAUTION:

The port blank provides EMI shielding and helps maintain proper thermal status inside the server. Do not operate the server when a port blank is removed without the corresponding I/O port option installed.

CAUTION:

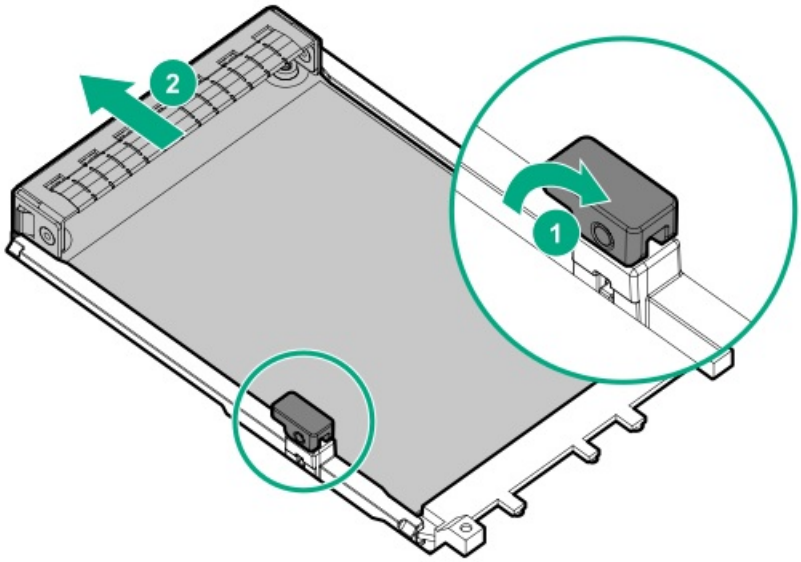
Before replacing a DIMM, backplane, expansion card, riser board, or other similar PCA components due to a perceived hardware error, make sure first that the component is firmly seated in the slot.

When installing the replacement component:

- Observe antistatic precautions.
- Handle the PCA only along the edges.
- Do not touch the components and connectors on the PCA.
- Do not bend or flex the PCA.

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the secondary riser cage.
9. Remove the type-o storage controller:
   a. Rotate the locking pin to the open (vertical) position (callout 1).
   b. Slide the controller out of the bay (callout 2).



Results

To replace the component, reverse the removal procedure.

HPE NS204i-u Boot Device replacement

Subtopics

Removing and replacing the boot device cage assembly

Removing and replacing a boot device carrier without the security cover installed

Removing and replacing a boot device drive without the security cover installed

Removing and replacing a boot device carrier with a security cover installed

Removing and replacing a boot device drive with the security cover installed

Removing and replacing the boot device cage assembly

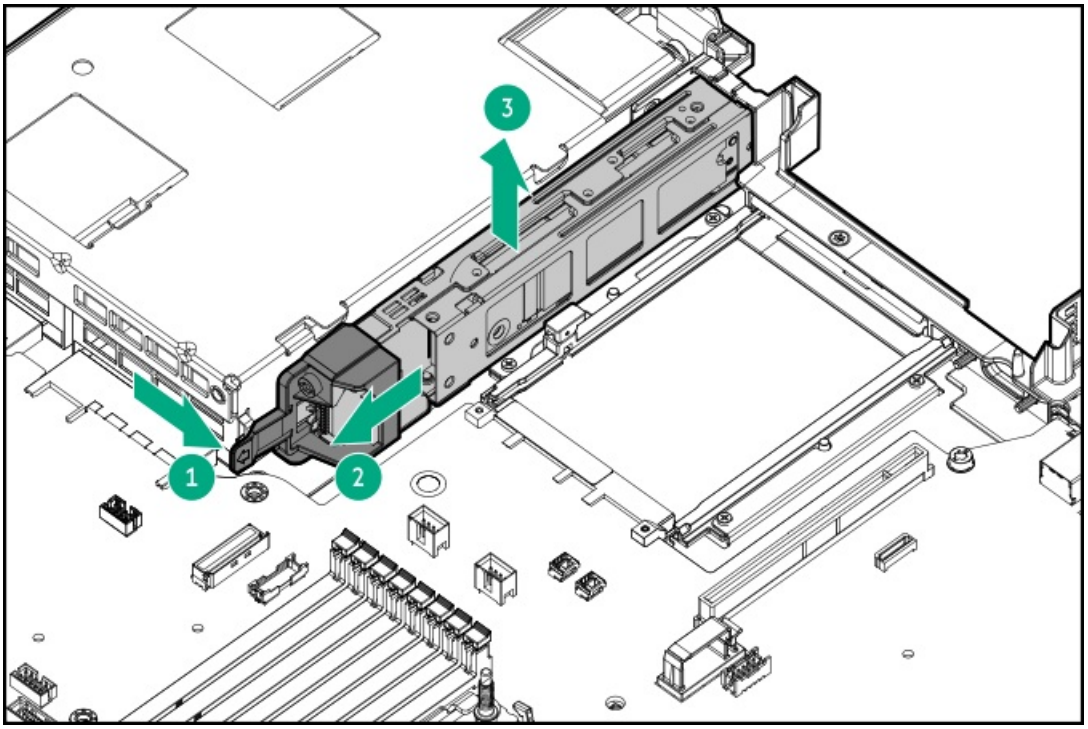
About this task

CAUTION:
A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

1. Back up all server data.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the secondary riser cage.
9. Disconnect the boot device signal and power cables from the system board.
10. Remove the boot device cage assembly:



Results

To replace the component, reverse the removal procedure.

Removing and replacing a boot device carrier without the security cover installed

Prerequisites

Before you perform this procedure, make sure that you have a Phillips No. 1 screwdriver available.

About this task

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

CAUTION:

A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

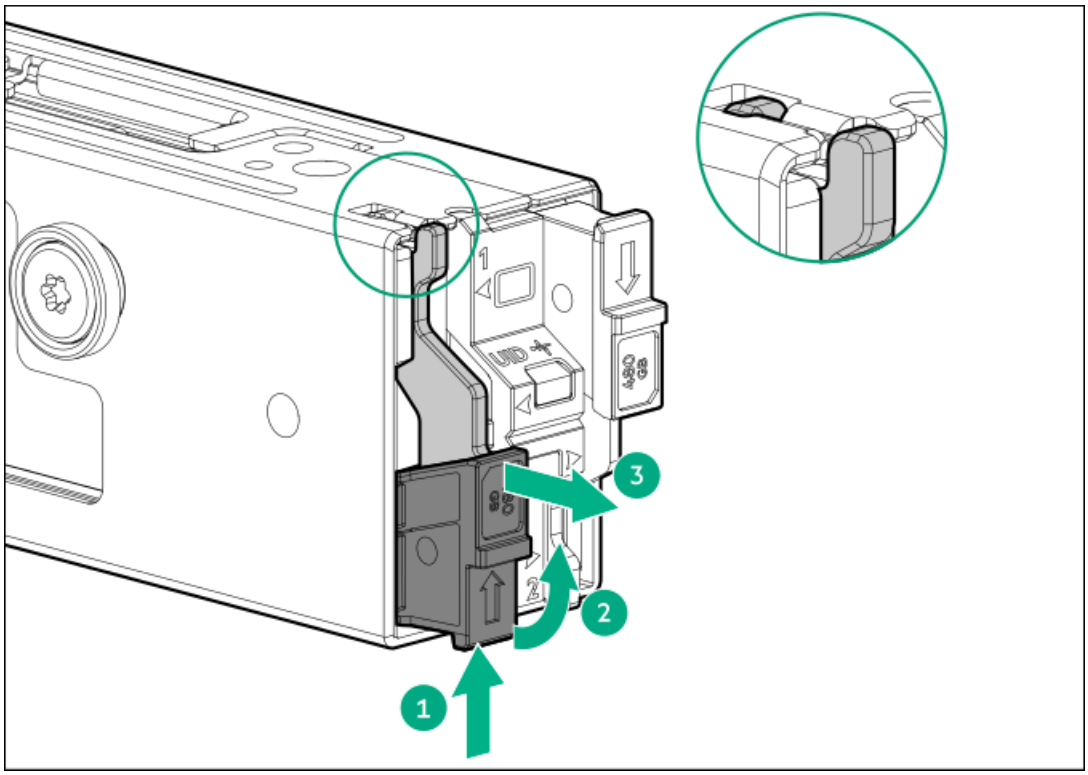
Procedure

1. Back up all server data.
2. If installed, open the cable management arm.

3. Remove the boot device carrier:

   a. Drag the carrier latch, and then pivot the latch open (callouts 1 and 2).

   b. Slide the carrier out of the boot device cage (callout 3).



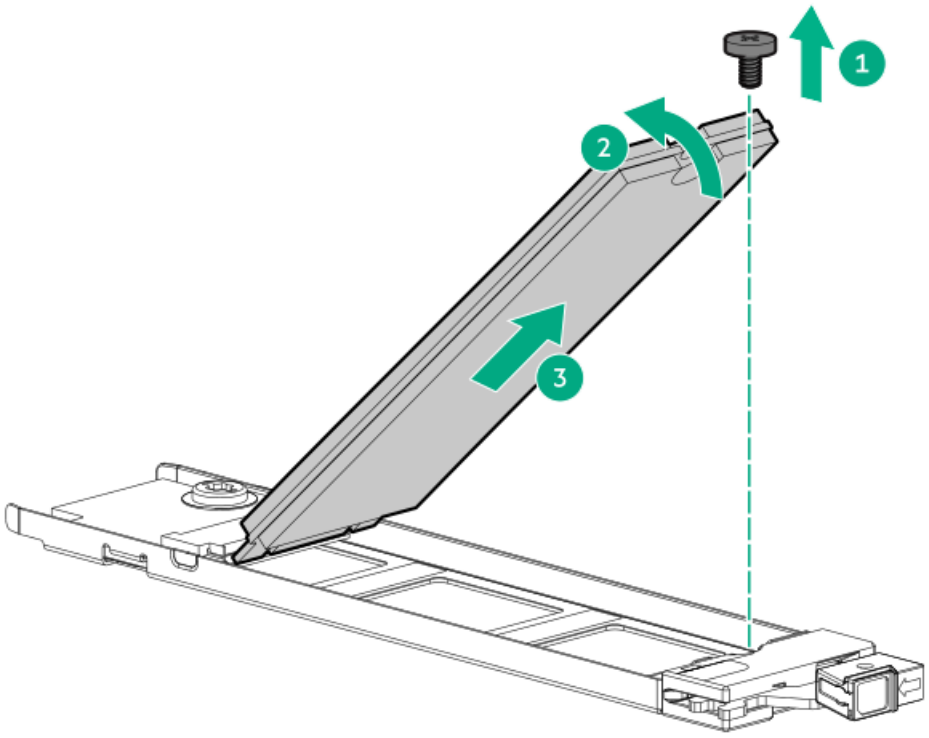
4. If installed, remove the boot device drive from the carrier:

   a. Remove the SSD mounting screw (callout 1).

   b. Tilt the SSD with the M.2 slot at a 45° angle (callout 2).

   c. Carefully remove the SSD from the M.2 slot (callout 3).

      Retain the boot device drive and screw for installation onto the new boot device carrier.



5. If you are removing the second boot device carrier, repeat steps 3 and 4 on the lower boot device carrier slot.

Results

To replace the component, reverse the removal procedure.

Removing and replacing a boot device drive without the security cover installed

Prerequisites

Before you perform this procedure, make sure that you have a Phillips No. 1 screwdriver available.

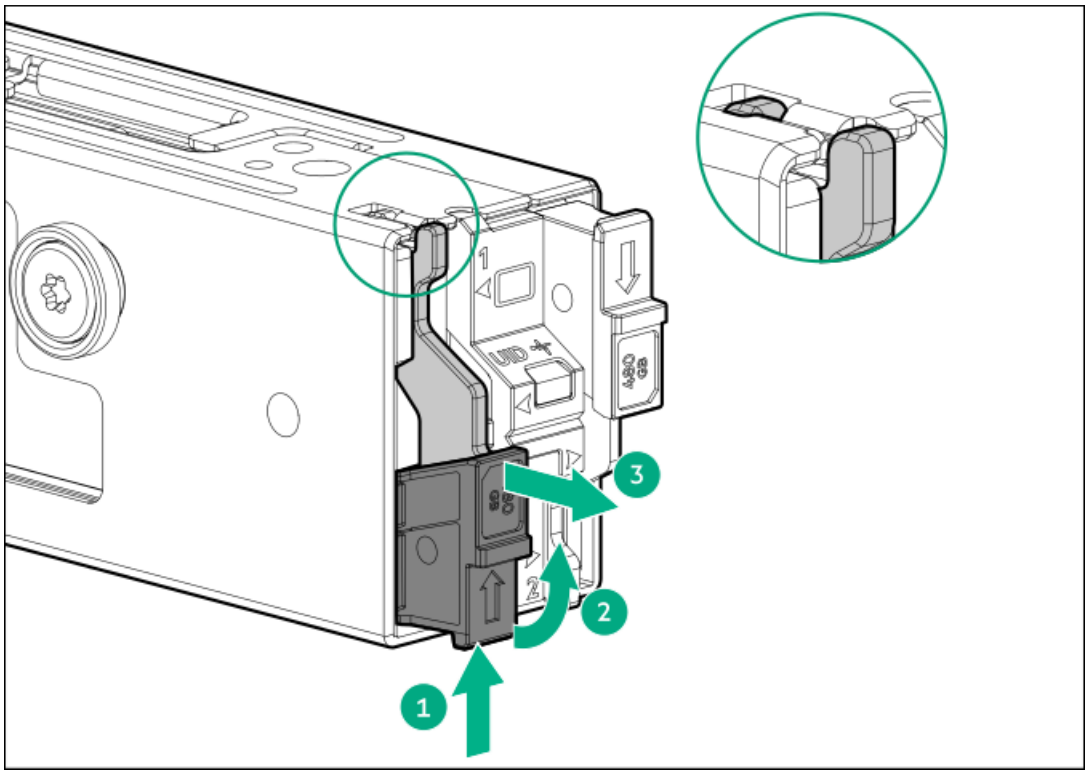
About this task

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

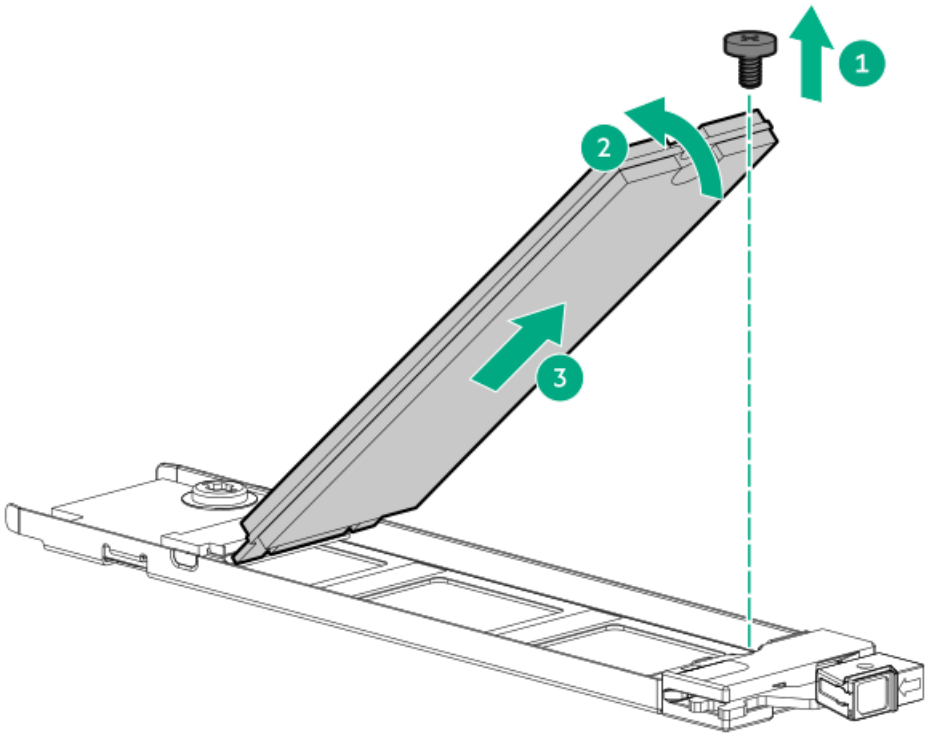
> **CAUTION:**
>
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

1. Back up all server data.
2. If installed, open the cable management arm.
3. Remove the boot device carrier:
   a. Press and hold the carrier latch (callout 1).
   b. Pivot the latch to open (callouts 2).
   c. Slide the carrier out from the boot device cage (callout 3).



4. Remove the SSD from the boot device carrier:
   a. Remove the SSD mounting screw (callout 1).
   b. Tilt the SSD with the M.2 slot at a 45° angle (callout 2).
   c. Carefully remove the SSD from the M.2 slot (callout 3).



Results

To replace the component, reverse the removal procedure.

Removing and replacing a boot device carrier with a security cover installed

Prerequisites

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

- Phillips No. 1 screwdriver
- T-10 Torx screwdriver

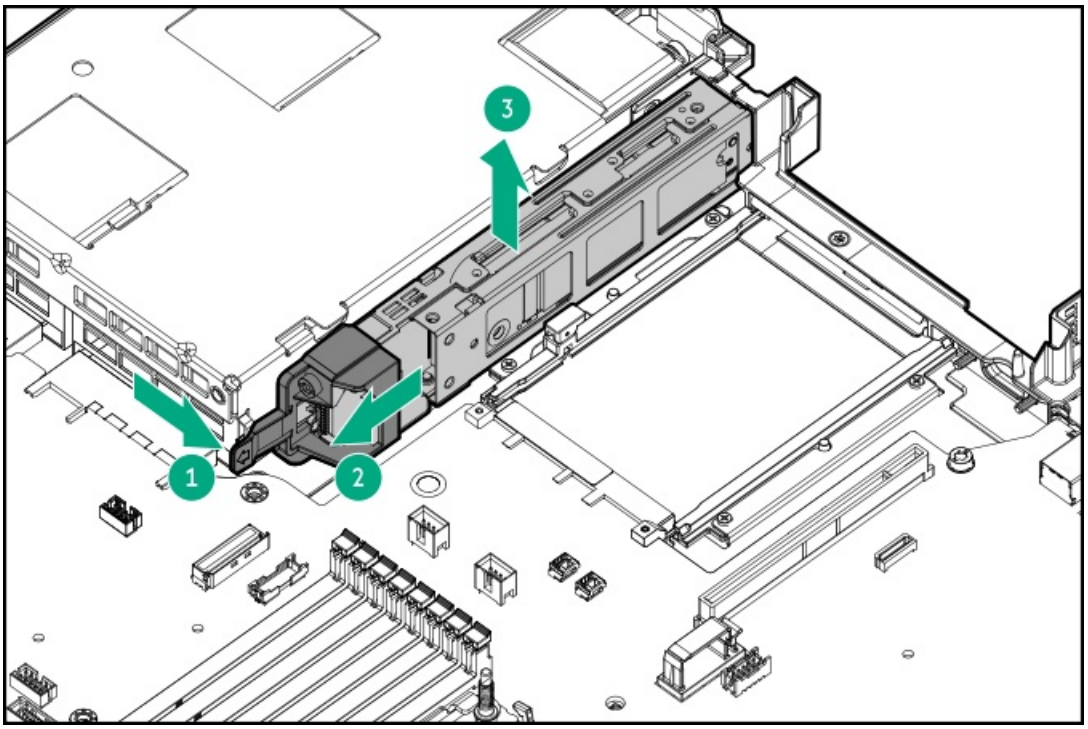
About this task

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

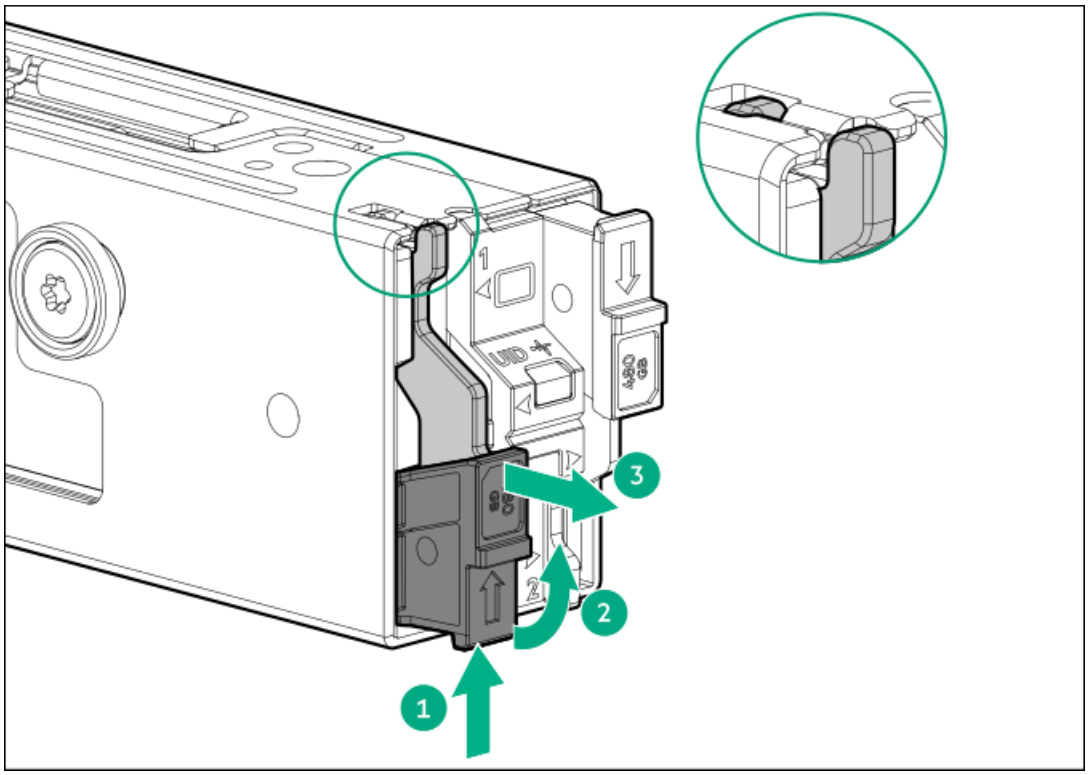
> **CAUTION:**
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

1. Back up all server data.
2. Power down the server.
3. If installed, open the cable management arm.
4. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
5. Disconnect all peripheral cables from the server.
6. Remove the server from the rack.
7. Place the server on a flat, level work surface.
8. Remove the access panel.
9. Remove the secondary riser cage.
10. Disconnect the signal and power cables from the boot device.
11. Remove the boot device cage assembly:

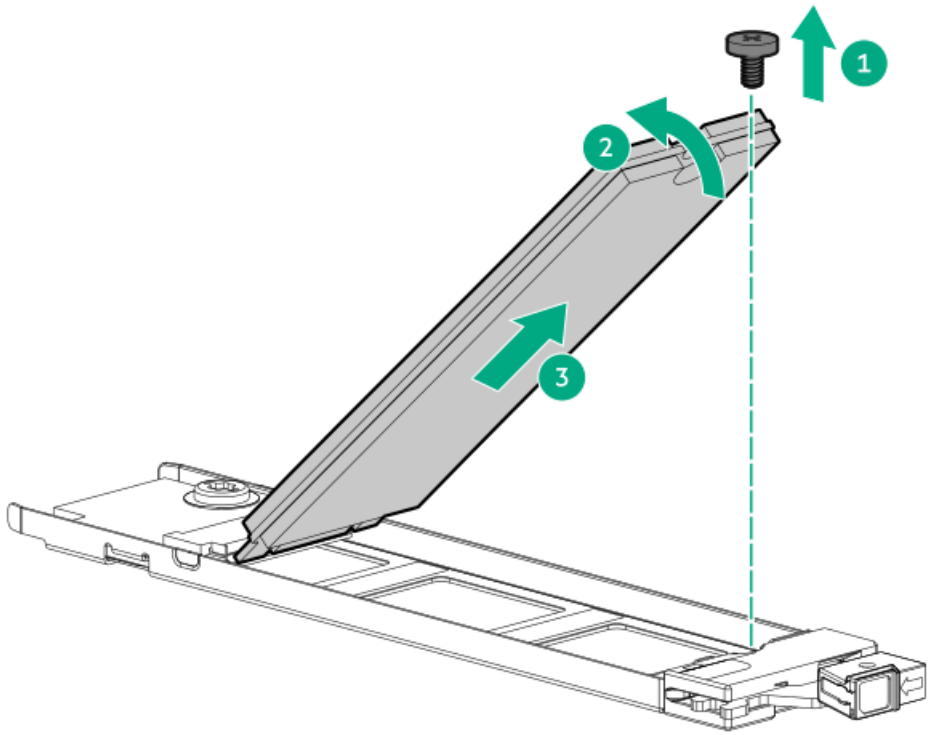


12. Remove the boot device carrier:
    a. Drag the carrier latch, and then pivot the latch open (callouts 1 and 2).
    b. Slide the carrier out of the boot device cage (callout 3).



13. If installed, remove the SSD from the boot device carrier:
    a. Remove the SSD mounting screw (callout 1).
    b. Tilt the SSD with the M.2 slot at a 45° angle (callout 2).
    c. Carefully remove the SSD from the M.2 slot (callout 3).

Retain the SSD and mounting screw for installation onto the new boot device carrier.



14. If you are removing the second boot device carrier, repeat steps 3 and 4 on the lower boot device carrier slot.

Results

To replace the component, reverse the removal procedure.

Removing and replacing a boot device drive with the security cover installed

Prerequisites

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

- Phillips No. 1 screwdriver
- T-10 Torx screwdriver

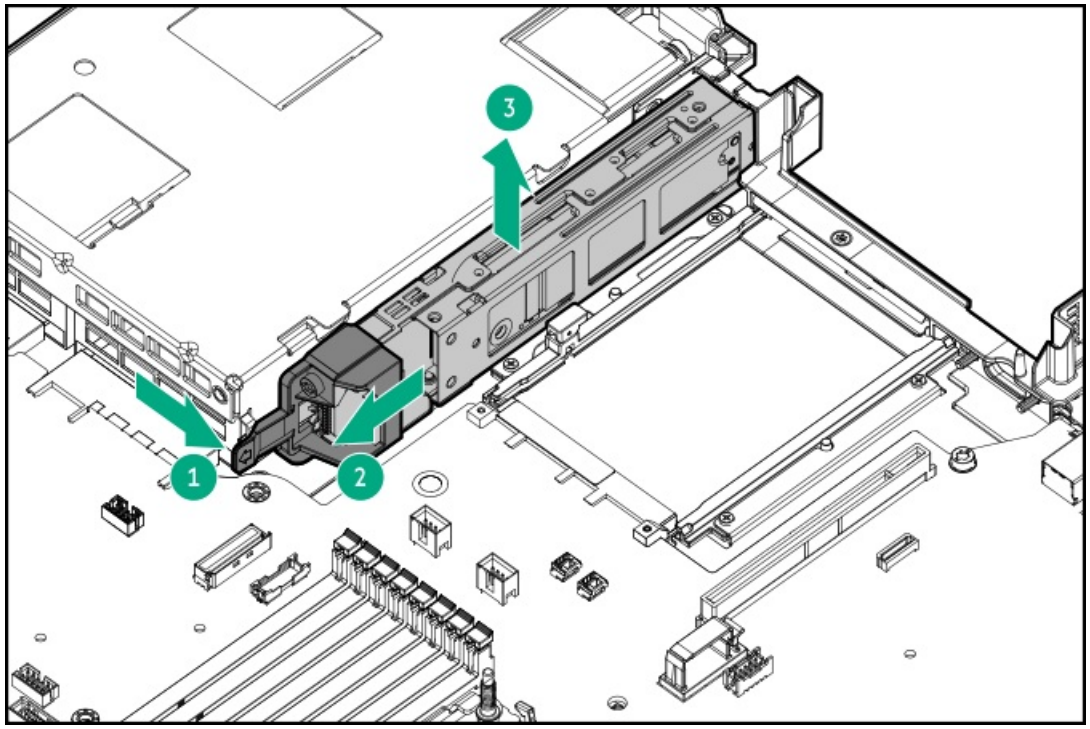
About this task

> **CAUTION:**
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

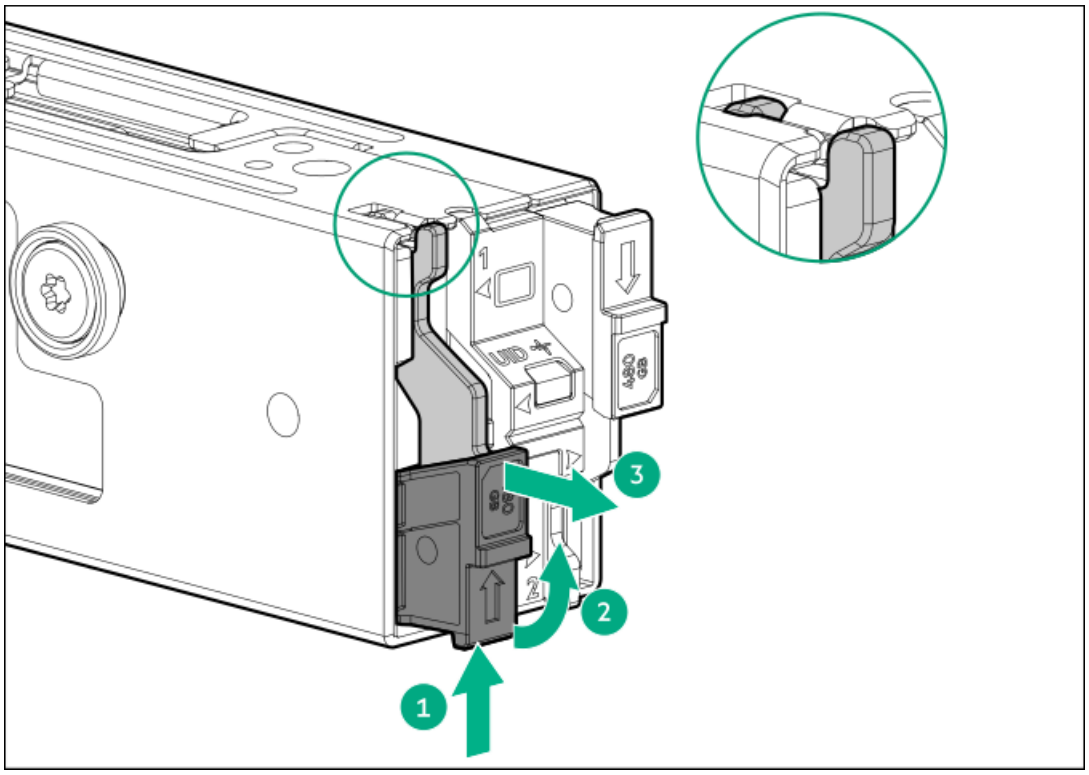
Procedure

1. Back up all server data.
2. Power down the server.
3. If installed, open the cable management arm.
4. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.

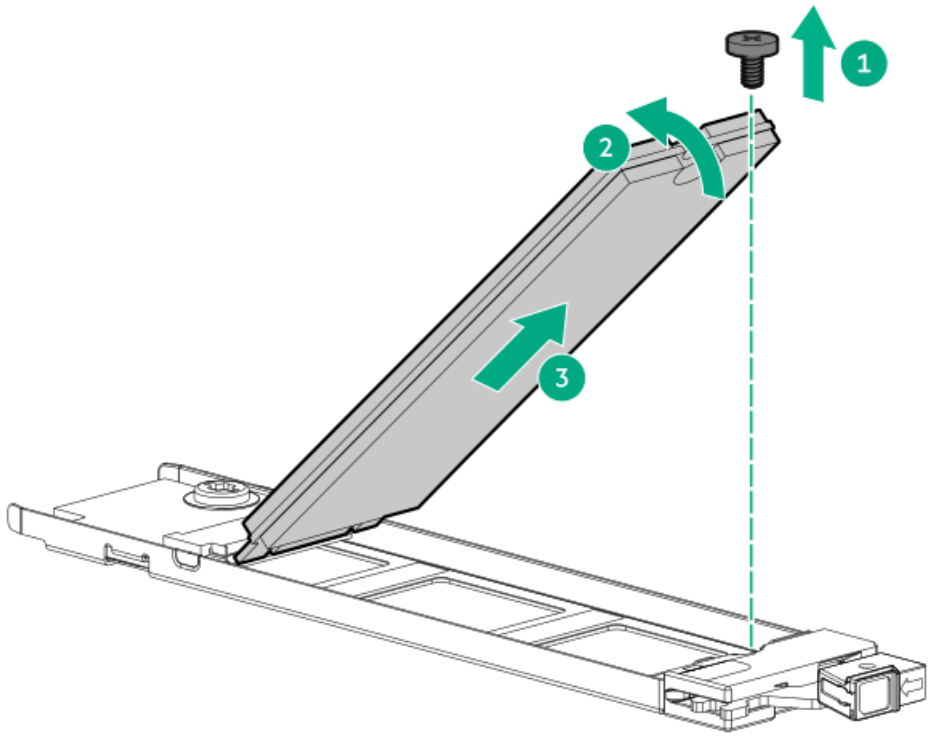
5. Disconnect all peripheral cables from the server.
6. Remove the server from the rack.
7. Place the server on a flat, level work surface.
8. Remove the access panel.
9. Remove the secondary riser cage.
10. Disconnect the signal and power cables from the boot device.
11. Remove the boot device cage assembly:



12. Remove the boot device carrier:
    a. Press and hold the carrier latch (callout 1).
    b. Pivot the latch to open (callouts 2).
    c. Slide the carrier out from the boot device cage (callout 3).



