



**Hewlett Packard
Enterprise**

HPE ProLiant MicroServer Gen10 Maintenance and Service Guide

Abstract

This document contains information on the hardware spare parts supported by the server and the relevant component replacement procedures. This document is intended for the person who installs, administers, and troubleshoots server or storage products. Hewlett Packard Enterprise assumes that you are qualified to service computer equipment, and are trained in recognizing hazards in products with hazardous energy levels.

Part Number: 872673-002
Published: September 2017
Edition: 2

Notices

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

Confidential computer software. Valid license from Hewlett Packard Enterprise required for possession, use, or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

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

Acknowledgments

AMD Opteron™ is a trademark of Advanced Micro Devices, Inc.

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

Contents

Customer self repair.....	6
Illustrated parts catalog.....	16
System components.....	16
Fan spare part.....	16
Four bay non-hot-plug drive cable assembly spare part.....	17
System board assembly spare parts.....	17
System battery spare part.....	17
DIMM spare parts.....	17
Power supply spare part.....	17
Server options.....	18
SSD cable spare parts.....	19
Trusted Platform Module spare part.....	19
Removal and replacement procedures.....	20
Safety considerations.....	20
Electrostatic discharge.....	20
Preventing electrostatic discharge.....	20
Grounding methods to prevent electrostatic discharge.....	20
Symbols on equipment.....	20
Server warnings and cautions.....	21
Prepare the server for hardware replacement.....	22
Power down the server.....	22
Remove the front bezel.....	22
Removing a locked front bezel.....	23
Removing an unlocked front bezel.....	24
Remove the chassis cover.....	24
Remove the system board assembly.....	25
Remove the system board assembly.....	25
Prepare the server for operation.....	26
Install the system board assembly.....	27
Install the system board assembly.....	27
Install the chassis cover.....	28
Install the chassis cover.....	28
Install the front bezel.....	29
Power up the server.....	29
Replacing an LFF drive.....	30
Remove the LFF drive.....	30
Install the LFF drive.....	31
Replacing an SFF drive.....	32
Remove the SFF drive.....	32
Install the SFF drive.....	33
Replacing an optical drive.....	35
Remove the optical drive.....	35
Install the optical drive.....	36
Replacing an SSD.....	38
Remove the SSD.....	38
Install the SSD.....	40

Replacing the SSD cables.....	41
Replacing the SSD power cable.....	41
Disconnect the SSD power cable.....	42
Connect the SSD power cable.....	42
Replacing the SSD SATA cable.....	43
Disconnect the SSD SATA cable.....	44
Connect the SSD SATA cable.....	44
Replacing the non-hot-plug drive cable assembly.....	45
Remove the non-hot-plug drive cable assembly.....	46
Install the non-hot-plug drive cable assembly.....	47
Replacing an expansion board.....	49
Remove the expansion board.....	49
Remove the air baffle from the expansion board.....	50
Install a low-profile bracket on the expansion board.....	50
Install the expansion board.....	51
Replacing a DIMM.....	52
Remove the DIMM.....	52
Install a DIMM.....	53
Replacing the fan.....	53
Remove the fan.....	54
Install the fan.....	55
Replacing the power supply.....	56
Remove the power supply.....	57
Install the power supply.....	59
System battery replacement.....	61
System battery information.....	61
Replacing a system battery.....	61
Replace the system battery.....	62
Replacing the system board assembly.....	63
Remove the system board assembly.....	63
Install the system board assembly.....	64
Re-entering the system serial and SKU numbers.....	65
Replacing the external RDX backup system.....	66
HP Trusted Platform Module.....	66

Troubleshooting.....67

Troubleshooting resources.....	67
--------------------------------	----

Diagnostic tools.....68

Product QuickSpecs.....	68
Aptio Setup Utility.....	68
Using the Aptio Setup Utility.....	68
Restoring and customizing configuration settings.....	68
Clearing the BIOS configuration settings.....	69
Clearing the BIOS settings by using the Aptio Setup Utility.....	69
Clearing the BIOS settings by using the CMOS header.....	69
Marvell Storage Utility.....	70
Installing the Marvell Storage Utility.....	71
Marvell BIOS Utility.....	71
Accessing the Marvell BIOS Utility under UEFI boot mode.....	71
Accessing the Marvell BIOS Utility under legacy boot mode.....	72
HPE Smart Storage Administrator.....	72
USB support.....	72

Component identification.....	73
Front panel components.....	73
Front panel LEDs and buttons.....	74
Rear panel components.....	75
Rear panel LEDs.....	76
System board components.....	77
PCIe slot description.....	78
DIMM slot locations.....	78
Drive numbering.....	79
Drive screws.....	79
Cabling.....	81
Cabling overview	81
Four-bay non-hot-plug drive cabling.....	81
Solid state drive cabling.....	82
Optical drive cabling.....	83
Fan cabling.....	83
Power supply cabling.....	84
Specifications.....	85
Environmental specifications.....	85
Server specifications.....	85
Power supply specifications.....	85
200 W power supply specifications.....	86
Websites.....	87
Support and other resources.....	88
Accessing Hewlett Packard Enterprise Support.....	88
Accessing ClearOS support	88
Accessing updates.....	88
Warranty information.....	89
Regulatory information.....	89
Documentation feedback.....	89
Acronyms and abbreviations.....	90

Customer self repair

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

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

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

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

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

Parts only warranty service

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

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

Réparation par le client (CSR)

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

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

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

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

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

Service de garantie "pièces seules"

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

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

Riparazione da parte del cliente

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

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

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

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

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

Servizio di garanzia per i soli componenti

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

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

Customer Self Repair

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

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

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

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

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

Parts-only Warranty Service (Garantieservice ausschließlich für Teile)

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

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

Reparaciones del propio cliente

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

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

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

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

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

Servicio de garantía exclusivo de componentes

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

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

Customer Self Repair

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

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

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

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

Neem contact op met een Service Partner voor meer informatie over het Customer Self Repair programma van Hewlett Packard Enterprise. Informatie over Service Partners vindt u op de [**Hewlett Packard Enterprise website**](#).

Garanteservice "Parts Only"

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

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

Reparo feito pelo cliente

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

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

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

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

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

Serviço de garantia apenas para peças

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

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

カスタマーセルフリペア

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

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

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

部品供給が可能な場合、地域によっては、CSR部品を翌営業日に届くように発送します。また、地域によっては、追加費用を負担いただくことにより同日または4時間以内に届くように発送することも可能な場合があります。サポートが必要なときは、Hewlett Packard Enterpriseサポートセンターに電話していただければ、技術者が電話でアドバイスします。交換用のCSR部品または同梱物には、故障部品をHewlett Packard Enterpriseに返送する必要があるかどうかが表示されています。故障部品をHewlett Packard Enterpriseに返送する必要がある場合は、指定期限内（通常は5営業日以内）に故障部品をHewlett Packard Enterpriseに返送してください。故障部品を返送する場合は、届いた時の梱包箱に関連書類とともに入れてください。故障部品を返送しない場合、Hewlett Packard Enterpriseから部品費用が請求されます。カスタマーセルフリペアの際には、Hewlett Packard Enterpriseは送料および部品返送料を全額負担し、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となります。当該部品について、もしもお客様がHewlett Packard Enterpriseに交換作業を依頼される場合には、その修理サービスに関する交通費および人件費がお客様のご負担となります。

客户自行维修

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

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

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

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

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

仅部件保修服务

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

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

客戶自行維修

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

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

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

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

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

僅限零件的保固服務

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

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

고객 셀프 수리

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

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

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

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

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

부품 제공 보증 서비스

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

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

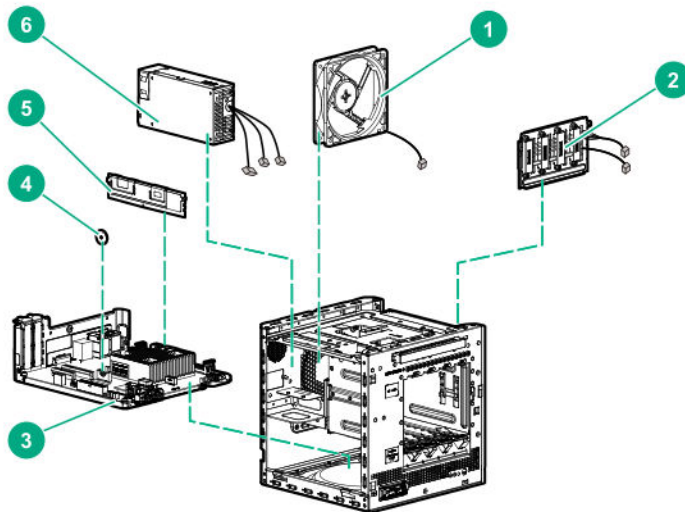
Illustrated parts catalog

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

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:

<http://www.hpe.com/info/partssurfer>



Item	Description
1	Fan spare part on page 16
2	Four bay non-hot-plug drive cable assembly spare part on page 17
3	System board assembly spare parts on page 17
4	System battery spare part on page 17
5	DIMM spare parts on page 17
6	Power supply spare part on page 17

Fan spare part

Customer self repair on page 6: Mandatory

Description	Spare part number
Fan	874740-001

For more information on the removal and replacement procedures, see **Replacing the fan** on page 53.

Four bay non-hot-plug drive cable assembly spare part

Customer self repair on page 6: Mandatory

Description	Spare part number
Four bay non-hot-plug drive cable assembly	874741-001

For more information on the removal and replacement procedures, see **Replacing the non-hot-plug drive cable assembly** on page 45.

System board assembly spare parts

Customer self repair on page 6: Mandatory

The system board assembly spare includes the system board attached to the tray, with the heatsink and the rear USB EMI shield installed.

Description	Spare part number
System board assembly with AMD Opteron X3216 APU	874737-001
System board assembly with AMD Opteron X3421 APU	874738-001

For more information on the removal and replacement procedures, see **Replacing the system board assembly** on page 63.

System battery spare part

Customer self repair on page 6: Mandatory

Description	Spare part number
3.3-V, 220-mAh lithium battery coin	319603-001

For more information on the removal and replacement procedures, see **System battery replacement** on page 61.

DIMM spare parts

Customer self repair on page 6: Mandatory

Description	Spare part number
8 GB, single-rank x8 PC4-2400T-E	869537-001
16 GB, dual-rank x8 PC4-2400T-E	869538-001

For more information on the removal and replacement procedures, see **Replacing a DIMM** on page 52.

Power supply spare part

Customer self repair on page 6: Mandatory

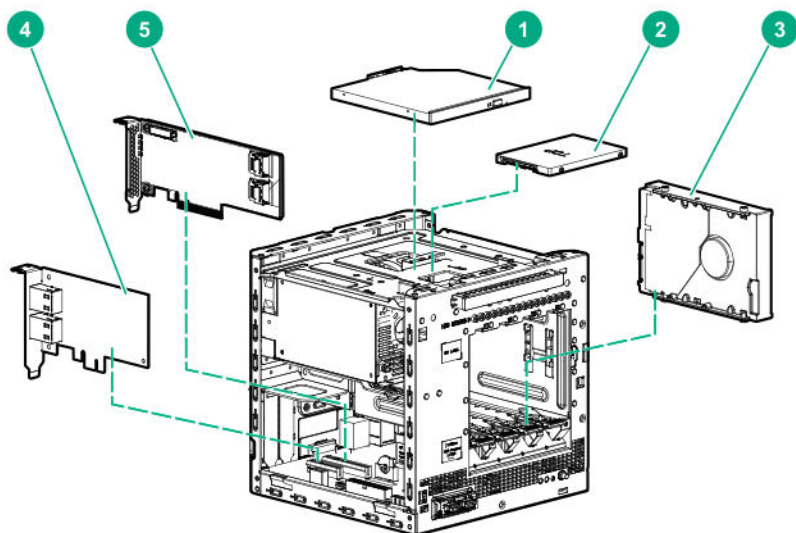
Description	Spare part number
200 W power supply	874739-001

For more information on the removal and replacement procedures, see **Replacing the power supply** on page 56.

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:

<http://www.hpe.com/info/partssurfer>



Item	Description
1	Optical drive For more information on the removal and replacement procedures, see Replacing an optical drive on page 35.
2	Solid state drive For more information on the removal and replacement procedures, see Replacing an SSD on page 38.
3	LFF non-hot-plug hard drive For more information on the removal and replacement procedures, see Replacing an LFF drive on page 30.
4	Network controller For more information on the removal and replacement procedures, see Replacing an expansion board on page 49.
5	Storage controller For more information on the removal and replacement procedures, see Replacing an expansion board on page 49.
6	SSD cable spare parts on page 19*
7	Trusted Platform Module spare part on page 19*

*Not shown

SSD cable spare parts

Customer self repair on page 6: Mandatory

Description	Spare part number
SSD power cable, SSD SATA cable	874742-001

For more information on the removal and replacement procedures, see **Replacing the SSD cables**.

Trusted Platform Module spare part

Customer self repair on page 6: No

Description	Spare part number
TPM 2.0	812119-001

Removal and replacement procedures

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

Safety considerations

Before performing service procedures, review all the safety information.

Electrostatic discharge

Preventing electrostatic discharge

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

Procedure

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

Grounding methods to prevent electrostatic discharge

Several methods are used for grounding. 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 \pm 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 might be found on the equipment to indicate the presence of potentially hazardous conditions.



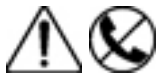
This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel.

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



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

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



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

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



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

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



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

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



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

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

Server warnings and cautions



WARNING:

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.



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 improper cooling and thermal damage, do not operate the server with the media bay blank, chassis cover, or the front bezel removed.

⚠ CAUTION:
To prevent damage to electrical components, properly ground the server before beginning any installation 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.

Prepare the server for hardware replacement

Prerequisites

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

Procedure

1. **Power down the server** on page 22.
2. Disconnect the power cord from the AC source, and then from the server.
3. Disconnect all peripheral cables from the server.
4. To access some components and perform certain service procedures, do one or more of the following procedures:
 - **Remove the front bezel** on page 22.
 - **Remove the chassis cover** on page 24.
 - **Remove the system board assembly** on page 25.
5. Place the server on a flat, level work surface.

Power down the server

Prerequisites

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

Procedure

- Press and release the Power On/Standby button.
This method initiates a controlled shutdown of applications and the OS before the server enters standby mode.
- Press and hold the Power On/Standby button for more than 4 seconds to force the server to enter standby mode.

This method forces the server to enter standby mode without properly exiting applications and the OS. If an application stops responding, you can use this method to force a shutdown.

The system power LED changes to red indicating that the server is in standby mode. Auxiliary power is still present in the system in this mode.