13. Remove the SSD from the boot device carrier:
    a. Remove the SSD mounting screw (callout 1).
    b. Tilt the SSD with the M.2 slot at a 45° angle (callout 2).
    c. Carefully remove the SSD from the M.2 slot (callout 3).



14. If you are removing the second boot device carrier, repeat steps 3 and 4 on the lower boot device carrier slot.

Results

To replace the component, reverse the removal procedure.

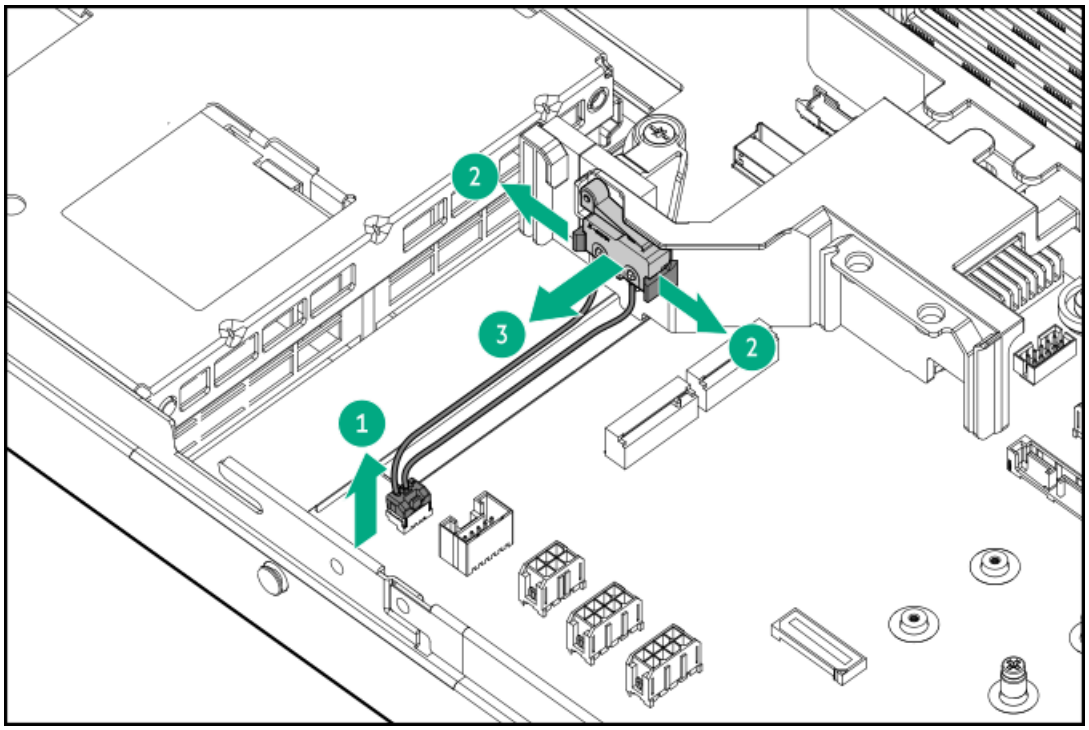
Removing and replacing the chassis intrusion detection switch

About this task

> **CAUTION:**
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the chassis intrusion detection switch:
   a. Disconnect the switch cable and release it from the cable clamp (callout 1).
   b. While carefully retracting the snap-in latch (callout 2), pull out the tab from the chassis slot (callout 3).



Results

To replace the component, reverse the removal procedure.

System board assembly replacement

Subtopics

Removing the system board assembly

Installing the system board assembly

Re-entering the server serial number and product ID

Removing the system board assembly

Prerequisites

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

- T-10 Torx screwdriver
- T-15 Torx screwdriver
- T-30 Torx screwdriver
- Hex screwdriver—This tool is required if the serial port cable is installed.
- Alcohol wipe
- System board handle (ships with the system board spare)

About this task

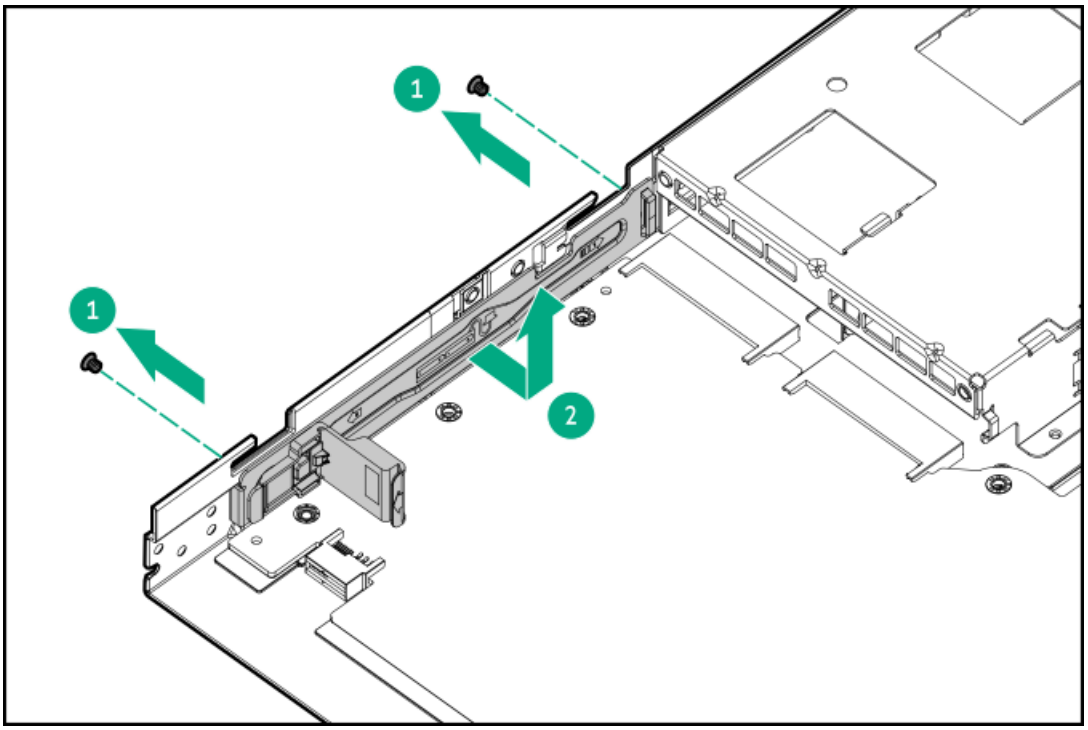
> **CAUTION:**
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

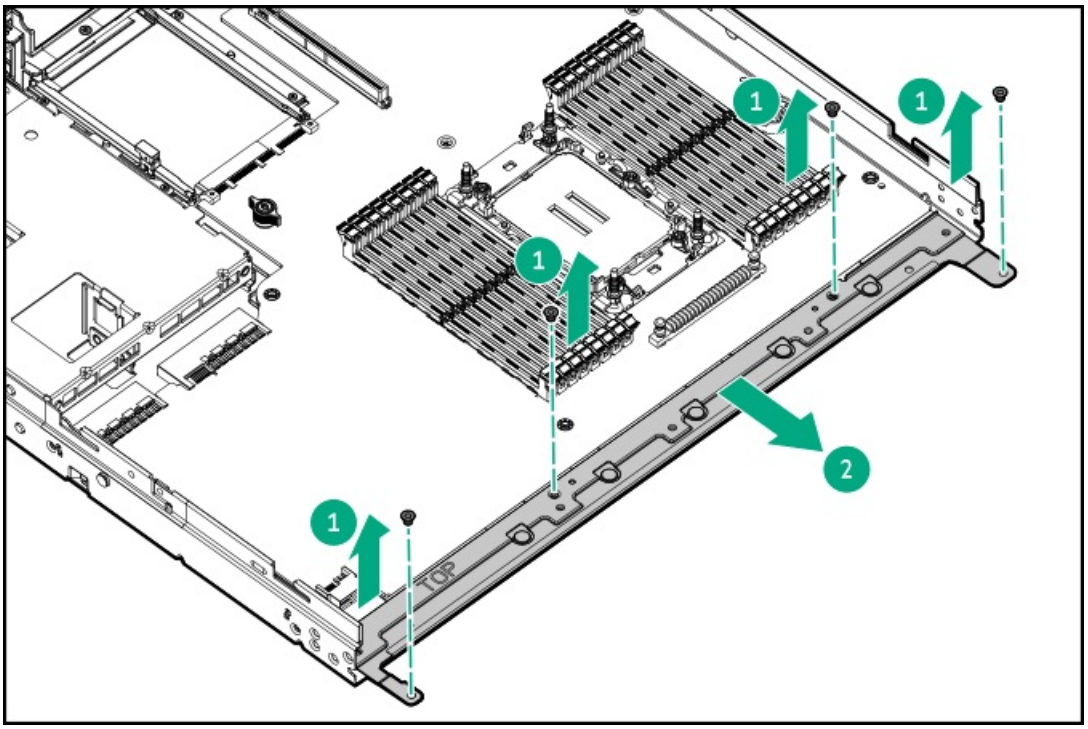
1. Power down the server.
2. If installed, open the cable management arm.
3. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
4. Disconnect all peripheral cables from the server.
5. Remove the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the middle cover.
9. Disconnect all cables and remove all components from the system board assembly:
   - M.2 air baffle

- Fans
- Fan board
- DIMMs
- Riser cages

10. If installed, remove the following components:
    - Power supplies
    - Type-p storage controller
    - Type-o storage controller
    - Chassis intrusion detection switch
    - Energy pack
    - OCP NIC 3.0 adapter
    - Serial port
11. Remove the energy pack bracket.



12. Remove the fan board tray.

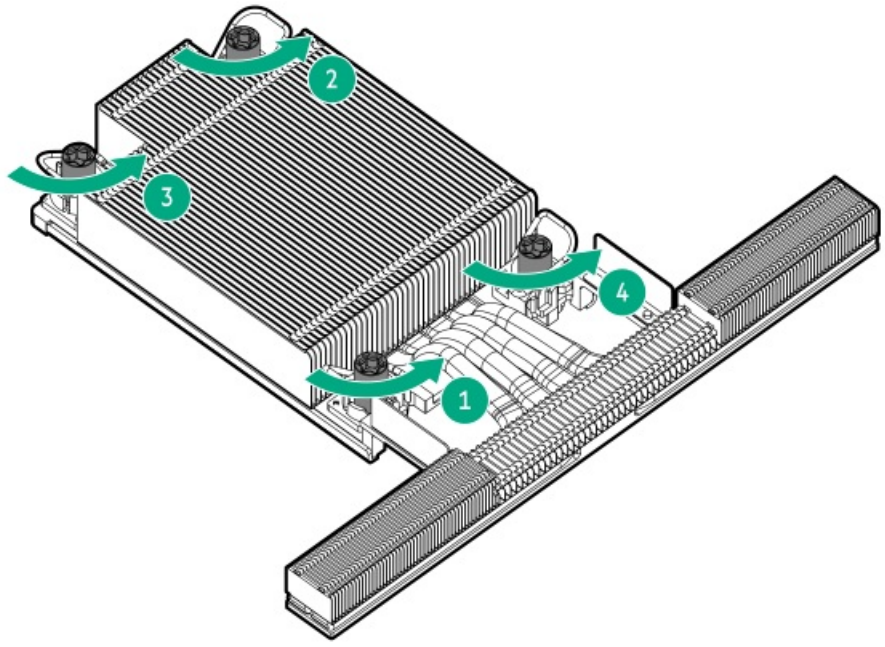


13. Allow all internal system components to cool before continuing.

14. **CAUTION:**

    Heatsink screws must be tightened and loosened in alternating sequence. Do not overtighten the screws as this might damage the system board or the processor socket.

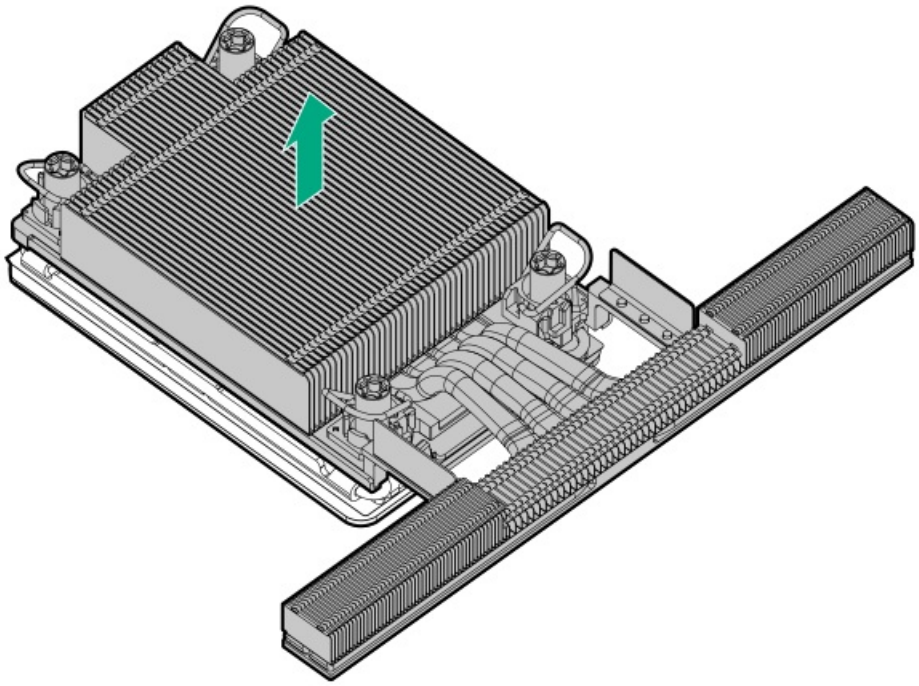
    Use a T-30 Torx screwdriver to loosen one pair of diagonally opposite screws (callouts 1 and 2), and then loosen the other pair of screws (callouts 3 and 4).



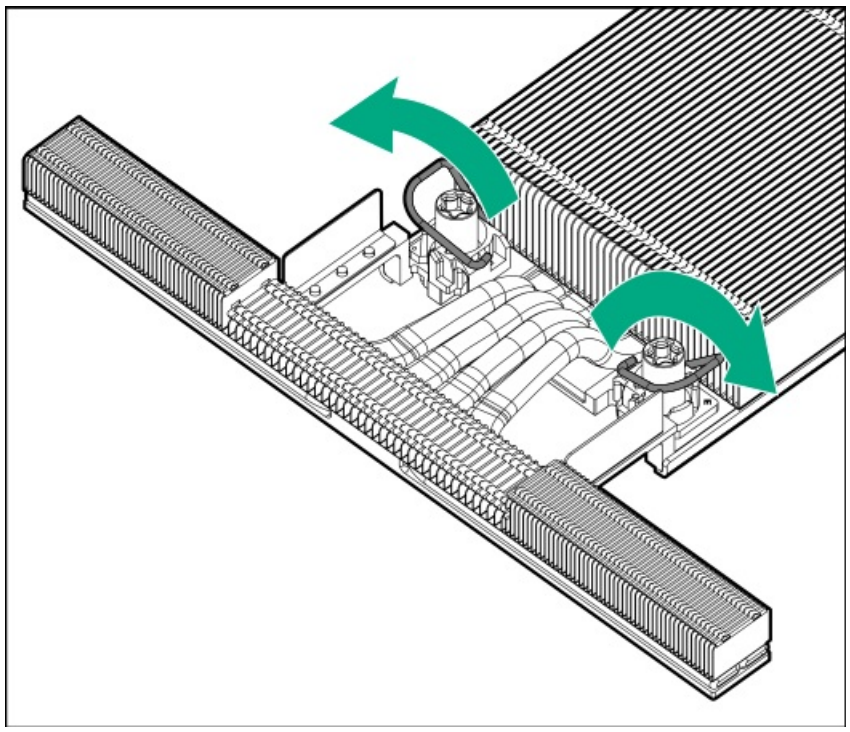
15. **CAUTION:**

    To prevent mechanical damage or depositing oil on your hands or other contaminant to the heatsink contact surface, hold the heatsink only by the edge of its base plate. Do not touch the heatsink fins.

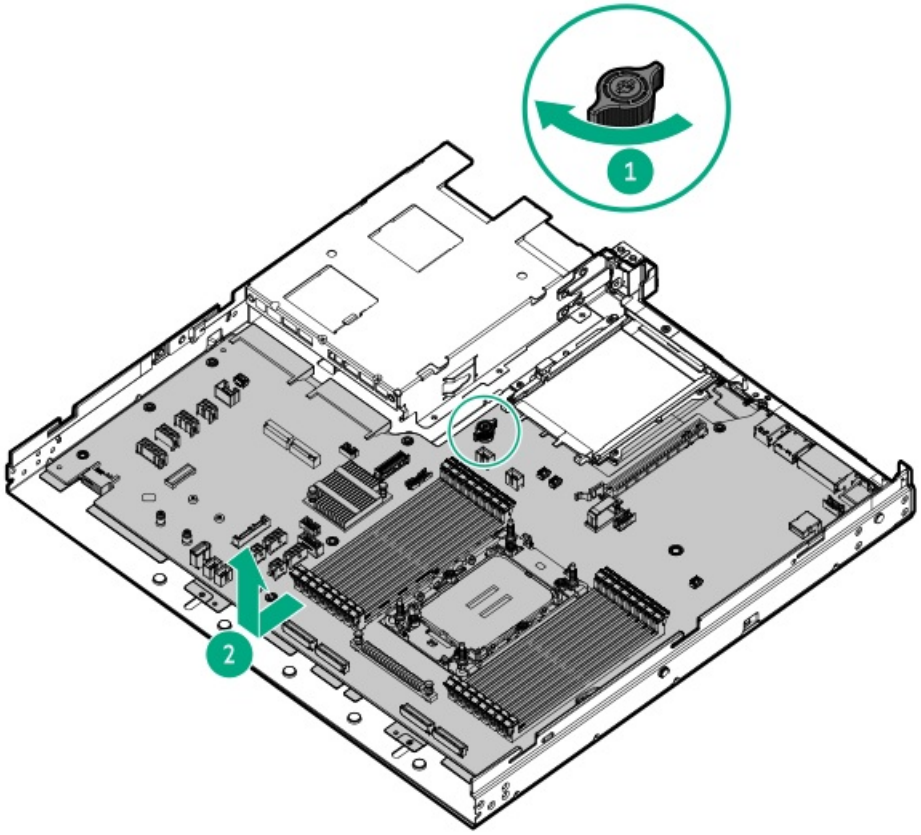
Lift the processor-heatsink module straight up from the system board.



16. Set the anti-tilt wires to the locked position.



17. Place the processor-heatsink module on a flat work surface with its contact side facing up.
18. Remove the system board:
    a. Loosen the thumbscrew (callout 1).
    b. Slide the system board forward and lift it up to separate the system board from the base pan (callout 2).



Installing the system board assembly

Prerequisites

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

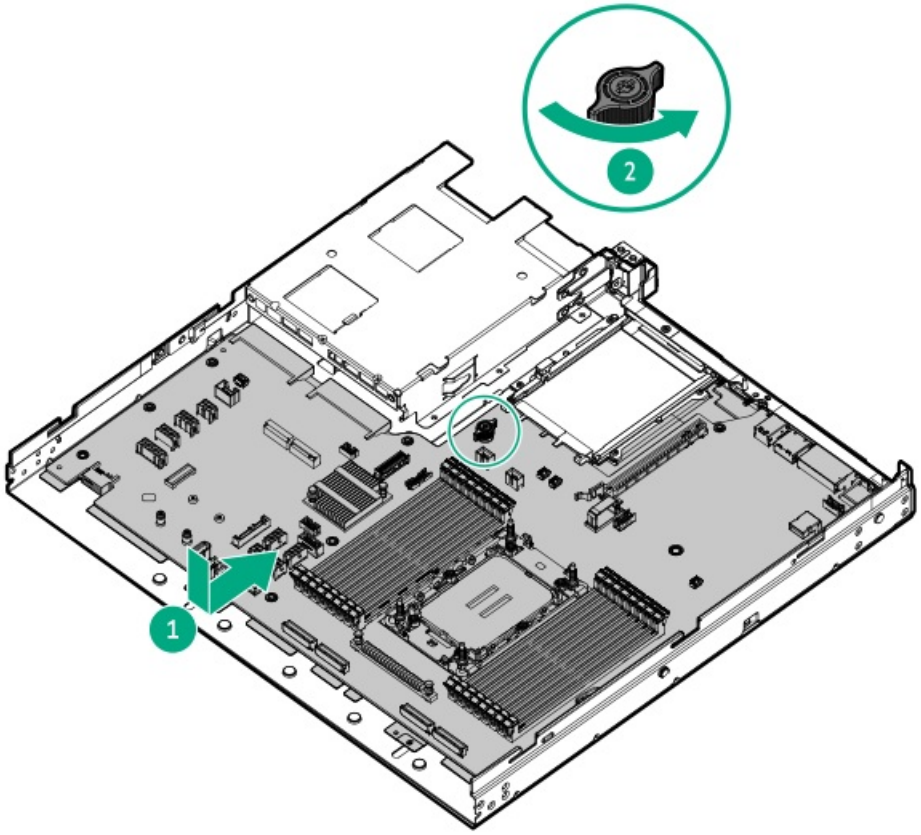
- T-10 Torx screwdriver
- T-15 Torx screwdriver
- T-30 Torx screwdriver
- Hex screwdriver—This tool is required if the serial port cable is to be installed.
- Thermal grease

About this task

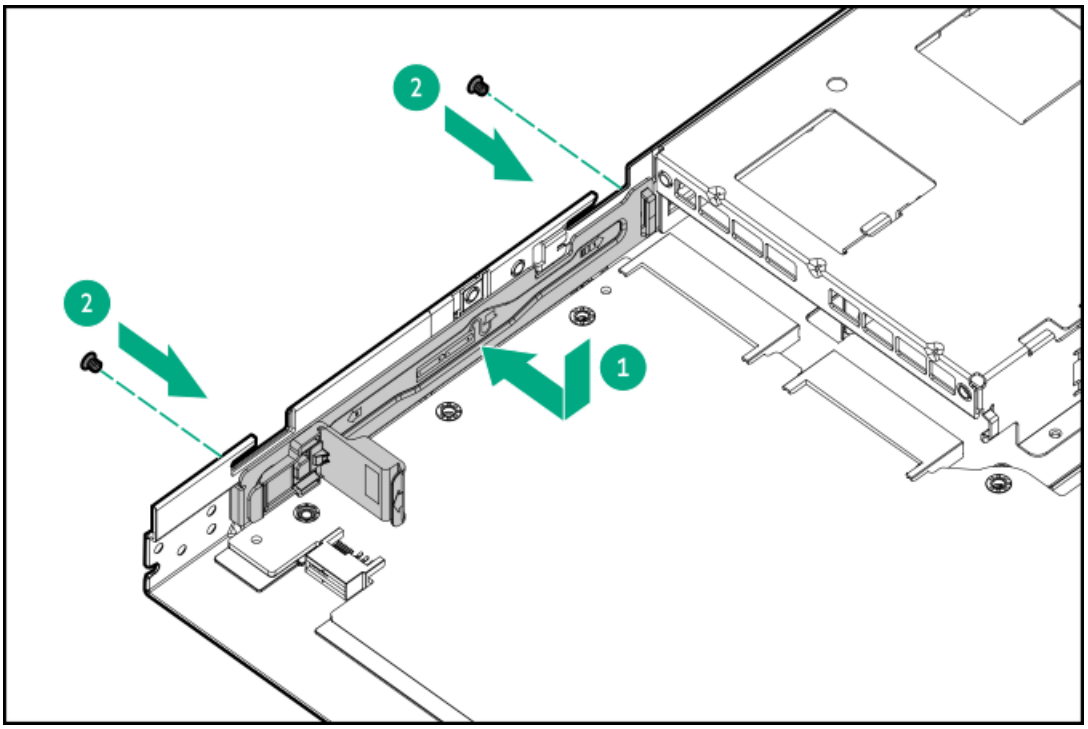
CAUTION:
A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

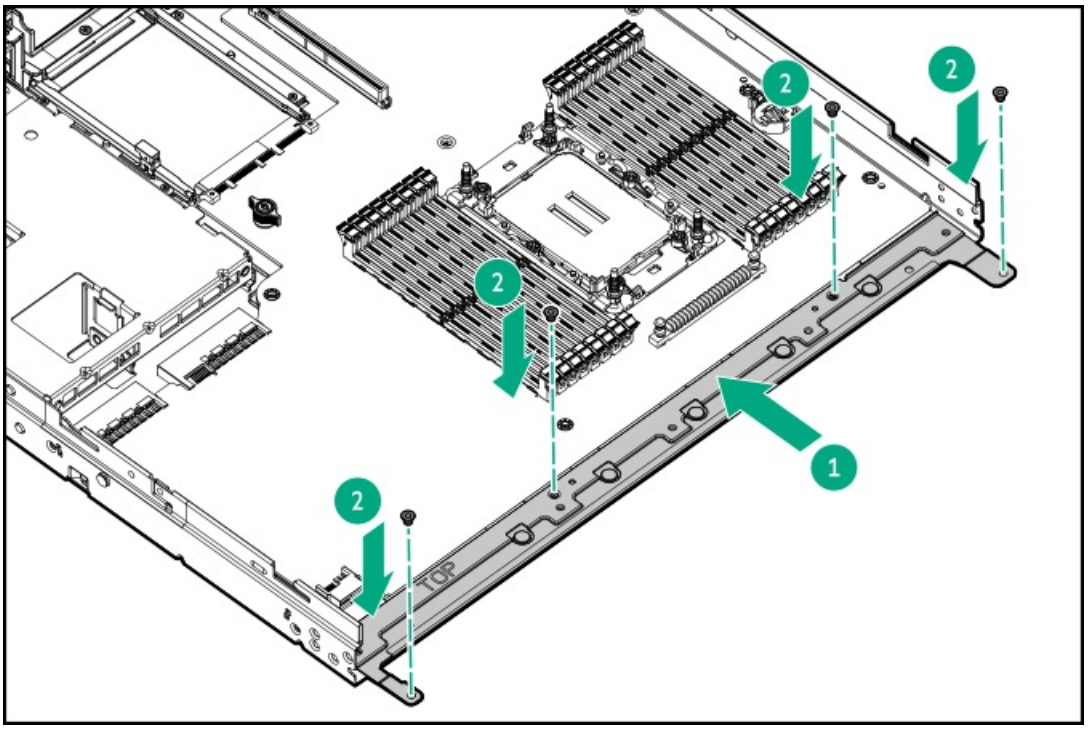
1. Install the new system board assembly:
   a. Slide the system board into the base pan (callout 1).
   b. Tighten the thumbscrew (callout 2).



2. Install the energy pack bracket.



3. Install the fan board tray.



4. Install the processor-heatsink module:

> **CAUTION:**
>
> To prevent mechanical damage or depositing oil on your hands or other contaminant to the heatsink contact surface, hold the heatsink only by the edge of its base plate. Do not touch the heatsink fins.

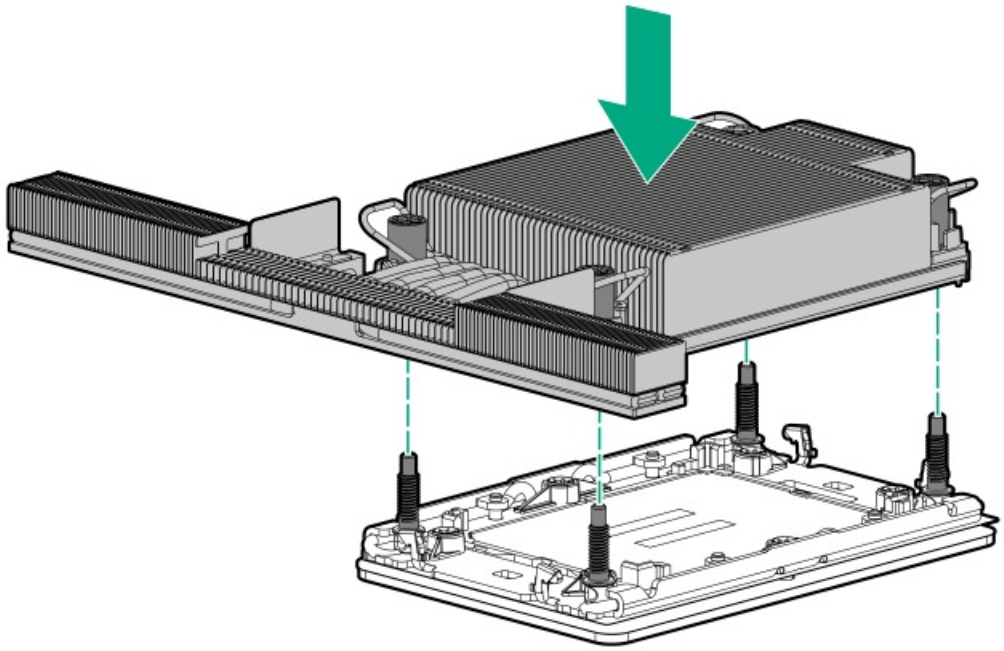
> **CAUTION:**
>
> To prevent thermal failure or component damage, do not move the heatsink once the bottom of its base plate touches the top of the processor. Excessive heatsink movement can cause the thermal grease to smear and become uneven. Voids in the compound can adversely impact the transfer of heat away from the processor.

   a. When using a torque wrench to tighten the heatsink screws, set it to 0.9 N-m (8 lbf-in) of torque .

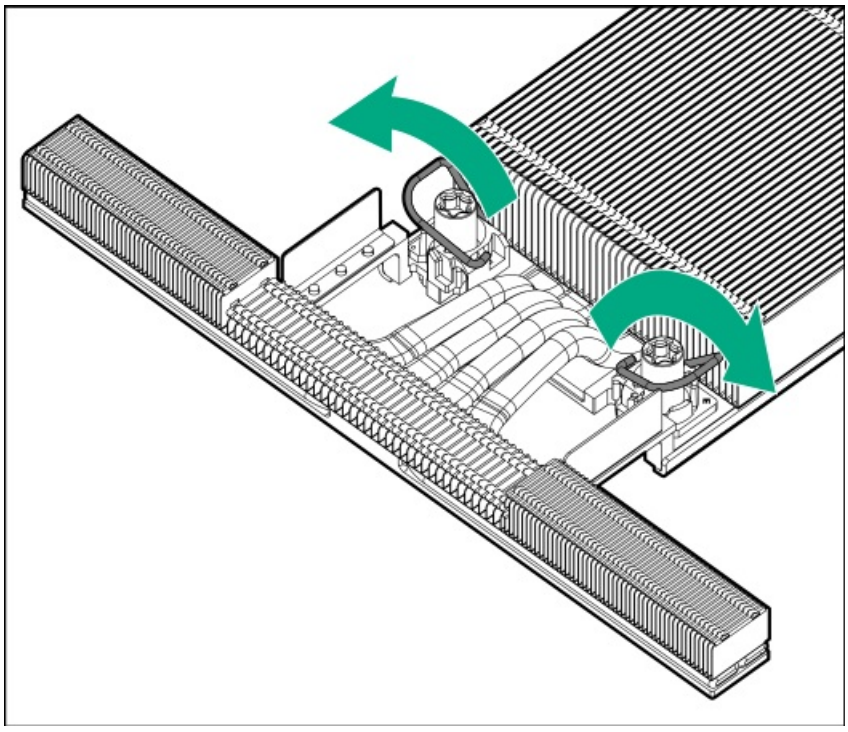
   b. Note the **Front of server** text on the heatsink label to correctly orient the processor-heatsink module over the bolster plate.

   c. Carefully lower the processor-heatsink module straight down onto the bolster plate guide posts.

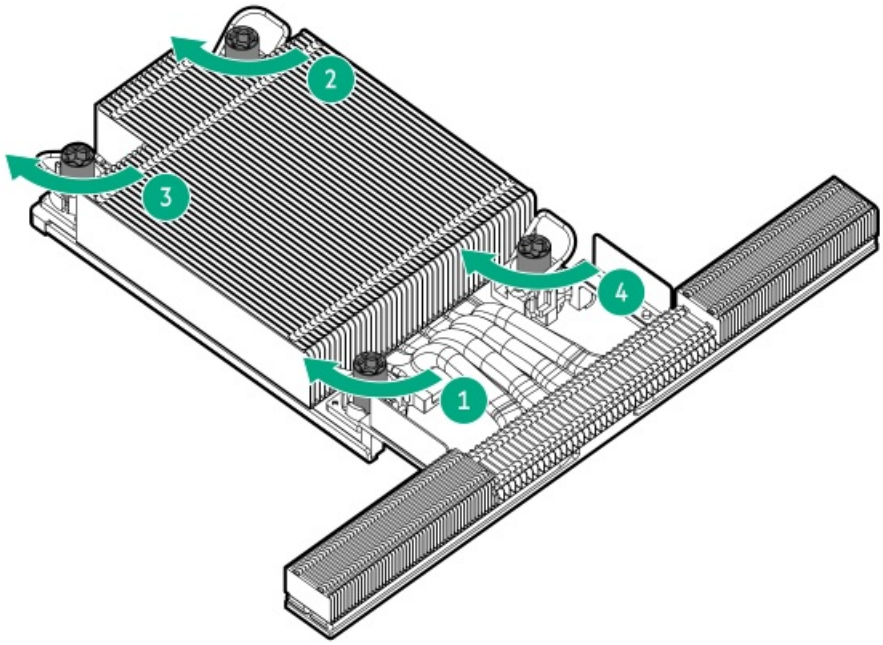
      The posts are keyed so that the module can only be installed one way. Make sure that the module is properly seated on the bolster plate before securing the screws.



d. Set the anti-tilt wires to the locked position.



e. Use a T-30 Torx screwdriver to tighten one pair of diagonally opposite heatsink screws (callouts 1 to 2), and then tighten the other pair of heatsink screws (callouts 3 to 4).



5. Install all the components removed from the system board.
6. Install the access panel.
7. Install the server into the rack.
8. Connect all peripheral cables to the server.
9. Connect the power cords:
   a. Connect each power cord to the server.
   b. Connect each power cord to the power source.
10. Power up the server.
11. Make sure all firmware, including option cards and embedded devices, is updated to the same versions to ensure that the latest drivers are being used.
12. Re-enter the server serial number and product ID, and then configure the date and time settings .

Re-entering the server serial number and product ID

About this task

After replacing the system board, re-enter the system serial number and product ID, and configure the date and time settings.

Procedure

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

   The following warning appears:

```
The serial number is modified by qualified service personnel and must match the serial number
```

```
located on the chassis.
```

4. Click OK.
5. Type the serial number, and then press **Enter**.
6. Select Product ID, and then press **Enter**.

   The following warning appears:

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

7. Type the product ID, and then press **Enter**.
8. From the System Utilities screen, select System Configuration > BIOS/Platform Configuration (RBSU) > Date and Time.
9. Configure the date and time settings:
   - Date (mm-dd-yyyy)—Enter the date in a month-day-year (mm-dd-yyyy) format.
   - Time (hh:mm:ss)—Enter the time in a 24-hour format (hh:mm:ss) format.
   - Hour Format—Select either a 12- or 24-hours format. (This menu is supported in Gen10 Plus and later servers.)
   - Time Format
     - Coordinated Universal Time (UTC) —Calculates the time stored in the hardware real-time clock (RTC) from the associated Time Zone setting.
     - Local Time—Removes the use of the Time Zone setting. This option is useful for addressing interaction issues in Windows operating systems set in legacy BIOS boot mode.
     - Time Zone—Select the time zone for the system.
     - Daylight Savings Time—Select whether to enable DST in the system time setting.
10. To confirm and save the settings, press **F12**.

    The server automatically reboots.

Results

The installation is complete.

Removing and replacing the front USB and Display port Y-cable

Prerequisites

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

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

About this task

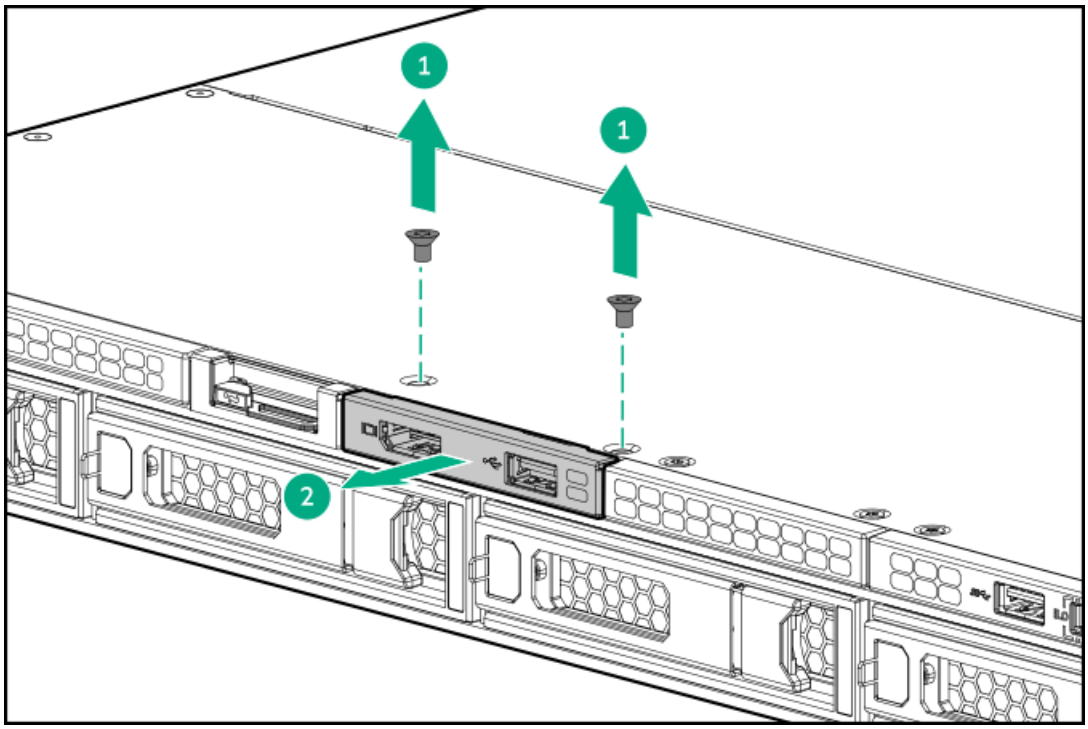
> **CAUTION:**
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

1. If installed, remove the front bezel.

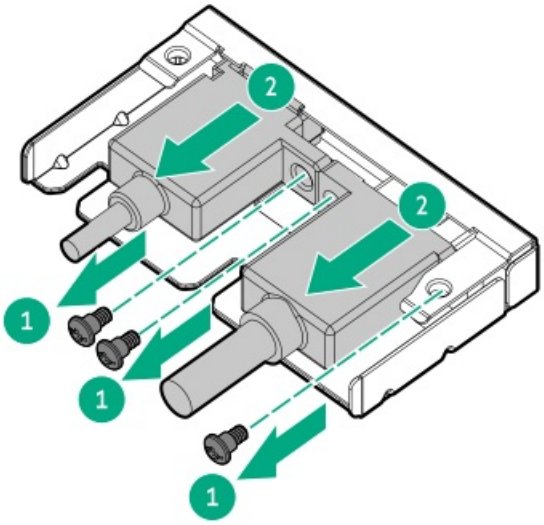
2. Power down the server.
3. If installed, open the cable management arm.
4. Disconnect all peripheral cables from the server.
5. Remove the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the middle cover.
9. Disconnect the front USB and Display cable from the system board.
10. If you are removing the front USB and Display port Y-cable from the optical drive cage, disconnect the optical drive cable from the system board.
11. To remove the front USB and DisplayPort Y-cable from the LFF drive chassis:
    a. Remove the front USB and DisplayPort assembly.

       Retain all screws. These screws will be used to secure the assembly after the front USB and DisplayPort Y-cable replacement.



    b. Remove the front USB and DisplayPort Y-cable from the assembly.

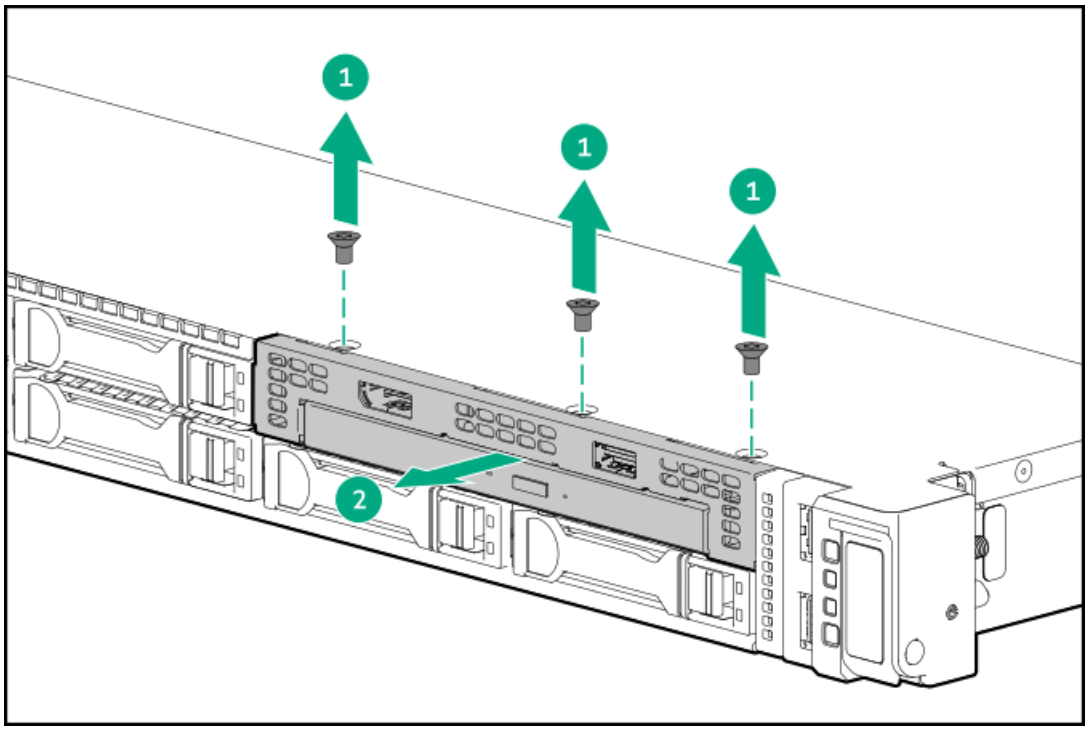
       Retain all screws. These screws will be used to secure the new front USB and DisplayPort Y-cable.



12. To remove the front USB and DisplayPort Y-cable from the optical drive cage:

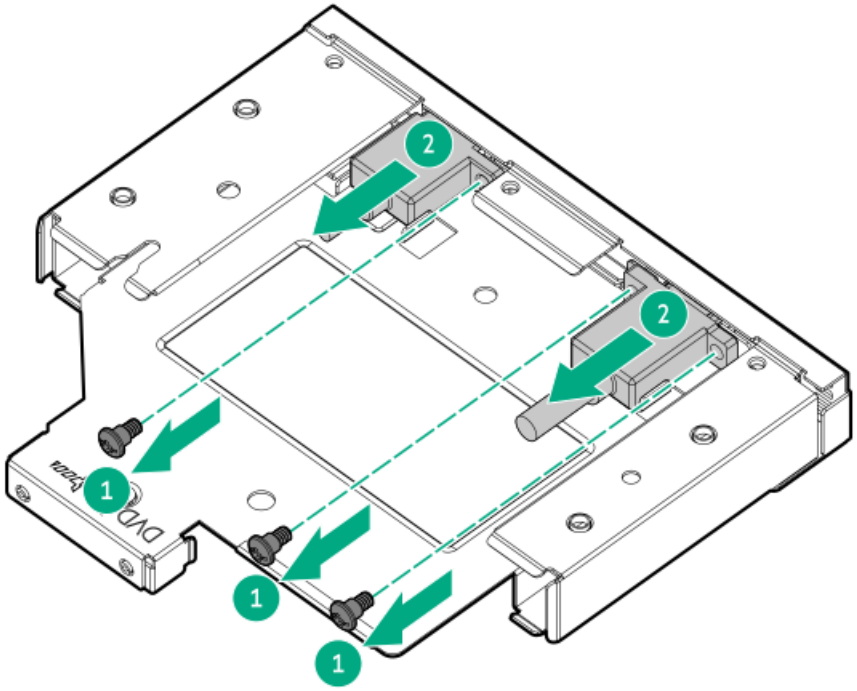
    a. Remove the optical drive cage from the universal media bay.

    Retain all screws. These screws will be secure the optical drive cage after the front USB and DisplayPort Y-cable replacement.



    b. Remove the front USB and DisplayPort Y-cable from the optical drive cage.

    Retain all screws. These screws will be used to secure the new front USB and DisplayPort Y-cable spare.



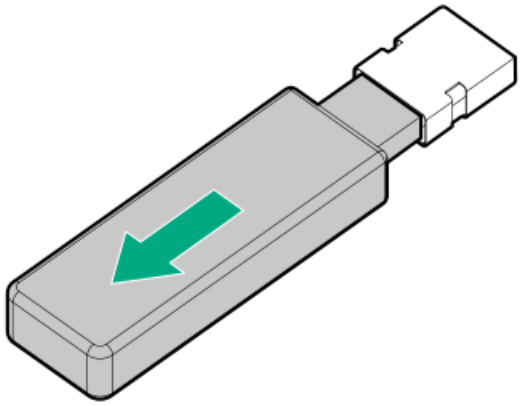
Results

To replace the component, reverse the removal procedure.

Removing and replacing an internal USB device

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the riser cage.
9. Unplug the USB device from the USB port.



Results

To replace the component, reverse the removal procedure.

System battery replacement

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 5–10 years.

Subtopics

System battery information

Removing and replacing the system battery

System battery information

The server contains an internal lithium manganese dioxide, a vanadium pentoxide, or an alkaline battery that provides power to the real-time clock.

WARNING:
If this battery is not properly handled, a risk of the fire and burns exists. To reduce the risk of personal injury:

- Do not attempt to recharge the battery.
- Do not expose the battery to temperatures higher than 60°C (140°F).
- Do not expose the battery to extremely low air pressure as it might lead to explosion or leakage of flammable liquid or gas.
- Do not disassemble, crush, puncture, short external contacts, or dispose the battery in fire or water.

Removing and replacing the system battery

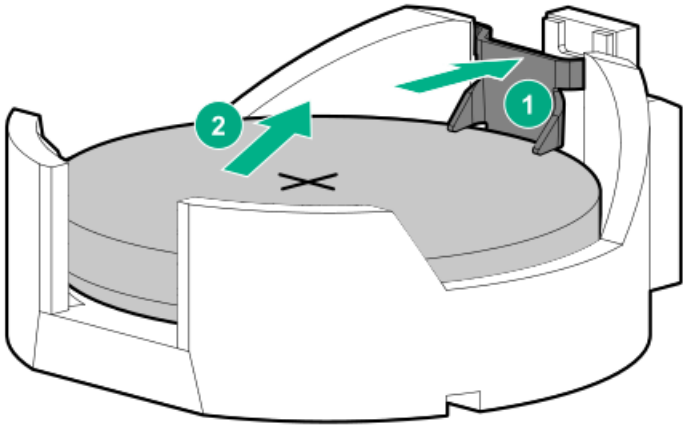
Prerequisites

Before you perform this procedure, make sure that you have a spudger or any small prying tool available.

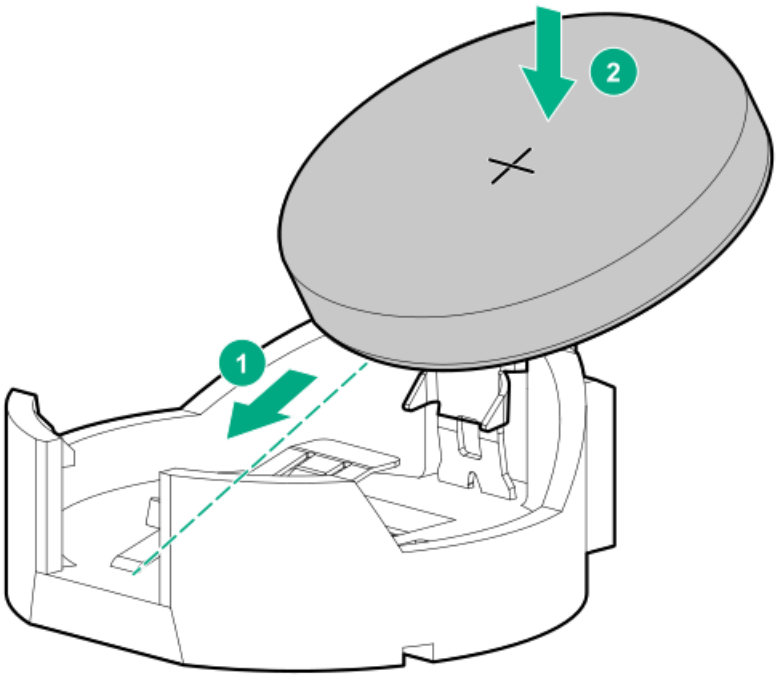
About this task

Procedure

1. Power down the server.
2. If installed, open the cable management arm.
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 the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Remove the system battery:
   a. Use a small flat-bladed, nonconductive tool to press the battery latch (callout 1).
   b. Remove the system battery from the socket (callout 2).



9. Install the system battery:
   a. With the side of the battery showing the "+" sign facing up, insert the battery into the socket (callout 1).
   b. Press the system battery down until it clicks into place (callout 2).



Troubleshooting

Subtopics

NMI functionality

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

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

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

Troubleshooting resources

Troubleshooting resources are available for HPE Gen11 server products in the following documents:

- Troubleshooting Guide for HPE ProLiant Gen11 servers provides procedures for resolving common problems and comprehensive courses of action for fault isolation and identification, issue resolution, and software maintenance.
- Integrated Management Log Messages and Troubleshooting Guide for HPE ProLiant Gen11 servers and HPE Synergy provides IML messages and associated troubleshooting information to resolve critical and cautionary IML events.

To access troubleshooting resources for your product, see the **Hewlett Packard Enterprise website**.

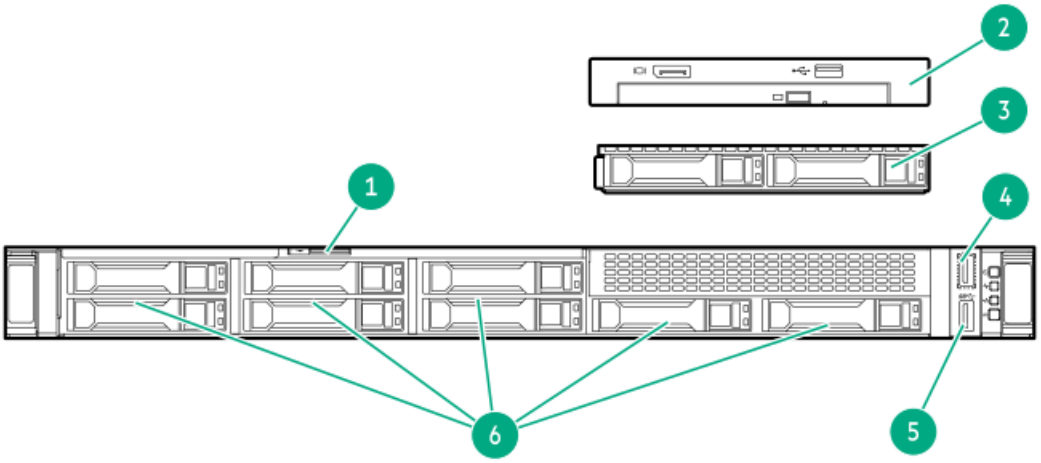
Component identification

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

Subtopics

Front panel components

SFF drive configuration

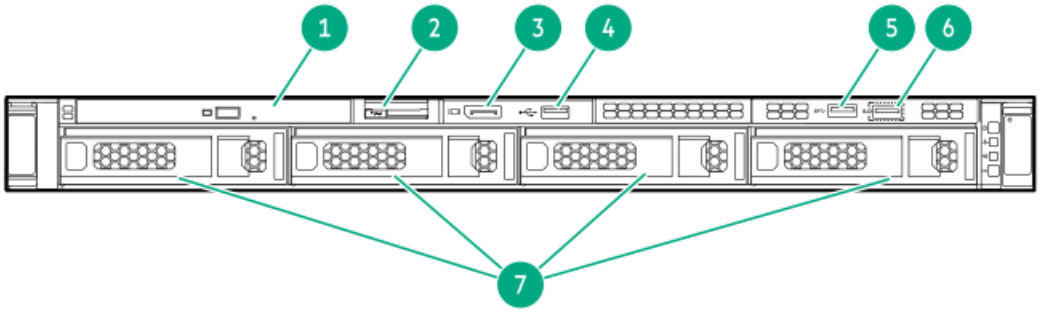


Item	Description
1	Serial number/iLO information pull tab [1]
2	ODD/display port + USB (optional) [2]
3	2 SFF side-by-side drive cage assembly (optional)
4	iLO Service Port
5	USB 3.2 Gen1 port
6	8 SFF drives

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

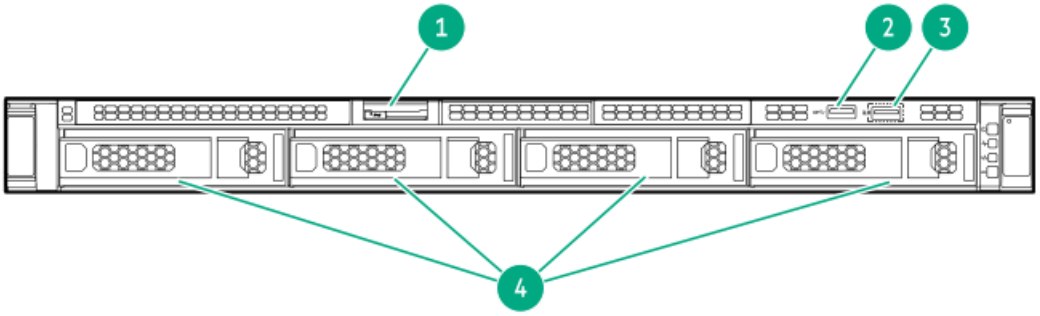
[2] This drive cage assembly includes in the front USB and DisplayPort option.

4 LFF drive configuration



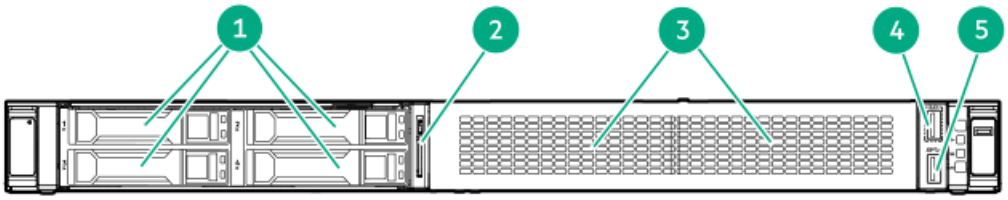
Item	Description
1	ODD (optional)
2	Serial number/iLO information pull tab
3	Display port 1.1a (optional)
4	USB 2.0 port (optional)
5	USB 3.2 Gen1 port
6	iLO Service Port
7	4 LFF drives

12 LFF drive configuration



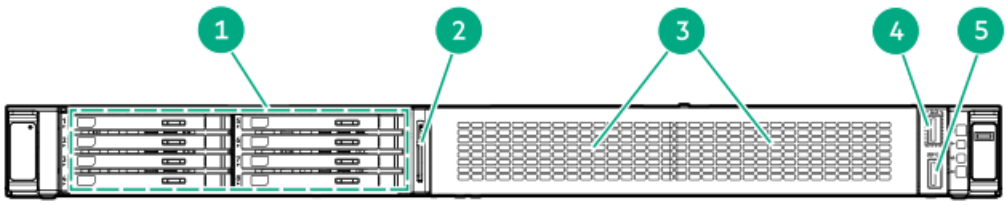
Item	Description
1	Serial number/iLO information pull tab
2	USB 3.2 Gen1 port
3	iLO Service Port
4	4 LFF drives

4 SFF drives with a GPU riser cage



Item	Description
1	4 SFF drives
2	Serial number/ iLO information pull tab
3	GPU riser cage (optional)
4	iLO Service Port
5	USB 3.2 Gen1 port

8 E3.S drives with a GPU riser cage



Item	Description
1	8 E3.S drives
2	Serial number/iLO information pull tab
3	GPU riser cage
4	iLO Service Port
5	USB 3.2 Gen1 port

Subtopics

iLO Service Port

iLO Service Port

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

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

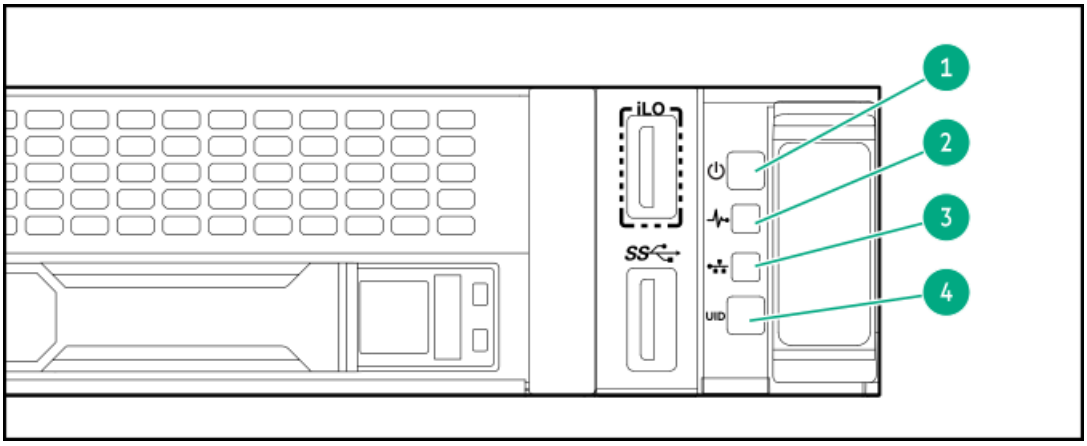
  When you use this feature, the connected USB flash drive is not accessible by the host operating system.
- Connect a client (such as a laptop) with a supported USB to Ethernet adapter to access the following:
  - iLO web interface
  - Remote console
  - iLO RESTful API
  - CLI

When you use the iLO Service Port:

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

  You can also retrieve the Service Port status by using a REST client and the iLO RESTful API.
- You cannot use the Service Port to boot any device within the server, or the server itself.
- You cannot access the server by connecting to the Service Port.
- You cannot access the connected device from the server.

Front panel LEDs and buttons



Item	Description	Status	Definition
1	Power On/Standby button and system power LED [1]	Solid green	System on
		Flashing green	Performing power-on sequence
		Solid amber	System in standby
		Off	No power present [2]
2	Health LED [1]	Solid green	Normal
		Flashing green	iLO is rebooting
		Flashing amber	System degraded [3]
		Flashing red	System critical [3]
3	NIC status LED [1]	Solid green	Linked to network
		Flashing green	Network active
		Off	No network activity
4	UID button/LED [1]	Solid blue	Activated
		Flashing blue	• 1 flash per second—Remote management or firmware upgrade in progress • 4 flashes per second—iLO manual reboot sequence initiated • 8 flashes per second—iLO manual reboot sequence in progress
		Off	Deactivated

1 When all LEDs flash simultaneously, a power fault has occurred. For more information, see Front panel LED power fault codes.
2 Facility power is not present, power cord is not attached, no power supplies are installed, or power supply failure has occurred.
3 If the health LED indicates a degraded or critical state, review the system Integrated Management Log (IML) or use HPE iLO to review the system health status.

Subtopics

Server UID LED

Using the UID button to view the Server Health Summary

Front panel LED power fault codes

Server UID LED

The UID LED is used to locate a particular server when it is deployed in a dense rack with other equipment. Activating the UID LED helps an

on-site technician to quickly identify a server for maintenance tasks.

Using the UID button to view the Server Health Summary

Prerequisites

- An external monitor is connected.
- In the iLO web interface, the Show Server Health on External Monitor feature is enabled on the Access Settings page.

About this task

Use the UID button to display the iLO Server Health Summary screen on an external monitor. This function works when the server is powered on or off. Use this feature for troubleshooting if the server will not start up.

> **CAUTION:** Press and release the UID button. Holding it down at any time for more than five seconds initiates a graceful iLO reboot or a hardware iLO reboot. Data loss or NVRAM corruption might occur during a hardware iLO reboot.

Procedure

1. Press and release the UID button.

   The Server Health Summary screen is displayed on the external monitor. For more information, see the iLO troubleshooting guide:

   https://www.hpe.com/support/ilo6

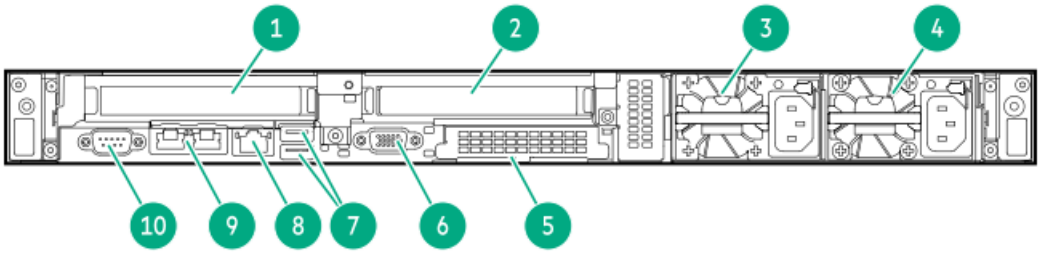
2. Press the UID button again to close the Server Health Summary screen.

Front panel LED power fault codes

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

Subsystem	LED behavior
System board	1 flash
Processor	2 flashes
Memory	3 flashes
Riser board PCIe slots	4 flashes
FlexibleLOM	5 flashes
Storage controller	6 flashes
System board PCIe slots	7 flashes
Power backplane	8 flashes
Storage backplane	9 flashes
Power supply	10 flashes
PCIe expansion cards installed in riser board	11 flashes
Chassis	12 flashes
GPU card	13 flashes

Rear panel components



Item	Description
1	Slot 1 PCIe5 x16 (16, 8, 4, 2 (Gen4))
2	Slot 2 PCIe5 x16 (16, 8, 4, 2 (Gen4))
3	Power supply 2 (PS2)
4	Power supply 1 (PS1)
5	Slot 14 OCP PCIe5 x16
6	Video (VGA) port
7	USB 3.2 Gen1 ports
8	iLO Management Port
9	Embedded 1x2 network port
10	Serial port (optional)

Subtopics

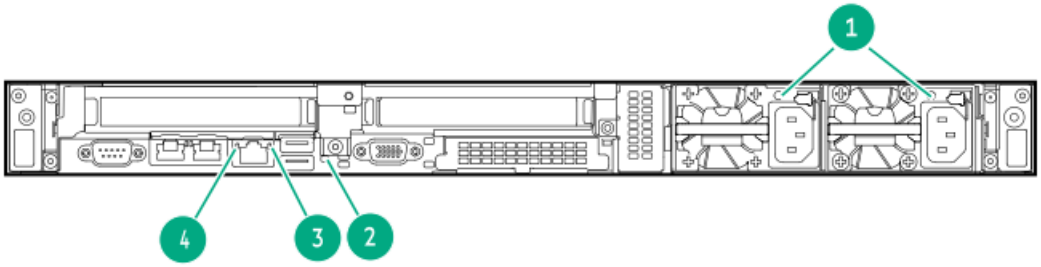
Display device setup

Display device setup

This server supports both VGA port and Display port 1.1a. Before connecting a display device to this server, review the information below.