Remove the front bezel

To access the drive bays, remove the front bezel.

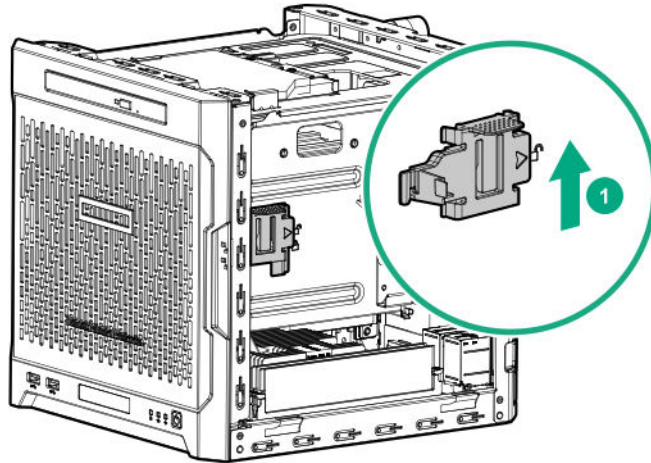
Removing a locked front bezel

Prerequisites

1. **Power down the server** on page 22.
2. Disconnect the power cord from the AC source, and then from the server.
3. Disconnect all peripheral cables from the server.
4. **Remove the chassis cover** on page 24.

Procedure

1. To unlock the front bezel from the chassis, slide the release tab upward.

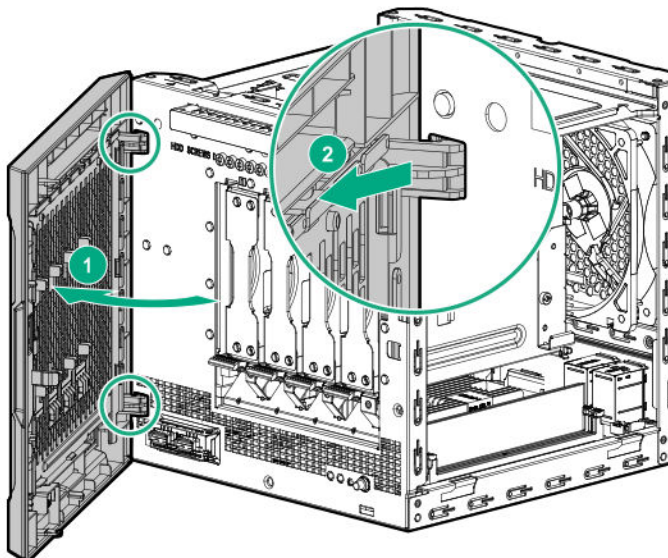


2. Open the front bezel.

The front bezel is a removable part. Opening the bezel will loosen it from the front panel.

3. To completely detach the bezel from the front panel, pull the bezel hinges from the chassis.

Retain the bezel for later use.



Removing an unlocked front bezel

Prerequisites

1. **Power down the server** on page 22.
2. Disconnect the power cord from the AC source, and then from the server.
3. Disconnect all peripheral cables from the server.

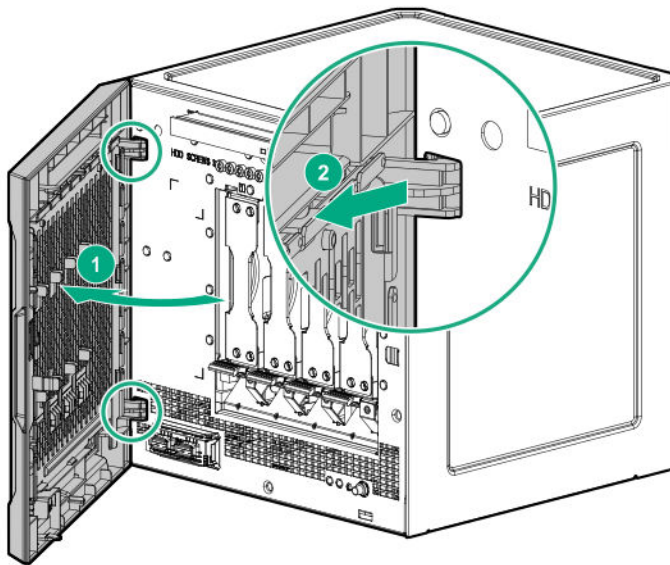
Procedure

1. Open the front bezel.

The front bezel is a removable part. Opening the bezel will loosen it from the front panel.

2. To completely detach the bezel from the front panel, pull the bezel hinges from the chassis.

Retain the bezel for later use.



Remove the chassis cover

To access the front bezel lock and the internal components, remove the chassis cover.

Procedure

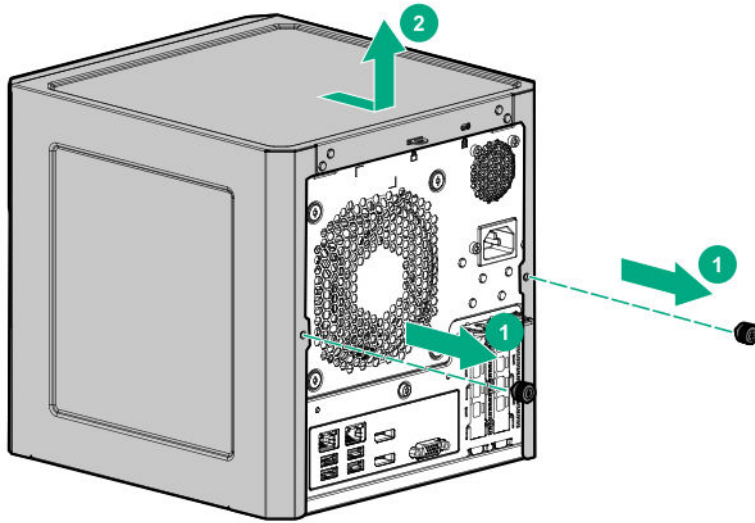
1. If installed, unlock and remove the security padlock and/or the Kensington security lock.

For more information, see the lock documentation.

2. Remove the chassis cover thumbscrews.

If the thumbscrews are too tight, use a T-15 screwdriver to remove it.

3. Slide the chassis cover toward the rear panel, and then lift it from the server.



Remove the system board assembly

To install or remove hardware components on the system board or to access the CMOS header, remove the system board assembly.

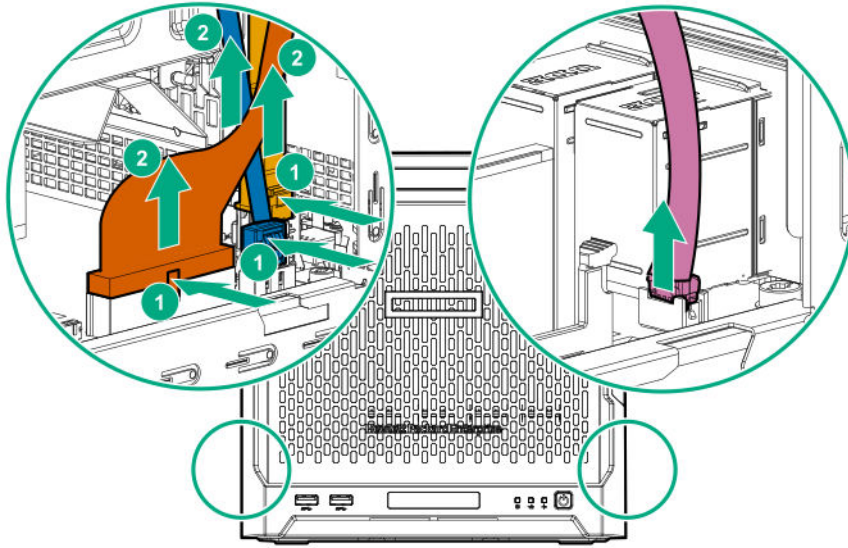
Remove the system board assembly

Prerequisites

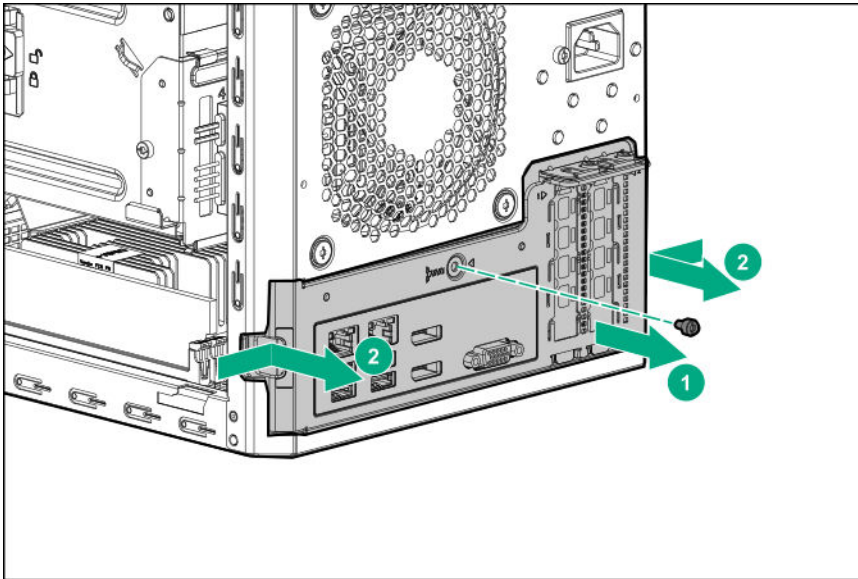
Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

Procedure

1. If installed, remove the internal USB device.
2. To serve as a reference for system cable connections when the system board assembly is installed back into the server, take a picture of the current system board cable connections.
3. Disconnect the following system cables:
 - Power supply cable
 - Optical drive or SSD SATA cable (optional)
 - LFF/SFF drive SATA cable – This cable can either be connected to the system board or to an installed HBA.
 - Fan cable



4. Remove the system board assembly screw.
5. Place a finger in the notch on both sides of the system board assembly, and then pull out the assembly.



Prepare the server for operation

Procedure

1. Depending on what hardware was replaced, do one or more of the following:
 - **Install the system board assembly** on page 27.
 - **Install the chassis cover** on page 28.
 - **Install the front bezel** on page 29.
2. If removed, attach the security padlock and/or the Kensington security lock.
For more information, see the lock documentation.
3. Connect all peripheral cables to the server.
4. Connect the power cord to the server power jack, and then to the AC source.
5. Secure the power cord and rear panel cables based on the standard cable management practices.
6. **Power up the server** on page 29.

Install the system board assembly

To secure the system board inside the chassis, install the system board assembly.

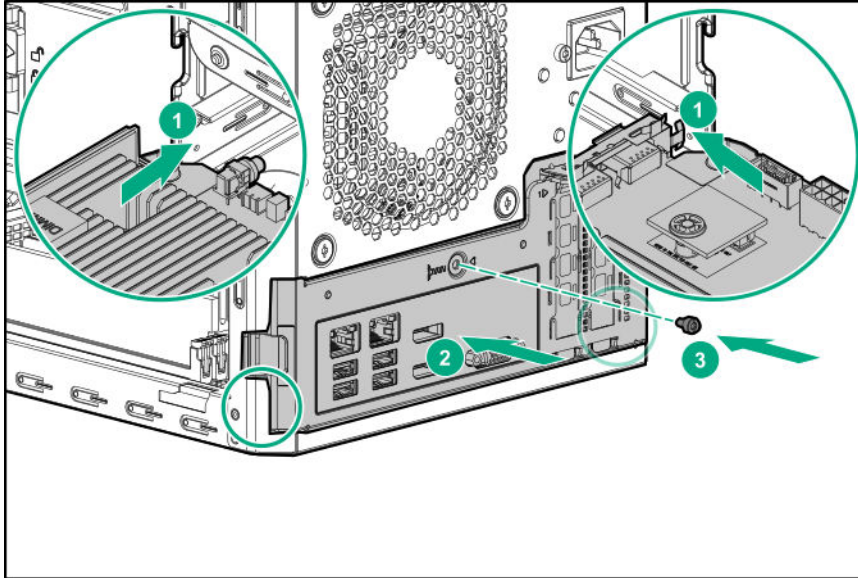
Install the system board assembly

Prerequisites

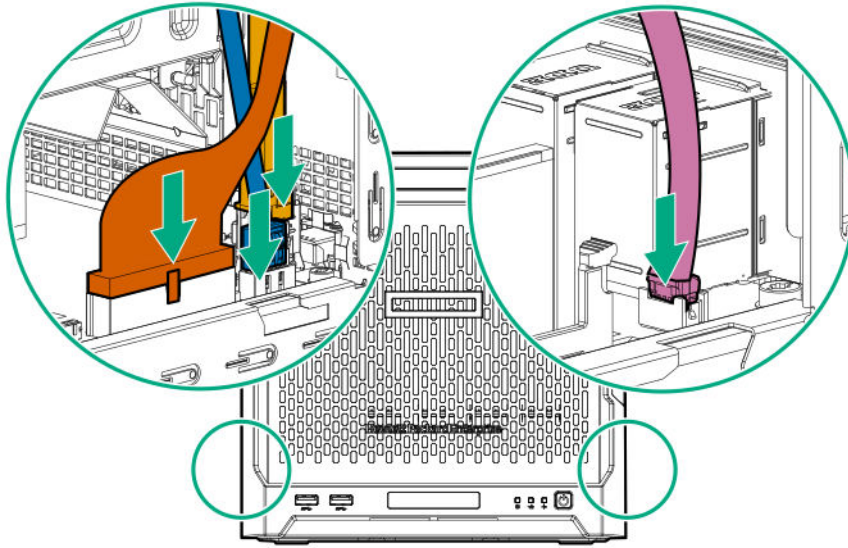
Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

Procedure

1. Slide the system board assembly into the chassis.
2. Press against the system board assembly until it clicks into place.
3. Install the system board assembly screw.



4. Connect the following system cables:
 - Power supply cable
 - Optical drive or SSD SATA cable (optional)
 - LFF/SFF drive SATA cable – This cable can either be connected to the system board or to an installed HBA.
 - Fan cable



5. If removed, install the internal USB device.

Install the chassis cover

To prevent access to the front bezel lock and the internal components, install the chassis cover.