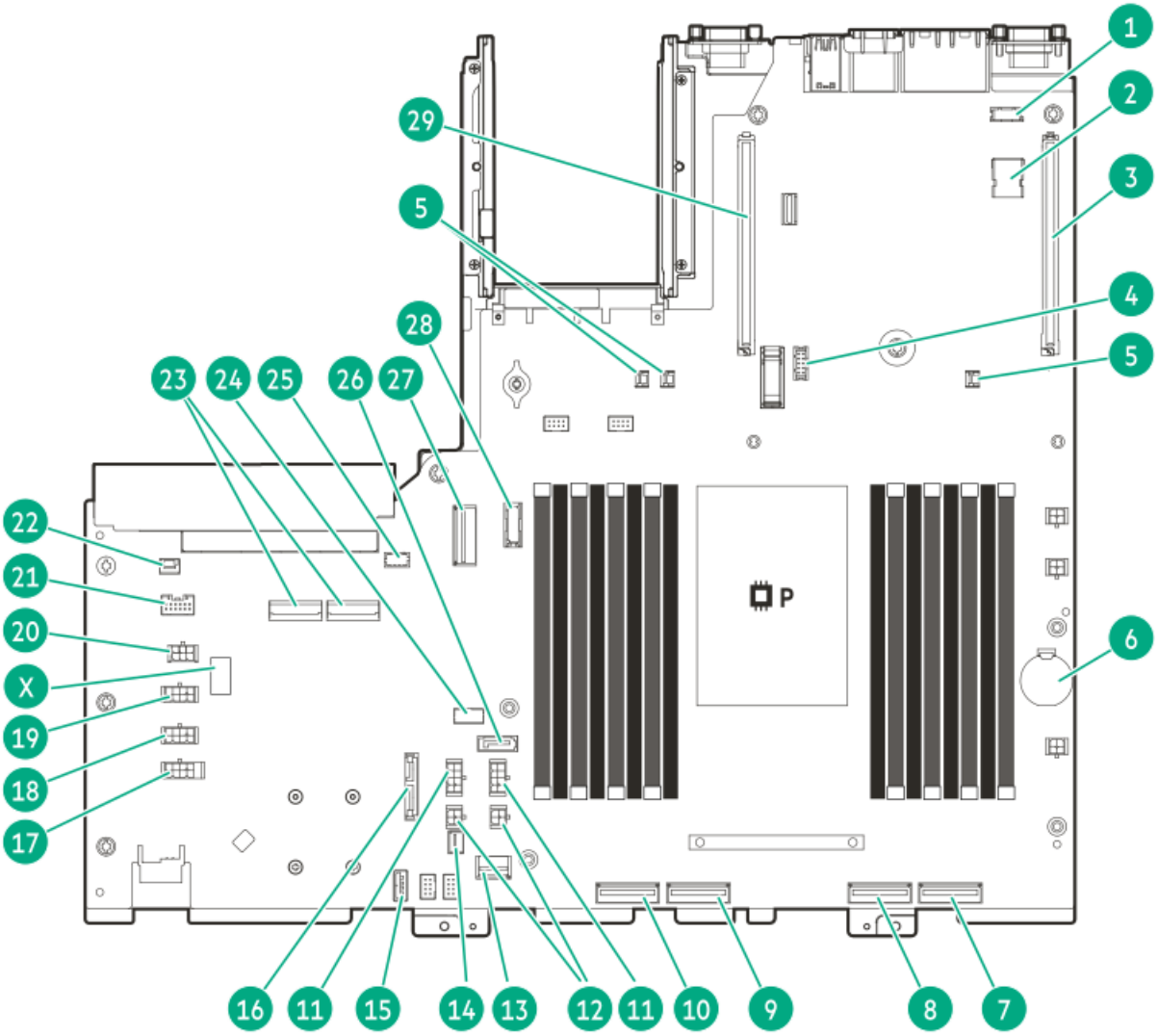
- Whenever possible, use the same display connection type. For example, if your PC or monitor only has a VGA output, connect it to the server VGA port. Use of any kind of adapter or converter cable or dongle might lead to decreased display quality or a lag over the connection.
- DisplayPort connection: When connecting an HDMI or DVI display to the DisplayPort, use an active type adapter. Passive type adapter—marked with the DP++ symbol—is not supported.
- Display output modes:
  - If you connect two display devices to the VGA port and DisplayPort, the same image is shown on both devices—screen mirroring mode.
  - The embedded video controller in the iLO 6 chipset does not support dual display or screen extension mode. To enable dual display mode, install a compatible PCIe5 graphics card that supports this feature in the expansion slot.

Rear panel LEDs



Item	LED	Status	Definition
1	Power supply	Solid green	The power supply is operating normally.
		Off	One or more of the following conditions exists: • Power is unavailable • Power supply failure • Power supply is in standby mode • Power supply error
2	UID	Solid blue	Activated
		Flashing blue	• 1 flash per sec—Remote management or firmware upgrade in progress • 4 flashes per sec—iLO manual reboot sequence initiated • 8 flashes per sec—iLO manual reboot sequence in progress
		Off	Deactivated
3	iLO status	Solid green	Linked to network
		Flashing green	Network active
		Off	No network activity
4	iLO link	Solid green	Network link
		Off	No network link

System board components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Item	Description
1	Serial port cable connector
2	Internal USB 2.0 port
3	Primary riser connector
4	Video (VGA) cable connector
5	Storage controller backup power connector
6	System battery
7	MCIO port 1
8	MCIO port 2
9	MCIO port 3
10	MCIO port 4
11	GPU Auxiliary power connector
12	GPU riser power connector [1]
13	Front I/O connector
14	SATA sideband connector
15	Internal USB 3.2 Gen1 port
16	Optical drive connector
17	Drive box 5 power connector
18	Drive box 3 power connector
19	Drive box 1 power connector
20	Media bay power connector
21	Energy pack connector
22	Chassis Intrusion Detection connector
23	M.2 module connectors
24	Switch board sideband connector [1]
25	NS204i-u power connector
26	SATA 6 Gb/s port
27	x8 slimSAS port 1
28	Display port cable connector
29	Secondary riser connector
X	System maintenance switch

[1] This component is used in the 4 SFF and 8 E3.S drive configurations.

Subtopics

System maintenance switch descriptions

DIMM label identification

DIMM slot numbering

Heatsink and processor socket components

System maintenance switch descriptions

Position	Default	Function
S1 [1]	Off	• Off—iLO 6 security is enabled. • On—iLO 6 security is disabled.
S2	Off	Reserved
S3	Off	Reserved
S4	Off	Reserved
S5 [1]	Off	• Off—Power-on password is enabled. • On—Power-on password is disabled.
S6 [1],[2] [3]	Off	• Off—No function • On—Restore default manufacturing settings
S7	Off	Reserved
S8	Off	Reserved
S9	Off	Reserved
S10	Off	Reserved
S11	Off	Reserved
S12	Off	Reserved

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

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

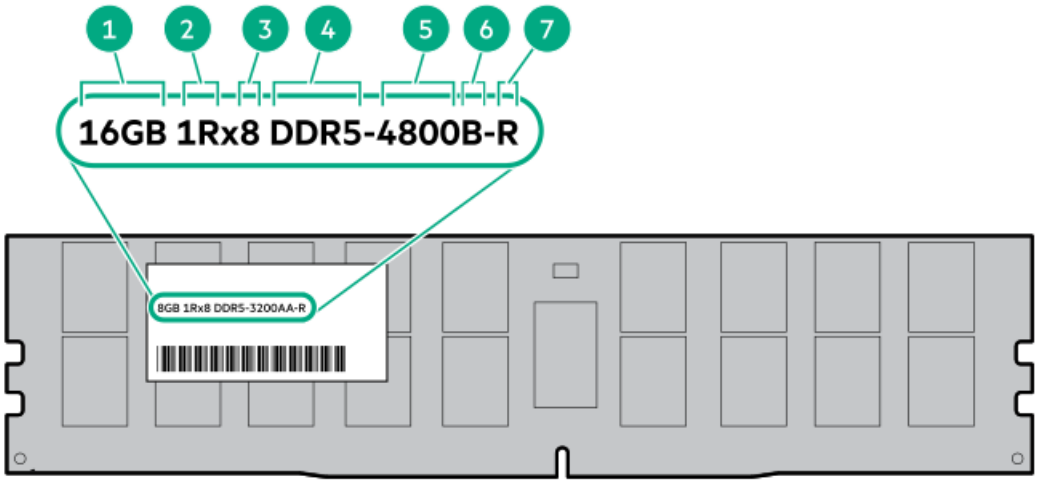
[3] When the system maintenance switch position 6 is set to the On position and Secure Boot is enabled, some configurations cannot be restored. For more information, see Configuring the server.

DIMM label identification

To determine DIMM characteristics, see the label attached to the DIMM. The information in this section helps you to use the label to locate specific information about the DIMM.

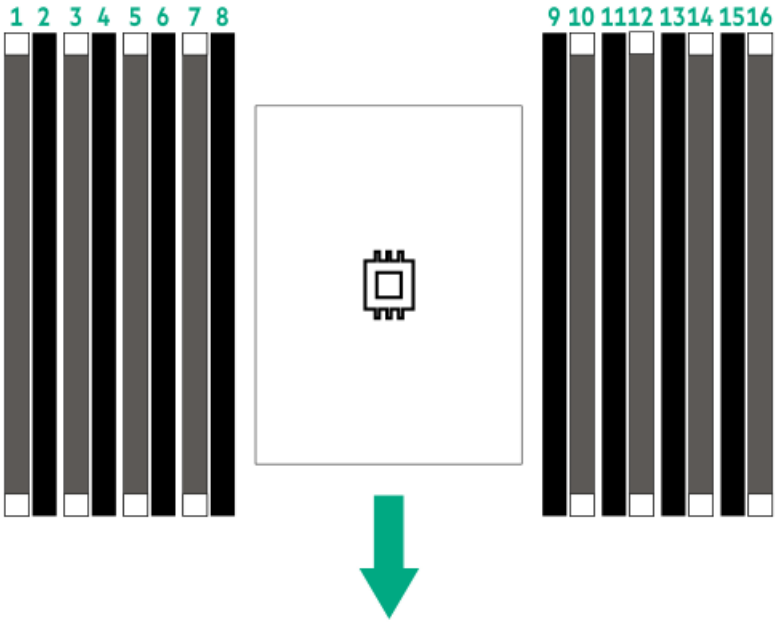
For more information about product features, specifications, options, configurations, and compatibility, see the HPE DDR5 SmartMemory QuickSpecs:

https://www.hpe.com/docs/server-memory



Item	Description	Example
1	Capacity	16 GB 32 GB 64 GB 128 GB 256 GB
2	Rank	1R—Single rank 2R—Dual rank 4R—Quad rank 8R—Octal rank
3	Data width on DRAM	x4—4-bit x8—8-bit
4	Memory generation	PC5—DDR5
5	Maximum memory speed	4800 MT/s
6	CAS latency	B—42-42-42 B—50-42-42 (for 128 GB and 256 GB capacities)
7	DIMM type	R—RDIMM (registered)

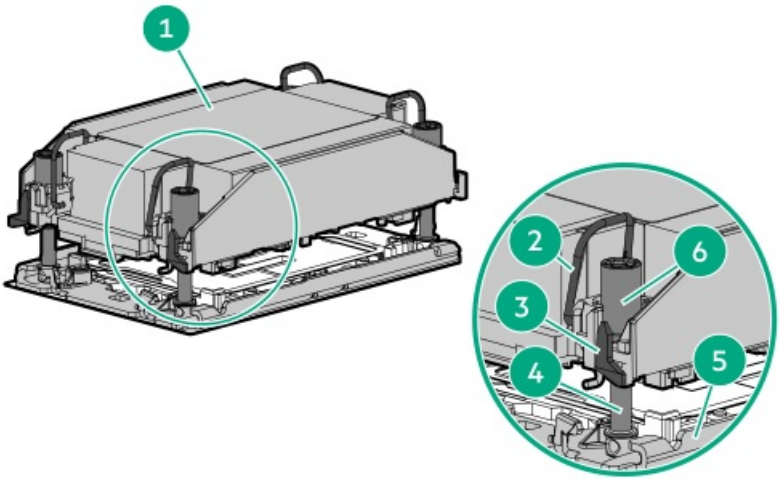
DIMM slot numbering



The arrow points to the front of the server.

Heatsink and processor socket components

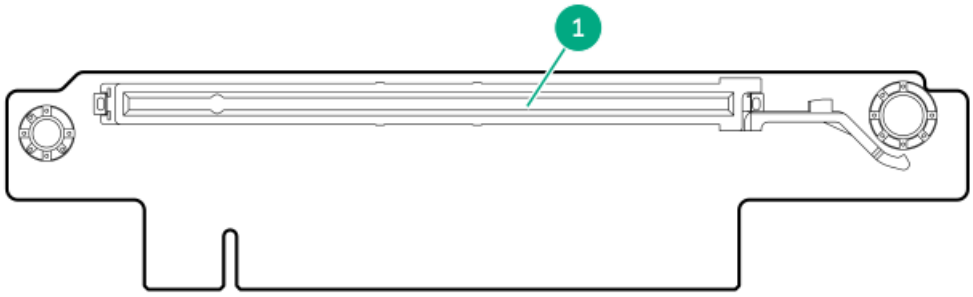
A standard heatsink is shown, your heatsink might look different.



Item	Description
1	Processor-heatsink module [1]
2	Anti-tilt wires
3	Processor carrier release tabs
4	Bolster plate guide posts
5	Bolster plate
6	Heatsink screws

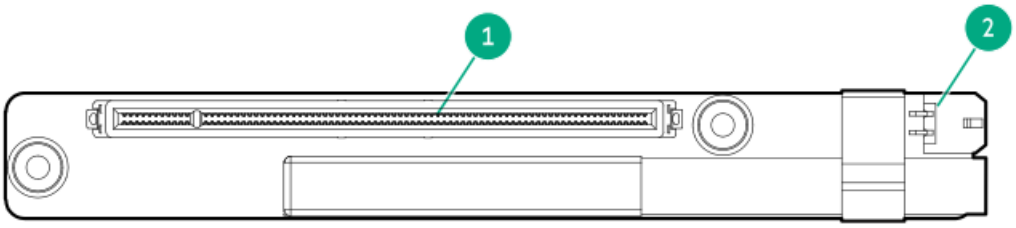
[1] This module consists of the heatsink attached to the processor that is already secured in its carrier.

Riser board components



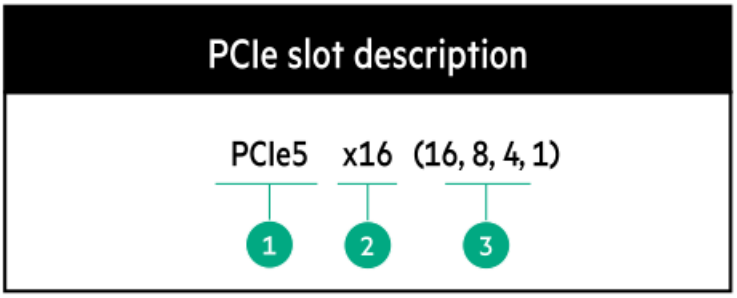
Item	Description	Supported form factors
1	PCIe5 x16 (16, 8, 4, 2 (Gen4))	• Full-height, half-length • Half-height, half-length (low-profile)

GPU riser board



Item	Description	Supported form factors
1	PCIe5 x16 (16, 8, 4, 2 (Gen4))	• Full-height, full-length • Half-height, half-length (low-profile)
2	Power connector	–

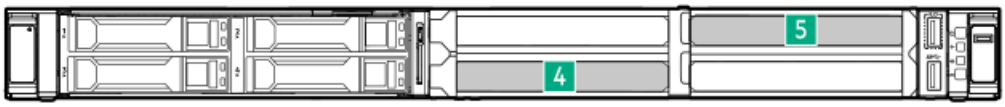
PCIe5 slot description



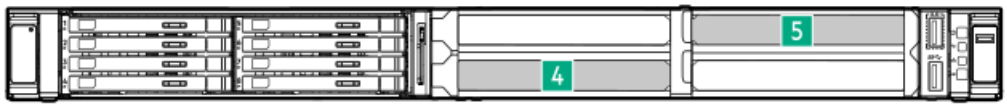
Item	Description	Definition
1	PCI Express version	Each PCIe version corresponds to a specific data transfer rate between the processor and peripheral devices. Generally, a version update corresponds to an increase in transfer rate. • PCIe 1.x • PCIe 2.x • PCIe 3.x • PCIe 4.x • PCIe 5.x The PCIe technology is under constant development. For the latest information, see the **PCI-SIG website**.
2	Physical connector link width	PCIe devices communicate through a logical connection called an interconnect or link. At the physical level, a link is composed of one or more lanes. The number of lanes is written with an x prefix with x16 being the largest size in common use. • x1 • x2 • x4 • x8 • x16
3	Negotiable link width	These numbers correspond to the maximum link bandwidth supported by the slot.

GPU riser slot numbering

4 SFF drives with a GPU riser cage



8 E3.S drives with a GPU riser cage



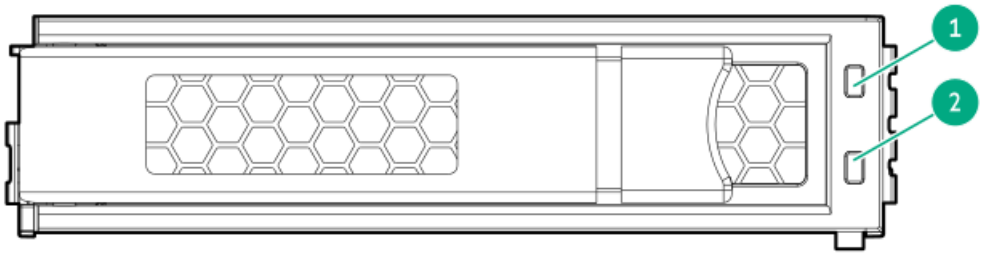
HPE Basic Drive LED definitions

The HPE Basic drive carrier has the following LEDs:

- Amber/blue LED—Managed by the drive backplane in conjunction with the storage controller and is used to indicate drive status.
- Green LED—Managed by the drive itself and indicates the drive activity.

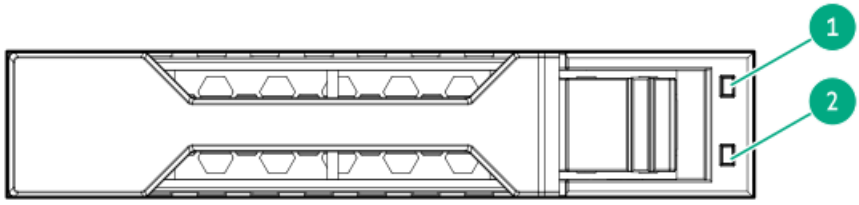
LFF low-profile drive carrier

The LFF low-profile drive carrier supports hot-plug SAS or SATA.



SFF basic drive carrier

The SFF basic drive carrier supports hot-plug SAS, SATA, or U.3 NVMe.



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

EDSFF SSD LED definitions

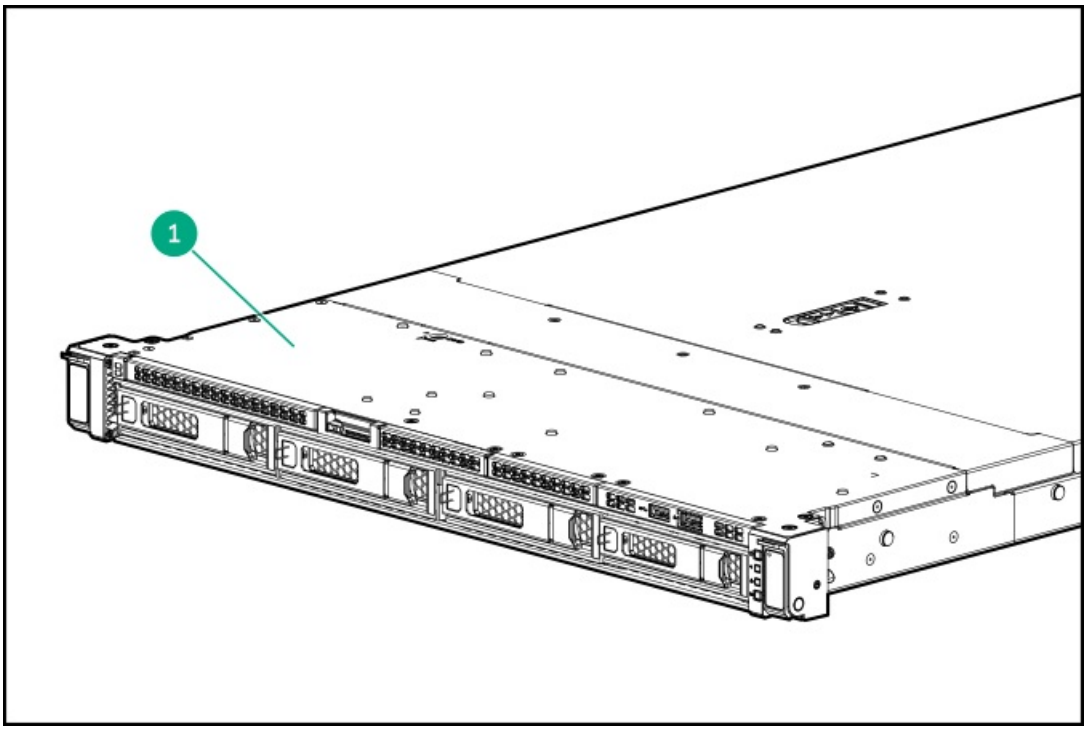
This server supports hot-plug Enterprise and Data Center Standard Form Factor (EDSFF) drives. Specifically, E3.S PCIe5 NVMe SSDs. The EDSFF drive carrier has two LEDs:

- Amber/blue LED—Managed by the drive backplane in conjunction with the storage controller and is used to indicate drive status.
- Green LED—Managed by the drive itself and indicates the drive activity.

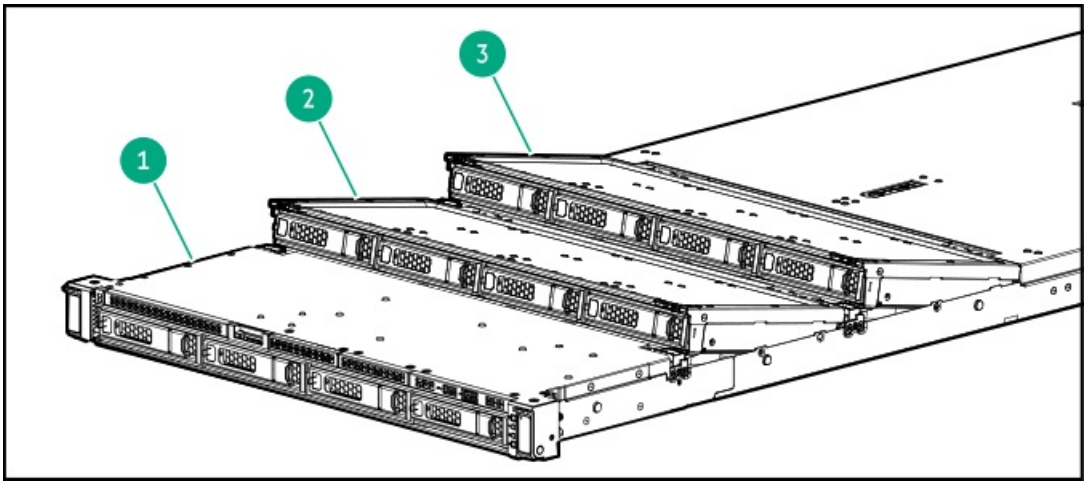
Item	LED	State	Definition
1	Fault/Locate	Solid amber	This drive has failed, is unsupported, or is invalid.
		Solid blue	The drive is operating normally and being identified by a management application.
		Flashing amber/blue (1 flash per second)	The drive has failed, or a predictive failure alert has been received for this drive. The drive has also been identified by a management application.
		Flashing amber (1 flash per second)	A predictive failure alert has been received for this drive. Replace the drive as soon as possible.
		Off	The drive is operating normally and not being identified by a management application.
2	Online/Activity	Solid green	The drive is online and has no activity.
		Flashing green (4 flashes per second)	The drive is operating normally and has activity.
		Off	No power present

Drive box identification

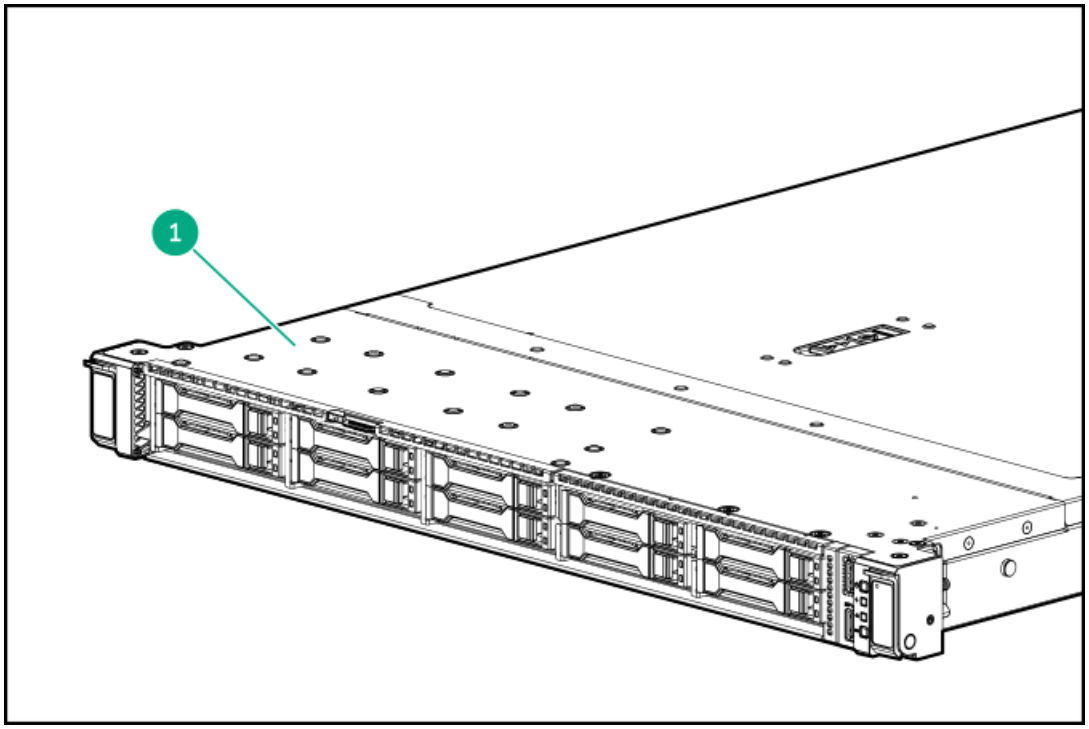
- LFF drive model
  - Short chassis



  - Long chassis



- SFF drive model



Item	Description
1	Box 1
2	Box 3
3	Box 5

Drive bay numbering

CAUTION:

When a server is purchased without any drive installed, some drive bays might be empty while other drive bays might be populated with drive blanks. To maintain proper system cooling, do not operate the server without a drive or a drive blank installed.

Subtopics

SFF drive bay numbering

LFF drive bay numbering

E3.S drive bay numbering

SFF drive bay numbering

The following drive backplane options are supported in all SFF drive configurations:

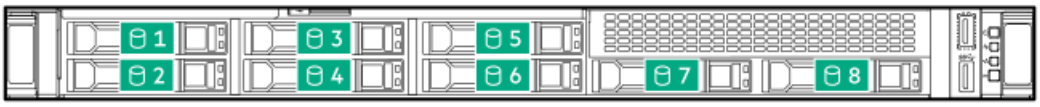
- 2 SFF side-by-side drive backplanes:
  - 2 SFF 24G x4 NVMe / SAS UBM3 BC
  - 2 SFF 24G x4 NVMe / SAS UBM6 BC
- 8 SFF drive backplanes:
  - 8 SFF 24G x 1 NVMe / SAS UBM3 BC
  - 8 SFF 24G x1 NVMe / SAS UBM6 BC
  - 8 SFF 24G x4 NVMe / SAS UBM3 BC
  - 8 SFF 24G x4 NVMe / SAS UBM6 BC

The following drive backplane options are supported in servers with a GPU riser cage:

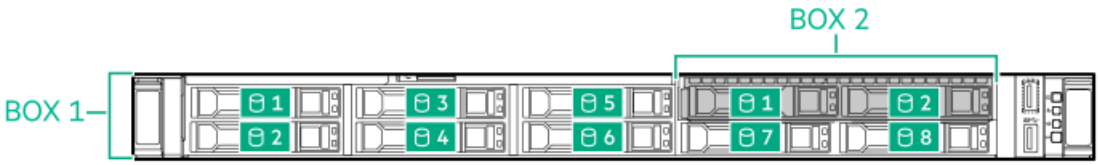
- 4 SFF drive backplanes:
  - 2x 2SFF 24G x4 NVMe / SAS UBM3 BC
  - 2x 2SFF 24G x4 NVMe / SAS UBM6 BC

For more information on the drive backplane description, see Drive backplane naming.

8 SFF drive bay numbering

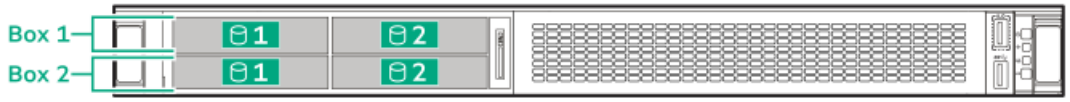


8 + 2 SFF drive bay numbering



Box	Drive bays
1	1–8
2	1 and 2

4 SFF drive bay numbering



Box	Drive bays
1	1 and 2
2	1 and 2

In the SFF drive configuration:

- Drives are assigned to box 1 and optional box 2.
- SAS, SATA, or U.3 NVMe are supported.
- To manage the hot-plug SAS drive, install one of the following storage controllers:
  - HPE SR/MR type-p Gen11 storage controller
  - HPE MR type-o Gen11 storage controller (OROC)
- When installing NVMe drives, install either all U.2 or all U.3 drives. Mixed NVMe drive type installation in the same box is not supported.

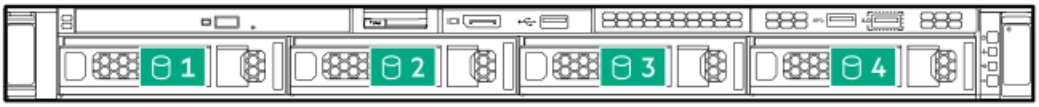
LFF drive bay numbering

The following drive backplane options are supported in all LFF drive configurations:

- 4 LFF 12G x1 SAS UBM2 LP
- 4 LFF 12G x1 SAS UBM6 LP

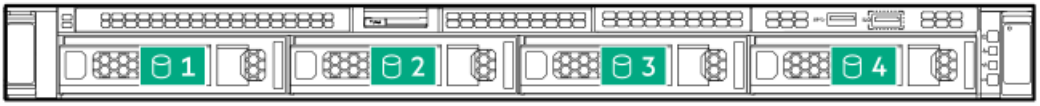
For more information on the drive backplane description, see Drive backplane naming.

4 LFF drive bay numbering

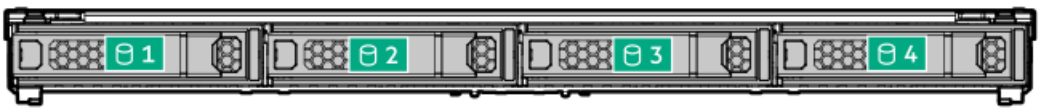


12 LFF drive bay numbering

- Box 1



- Box 3/Box 5



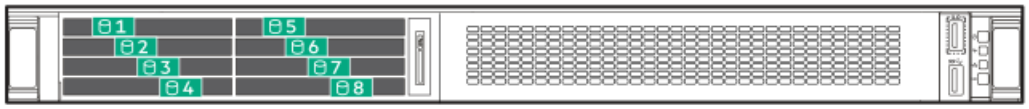
In the LFF drive configuration:

- All drives belong to box 1.
- SAS or SATA drives are supported.
- To manage the hot-plug SAS drive, install the HPE MR type-o Gen11 storage controller (OROC).

E3.S drive bay numbering

The 8 E3.S 32G x4 NVMe UBM5 E3C drive backplane option is supported.

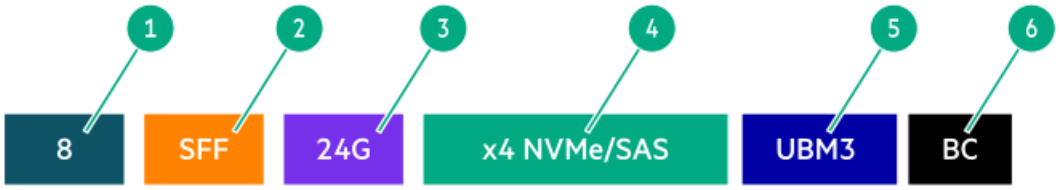
For more information on the drive backplane description, see Drive backplane naming.



Drive backplane naming

This topic explains the features represented in the drive backplane naming. This naming convention was adopted starting in the HPE Gen11 server release. Your server might not support all the features listed in this topic. For server-specific support information, see the server guides:

- Drive backplane support, see Drive bay numbering.
- Drive backplane cabling, see Storage cabling.

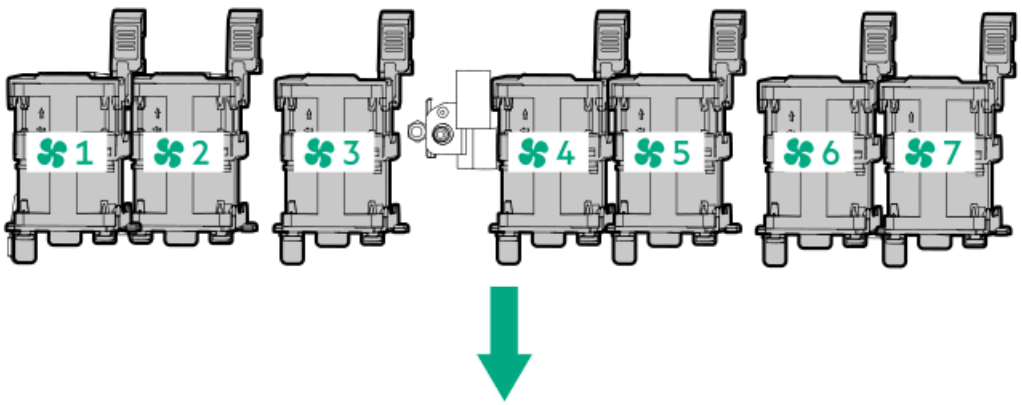


Item	Description	Values
1	Drive bay count	Number of drive bays supported by the backplane.
2	Drive form factor	LFF—Large Form Factor
		SFF—Small Form Factor
		E3.S—Enterprise and Datacenter Standard Form Factor (EDSFF)
3	Maximum link rate per lane (GT/s)	12G
		16G
		24G
		32G
4	Port link width and interface	x1 NVMe/SAS—U.3 NVMe, SAS, or SATA [1]
		x4 NVMe/SAS—U.3 NVMe, SAS, or SATA [2]
		x4 NVMe—U.2 NVMe [3]
		x4 NVMe—E3.S
5	Universal backplane manager (UBM) options	UBM2—Segregated SAS/SATA
		UBM3 or UBM6—Converged
		UBM4 or UBM6—Segregated U.2 NVMe
		UBM5 or UBM7—EDSFF
6	Drive carrier type	BC—Basic carrier (SFF)
		LP—Low-profile carrier (LFF)
		EC1—E3.S carrier

1 Tri-mode controller support for x1 U.3 NVMe, SAS, and SATA drives. System board connection supports SATA drives only.
2 CPU direct attach or tri-mode controller support for x4 U.3 NVMe or x1 SAS and SATA drives.
3 CPU direct attach or tri-mode controller support for x4 U.2 NVMe drives.

Fan numbering

To provide sufficient airflow to the system, the server is by default populated by five standard fans or seven high performance fans. There are a total of 7 fans.



The arrow points to the front of the server.

Fan and heatsink requirements

The table lists the fan and heatsink requirements for the server depending on the hardware configuration. For more detailed information, see the product QuickSpecs on the Hewlett Packard Enterprise website (**https://www.hpe.com/info/qs**).

Configuration	Fan	Processor TDP	Ambient operating temperature	Heatsink
8 + 2 SFF drives	Standard	≤ 185 W	30°C (86°F)	Standard
	High performance	185 W < CPUs with TDP ≤ 270 W		Performance
4 LFF drives	Standard	≤ 185 W	30°C (86°F)	Standard
	High performance	185 W < CPUs with TDP ≤ 270 W		Performance
12 LFF drives	High performance	≤ 185 W	30°C (86°F)	Standard
		185 W < CPUs with TDP ≤ 270 W		Performance
2 dual width GPU	High performance	185 W < CPUs with TDP ≤ 270 W	≤ 25°C (77°F)	Performance
		CPUs with TDP ≤ 185 W		Standard
2 single width GPU	High performance	185 W < CPUs with TDP ≤ 270 W	≤ 25°C (77°F)	Performance
		CPUs with TDP ≤ 185 W		Standard

HPE Trusted Platform Module 2.0

The HPE Trusted Platform Module 2.0 (TPM) is a hardware-based system security feature that securely store artifacts used to authenticate the platform. These artifacts can include passwords, certificates, and encryption keys.

The TPM 2.0 is embedded on the server system board.

The TPM 2.0 is supported with specific operating system support such as Microsoft Windows Server 2012 R2 and later. For more information about operating system support, see the product QuickSpecs on the Hewlett Packard Enterprise website (**https://www.hpe.com/info/qs**). For more information about Microsoft Windows BitLocker Drive Encryption feature, see the Microsoft website (**https://www.microsoft.com**).

Subtopics

HPE Trusted Platform Module 2.0 guidelines

BitLocker recovery key/password retention guidelines

HPE Trusted Platform Module 2.0 guidelines

CAUTION:

- Always observe the TPM guidelines in this section. Failure to follow these guidelines can cause hardware damage or halt data access.
- If you do not follow procedures for modifying the server and suspending or disabling the TPM in the OS, an OS that is using TPM might lock all data access. This includes updating system or option firmware, replacing hardware such as the system board and drives, and modifying TPM OS settings.
- Changing the TPM mode after installing an OS might cause problems, including loss of data.

Hewlett Packard Enterprise SPECIAL REMINDER: Before enabling TPM functionality on this system, you must ensure that your intended use of TPM complies with relevant local laws, regulations and policies, and approvals or licenses must be obtained if applicable.

慧与特别提醒：在您启用系统中的TPM功能前，请务必确认您对TPM的使用遵守当地相关法律、法规及政策，并已事先获得所需的一切批准及许可（如适用），因您未获得相应的操作/使用许可而导致的违规问题，皆由您自行承担全部责任，与慧与无涉。

- When the embedded TPM is enabled, the Trusted Platform Module operates in TPM 2.0 mode.
- Use the UEFI System Utilities to configure the TPM. From the System Utilities screen, select System Configuration > BIOS/Platform Configuration (RBSU) > Server Security > Trusted Platform Module options. For more information, see the UEFI user guide:

  https://www.hpe.com/support/UEFIGen11-UG-en
- When using the Microsoft Windows BitLocker Drive Encryption feature, always retain the recovery key or password. The recovery key or password is required to enter Recovery Mode after BitLocker detects a possible compromise of system integrity.
- HPE is not liable for blocked data access caused by improper TPM use. For operating instructions, see the documentation for the encryption technology feature provided by the operating system.

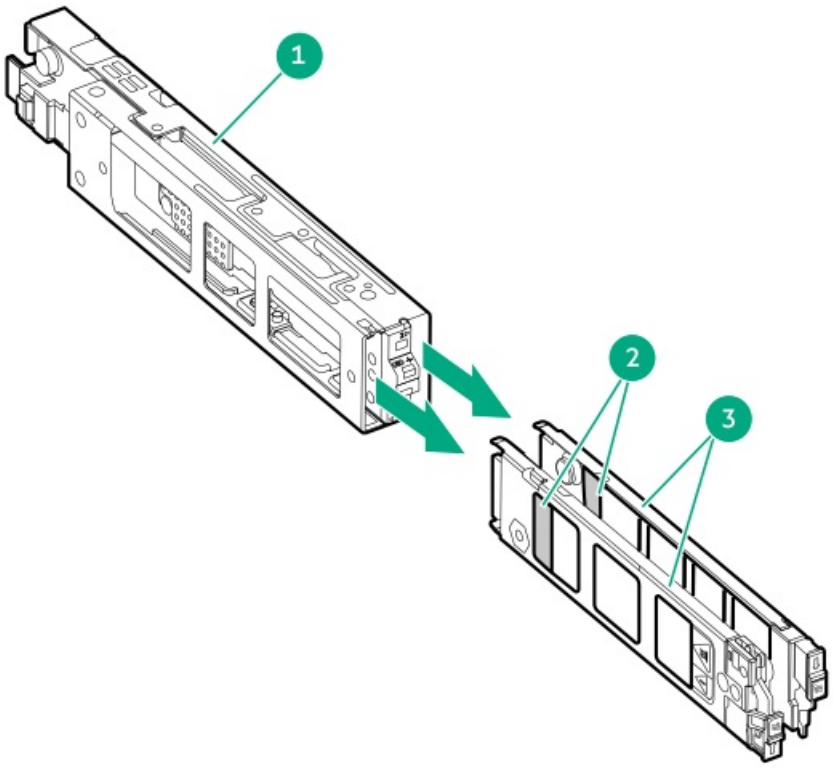
BitLocker recovery key/password retention guidelines

The recovery key/password is generated during BitLocker setup, and can be saved and printed after BitLocker is enabled. When using BitLocker, always retain the recovery key/password. The recovery key/password is required to enter Recovery Mode after BitLocker detects a possible compromise of system integrity.

To help ensure maximum security, observe the following guidelines when retaining the recovery key/password:

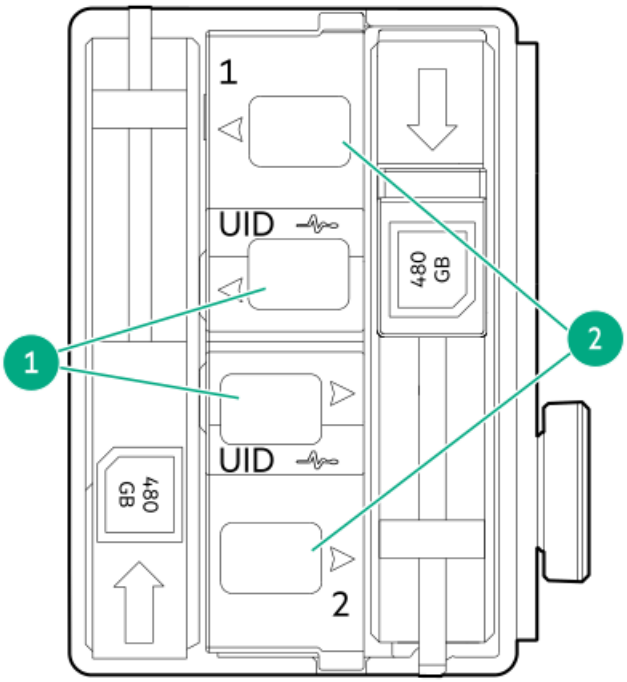
- Always store the recovery key/password in multiple locations.
- Always store copies of the recovery key/password away from the server.
- Do not save the recovery key/password on an encrypted drive.

HPE NS204i-u Boot Device components



Item	Description
1	Boot device cage
2	M.2 slots
3	Boot device carriers

HPE NS204i-u Boot Device LED definitions



Item	LED	Status	Definition
1	Fault/Locate	Solid amber	Drive has failed, unsupported, or invalid.
		Solid blue	Drive is operating normally and being identified by a management application.
		Flashing amber/blue (1 flash per second)	Drive has failed, or a predictive failure alert is received for the drive. The drive has also been identified by a management application.
		Flashing amber (1 flash per second)	Drive predictive failure alert is received. Replace the drive as soon as possible.
		Off	Drive is operating normally and is not identified by a management application.
2	Online/Activity	Solid green	Drive is online and has no activity.
		Flashing green (1 flash per second)	Drive is doing one of the following: • Rebuilding or performing a RAID • Erasing
		Flashing green (4 flashes per second)	Drive is operating normally and has activity.
		Off	Drive is not configured by a RAID controller or is a spare drive.

Cabling

This chapter includes cabling guidelines and diagrams for internal component cabling.

Subtopics

Cabling guidelines

Internal cabling management

Cabling guidelines

Observe the following:

- Some diagrams show alphabetical callouts A, B, C, etc. These callouts correspond to labels near the connectors on the cable.
- The cable colors in the cabling diagrams used in this chapter are for illustration purposes only.
- Observe all guidelines when working with server cables.

Before connecting cables

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

When connecting cables

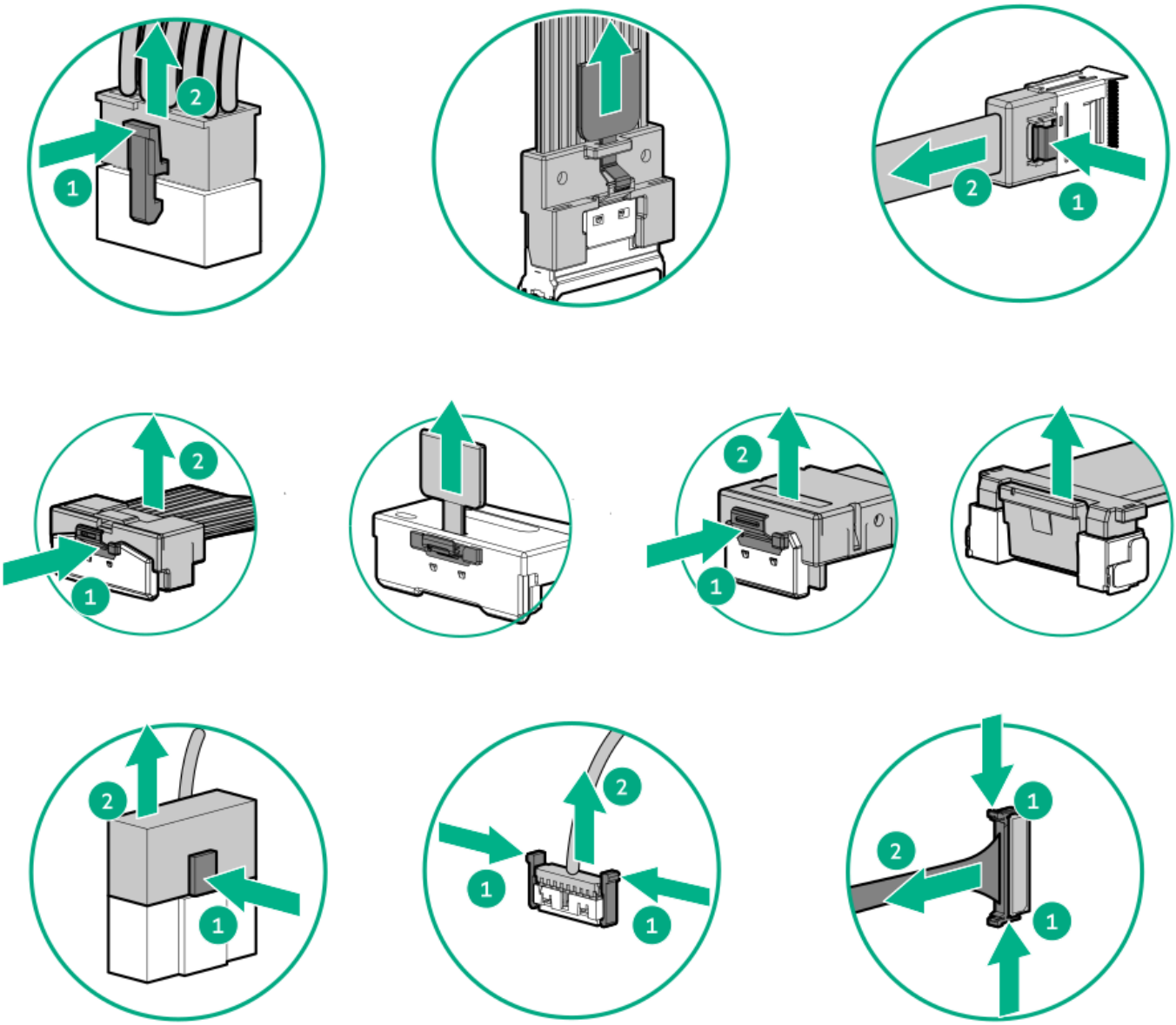
- Before connecting a cable to a port, lay the cable in place to verify the length of the cable.
- Use the internal cable management features to properly route and secure the cables.
- When routing cables, be sure that the cables are not in a position where they can be pinched or crimped.
- Avoid tight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

When disconnecting cables

- Grip the body of the cable connector. Do not pull on the cable itself because this action can damage the internal wires of the cable or the

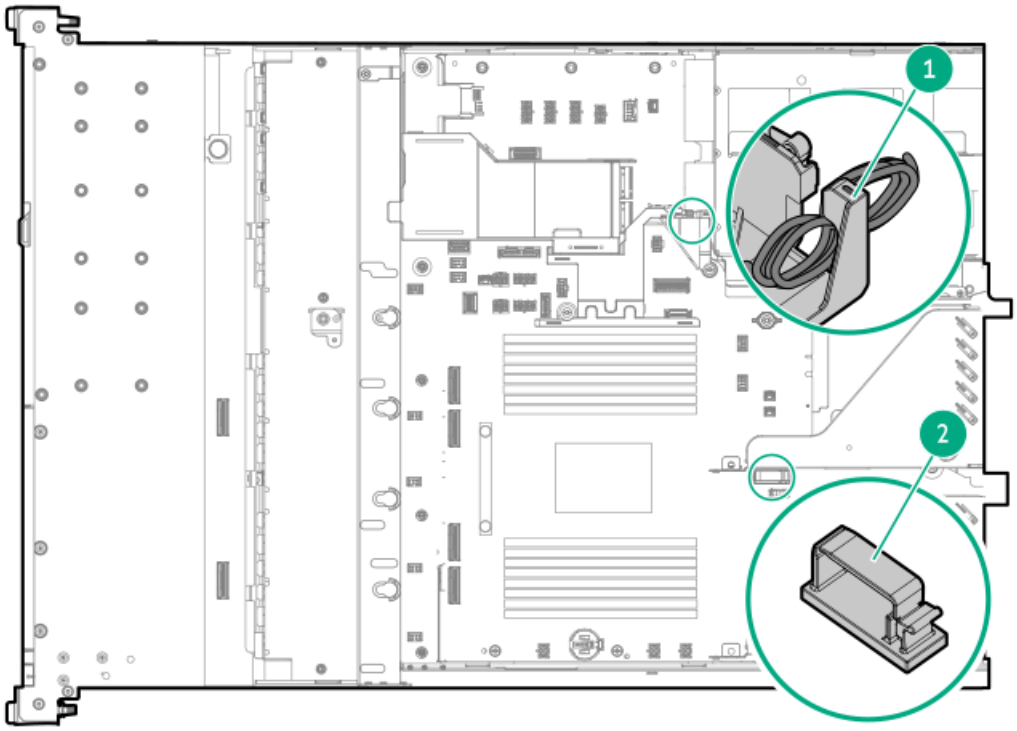
pins on the port.

- If a cable does not disconnect easily, check for any release latch that must be pressed to disconnect the cable.



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

Internal cabling management



Item	Description
1	Cable organizer
2	Cable clip

Cabling diagrams

Observe the following:

- Before cabling components, see the cabling guidelines.
- Use the cable part number or search feature to find your diagram.

Component cabling	Cable part number
2 SFF drive power cabling	869667-001
4 SFF drive power cabling	P54942-001
8 SFF drive power cabling	P53958-001
8 E3.S drive power cabling	P54939-001
4 LFF drive power cabling	P53988-001
10/12 LFF drive power cabling	• P54925-001 • P54926-001 • P54927-001
2 SFF drive: Onboard SATA cabling	P53969-001
2 SFF drive: Onboard NVMe cabling	P53967-001
2 SFF drive: Type-o controller cabling	P48960-001
2 SFF drive: Re-timer card cabling	P53984-001
4 SFF drive: Secondary type-p controller cabling	P45610-001

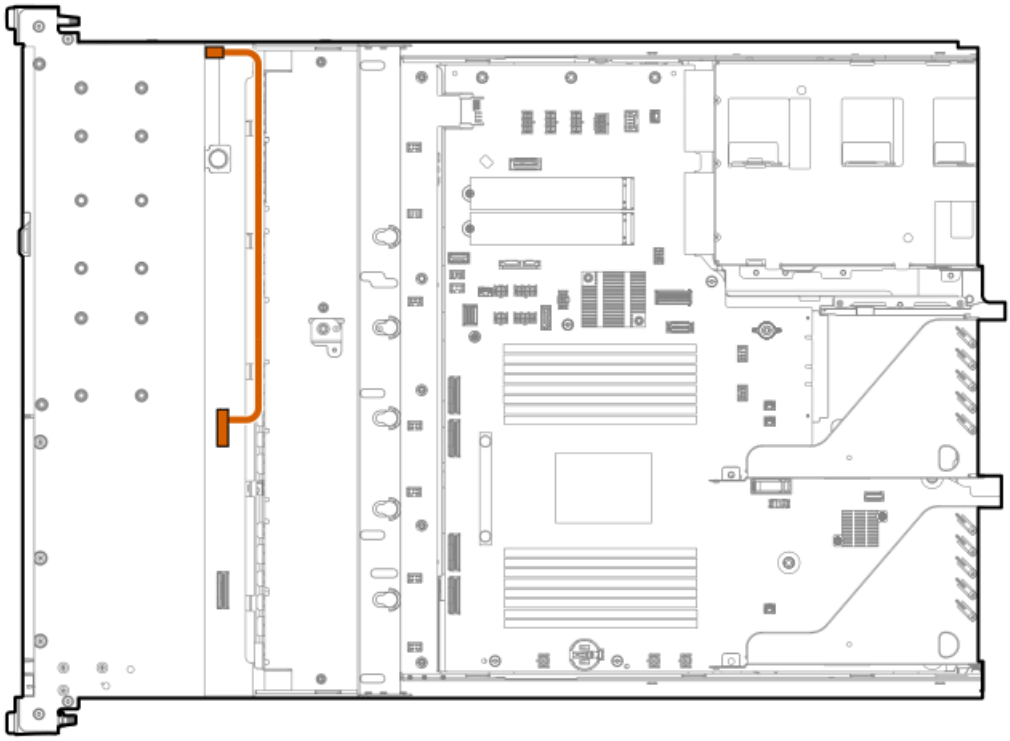
Component cabling	Cable part number
4 E3.S drive: Onboard NVMe cabling	P53960-001
8 SFF drive: Onboard SAS/SATA cabling	P53957-001
8 SFF drive: Onboard NVMe cabling	• P53959-001 • P53960-001 • P53961-001 • P53967-001
8 SFF drive: Primary type-p controller cabling	• P53977-001 • P53978-001 • P45611-001 • P53972-001 • P53976-001
8 SFF drive: Type-o controller cabling	• P53979-001 • P48964-001
8 E3.S drive: Type-p controller cabling	P54940-001
4 LFF drive: Onboard SATA cabling	P53989-001
4 LFF drive: Type-o controller cabling	P53989-001
10 LFF drive: Onboard SAS/SATA cabling	• P54928-001 • P54929-001
12 LFF: Secondary type-p controller cabling	• P54930-001 • P54931-001
Storage controller backup cabling	877849-001
Energy pack cabling	P01366-B21
GPU riser power cabling	• P60489-001 • P60490-001
GPU riser signal cabling	P51471-001
HPE NS204i Boot Device cabling: Option 1	• P54088-001 • P54087-001
HPE NS204i Boot Device cabling: Option 2	• P54088-001 • P56364-001
8 SFF drive: Optical drive cabling	P45622-001
4 LFF drive: Optical drive cabling	P45622-001
8 SFF drive: Display port cabling	P45620-001
4 LFF drive: Display port cabling	P45619-001
Serial port cabling	P47752-001
8 SFF drive and 4 LFF drive: Front I/O cabling	P43727-001
12 LFF drive: Front I/O cabling	P54923-001
GPU dense: Front I/O cabling	P47750-001
VGA cabling	P53987-001
Chassis intrusion detection switch cabling	869413-001

Storage cabling

Subtopics

Drive power cabling

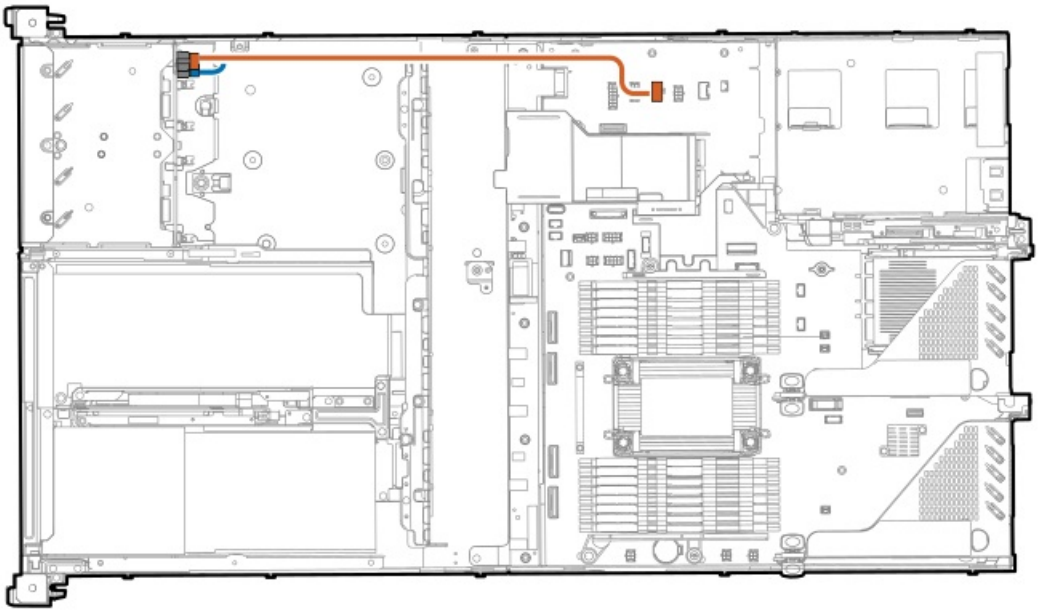
2 SFF drive power cabling



Cable part number	Color	From	To
869667-001 [1]	Orange	2 SFF drive power connector	8 SFF drive power connector

1 Option kit: P52749-B21; P52751-B21

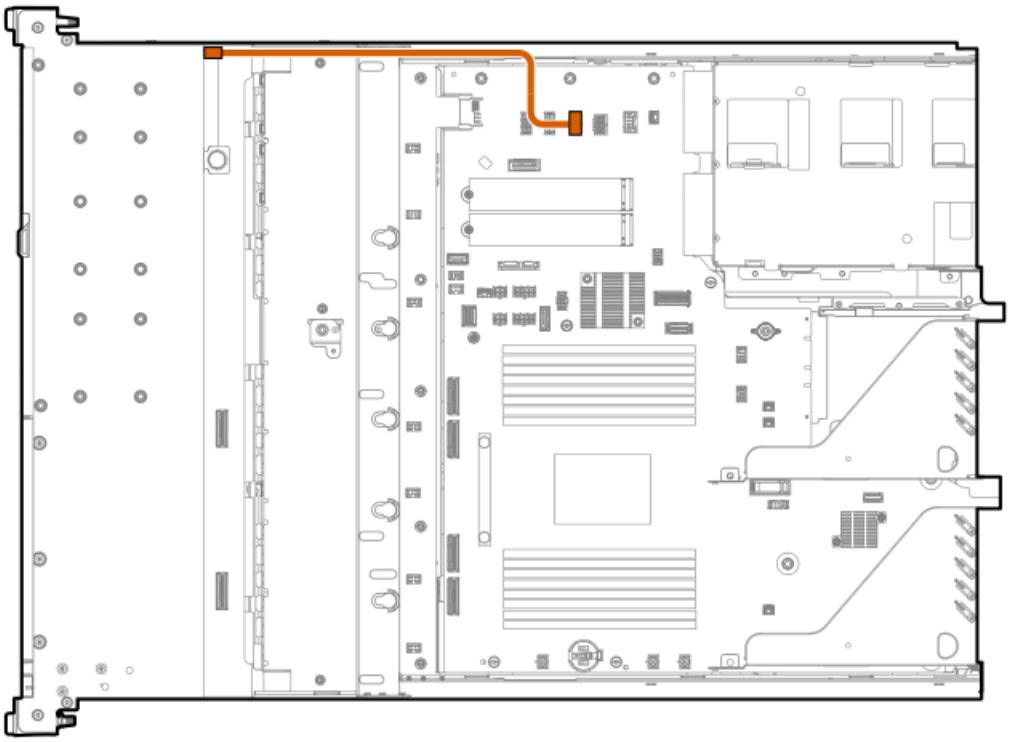
4 SFF drive power cabling



Cable part number	Color	From	To
P54942-001 [1]	Orange	Drive box power connector 1	Top backplane port 1
	Blue	Drive box power connector 1	Bottom backplane port 1

[1] Option kit: P61220-B21; P61221-B21

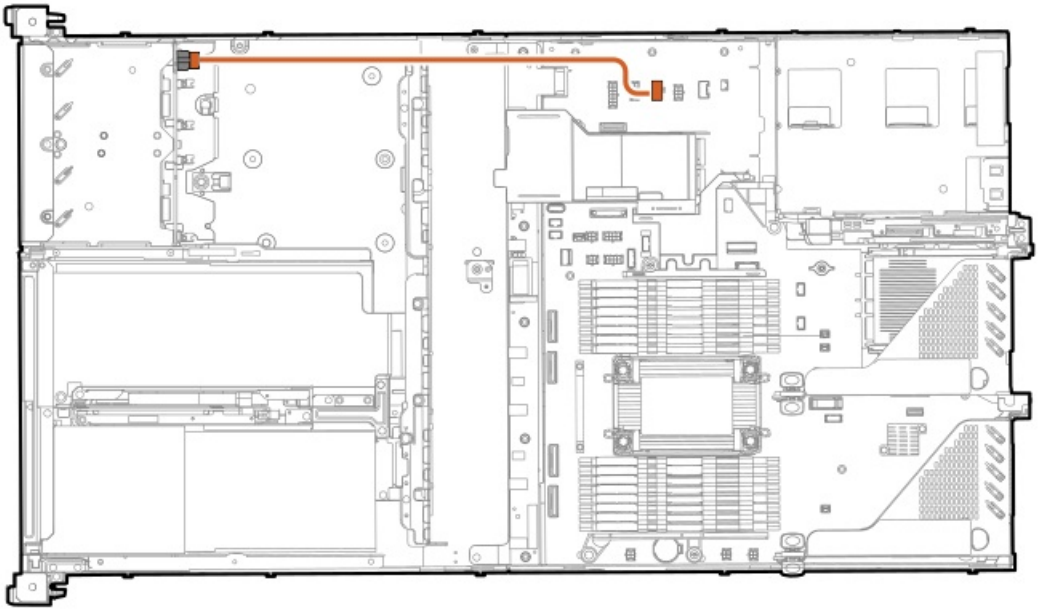
8 SFF drive power cabling



Cable part number	Color	From	To
P53958-001 [1]	Orange	Drive box 1 power connector	Box 1 power connector

[1] Option kit: P52743-B21; P52745-B21; P52747-B21

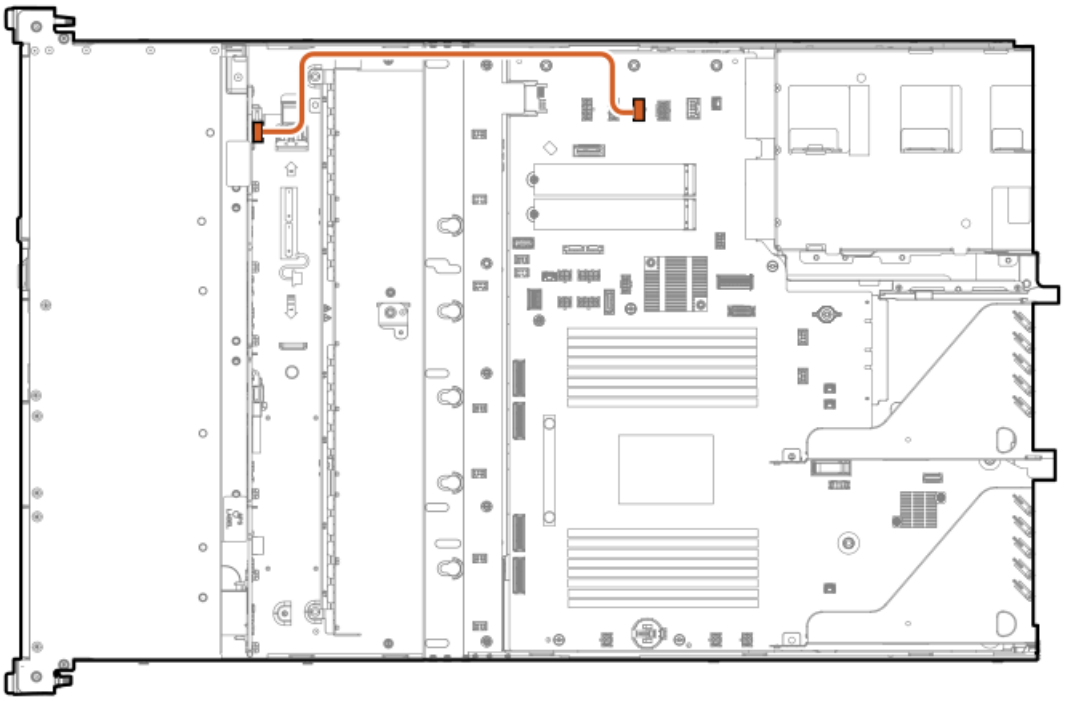
8 E3.S drive power cabling



Cable part number	Color	From	To
P54939-001 [1]	Orange	Drive box 1 power connector	Port 1