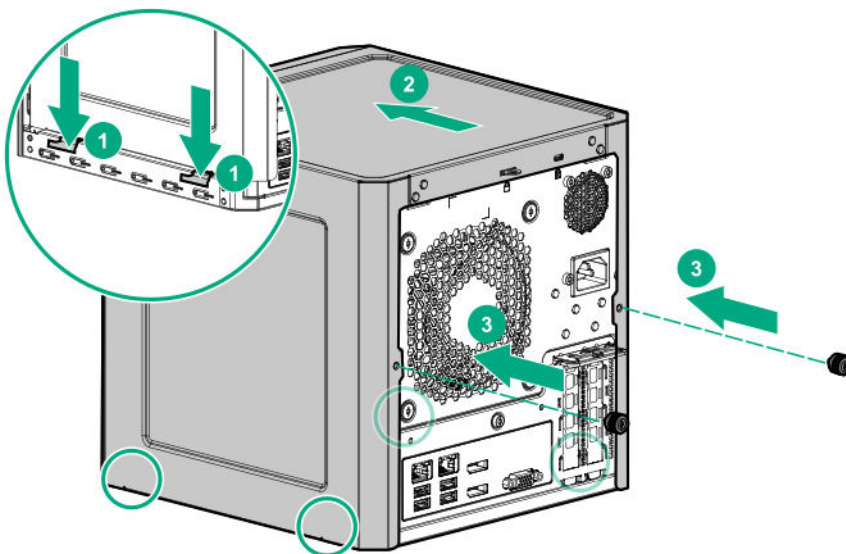
Install the chassis cover

Prerequisites

1. Verify that all internal cables are properly connected and are secured in their respective cable ties.
2. Verify that the drive cables are not blocking the fan blades.

Procedure

1. Insert the tabs on the bottom left and right sides of the chassis cover into the corresponding slots on the chassis.
2. Slide the chassis cover towards the front panel.
3. Install the chassis thumbscrews.



4. If removed, install the security padlock and/or the Kensington security lock.

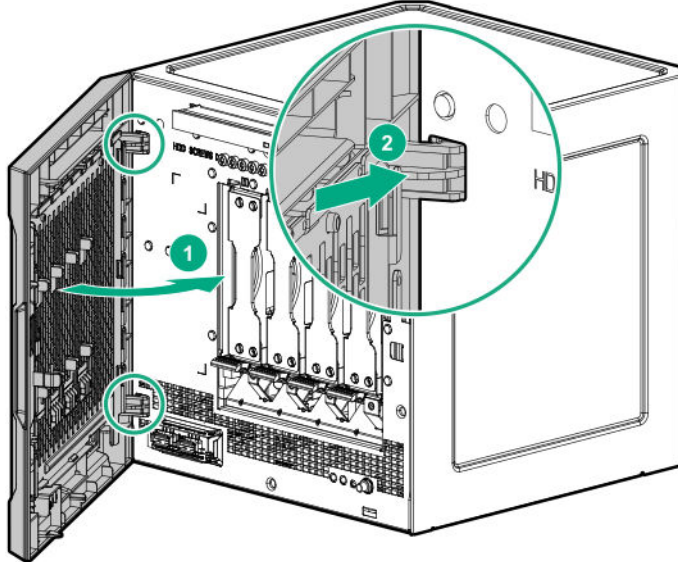
For more information, see the lock documentation.

Install the front bezel

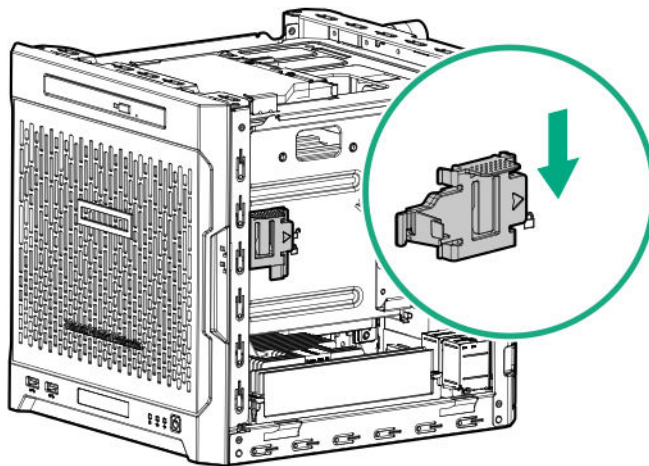
To cover the drive bays, install the front bezel.

Procedure

1. Attach the bezel to the front panel, and then close it.



2. If you prefer to secure the bezel to the chassis, do the following:
 - a. If installed, **remove the chassis cover**.
 - b. Slide the release tab downwards to lock the bezel to the chassis.



- c. **Install the chassis cover** on page 28.

Power up the server

Press the Power On/Standby button.

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

Replacing an LFF drive

Procedure

1. **Power down the server** on page 22.
2. Disconnect the power cord from the AC source, and then from the server.
3. Disconnect all peripheral cables from the server.
4. **Remove the front bezel** on page 22.
5. **Remove the LFF drive** on page 30.
6. **Install the new LFF drive.**
7. **Install the front bezel** on page 29.
8. Connect all peripheral cables to the server.
9. Connect the power cord to the server power jack, and then to the AC source.
10. **Power up the server** on page 29.

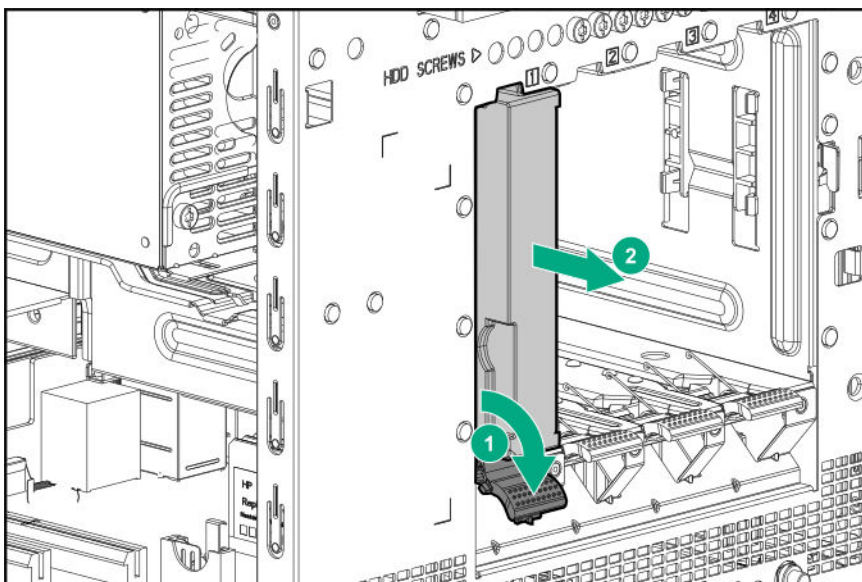
Remove the LFF drive

Prerequisites

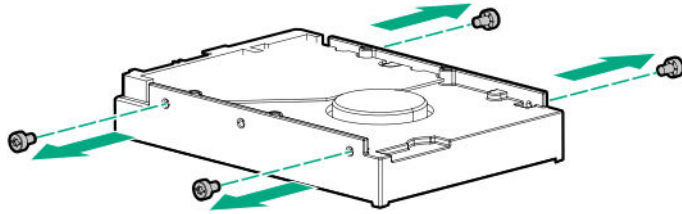
Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

Procedure

1. To disengage the drive, press the drive latch.
2. Slide the drive out of the drive bay.



3. Remove the screws from both sides of the drive.



Install the LFF drive

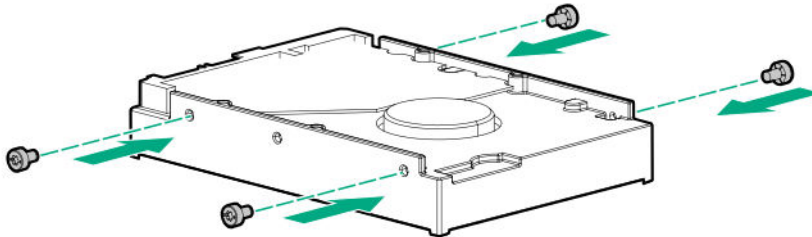
Prerequisites

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

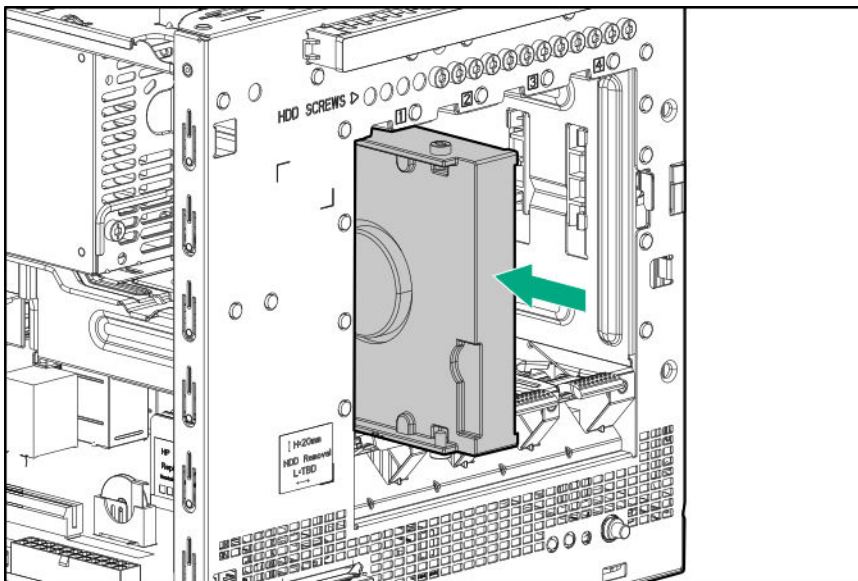
- T-15 Torx screwdriver
- LFF drive spare

Procedure

1. Install the screws in the drive.



2. Slide the drive into the drive bay until it clicks into place.



Replacing an SFF drive

Procedure

1. **Power down the server** on page 22.
2. Disconnect the power cord from the AC source, and then from the server.
3. Disconnect all peripheral cables from the server.
4. **Remove the front bezel** on page 22.
5. **Remove the SFF drive** on page 32.
6. **Install the new SFF drive.**
7. **Install the front bezel** on page 29.
8. Connect all peripheral cables to the server.
9. Connect the power cord to the server power jack, and then to the AC source.
10. **Power up the server** on page 29.

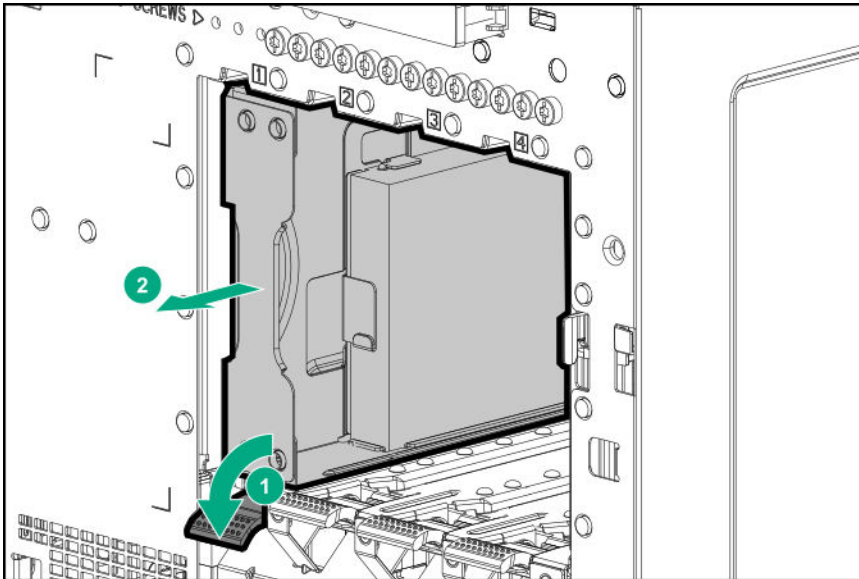
Remove the SFF drive

Prerequisites

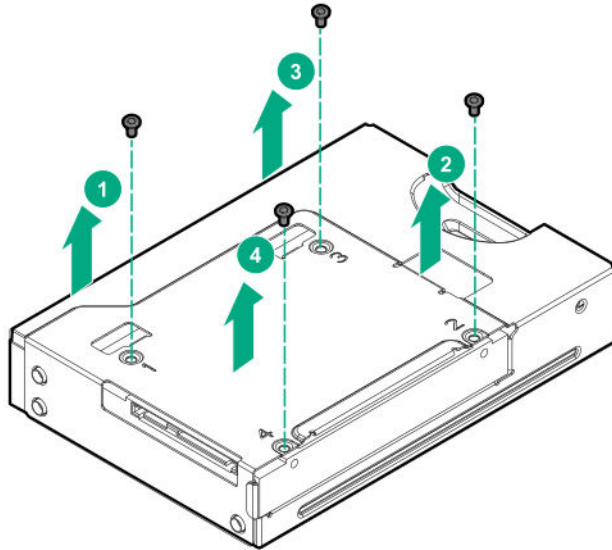
Before you perform this procedure, make sure that you have a T-10 Torx screwdriver available.

Procedure

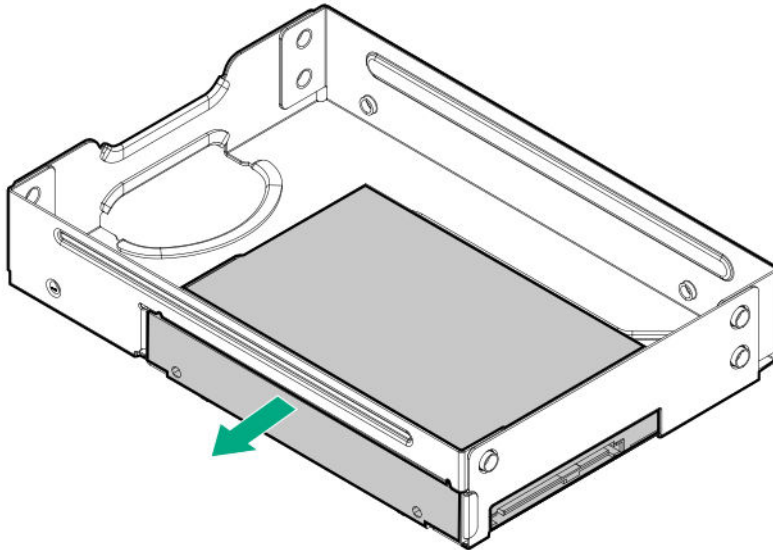
1. To disengage the drive converter tray, press the drive latch.
2. Slide the converter tray out of the drive bay.