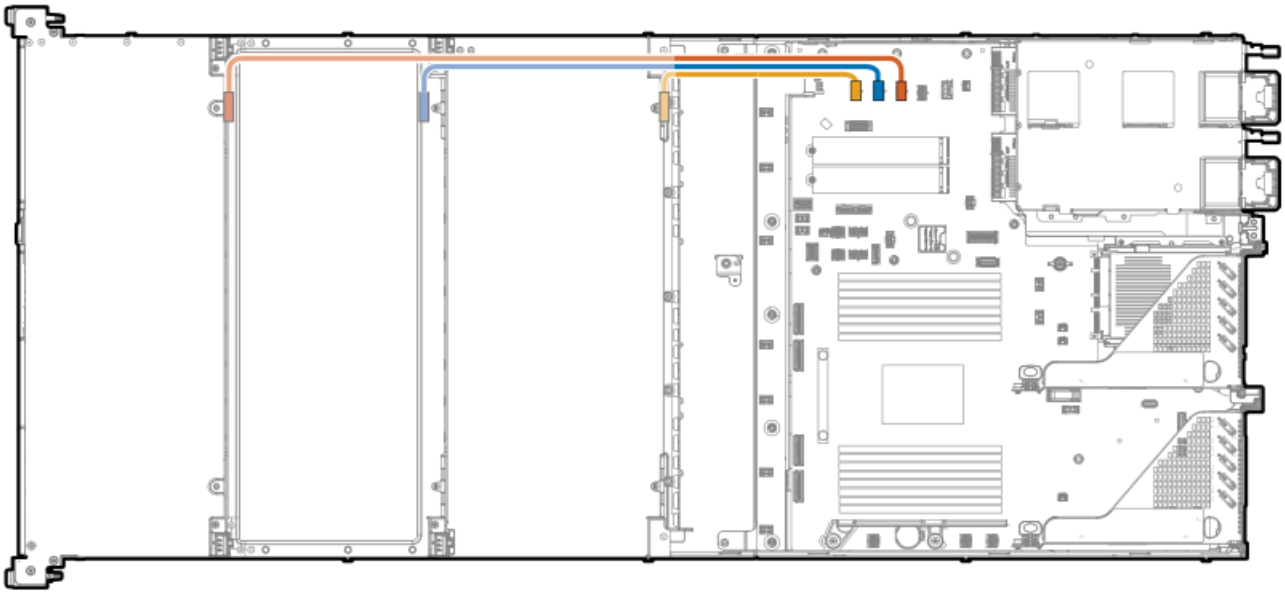
[1] Option kit: P61219-B21

4 LFF drive power cabling



Cable part number	Color	From	To
P53988-001	Orange	Drive box 1 power connector	4 LFF drive box 1 power connector

10/12 LFF drive power cabling



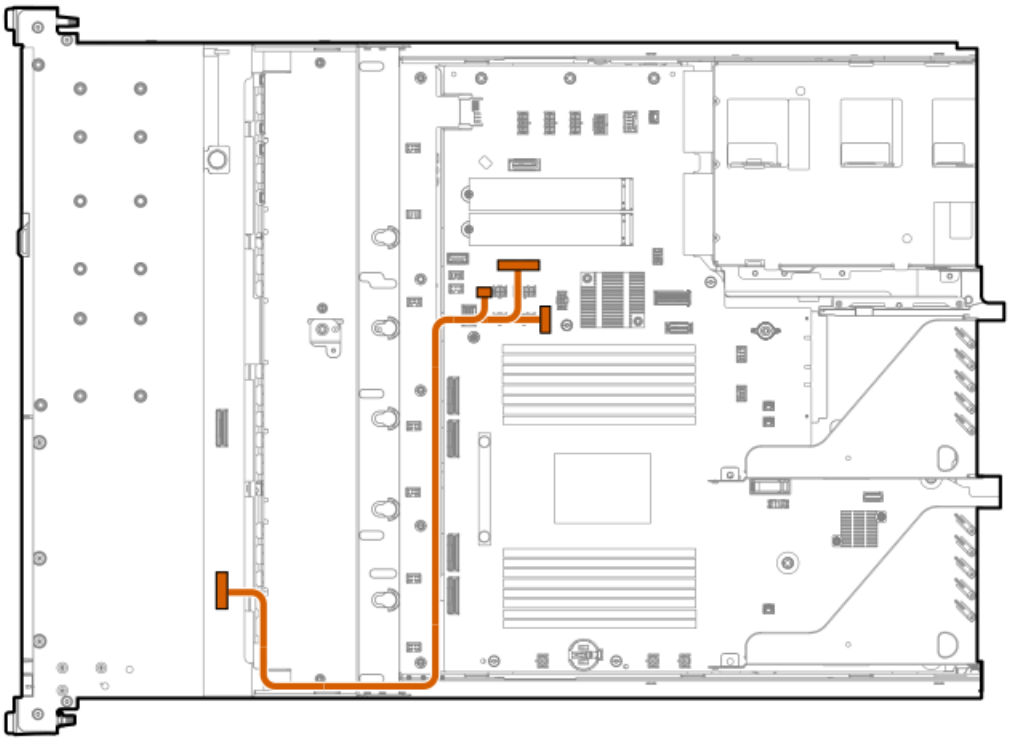
Cable part number	Color	From	To
P54925-001	Orange	Drive box 1 power connector	4 LFF drive box 1 power connector
P54926-001	Blue	Drive box 3 power connector	4 LFF drive box 3 power connector
P54927-001	Yellow	Drive box 5 power connector	4 LFF drive box 5 power connector

Storage controller cabling

Subtopics

2 SFF drive controller cabling

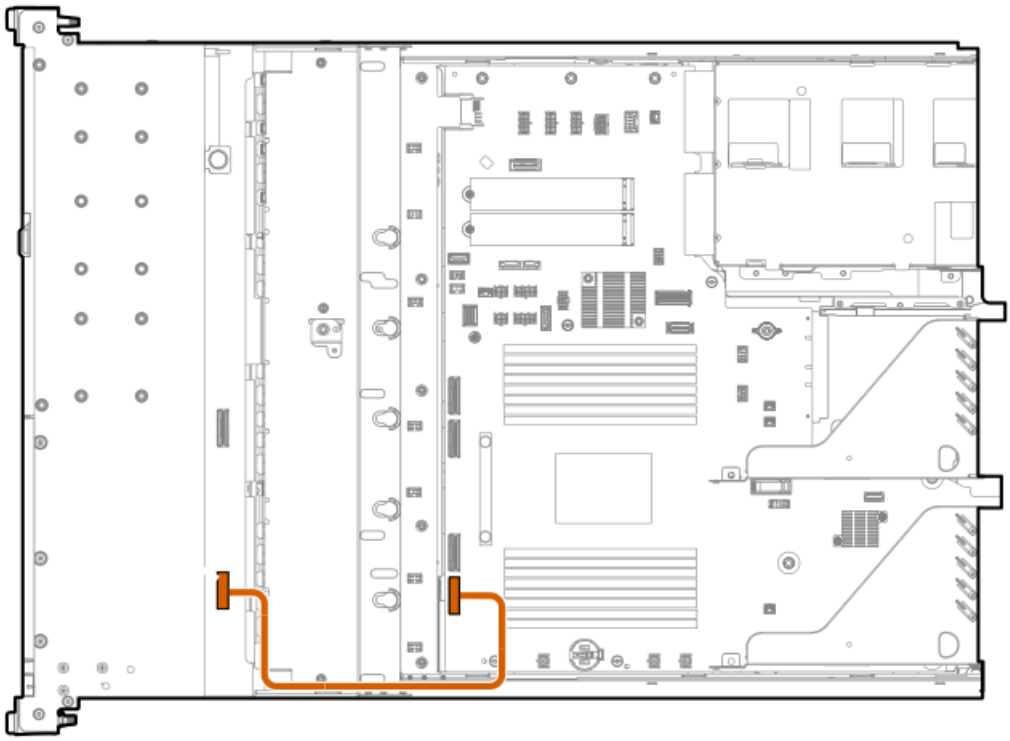
2 SFF drive: Onboard SATA cabling



Cable part number	Color	From	To
P53969-001 [1]	Orange	2 SFF drive backplane	SATA sideband connector and Optical drive power connector and SATA 6 Gb/s port

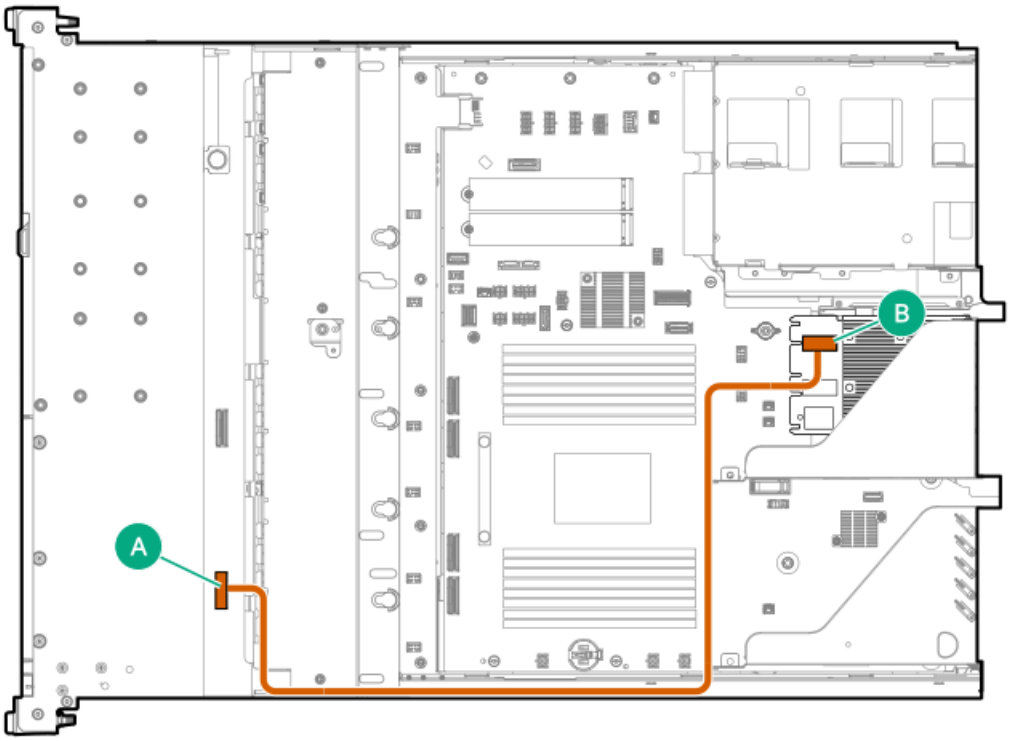
[1] Option kit: P52751-B21

2 SFF drive: Onboard NVMe cabling



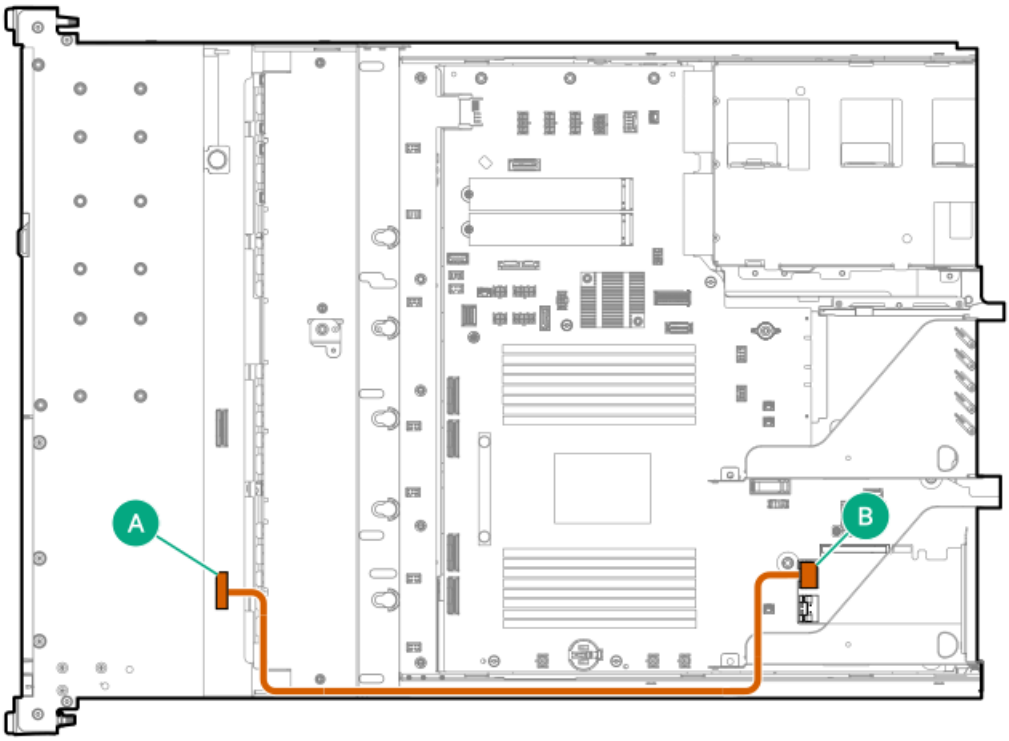
Cable part number	Color	From	To
P53967-001	Orange	2 SFF drive backplane	MCIO port 1

2 SFF drive: Type-o controller cabling



Cable part number	Color	From	To
P48960-001	Orange	2 SFF drive backplane	Port 1

2 SFF drive: Re-timer card cabling

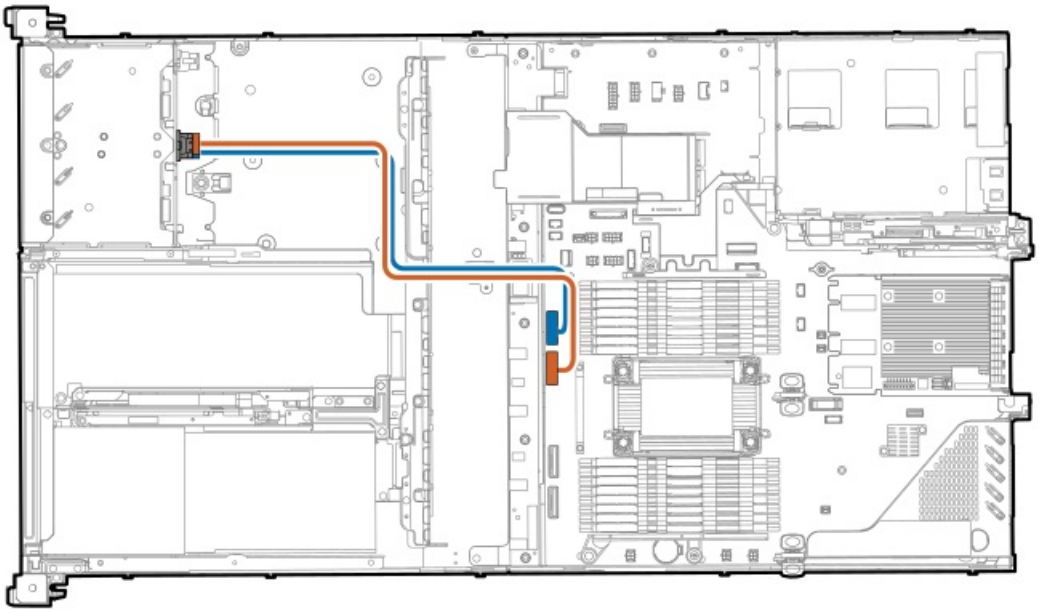


Cable part number	Color	From	To
P53984-001 [1]	Orange	2 SFF drive backplane	Port 1

[1] Option kit: P52777-B21

4 SFF drive controller cabling

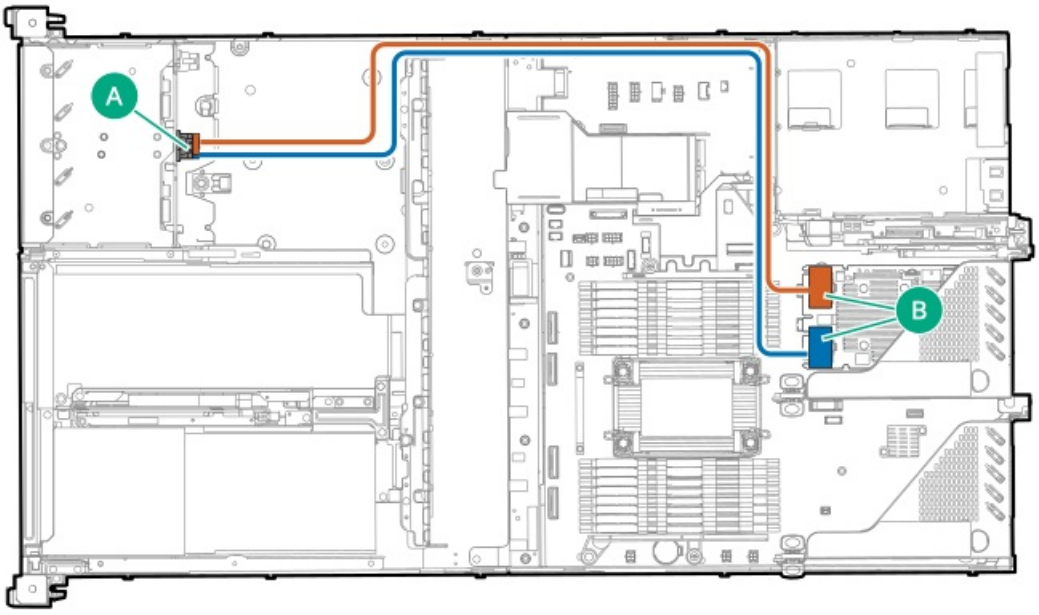
4 SFF drive: Onboard NVMe cabling



Cable part number	Color	From	To
P53960-001 [1]	Orange	Top backplane port 1	MCIO port 3
	Blue	Bottom backplane port 1	MCIO port 4

[1] Option kit: P62181-B21

4 SFF drive: Secondary type-p controller cabling

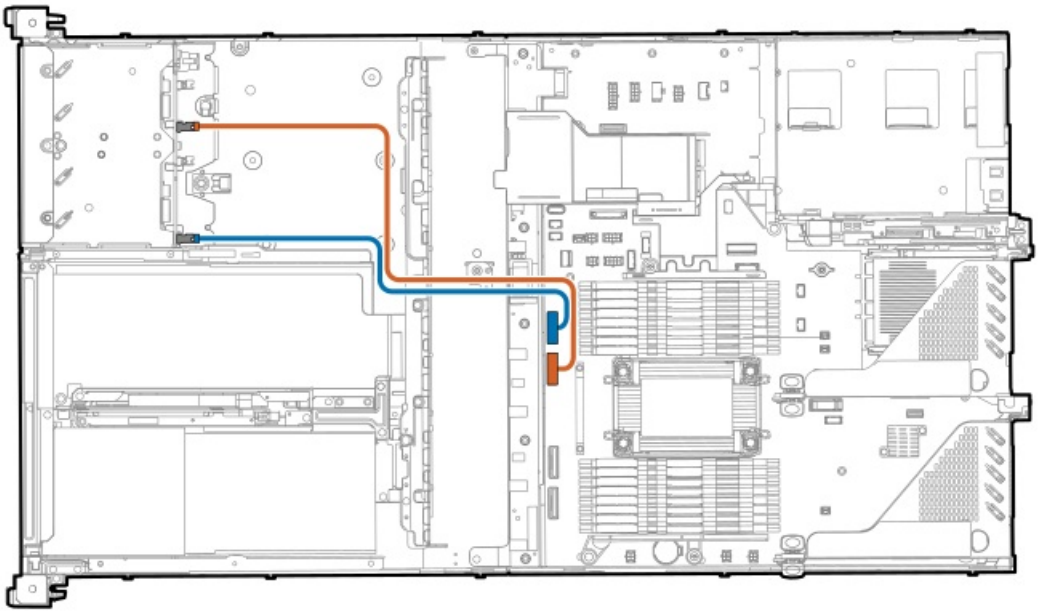


Cable part number	Color	From	To
P45610-001 [1]	Orange	Top backplane port 1	Port 1
	Blue	Bottom backplane port 1	Port 2

[1] Option kit: P62189-B21

4 E3.S drive controller cabling

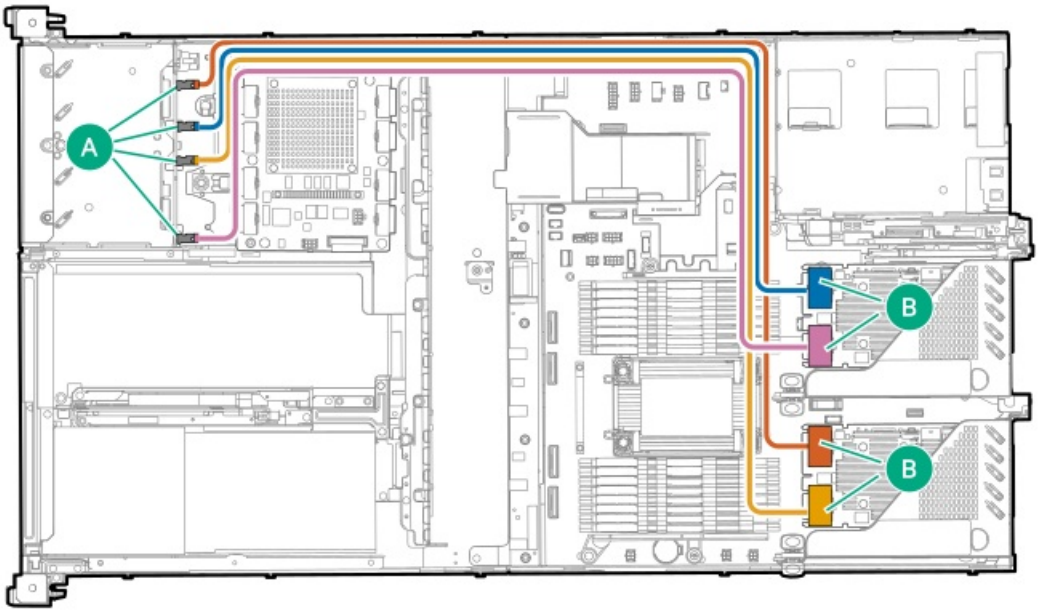
4 E3.S drive: Onboard NVMe cabling



Cable part number	Color	From	To
P53960-001	Orange	Port 2	MCIO port 3
	Blue	Port 4	MCIO port 4

8 E3.S drive controller cabling

8 E3.S drive: Type-p controller cabling

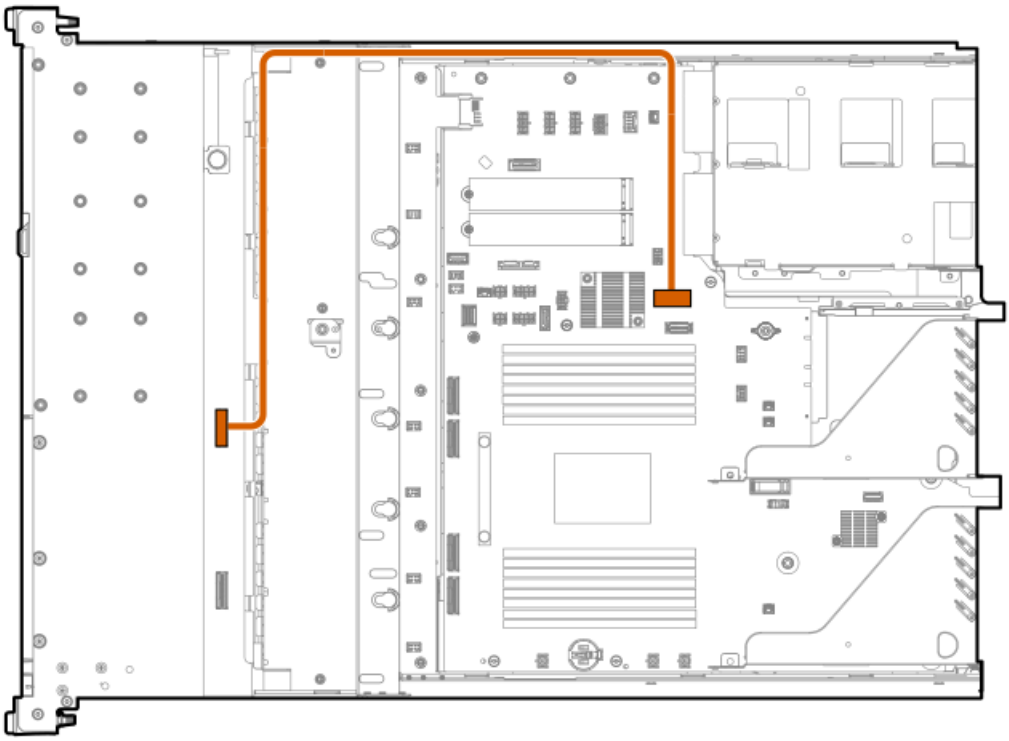


Cable part number	Color	From	To
P54940-001 [1]	Orange	Port 1	Port 1
	Blue	Port 2	Port 1
	Yellow	Port 3	Port 2
	Pink	Port 4	Port 2

[1] Option kit: P62183-B21

8 SFF drive controller cabling

8 SFF drive: Onboard SAS/SATA cabling



Cable part number	Color	From	To
P53957-001 [1]	Orange	Port 1	x8 slimSAS port 1

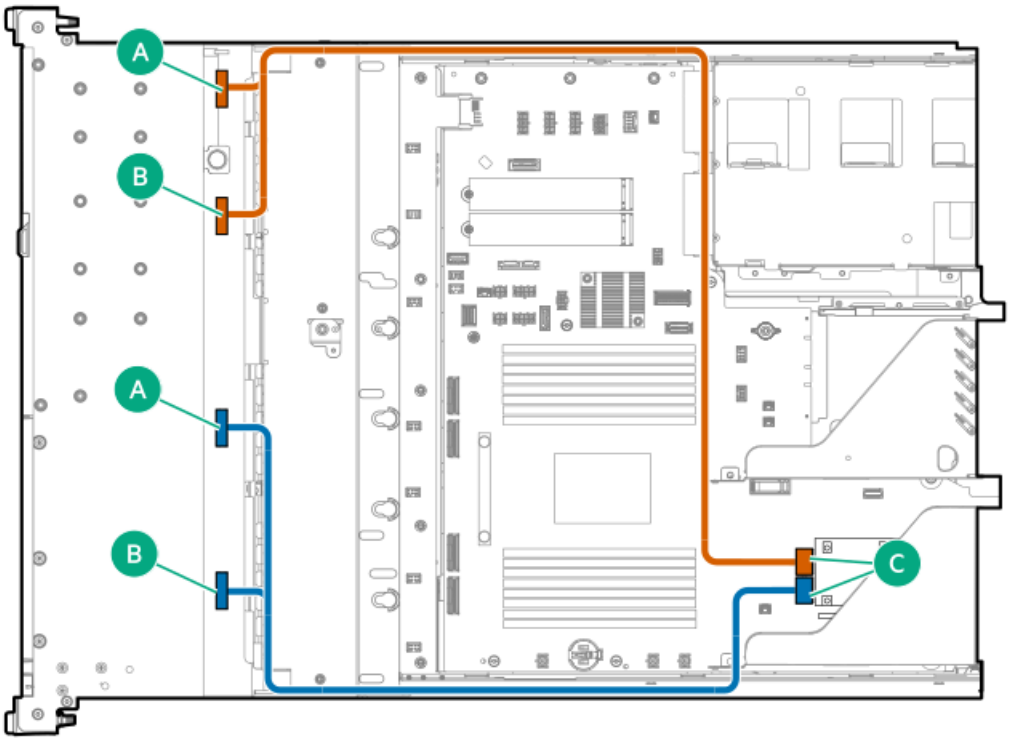
[1] Option kit: P52743-B21

8 SFF drive: Onboard NVMe cabling

Cable part number	Color	From	To
P53959-001 [1]	Orange	Port 1	MCIO port 4
P53960-001	Blue	Port 2	MCIO port 3
P53961-001 [2]	Yellow	Port 3	MCIO port 2
P53967-001 [1]	Pink	Port 4	MCIO port 1

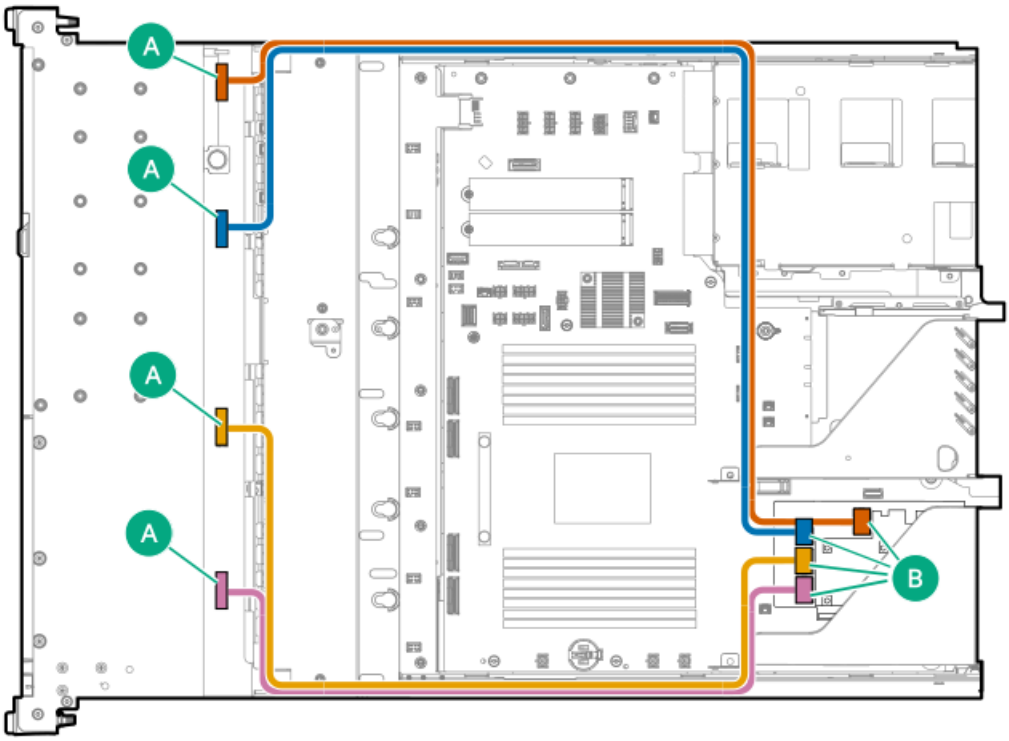
[1] Option kit: P52745-B21
[2] Option kit: P52747-B21

8 SFF drive: Primary type-p controller cabling



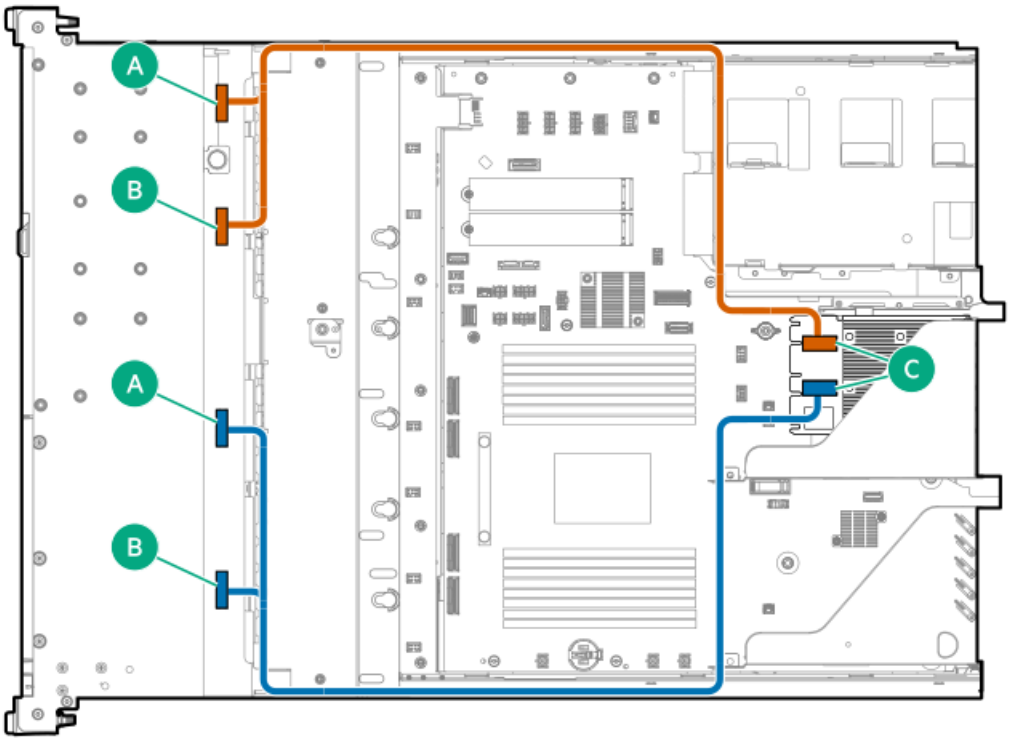
Cable part number	Color	From	To
P53977-001 [1]	Orange	Port 1 and port 2	Port 1
P53978-001	Blue	Port 3 and port 4	Port 2

1 Option kit: P52775-B21



Cable part number	Color	From	To
P45611-001	Orange	Port 1	Port 1
	Blue	Port 2	Port 2
P53972-001	Yellow	Port 3	Port 3
P53976-001	Pink	Port 4	Port 4

8 SFF drive: Type-o controller cabling

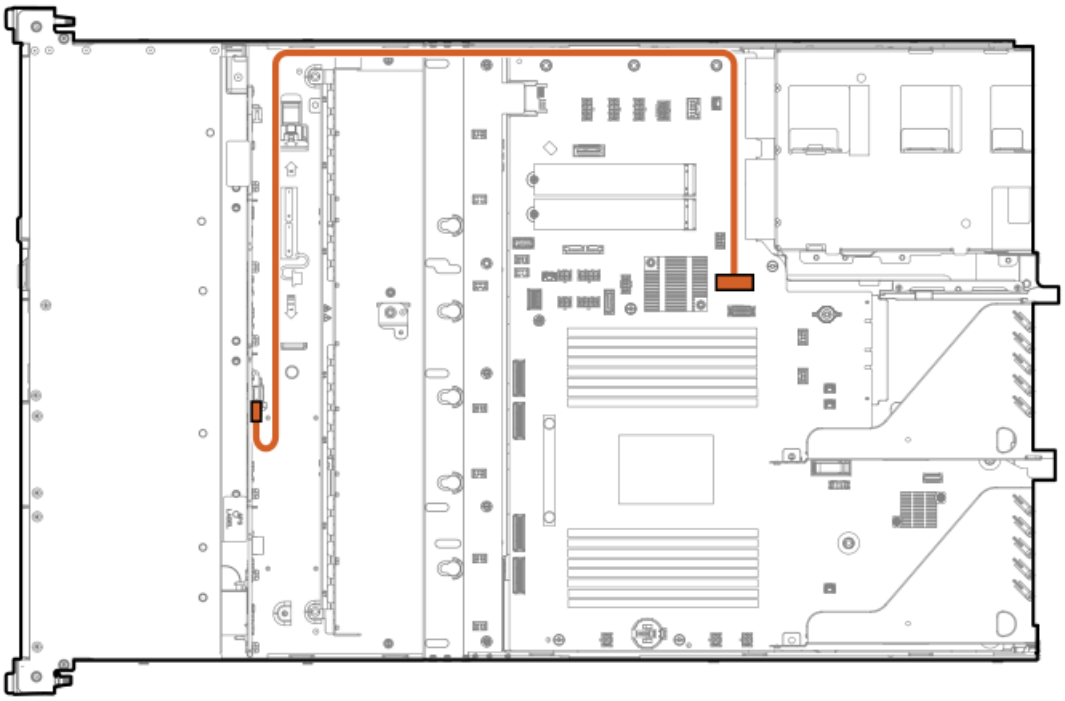


Cable part number	Color	From	To
P53979-001 [1]	Orange	Port 1 and port 2	Port 1
P48964-001 [1]	Blue	Port 3 and port 4	Port 2

[1] Option kit: P52780-B21

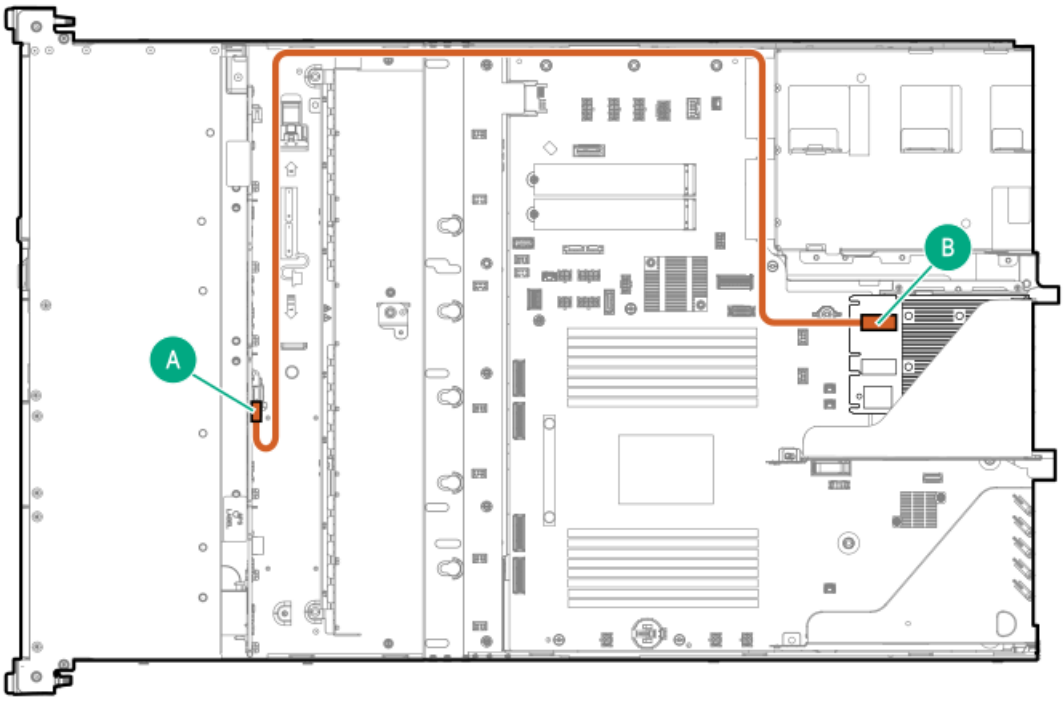
4 LFF drive controller cabling

4 LFF: Onboard SATA cabling



Cable part number	Color	From	To
P53989-001	Orange	4 LFF drive backplane	x8 slimSAS port 1

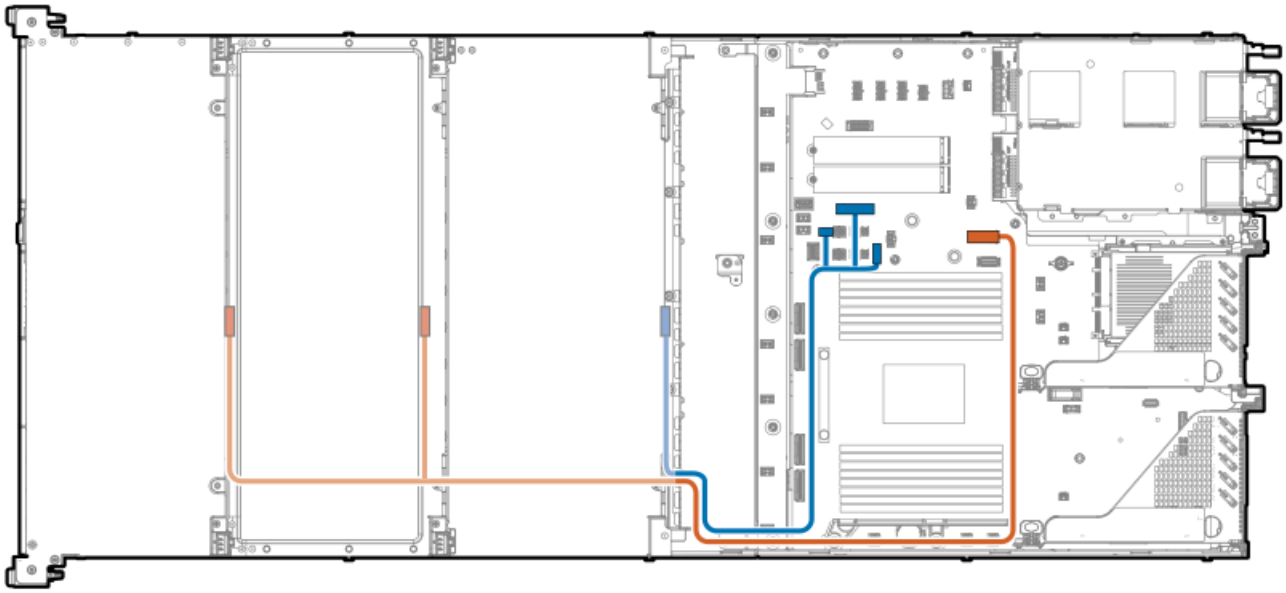
4 LFF: Type-o controller cabling



Cable part number	Color	From	To
P53989-001	Orange	4 LFF drive backplane	Port 1

10 LFF drive controller cabling

10 LFF drive: Onboard SAS/SATA cabling

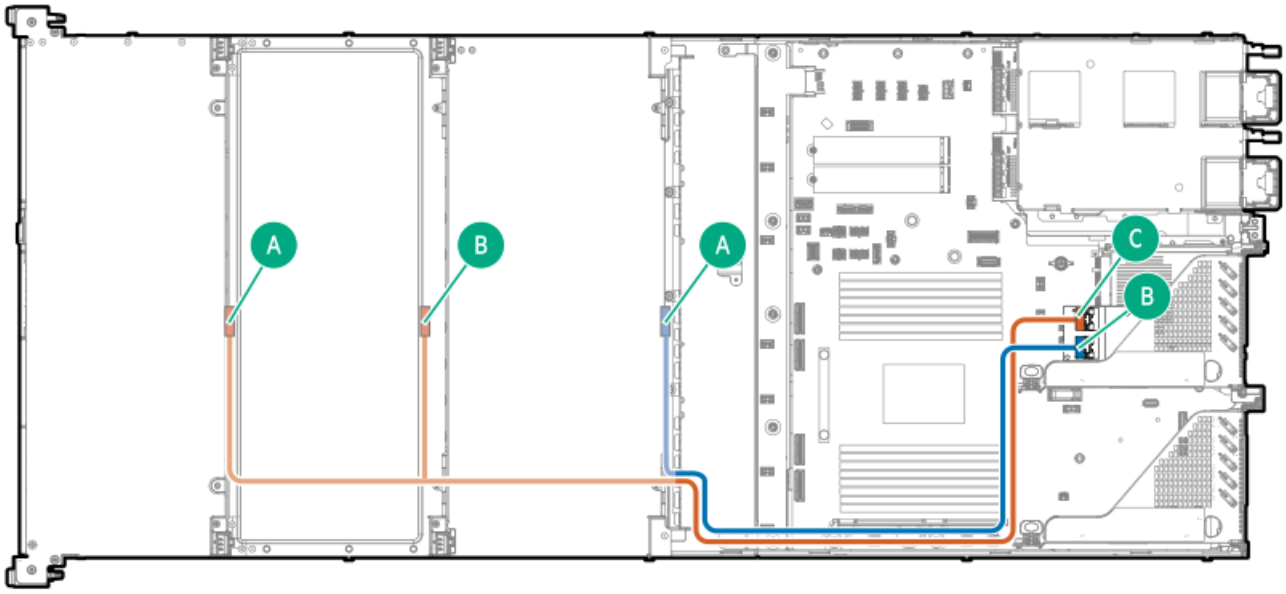


Cable part number	Color	From	To
P54928-001 [1]	Orange	4 LFF drive backplane box 1 and box 3	x8 slimSAS port 1
P54929-001 [1]	Blue	4 LFF drive backplane box 5	SATA sideband connector and Optical drive power connector and SATA 6 Gb/s port

[1] Option kit: P59459-B21

12 LFF drive controller cabling

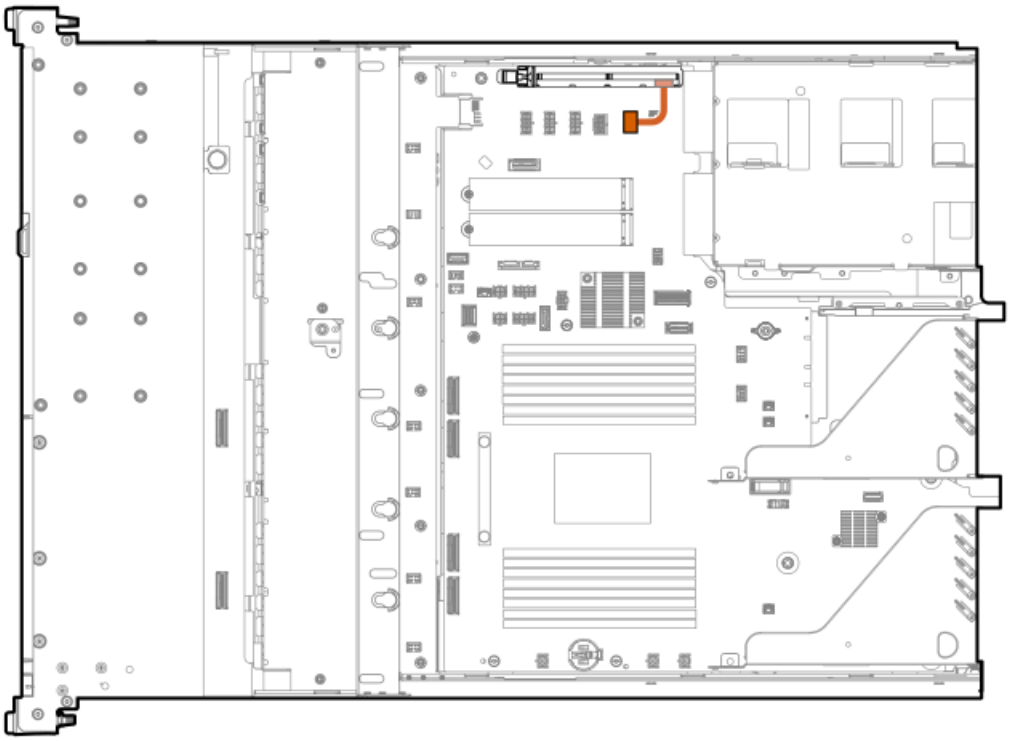
12 LFF drive: Secondary type-p controller cabling



Cable part number	Color	From	To
P54930-001 [1]	Orange	4 LFF drive backplane box 1 and box 3	Port 1
P54931-001 [1]	Blue	4 LFF drive backplane box 5	Port 2

1 Option kit: P60892-B21

Energy pack cabling



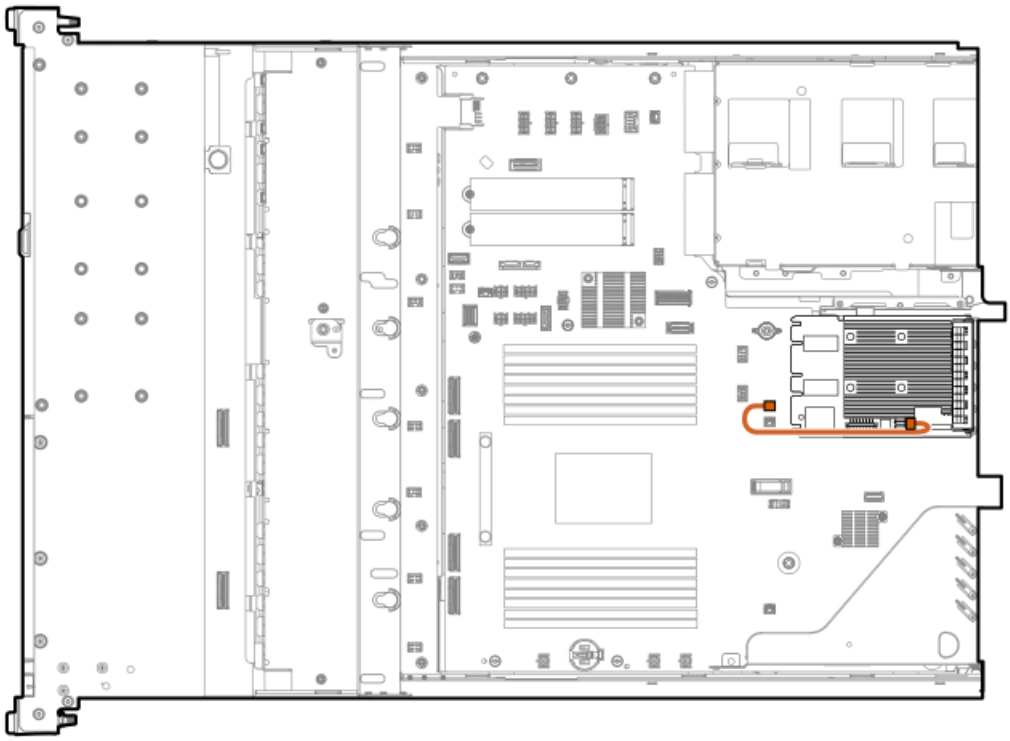
Cable part number	Color	From	To
P01366-B21	Orange	Energy pack connector	Energy pack

Storage controller backup cabling

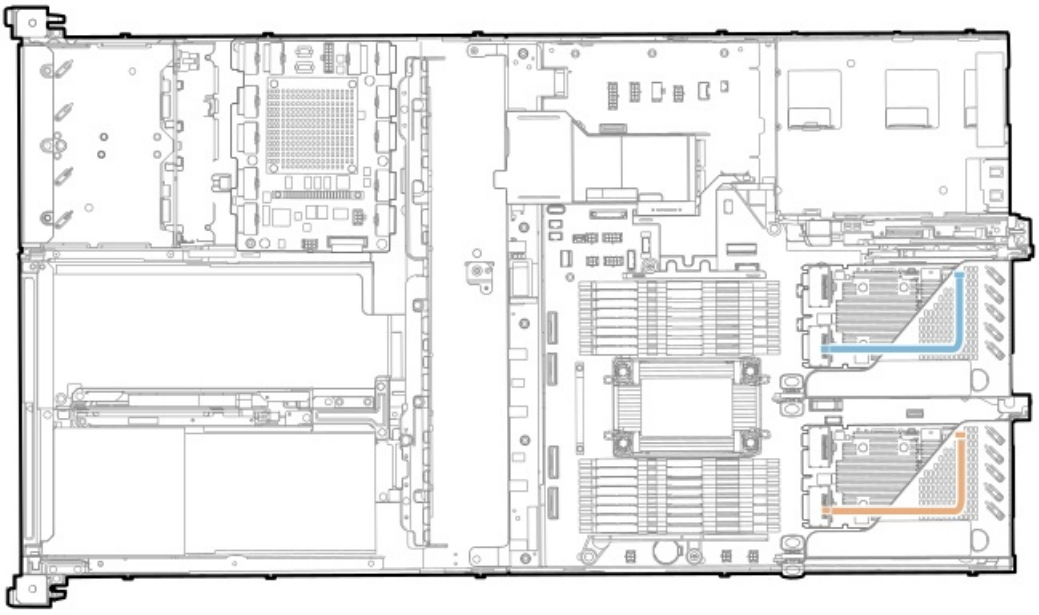
The exact route of the storage controller backup power cabling will depend on:

- The riser slot where the controller is installed
- The location of the storage controller backup power connector on the controller

Use the following diagrams for reference only.



Cable part number	From	To
877849-001	OCP port	Storage controller backup power connector



Color	From	To
Orange	Primary type-p controller	Storage controller backup power connector for slot 1
Blue	Secondary type-p controller	Storage controller backup power connector for slot 2

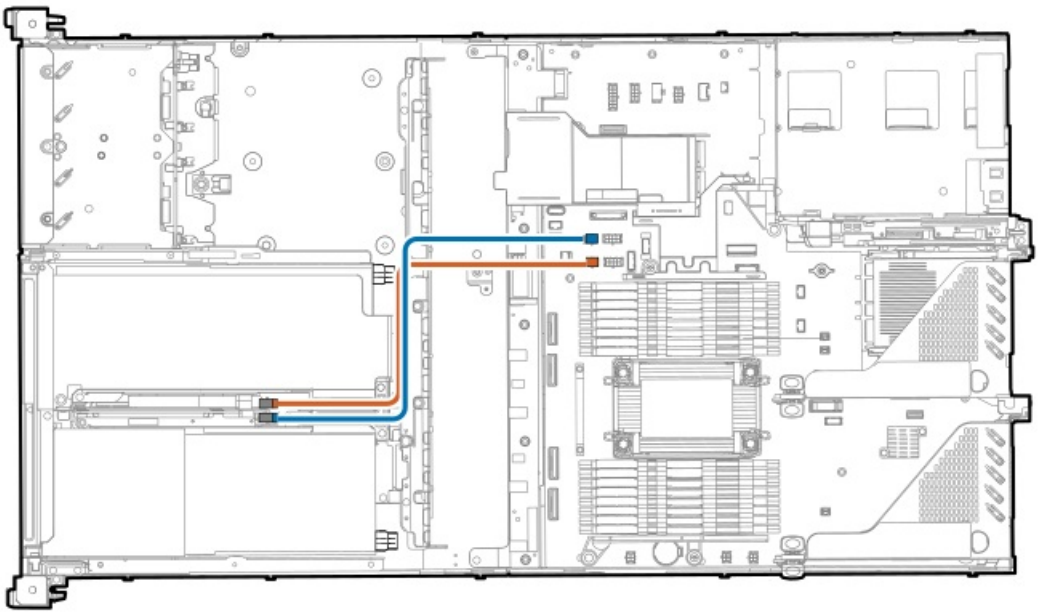
Accelerator cabling

Subtopics

GPU riser cabling

GPU riser cabling

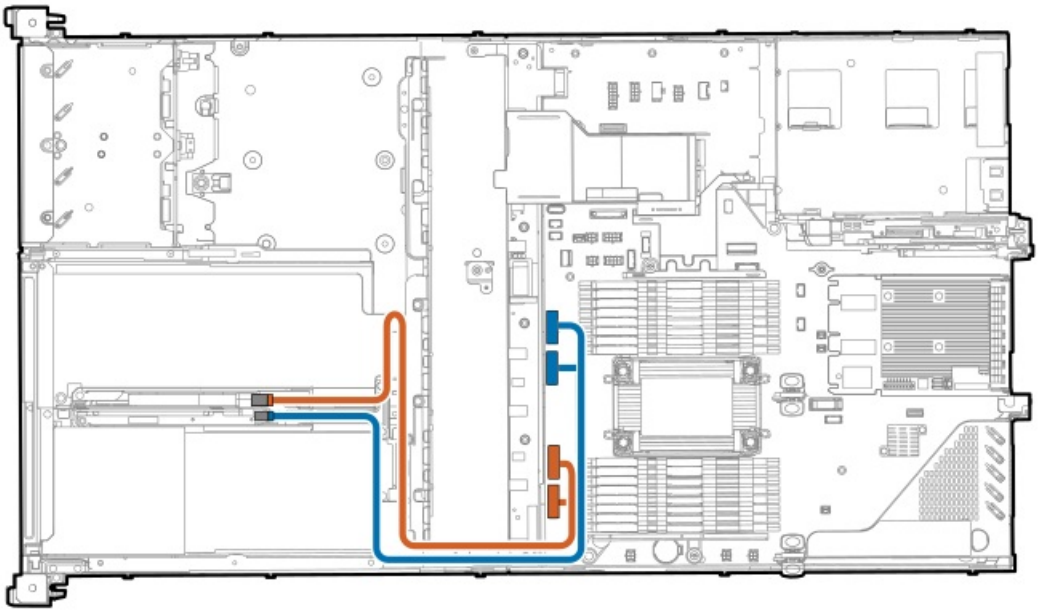
GPU riser power cabling



Cable part number	Color	From	To
P60489-001 [1]	Orange	GPU primary riser	GPU riser power connector
P60490-001 [1]	Blue	GPU secondary riser	

[1] Option kit: P62197-B21

GPU riser signal cabling

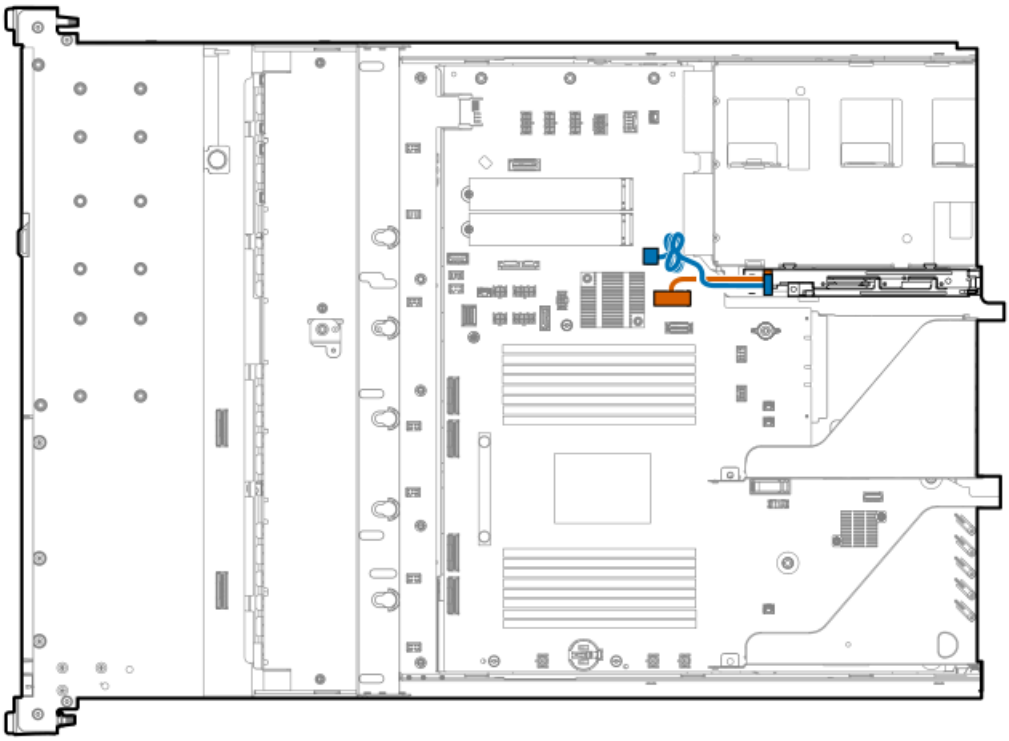


Cable part number	Color	From	To
P51471-001 [1]	Orange	GPU primary riser	MCIO port 1 and MCIO port 2
	Blue	GPU secondary riser	MCIO port 3 and MCIO port 4

[1] Option kit: P62197-B21

HPE NS204i Boot Device cabling

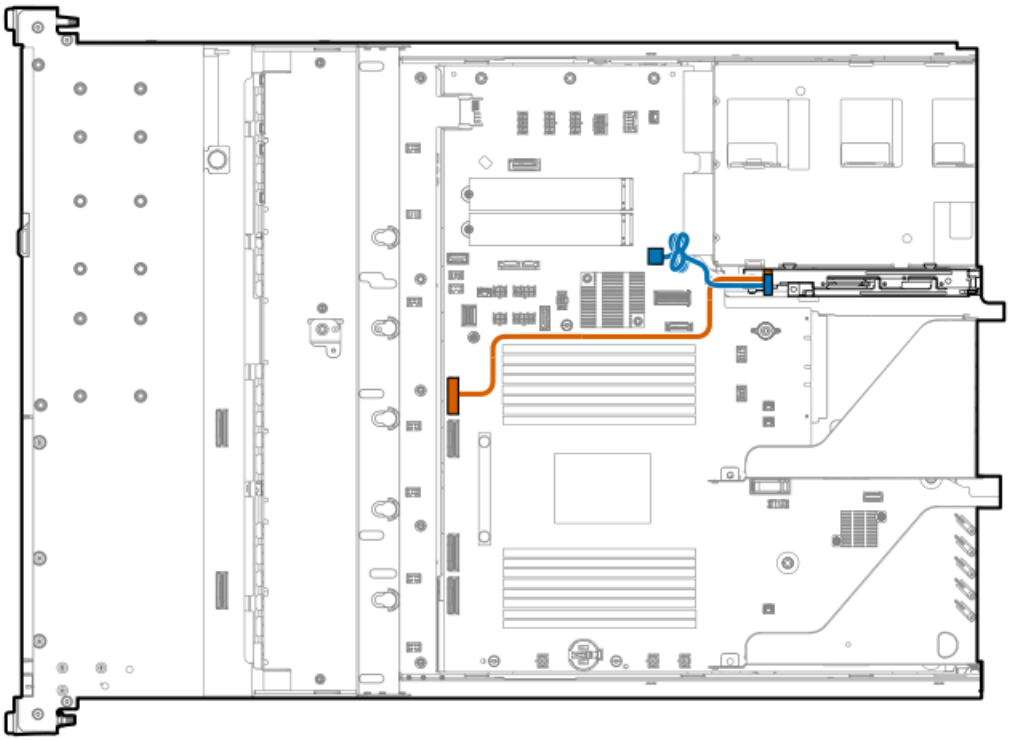
HPE NS204i Boot Device cabling: Option 1



Cable part number	Color	From	To
P54087-001 [1]	Orange	Boot device carrier	x8 slimSAS port 1
P54088-001 [1]	Blue	Boot device carrier	M.2 boot device power connector

[1] Option kit: P52786-B21

HPE NS204i Boot Device cabling: Option 2

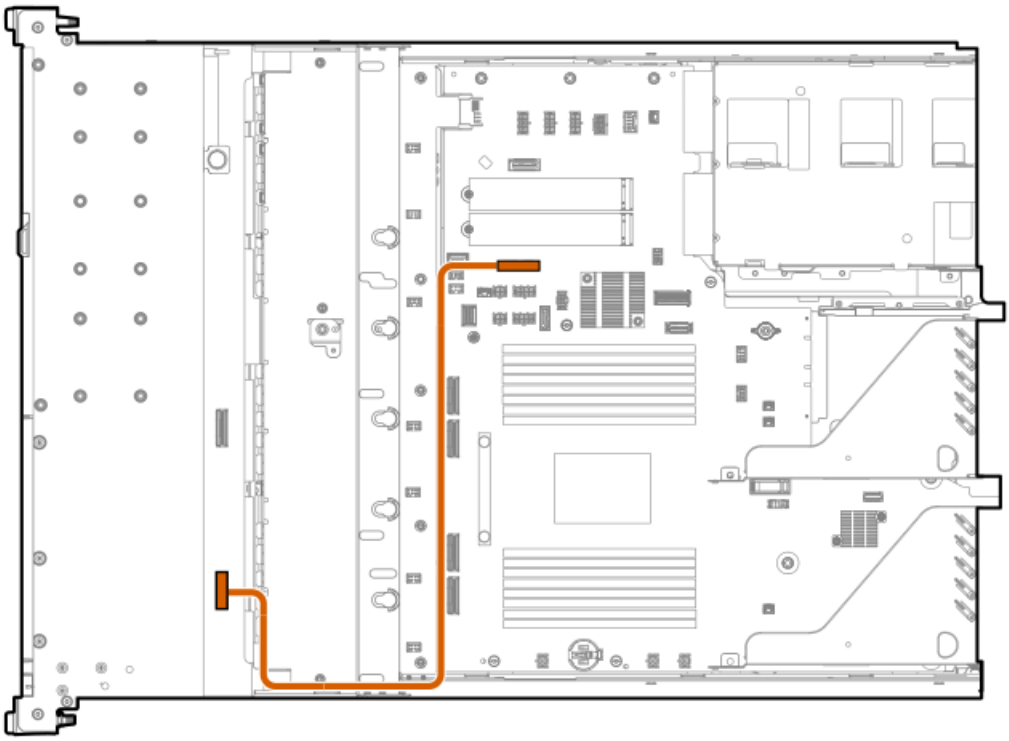


Cable part number	Color	From	To
P56364-001 [1]	Orange	Boot device carrier	MCIO port 4
P54088-001 [1]	Blue	Boot device carrier	M.2 boot device power connector

[1] Option kit: P52786-B21

Optical drive cabling

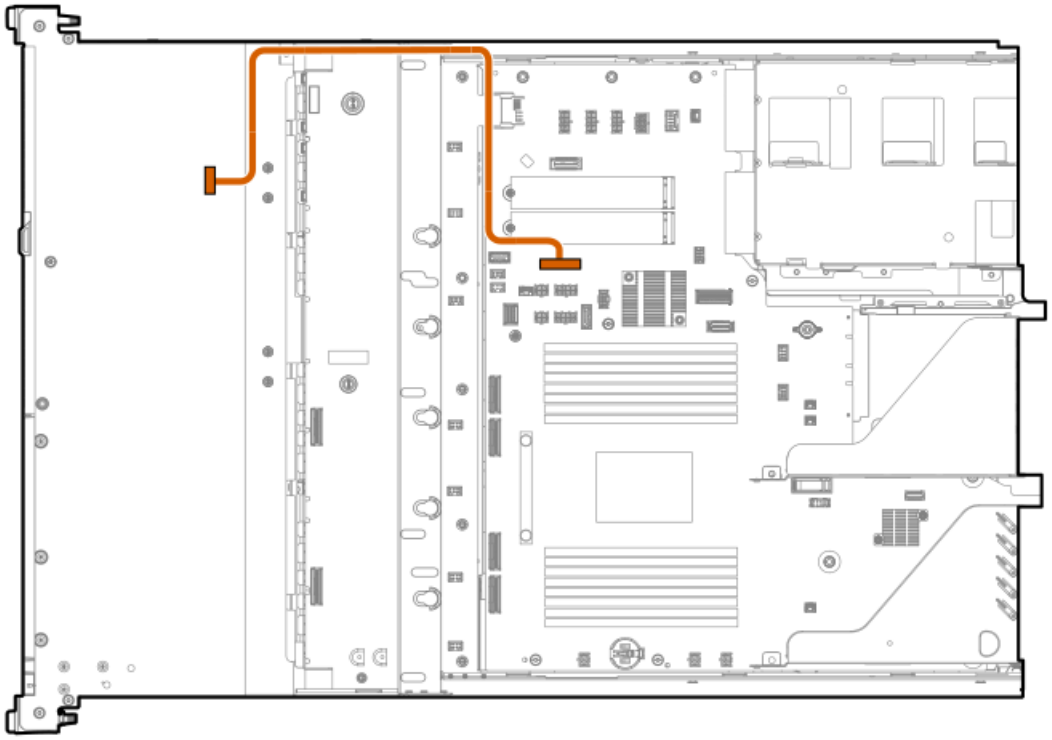
8 SFF drive: Optical drive cabling



Cable part number	Color	From	To
P45622-001 [1]	Orange	Optical drive	Optical drive connector