3. Remove the screws on the bottom of the converter tray.



4. Remove the drive from the converter tray.



Install the SFF drive

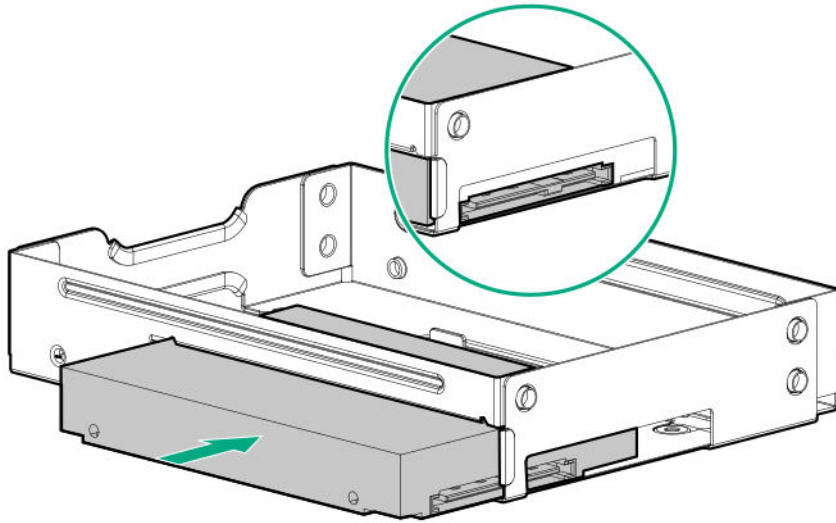
Prerequisites

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

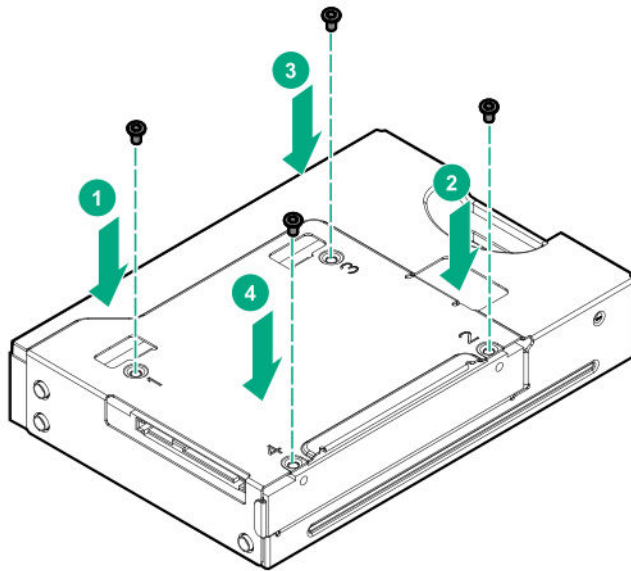
- T-10 Torx screwdriver
- SFF drive spare

Procedure

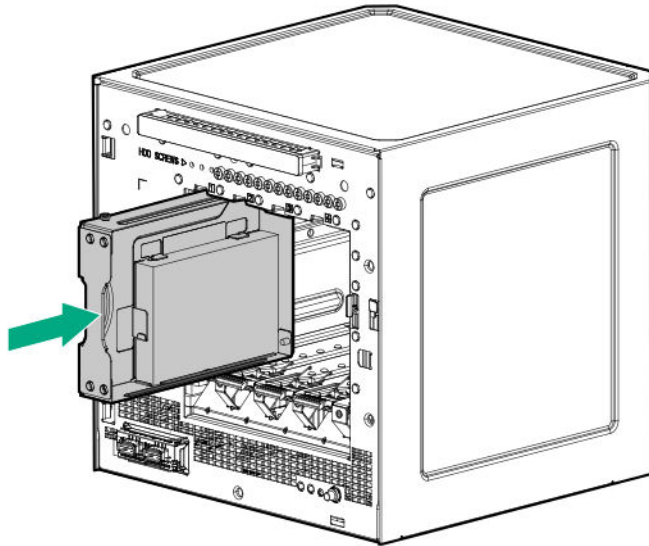
1. Install the SFF drive in the drive converter tray.



2. Follow the callout sequence in the following illustration to install the screws on the bottom side of the converter tray.



3. Slide the converter tray into the drive bay until it clicks into place.



Replacing an optical drive

Procedure

1. **Power down the server** on page 22.
2. Disconnect the power cord from the AC source, and then from the server.
3. Disconnect all peripheral cables from the server.
4. **Remove the chassis cover** on page 24.
5. **Remove the front bezel** on page 22.
6. **Remove the optical drive** on page 35.
7. **Install the new optical drive.**
8. **Install the front bezel** on page 29.
9. Connect all peripheral cables to the server.
10. Connect the power cord to the server power jack, and then to the AC source.
11. **Power up the server** on page 29.

Remove the optical drive

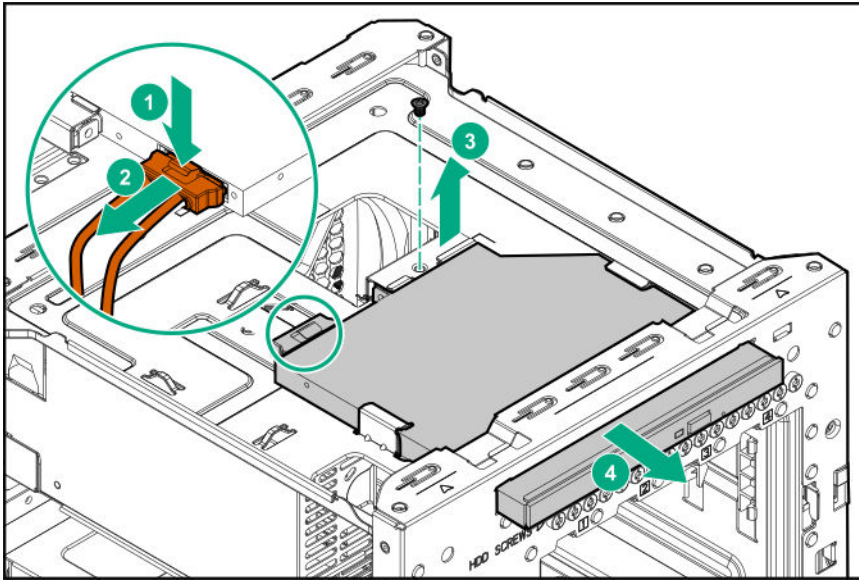
Prerequisites

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

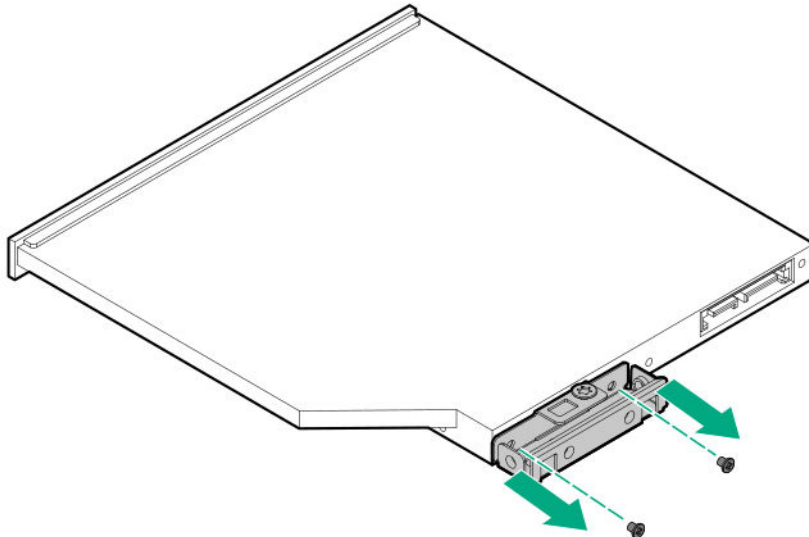
- T-15 Torx screwdriver
- Phillips No. 2 screwdriver

Procedure

1. Disconnect the optical drive SATA Y-cable from the optical drive.
2. Remove the optical drive screw.
3. Slide the optical drive out of the media bay.



4. Remove the bracket from the optical drive.



Install the optical drive

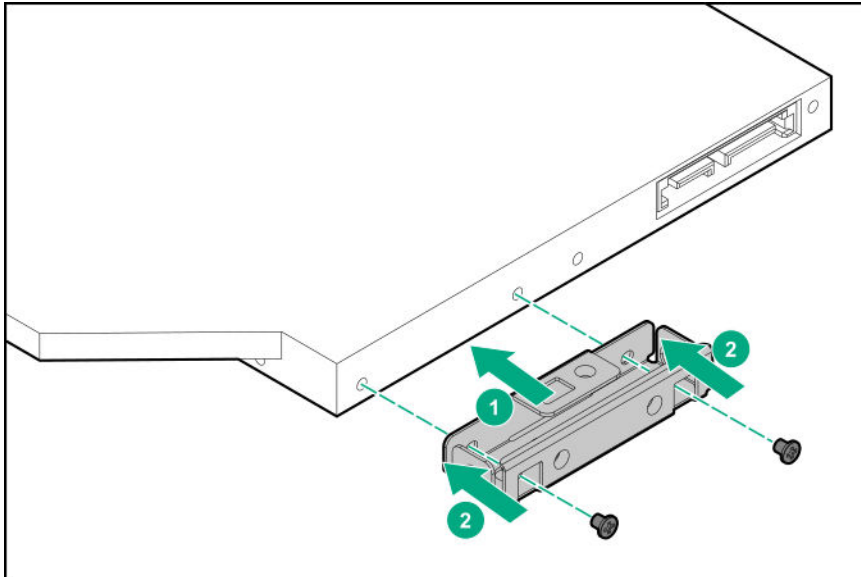
Prerequisites

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

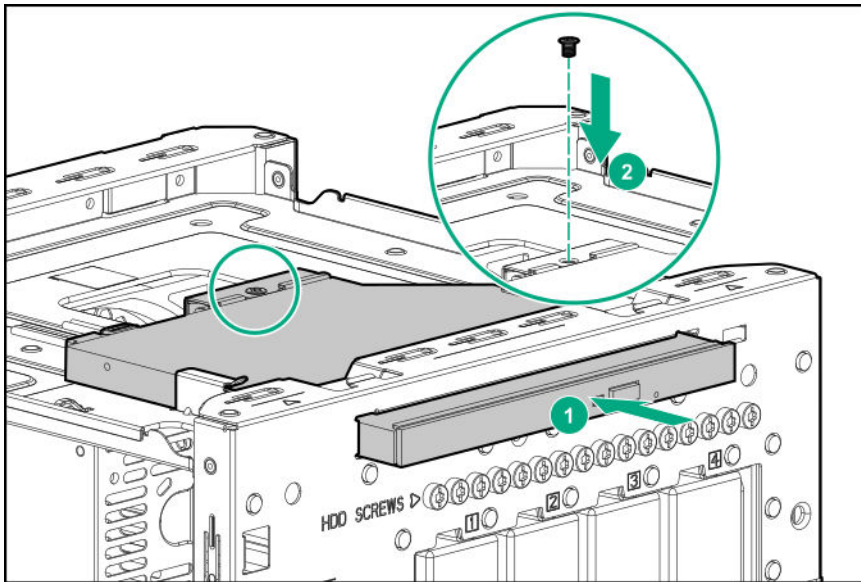
- T-15 Torx screwdriver
- Phillips No. 2 screwdriver
- Optical drive spare

Procedure

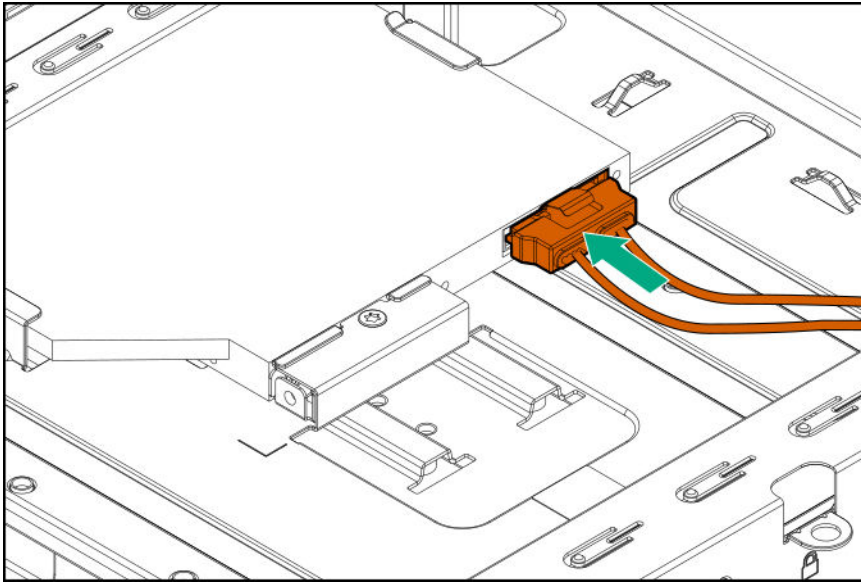
1. Attach the bracket to the optical drive.



2. Slide the optical drive into the media bay.
3. Install the optical drive screw.



4. Connect the common end of the cable to the optical drive.



Replacing an SSD

Procedure

1. **Power down the server** on page 22.
2. Disconnect the power cord from the AC source, and then from the server.
3. Disconnect all peripheral cables from the server.
4. **Remove the chassis cover** on page 24.
5. **Remove the SSD** on page 38.
6. **Install the new SSD.**
7. **Install the chassis cover** on page 28.
8. Connect all peripheral cables to the server.
9. Connect the power cord to the server power jack, and then to the AC source.
10. **Power up the server** on page 29.

Remove the SSD

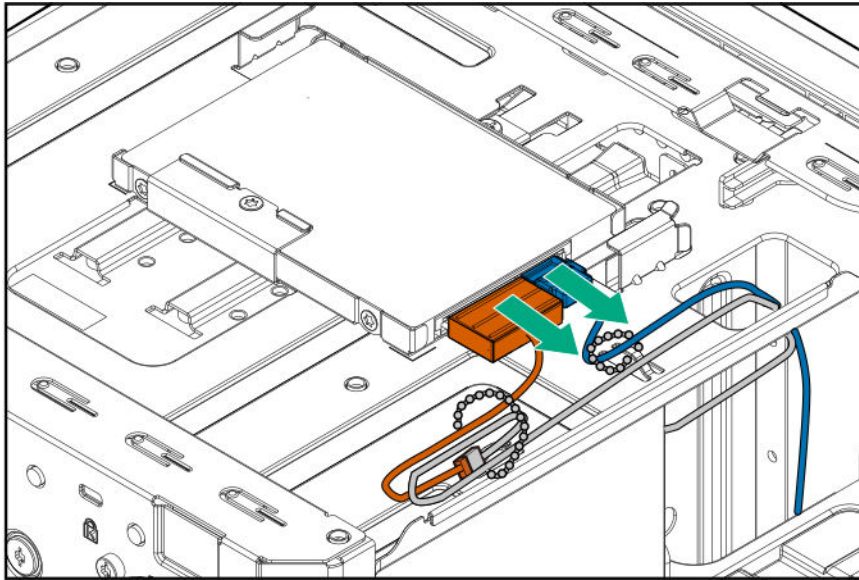
Prerequisites

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

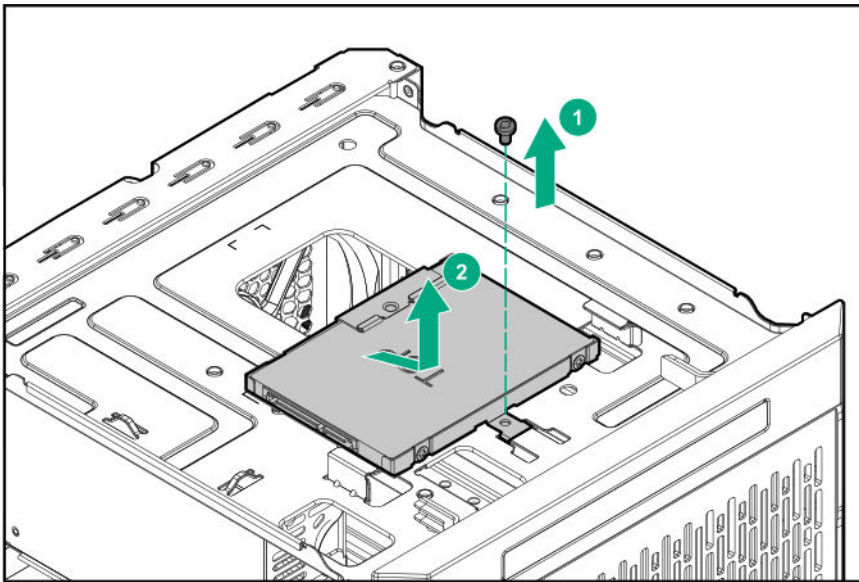
- T-10 Torx screwdriver
- T-15 Torx screwdriver

Procedure

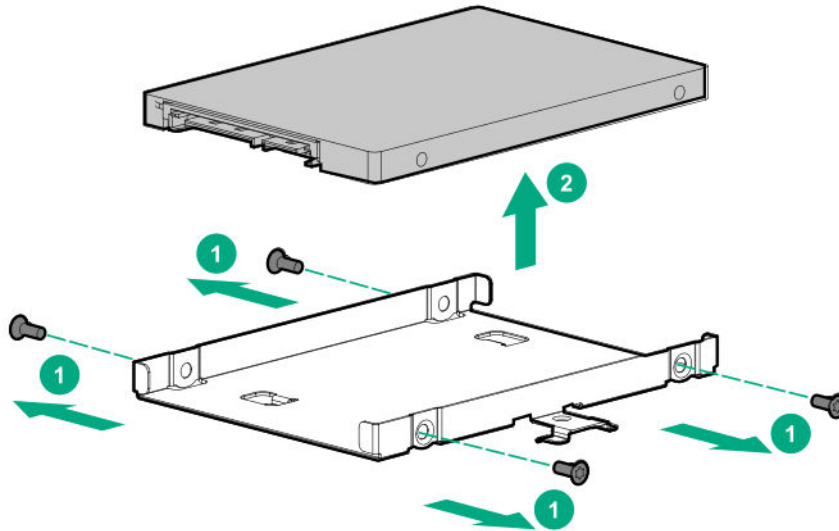
1. Disconnect the SSD power and SATA cables from the SSD.



2. Remove the SSD tray screw and slide the tray out of the chassis.



3. Remove the SSD screws, and then remove the SSD from the tray.



Install the SSD

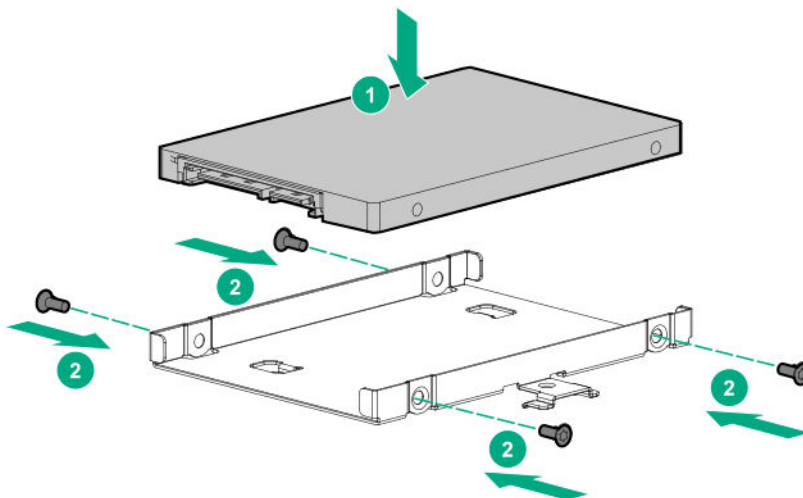
Prerequisites

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

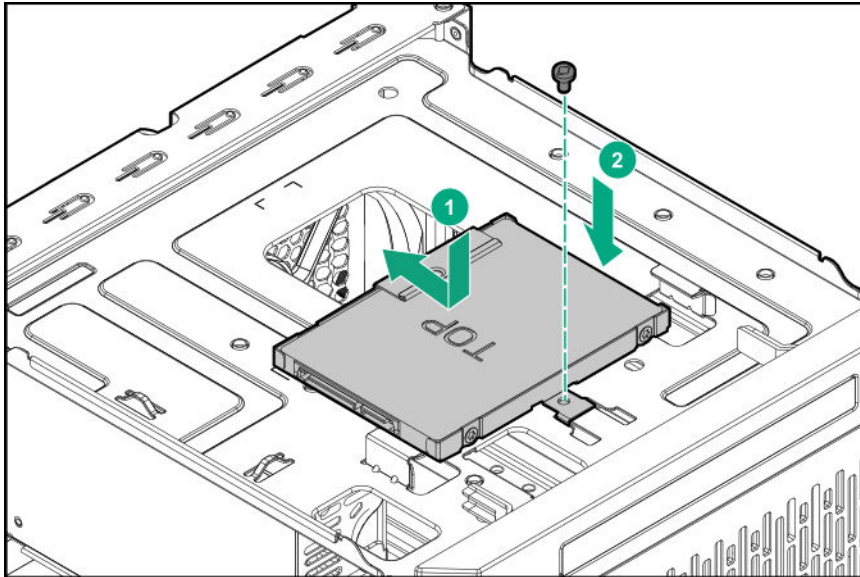
- T-10 Torx screwdriver
- T-15 Torx screwdriver
- SSD spare

Procedure

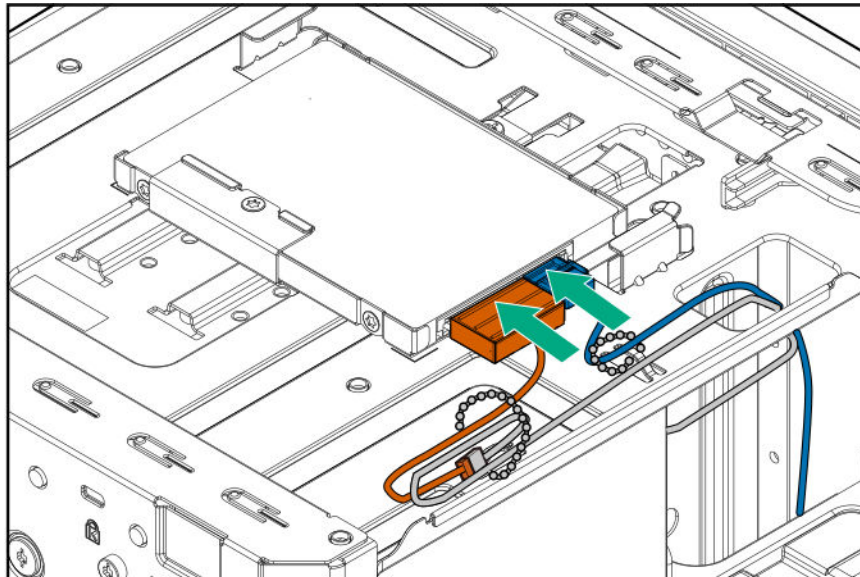
1. Place the SSD in the SSD tray, and then install the SSD screws.



2. Install the SSD assembly in the media bay, and then secure it with the screw.



3. Connect the SSD power and SATA cables to the SSD.



Replacing the SSD cables

Replacing the SSD power cable

Procedure

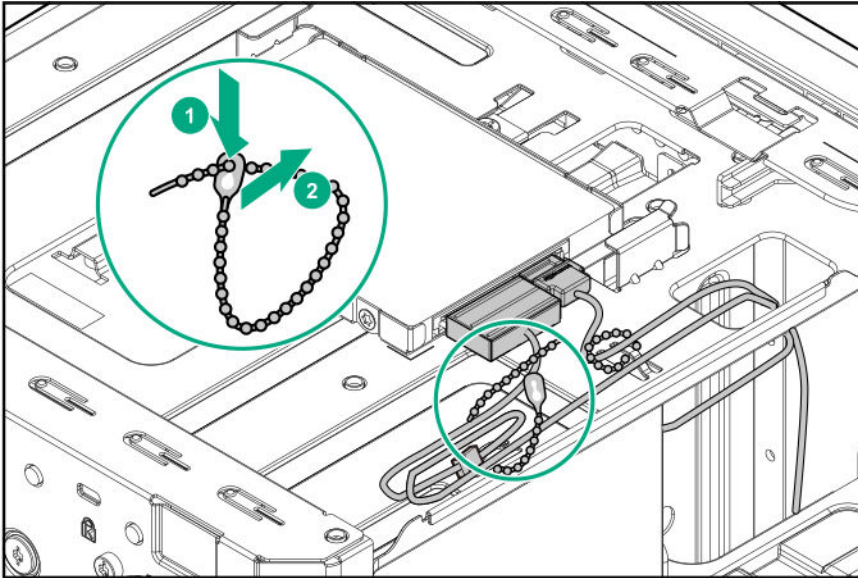
1. **Power down the server** on page 22
2. Disconnect the power cord from the AC source, and then from the server.
3. Disconnect all peripheral cables from the server.
4. **Remove the chassis cover** on page 24.
5. **Disconnect the SSD power cable.**
6. **Connect the new SSD power cable.**
7. **Install the chassis cover** on page 28.
8. Connect all peripheral cables to the server.

9. Connect the power cord to the server power jack, and then to the AC source.
10. **Power up the server** on page 29.

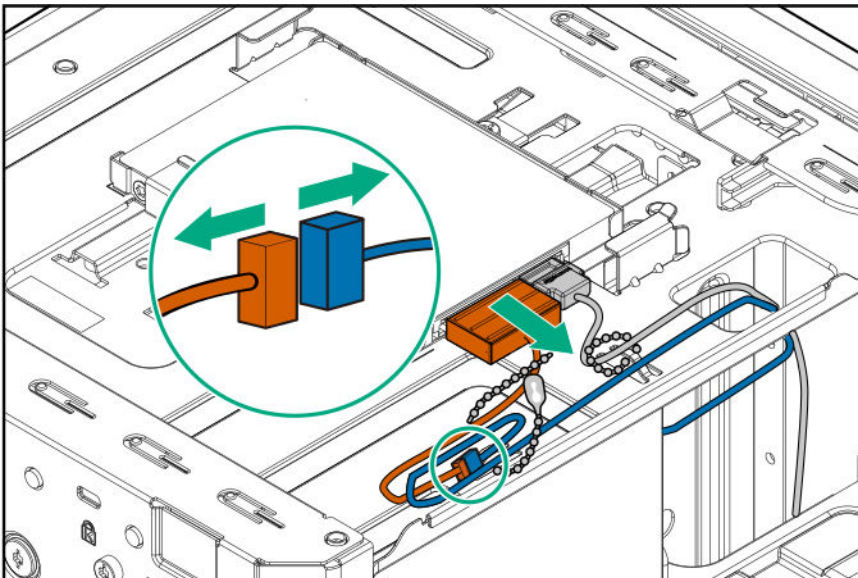
Disconnect the SSD power cable

Procedure

1. Open the cable tie securing the SSD power cable.



2. Disconnect the SSD power cable from the SSD, and then from the power supply cable labeled P3.



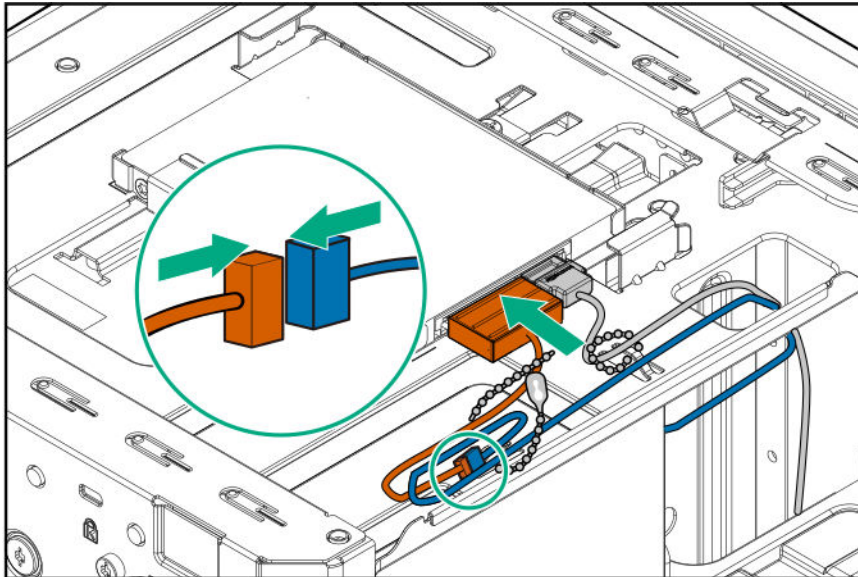
Connect the SSD power cable

Prerequisites

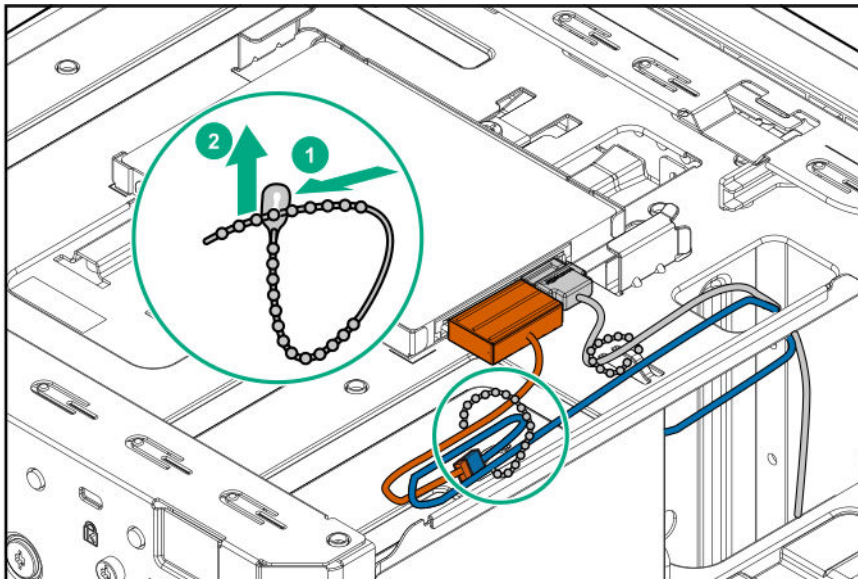
Before you perform this procedure, make sure that you have the **SSD power cable spare** available.