[1] Option kit: P54641-B21

4 LFF drive: Optical drive cabling

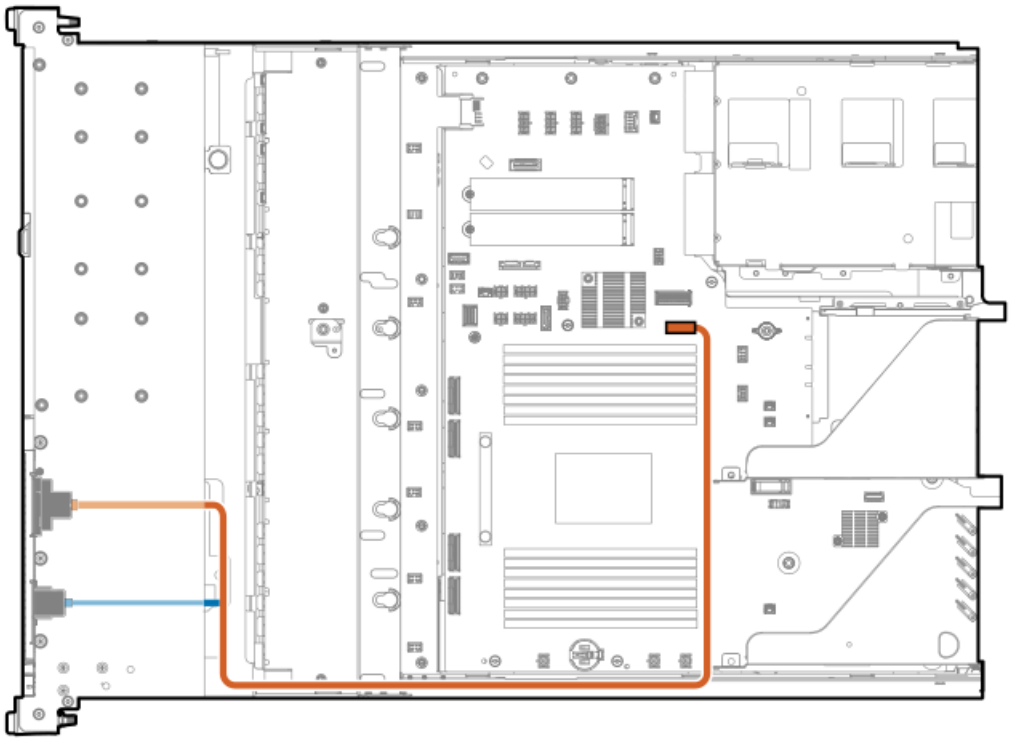


Cable part number	From	To
P45622-001 [1]	Optical drive	Optical drive connector

[1] Option kit: P54641-B21

Display port cabling

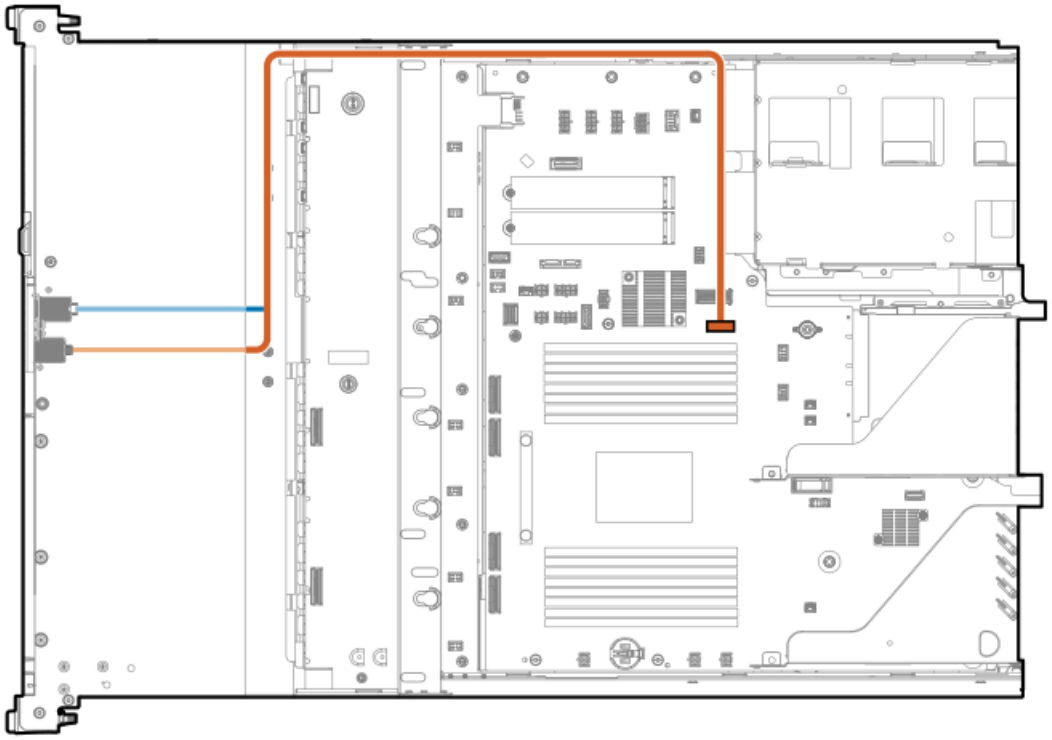
8 SFF drive: Display port cabling



Cable part number	Color	From	To
P45620-001 [1]	Orange	Display port	Display port cable connector
	Blue	USB 2.0 port	

[1] Option kit: P48926-B21

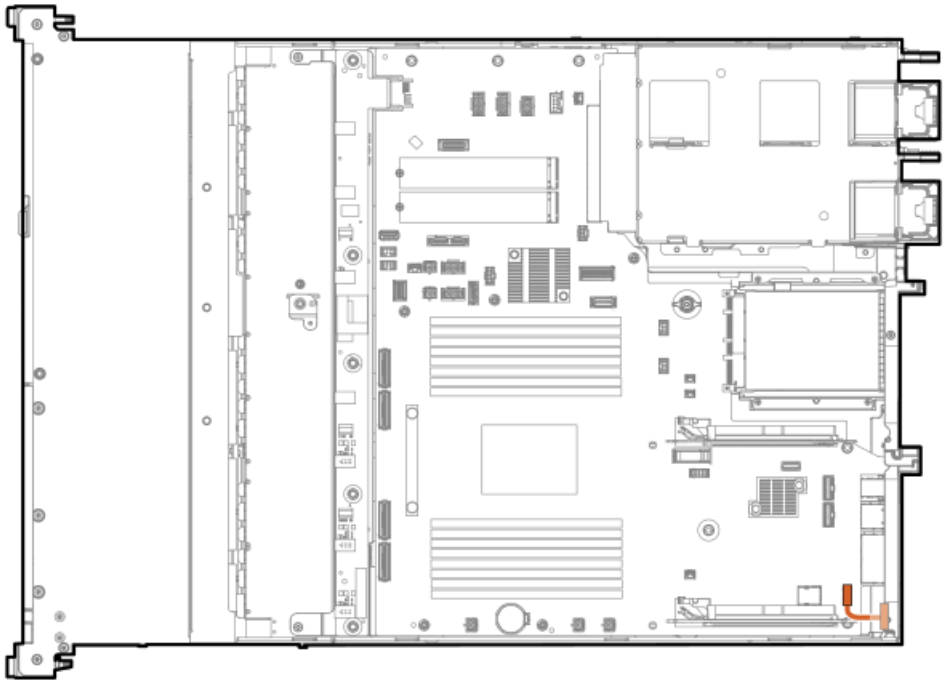
4 LFF drive: Display port cabling



Cable part number	Color	From	To
P45619-001 [1]	Orange	Display port	Display port cable connector
	Blue	USB 2.0 port	

[1] Option kit: P48928-B21

Serial port cabling

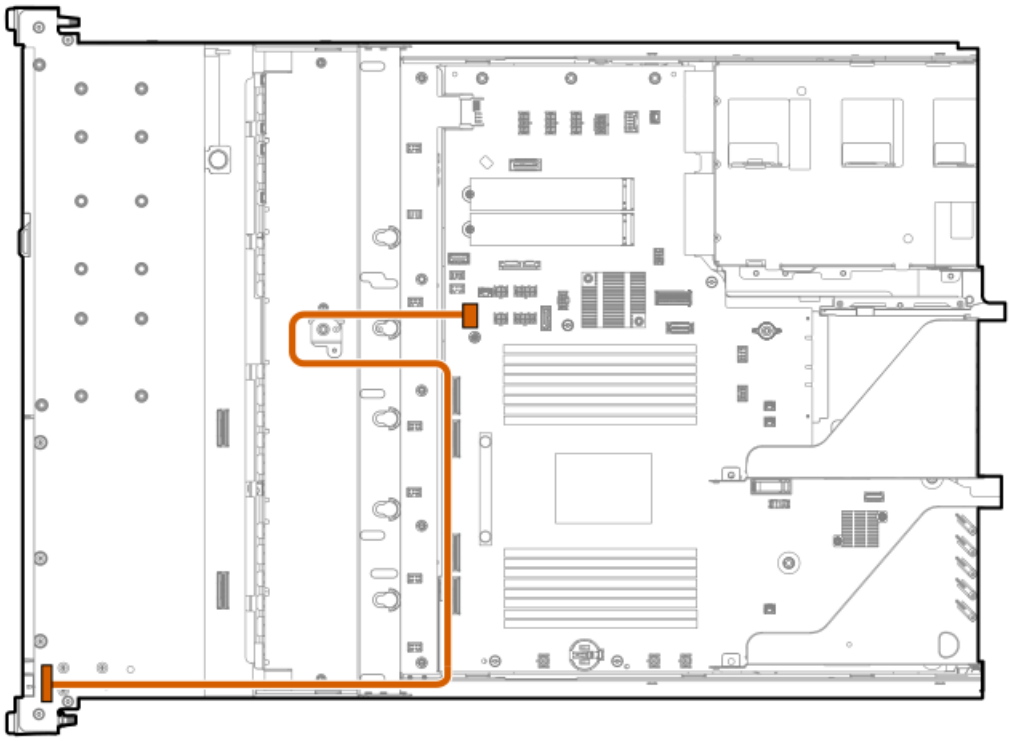


Cable part number	Color	From	To
P47752-001 [1]	Orange	Serial port	Serial port connector

[1] Option kit: P58829-B21

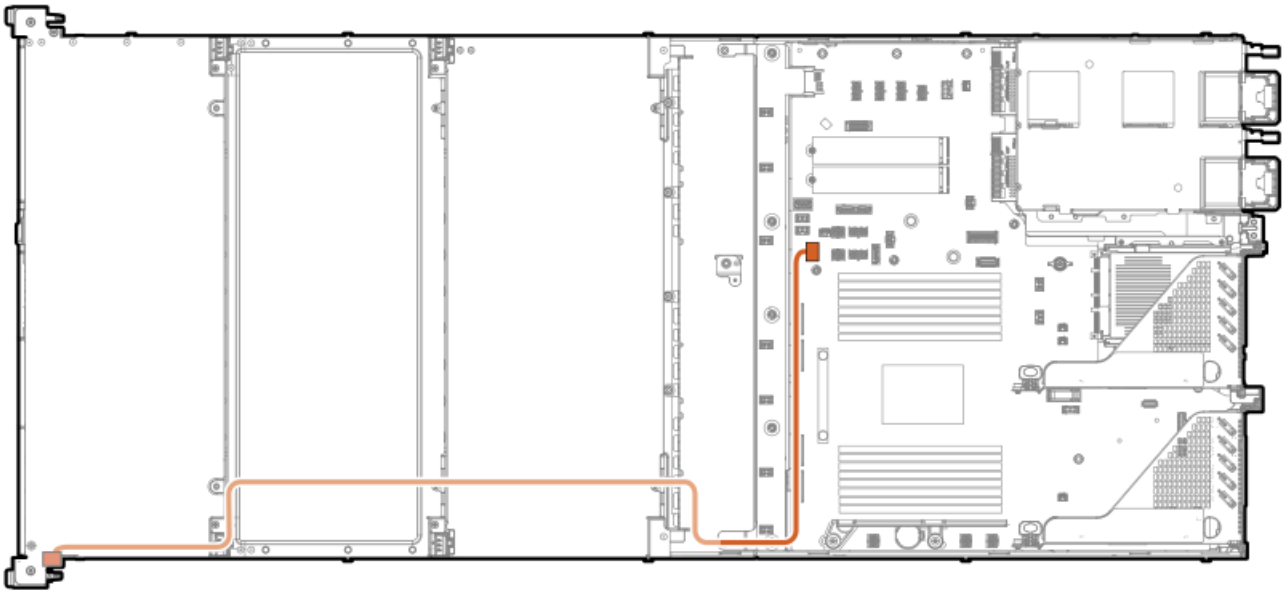
Front I/O cabling

8 SFF drive and 4 LFF drive: Front I/O cabling



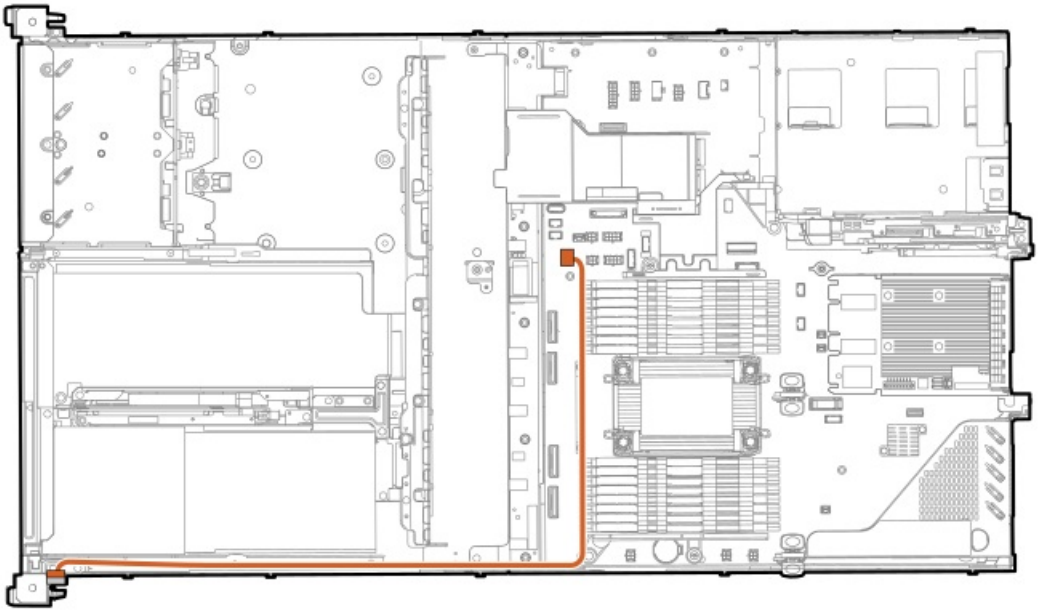
Cable part number	Color	From	To
P43727-001	Orange	Front I/O	Front I/O connector

10/12 LFF drive: Front I/O cabling



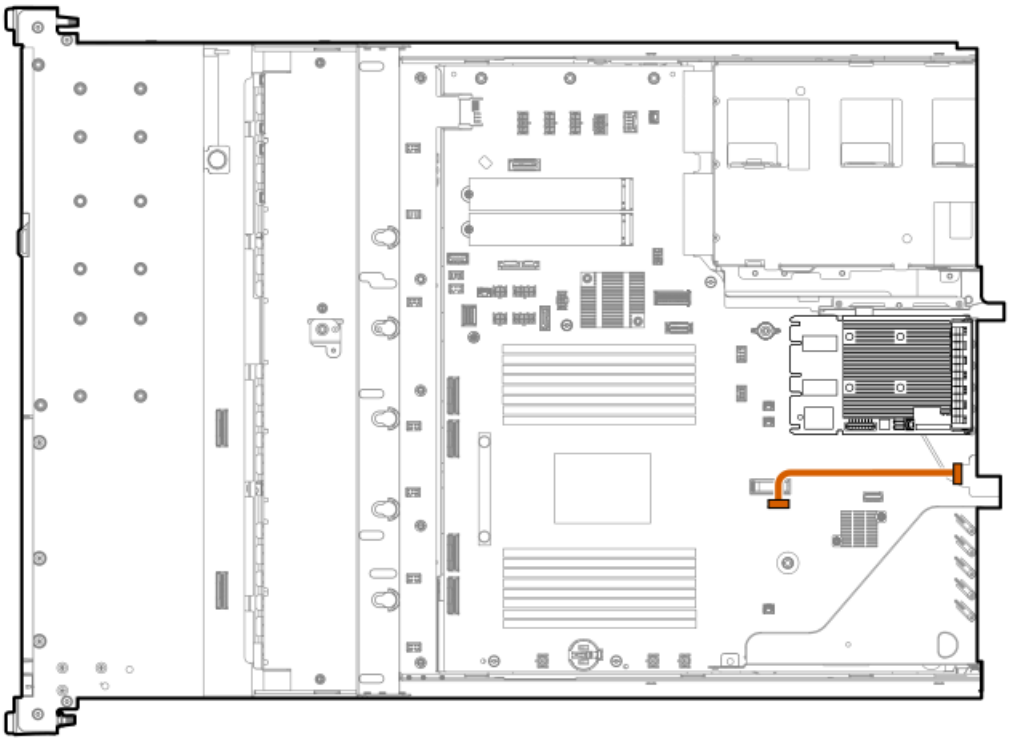
Cable part number	Color	From	To
P54923-001	Orange	Front I/O	Front I/O connector

GPU dense: Front I/O cabling



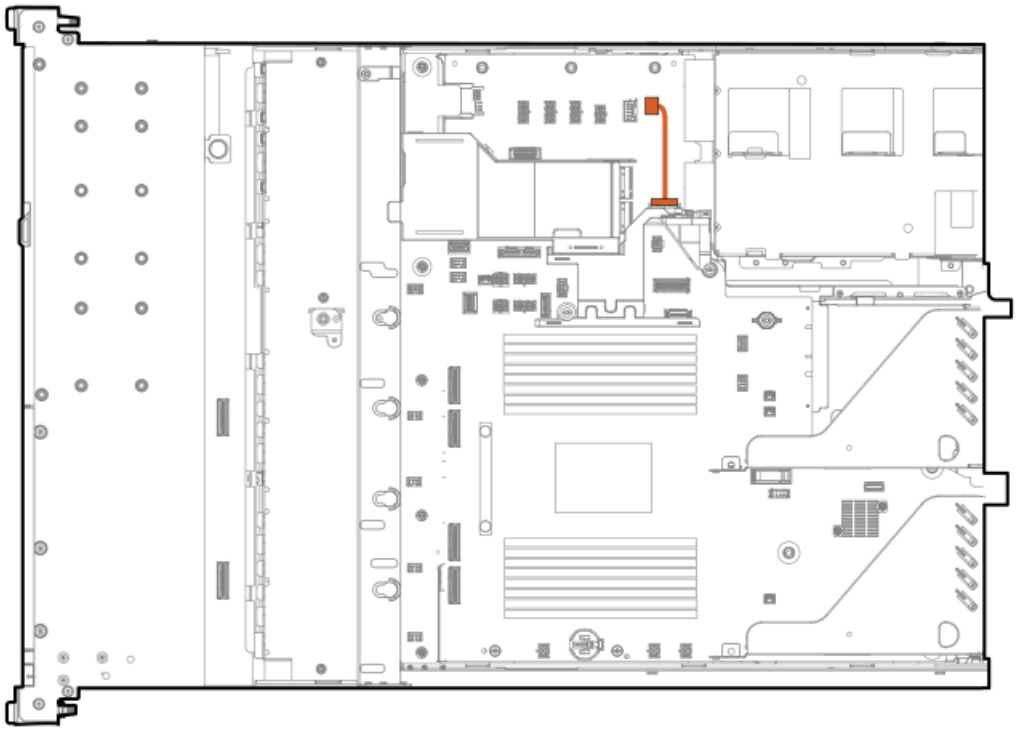
Cable part number	Color	From	To
P47750-001	Orange	Front I/O	Front I/O connector

VGA cabling



Cable part number	Color	From	To
P53987-001	Orange	VGA cable	Video (VGA) connector

Chassis intrusion detection switch cabling



Cable part number	Color	From	To
869413-001 [1]	Orange	Chassis intrusion switch	Chassis intrusion switch connector

[1] Option kit: P55417-B21

Configuration resources

Use the following resources to find documentation for configuring and managing your server.

- Some utilities might not apply to your server. For information about server compatibility with the products listed in this chapter, see the product QuickSpecs (**https://buy.hpe.com/us/en/p/1014696061**).
- Products ordered from HPE Factory Express might have already been configured with some or all the configurations in this chapter. To determine if any additional setup is required, see your HPE Factory Express order.
- For the most recent changes, feature enhancements, and bug fixes, see the latest product release notes.

Subtopics

Updating firmware or system ROM

Configuring the server

Configuring storage controllers

Managing the HPE NS204i Boot Device

Deploying an OS

Configuring security

Optimizing the server

Server management

Managing Linux-based high performance compute clusters

Updating firmware or system ROM

To	Use
Download service packs	Service Pack for ProLiant (SPP) https://www.hpe.com/servers/spp/download
Deploy service packs to a single server	Smart Update Manager (SUM) https://www.hpe.com/info/sum-docs
Deploy service packs to multiple servers	HPE OneView https://www.hpe.com/support/oneview-docs
• Enable policy-based management of server or server group firmware for distributed server infrastructure • Monitor server compliance with a configured firmware baseline • Receive automatic iLO firmware updates • Receive baseline update alerts	HPE GreenLake for Compute Ops Management https://www.hpe.com/info/com-docs

Configuring the server

To configure	Use
Single server (GUI)	• Intelligent Provisioning https://www.hpe.com/info/intelligentprovisioning/docs • iLO remote console or web interface https://www.hpe.com/support/ilo6 • UEFI System Utilities https://www.hpe.com/info/UEFI-manuals • HPE GreenLake for Compute Ops Management https://www.hpe.com/info/com-docs
Single server (scripting)	• RESTful Interface Tool https://www.hpe.com/support/restfulinterface/docs • Python iLO Redfish Library (python-ilorest-library) https://github.com/HewlettPackard/python-ilorest-library • Scripting Tools for Windows Powershell https://www.hpe.com/info/powershell/docs • iLO RESTful API https://hewlettpackard.github.io/ilo-rest-api-docs/ilo6/ • HPE GreenLake for Compute Ops Management API https://developer.greenlake.hpe.com/
Multiple servers (either UI or scripting)	• HPE OneView [1] https://www.hpe.com/support/oneview-docs • HPE GreenLake for Compute Ops Management https://www.hpe.com/info/com-docs ○ **Server settings:** Define server-specific parameters such as firmware baselines, and then apply them to server groups. ○ **Server groups:** Organize servers into custom-defined sets with associated server settings, and then apply group-specific policies to create a consistent configuration across the servers in the group.

[1] For servers running HPE OneView, do not use another tool, such as iLO, to delete or change certain settings. For more information about using HPE OneView and iLO to manage the same server, see the iLO user guide at https://www.hpe.com/support/ilo6.

Configuring storage controllers

Controller type	Documentation
SR controllers	—
Gen11	HPE SR Gen11 Controller User Guide https://hpe.com/support/SR-Gen11-UG
MR controllers	—
Gen11	HPE MR Gen11 Controller User Guide https://hpe.com/support/MR-Gen11-UG
Intel Virtual RAID on CPU	—
Intel VROC for HPE Gen11	Intel VROC for HPE Gen11 User Guide https://hpe.com/support/VROC-Gen11-UG

Managing the HPE NS204i Boot Device

For more information on supported features and maintenance information for the HPE NS204i Boot Device, see the HPE NS204 Boot Device User Guide:

https://www.hpe.com/support/NS204-UG

Deploying an OS

For a list of supported operating systems, see the HPE Servers Support & Certification Matrices:

https://www.hpe.com/support/Servers-Certification-Matrices

To	See
Configure the server to boot from a SAN	HPE Boot from SAN Configuration Guide https://www.hpe.com/info/boot-from-san-config-guide
Configure the server to boot from a PXE server	UEFI System Utilities User Guide for HPE ProLiant Gen11 Servers and HPE Synergy https://www.hpe.com/support/UEFIGen11-UG-en
Deploy an OS using iLO virtual media	iLO user guide https://www.hpe.com/support/ilo6
Deploy an OS using Intelligent Provisioning	Intelligent Provisioning user guide https://www.hpe.com/info/intelligentprovisioning/docs

Configuring security

To	See
Implement server security best practices.	• HPE Compute Security Reference Guide https://www.hpe.com/info/server-security-reference-en • HPE iLO 6 Security Technology Brief https://www.hpe.com/support/ilo6-security-en
Configure and use the Server Configuration Lock feature on HPE Trusted Supply Chain servers and other servers that have the Server Configuration Lock feature enabled.	Server Configuration Lock User Guide for HPE ProLiant servers and HPE Synergy https://www.hpe.com/info/server-config-lock-UG-en

Optimizing the server

To	See
Optimize server performance through management and tuning features.	HPE Server Performance Management and Tuning Guide https://www.hpe.com/info/server-performance-management-tuning-en
Obtain recommendations for resolving incorrect settings.	HPE InfoSight for Servers User Guide https://www.hpe.com/support/InfoSight-for-Servers-UG-en

Server management

To monitor	See
Single server	HPE iLO https://www.hpe.com/support/ilo6
Multiple servers	HPE OneView https://www.hpe.com/support/oneview-docs
Single or multiple servers	HPE GreenLake for Compute Ops Management https://www.hpe.com/info/com-docs

Managing Linux-based high performance compute clusters

To	Use
Provision, manage, and monitor clusters.	HPE Performance Cluster Manager https://www.hpe.com/support/hpcm_manuals
Optimize your applications.	HPE Performance Analysis Tools https://www.hpe.com/info/perftools
Optimize software library for low latency and high bandwidth, both on-node and off-node, for point-to-point and collective communications.	HPE Cray Programming Environment User Guide https://www.hpe.com/info/cray-pe-user-guides

Specifications

Subtopics

Environmental specifications

Specifications	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	8% to 90% 28°C (82.4°F) maximum wet bulb temperature, noncondensing
Nonoperating	5% to 95% 38.7°C (101.7°F) maximum wet bulb temperature, noncondensing
Altitude	—
Operating	3050 m (10,000 ft) This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1,500 ft/min).
Nonoperating	9144 m (30,000 ft) Maximum allowable altitude change rate is 457 m/min (1,500 ft/min).

Standard operating support

10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1,000 ft) above sea level to a maximum of 3,050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 20°C/hr (36°F/hr). The upper limit and rate of change may be limited by the type and number of options installed.

System performance during standard operating support might be reduced if operating above 30°C (86°F).

Extended ambient operating support

For approved hardware configurations, the supported system inlet range is extended to be:

- 5° to 10°C (41° to 50°F) and 35° to 40°C (95° 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 (2,953 ft) to a maximum of 3050 m (10,000 ft).
- 40°C to 45°C (104°F to 113°F) at sea level with an altitude derating of 1.0°C per every 125 m (1.8°F per every 410 ft) above 900 m (2953 ft) to a maximum of 3,050 m (10,000 ft).

The approved hardware configurations for this system are listed in the Extended Ambient Temperature Guidelines for Gen11 HPE ProLiant servers:
https://www.hpe.com/support/ASHRAEGen11

Mechanical specifications

Specification	Value
SFF	—
Height	4.28 cm (1.69 in)
Depth	60.52 cm (23.83 in)
Width	43.46 cm (17.11 in)
Weight, minimum	12.00 kg (26.45 lb)
Weight, maximum	16.7 kg (36.81 lb)
4 LFF	—
Height	4.28 cm (1.69 in)
Depth	66.47 cm (26.17 in)
Width	43.46 cm (17.11 in)
Weight, minimum	13.20 kg (29.10 lb)
Weight, maximum	17.70 kg (39.02 lb)
12 LFF	—
Height	4.28 cm (1.69 in)
Depth	99.51 cm (39.18 in)
Width	43.46 cm (17.11 in)
Weight, minimum	18.60 kg (41.00 lb)
Weight, maximum	29.60 kg (65.23 lb)
GPU dense	—
Height	4.28 cm (1.69 in)
Depth	77.42 cm (30.48 in)
Width	43.46 cm (17.11 in)
Weight, minimum	14.70 kg (32.41 lb)
Weight, maximum	20.90 kg (46.08 lb)

Power supply specifications

Depending on the installed options and the regional location where the server was purchased, the server can be configured with one of the following power supplies. For detailed power supply specifications, see the QuickSpecs on the **Hewlett Packard Enterprise website**.

Subtopics

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

Specification	Value
Input requirements	—
Rated input voltage	100 VAC to 240 VAC 240 VDC for China only
Rated input frequency	50 Hz to 60 Hz Not applicable to 240 VDC
Rated input current	5.8 A at 100 VAC 2.8 A at 200 VAC 2.4 A at 240 VDC for China only
Maximum rated input power	580 W at 100 VAC 560 W at 200 VAC 558 W at 240 VDC for China only
BTUs per hour	1999 at 100 VAC 1912 at 200 VAC 1904 at 240 VDC for China only
Power supply output	—
Rated steady-state power	500 W at 100 VAC to 127 VAC input 500 W at 100 VAC to 240 VAC input 500 W at 240 VDC input for China only
Maximum peak power	500 W at 100 VAC to 127 VAC input 500 W at 100 VAC to 240 VAC input 500 W at 240 VDC input for China only

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

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

HPE 1000 W Flex Slot Titanium Hot-plug Power Supply

Specification	Value
Input requirements	—
Rated input voltage	100 VAC to 127 VAC 200 VAC to 240 VAC 240 VDC for China only
Rated input frequency	50 Hz to 60 Hz
Rated input current	11.3 A at 100 VAC 6.1 A at 200 VAC
Maximum rated input power	1103 W at 100 VAC 1064 W at 200 VAC
BTUs per hour	3764 at 100 VAC 3629 at 200 VAC
Power supply output	—
Rated steady-state power	1000 W at 100 VAC to 127 VAC 1000 W at 200 VAC to 240 VAC input
Maximum peak power	1000 W at 100 VAC to 127 VAC 1000 W at 200 VAC to 240 VAC

HPE 1600 W Flex Slot -48 VDC Hot-plug Power Supply

Specification	Value
Input requirements	—
Rated input voltage	-40 VDC to -72 VDC
Rated input frequency	DC
Nominal input current	45 A DC at -40 VDC input 36.6 A DC at -48 VDC input 24.4 A DC at -72 VDC input
Maximum Rated Input Wattage Rating	1798 W at -40 VDC input 1758 W at -48 VDC input 1755 W at -72 VDC input
BTUs per hour	6026 at -40 VDC input 6000 at -48 VDC input input 5989 at -72 VDC input
Power supply output	—
Rated steady-state power	1600 W at -40 VDC to -72 VDC
Maximum peak power	1600 W at -40 VDC to -72 VDC

Websites

General websites

Single Point of Connectivity Knowledge (SPOCK) Storage compatibility matrix

https://www.hpe.com/storage/spock

Product white papers and analyst reports

https://www.hpe.com/us/en/resource-library

For additional websites, see Support and other resources.

Product websites

HPE ProLiant DL320 Gen11 Server user documents

https://www.hpe.com/info/dl320gen11-docs

Support and other resources

Subtopics

Accessing Hewlett Packard Enterprise Support

Accessing updates

Remote support

Warranty information

Regulatory information

Documentation feedback

Accessing Hewlett Packard Enterprise Support

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

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

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

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

Information to collect

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

- Add-on products or components
- Third-party products or components

Accessing updates

- Some software products provide a mechanism for accessing software updates through the product interface. Review your product documentation to identify the recommended software update method.
- To download product updates:

  Hewlett Packard Enterprise Support Center

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

  My HPE Software Center

  https://www.hpe.com/software/hpesoftwarecenter
- To subscribe to eNewsletters and alerts:

  https://www.hpe.com/support/e-updates
- To view and update your entitlements, and to link your contracts and warranties with your profile, go to the Hewlett Packard Enterprise Support Center More Information on Access to Support Materials page:

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

IMPORTANT:
Access to some updates might require product entitlement when accessed through the Hewlett Packard Enterprise Support Center. You must have an HPE Onepass set up with relevant entitlements.

Remote support

Remote support is available with supported devices as part of your warranty or contractual support agreement. It provides intelligent event diagnosis, and automatic, secure submission of hardware event notifications to Hewlett Packard Enterprise, which initiates a fast and accurate resolution based on the service level of your product. Hewlett Packard Enterprise strongly recommends that you register your device for remote support.

If your product includes additional remote support details, use search to locate that information.

HPE Get Connected

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

HPE Tech Care Service

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

HPE Complete Care

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

Warranty information

To view the warranty information for your product, see the **warranty check tool**.

Regulatory information

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

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

Additional regulatory information

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

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

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

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

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

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

Documentation feedback

Hewlett Packard Enterprise is committed to providing documentation that meets your needs. To help us improve the documentation, use the Feedback button and icons (at the bottom of an opened document) on the Hewlett Packard Enterprise Support Center portal (**https://www.hpe.com/support/hpesc**) to send any errors, suggestions, or comments. This process captures all document information.