Procedure

1. Connect the SSD power cable to the power supply cable labeled P3, and then to the SSD.



2. Bundle the extra length of the SSD power cable, and then secure it in the cable tie.



Replacing the SSD SATA cable

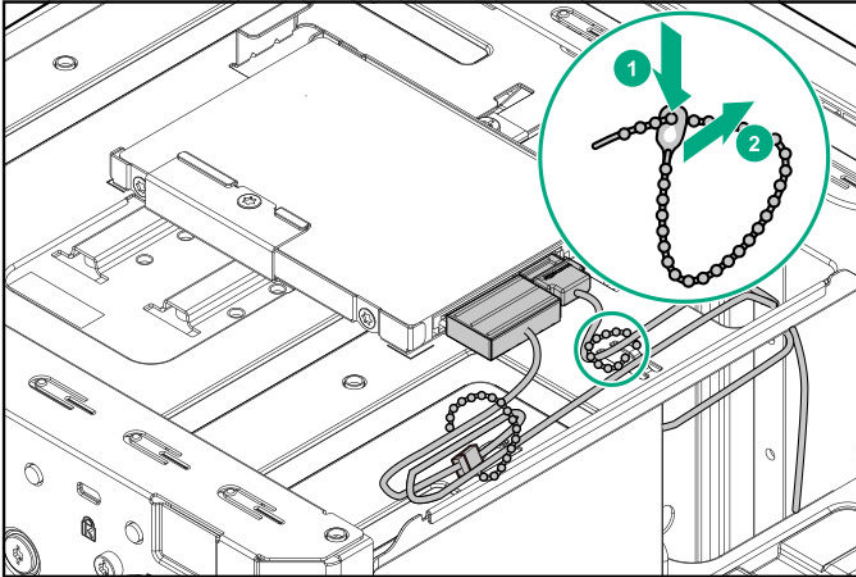
Procedure

1. **Power down the server** on page 22
2. Disconnect the power cord from the AC source, and then from the server.
3. Disconnect all peripheral cables from the server.
4. **Remove the chassis cover** on page 24.
5. **Disconnect the SSD SATA cable.**
6. **Connect the new SSD SATA cable.**
7. **Install the chassis cover** on page 28.
8. Connect all peripheral cables to the server.
9. Connect the power cord to the server power jack, and then to the AC source.
10. **Power up the server** on page 29.

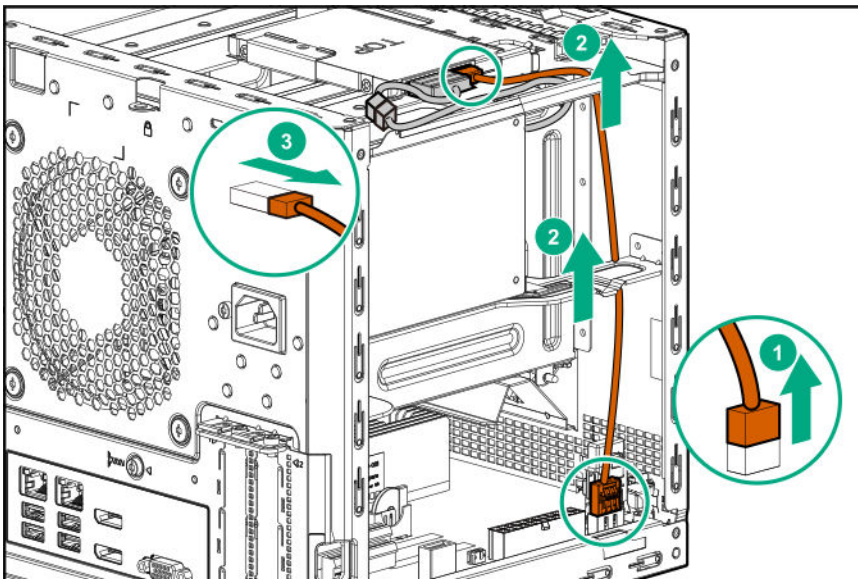
Disconnect the SSD SATA cable

Procedure

1. Open the cable tie securing the SSD SATA cable.



2. Disconnect the SATA cable from the SATA connector, and then pull the cable out of the left side chassis opening.
3. Disconnect the SATA cable from the SSD.



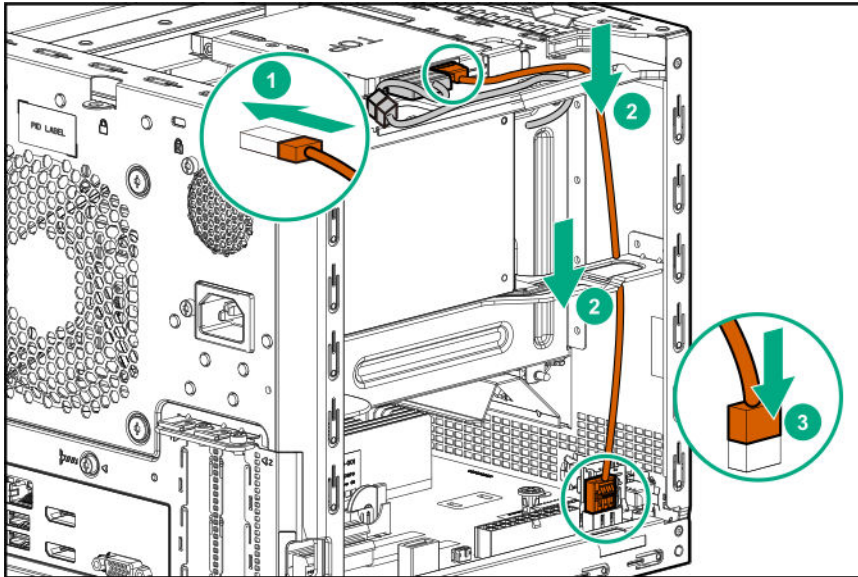
Connect the SSD SATA cable

Prerequisites

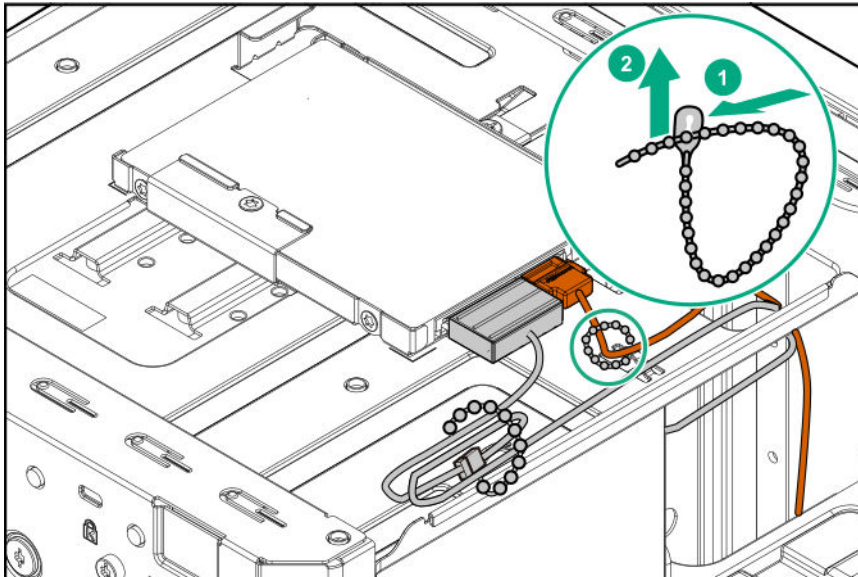
Before you perform this procedure, make sure that you have the **SSD SATA cable spare** available.

Procedure

1. Connect the SATA cable to the SSD.
2. Route the cable through the left side chassis opening down to the system board.
3. Connect the SATA cable to the SATA connector.



4. Bundle the extra length of the SSD SATA cable, and then secure it in the cable tie.



Replacing the non-hot-plug drive cable assembly

The non-hot-plug drive cable assembly consists of the drive power and SATA cables attached to a bracket. If either the drive power or SATA cable becomes defective, the entire cable assembly will need to be replaced.

Procedure

1. **Power down the server** on page 22.
2. Disconnect the power cord from the AC source, and then from the server.
3. Disconnect all peripheral cables from the server.
4. **Remove the chassis cover** on page 24.
5. **Remove the front bezel** on page 22.
6. Remove all installed drives.
7. **Remove the non-hot-plug drive cable assembly** on page 46.
8. **Install the new non-hot-plug drive cable assembly.**
9. Install all removed drives.

10. **Install the front bezel** on page 29.
11. **Install the chassis cover** on page 28.
12. Connect all peripheral cables to the server.
13. Connect the power cord to the server power jack, and then to the AC source.
14. **Power up the server** on page 29.

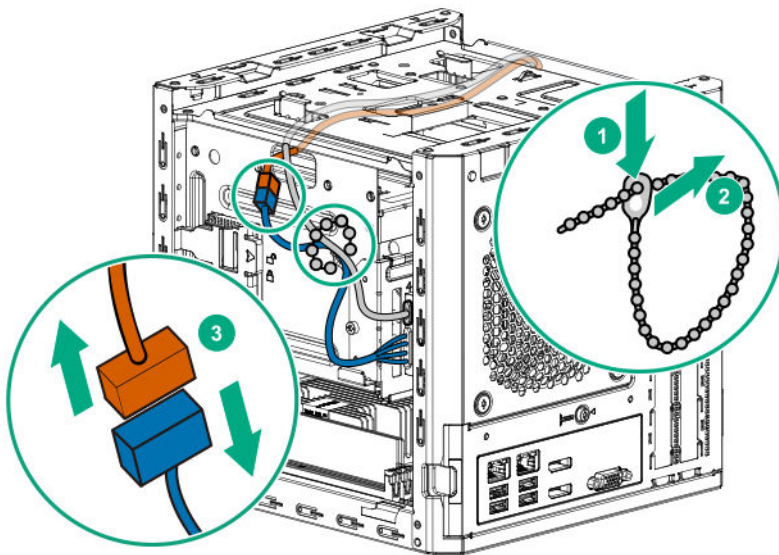
Remove the non-hot-plug drive cable assembly

Prerequisites

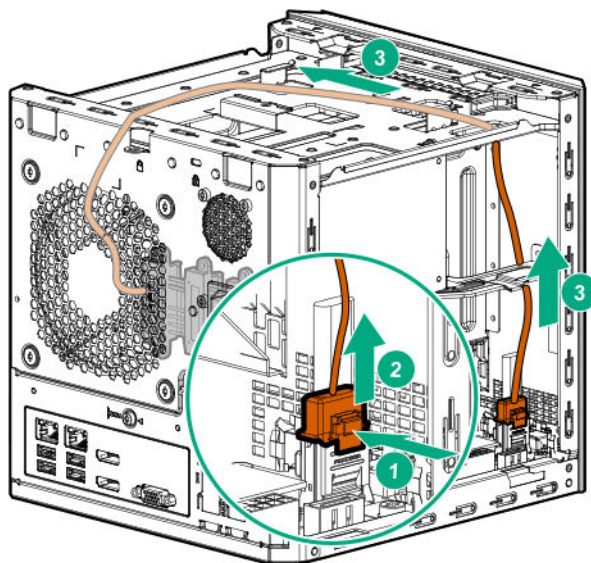
Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

Procedure

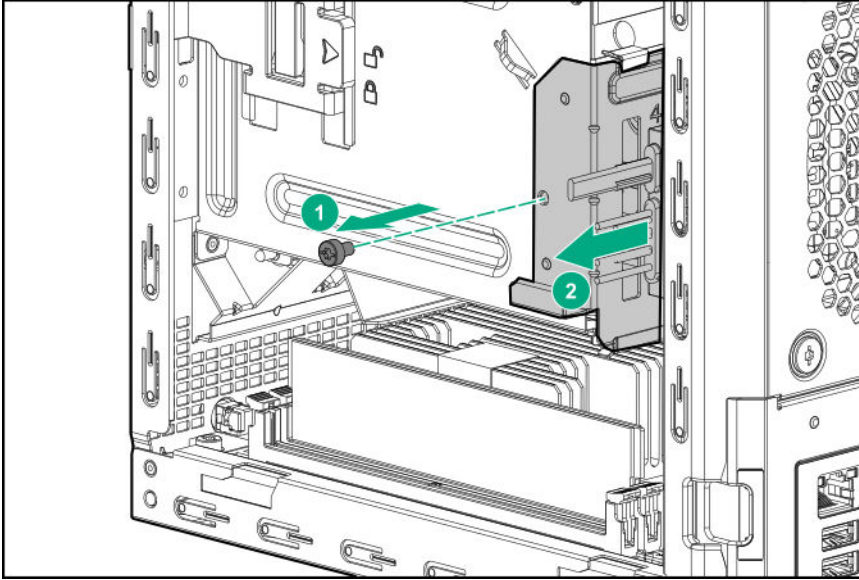
1. Open the cable tie on the right side of the chassis.
2. Disconnect the drive power cable from the P2 power supply connector, and then release it from the cable tie.



3. Press and hold the release button on the SATA cable connector, and then disconnect the cable.
4. Pull out the SATA cable from the chassis.



5. Remove the cable bracket screw.
6. Pull out the cable assembly from the chassis.



Install the non-hot-plug drive cable assembly

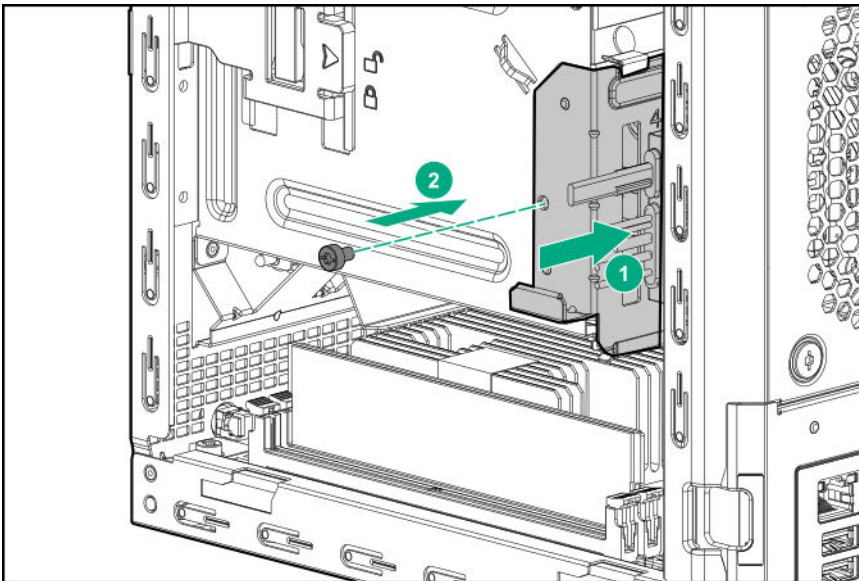
Prerequisites

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

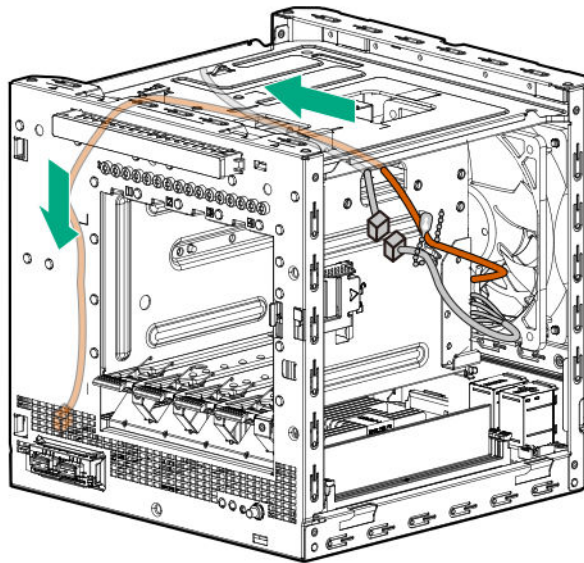
- T-15 Torx screwdriver
- **Non-hot-plug drive cable assembly spare**

Procedure

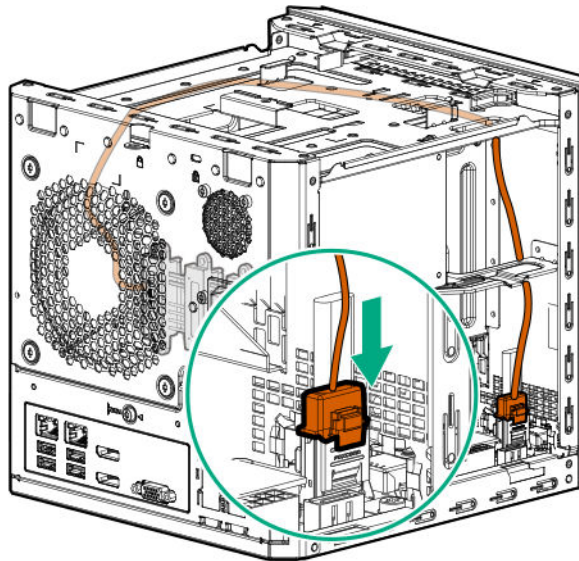
1. Slide the cable assembly into the chassis.
2. Install the cable bracket screw.



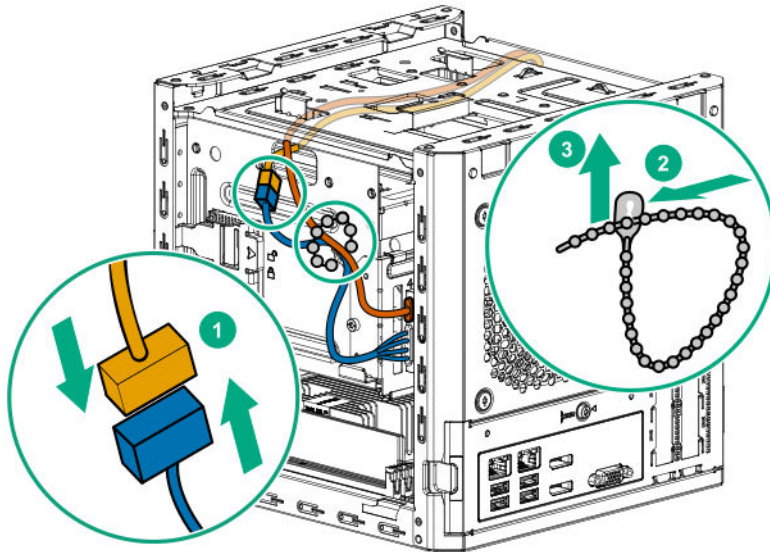
3. Route the SATA cable across the opening underneath the top of the chassis, and then down towards the left side of the system board.



4. Connect the cable to the SATA connector.



5. Connect the drive power cable to the P2 power supply connector.
6. Secure the drive power and SATA cables in the cable tie.



Replacing an expansion board

ⓘ IMPORTANT:

Before replacing a DIMM, expansion board, or any other circuit board component due to a perceived hardware error, verify that the component is firmly seated in the slot. Do not bend or flex circuit boards when reseating components.

Procedure

1. **Power down the server** on page 22.
2. Disconnect the power cord from the AC source, and then from the server.
3. Disconnect all peripheral cables from the server.
4. **Remove the chassis cover** on page 24.
5. **Remove the system board assembly** on page 25.
6. **Remove the expansion board** on page 49.
7. If the new expansion board is shipped with an air baffle attached, **remove this baffle from the board**.
8. If the new expansion board is shipped with a full-height bracket attached, **remove the bracket from the board and replace it with a low-profile bracket**.
9. **Install the new expansion board**.
10. **Install the system board assembly** on page 27.
11. Connect all necessary internal cabling to the expansion board.
For more information, see the expansion board documentation.
12. **Install the chassis cover** on page 28.
13. Connect all peripheral cables to the server.
14. Connect the power cord to the server power jack, and then to the AC source.
15. **Power up the server** on page 29.

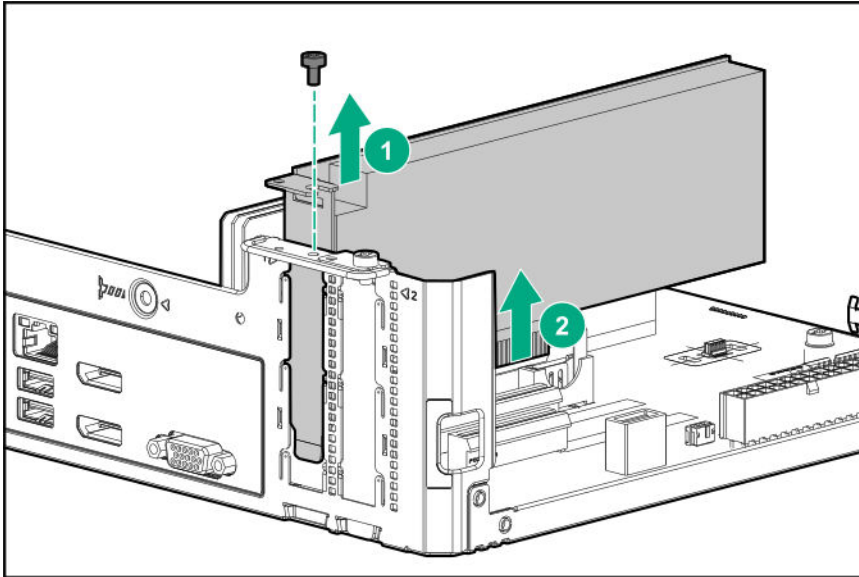
Remove the expansion board

Prerequisites

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

Procedure

1. Disconnect all cables connected to the expansion board.
2. Remove the expansion board bracket screw.
3. Remove the expansion board.

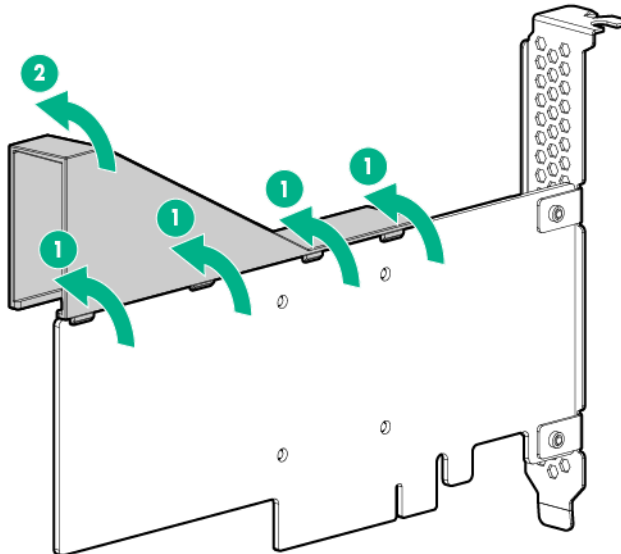


Remove the air baffle from the expansion board

Procedure

- Remove the air baffle from the expansion board.

The number and location of the latches that secure the baffle to the board will vary depending on the expansion board. The illustration below is an example image only. See the expansion board documentation for model-specific information.

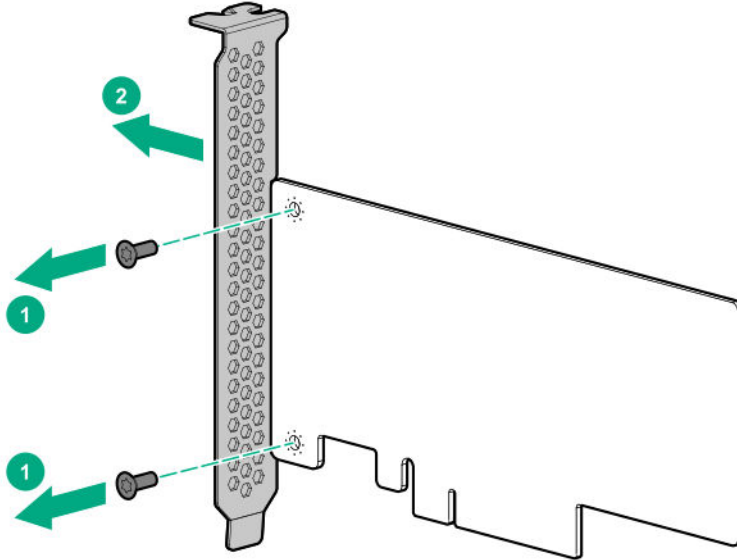


Install a low-profile bracket on the expansion board

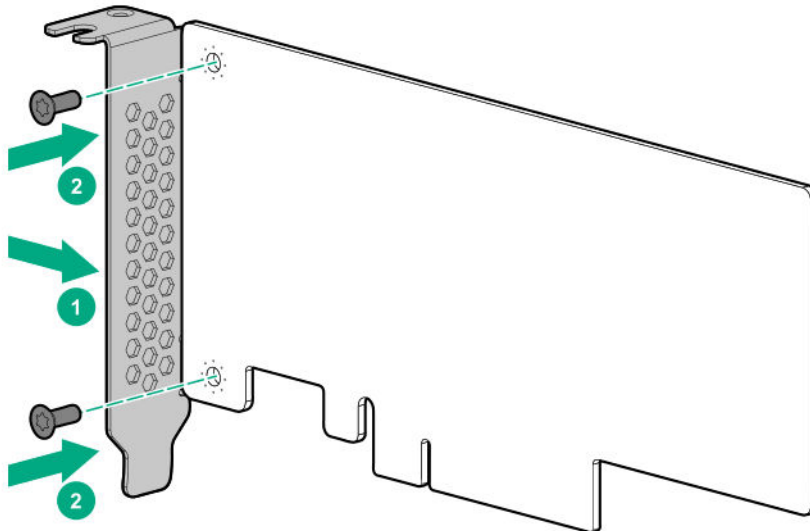
The number and location of the bracket screws will vary depending on the expansion board. The illustrations below are example images only. See the expansion board documentation for model-specific information.

Procedure

1. Remove the full-height bracket from the expansion board.



2. Install the low-profile bracket on the expansion board.



Install the expansion board

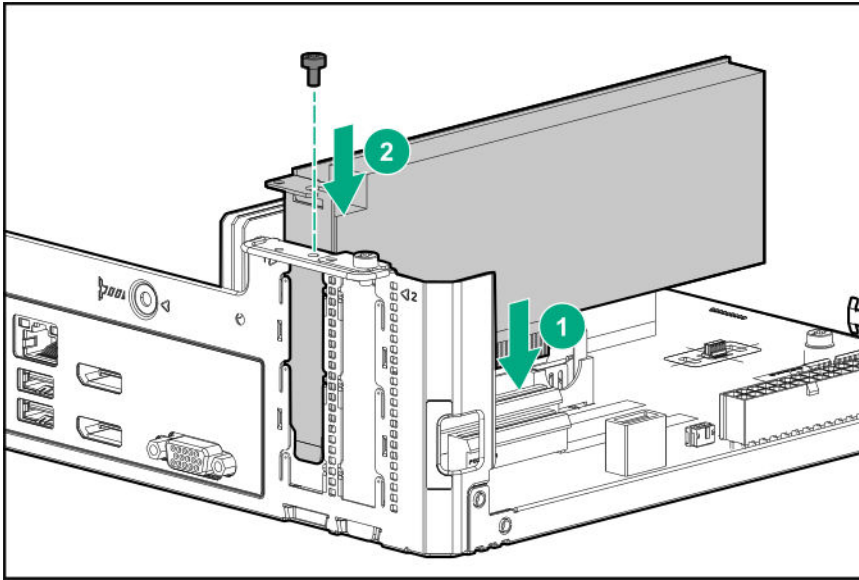
Prerequisites

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

- T-15 Torx screwdriver
- Expansion board spare

Procedure

1. Verify that any switches or jumpers on the expansion board are set properly.
For more information, see the expansion board documentation.
2. Install the expansion board. Verify that the board is firmly seated in the slot.



Replacing a DIMM

ⓘ IMPORTANT:

Before replacing a DIMM, expansion board, or any other circuit board component due to a perceived hardware error, verify that the component is firmly seated in the slot. Do not bend or flex circuit boards when reseating components.

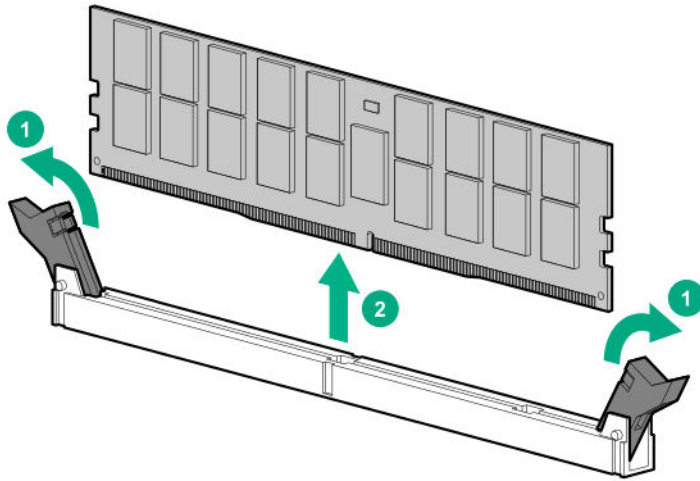
Procedure

1. **Power down the server** on page 22.
2. Disconnect the power cord from the AC source, and then from the server.
3. Disconnect all peripheral cables from the server.
4. **Remove the chassis cover** on page 24.
5. **Remove the DIMM** on page 52.
6. **Install the new DIMM.**
7. **Install the chassis cover** on page 28.
8. Connect all peripheral cables to the server.
9. Connect the power cord to the server power jack, and then to the AC source.
10. **Power up the server** on page 29.

Remove the DIMM

Procedure

1. Open the DIMM slot latches.
2. Remove the DIMM.



Install a DIMM

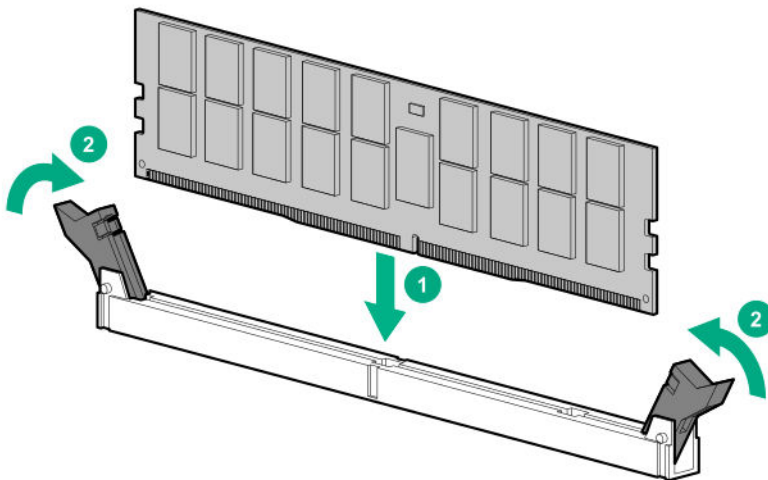
Prerequisites

Before you perform this procedure, make sure that you have the **DIMM spare** available.

Procedure

1. Open the DIMM slot latches.
2. Align the notch on the bottom edge of the DIMM with the keyed surface of the DIMM slot, and then fully press the DIMM into the slot until the latches snap back into place.

The DIMM slots are structured to ensure proper installation. If you try to insert a DIMM but it does not fit easily into the slot, you might have positioned it incorrectly. Reverse the orientation of the DIMM and insert it again.



Replacing the fan

Procedure

1. **Power down the server** on page 22.
2. Disconnect the power cord from the AC source, and then from the server.

3. Disconnect all peripheral cables from the server.
4. **Remove the chassis cover** on page 24.
5. **Remove the fan** on page 54.
6. **Install the new fan.**
7. **Install the chassis cover** on page 28.
8. Connect all peripheral cables to the server.
9. Connect the power cord to the server power jack, and then to the AC source.
10. **Power up the server** on page 29.

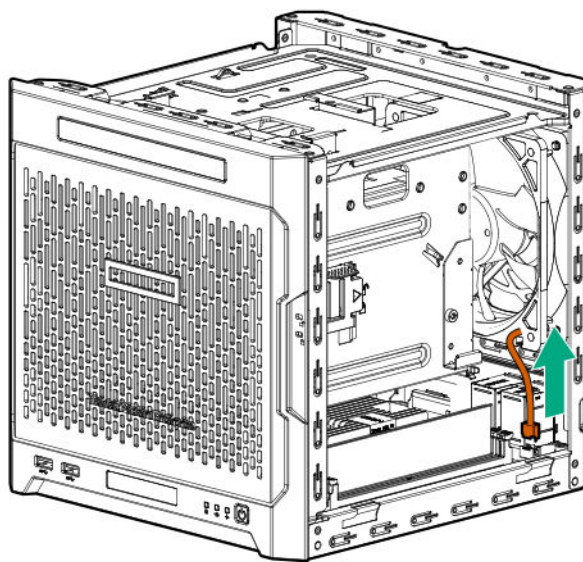
Remove the fan

Prerequisites

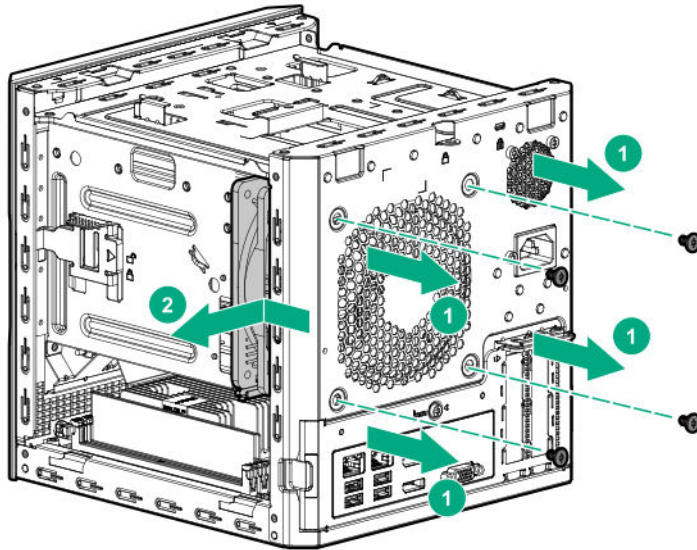
Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

Procedure

1. Disconnect the fan cable.



2. Remove the fan screws, and then remove the fan.



Install the fan

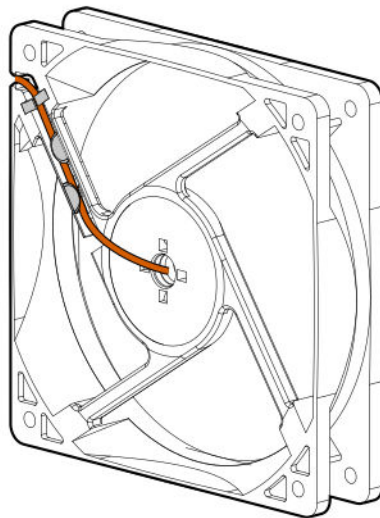
Prerequisites

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

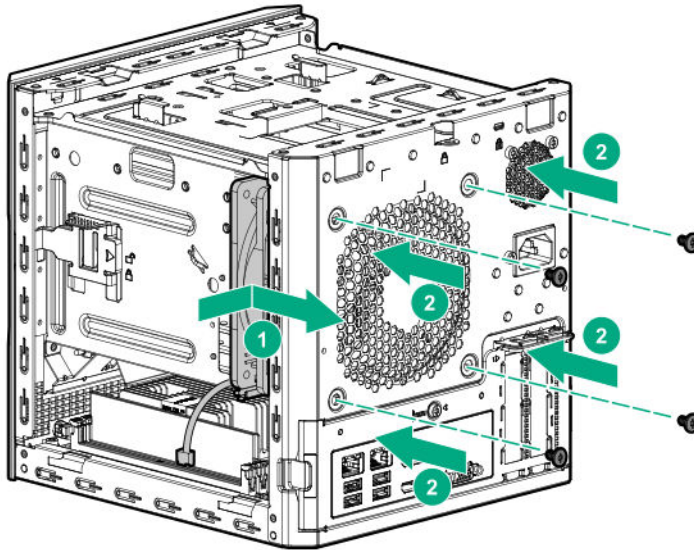
- T-15 Torx screwdriver
- **Fan spare**

Procedure

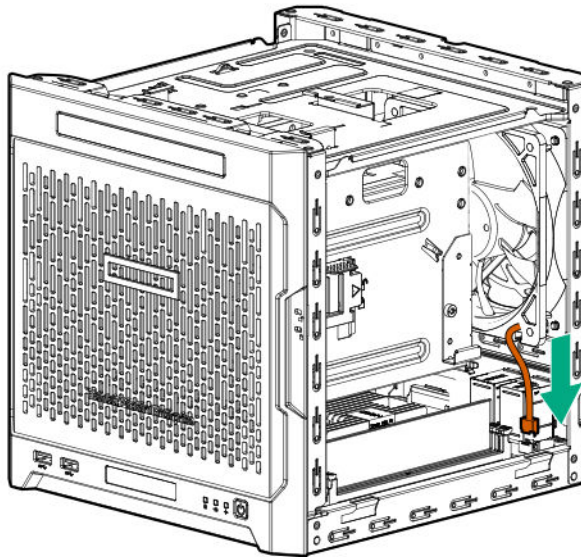
1. Ensure that the fan cable is secured on the tabs located on the rear side of the fan.



2. With the fan label facing the rear panel, hold the fan against its position on the rear of the chassis, and then secure it with the screws.



3. Connect the fan cable.



Replacing the power supply

Procedure

1. **Power down the server** on page 22.
2. Disconnect the power cord from the AC source, and then from the server.
3. Disconnect all peripheral cables from the server.
4. **Remove the chassis cover** on page 24.
5. **Remove the power supply** on page 57.
6. **Install the new power supply.**
7. **Install the chassis cover** on page 28.
8. Connect all peripheral cables to the server.
9. Connect the power cord to the server power jack, and then to the AC source.
10. **Power up the server** on page 29.

Remove the power supply

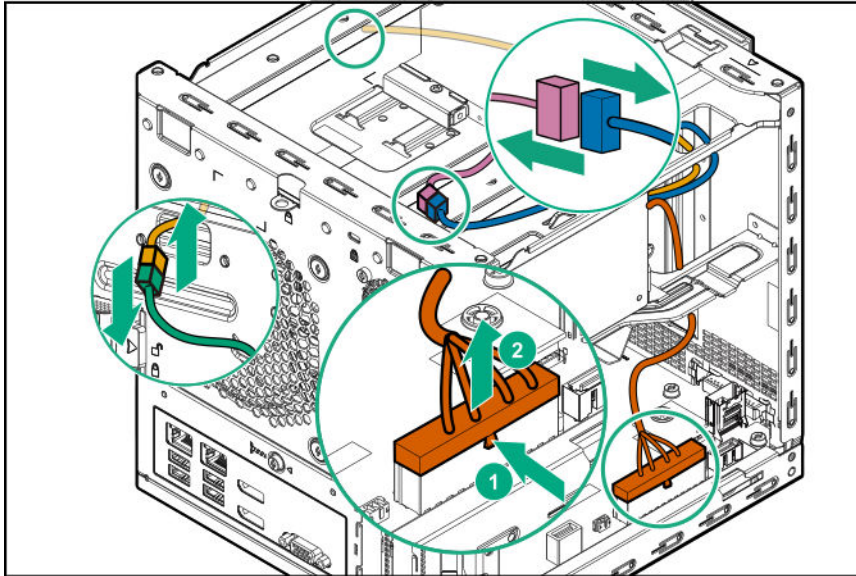
Prerequisites

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

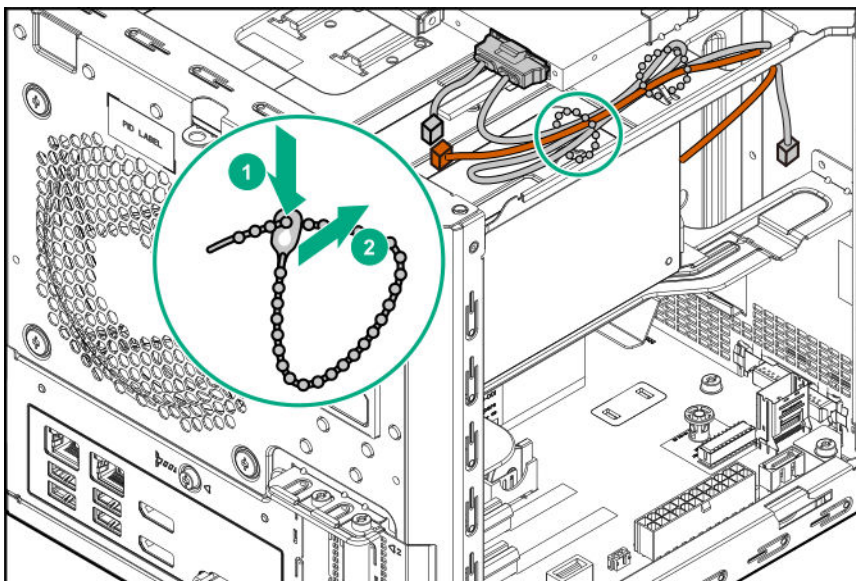
Procedure

1. Disconnect the power supply cables:

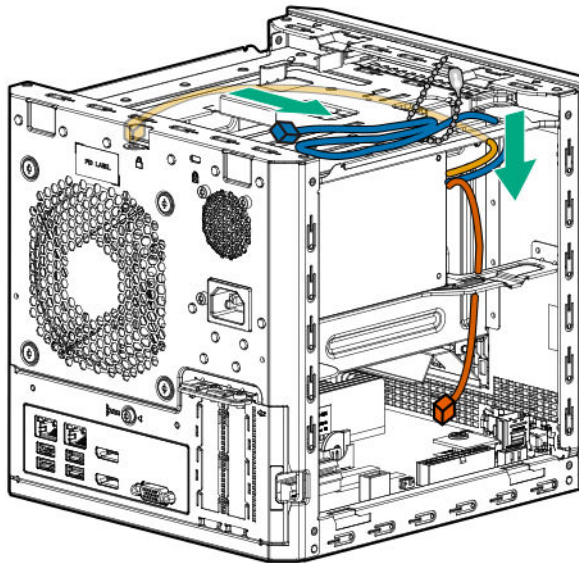
- On the left side of the chassis, disconnect the 24-pin power supply cable from the system board.
- If an ODD or SSD is installed in the media bay, disconnect the P3 power supply cable from that drive power connector.
- On right side of the chassis, disconnect the P2 power supply cable from the LFF/SFF drive power connector.



2. Open the cables tie securing the P3 power supply cable, and then release the cable.

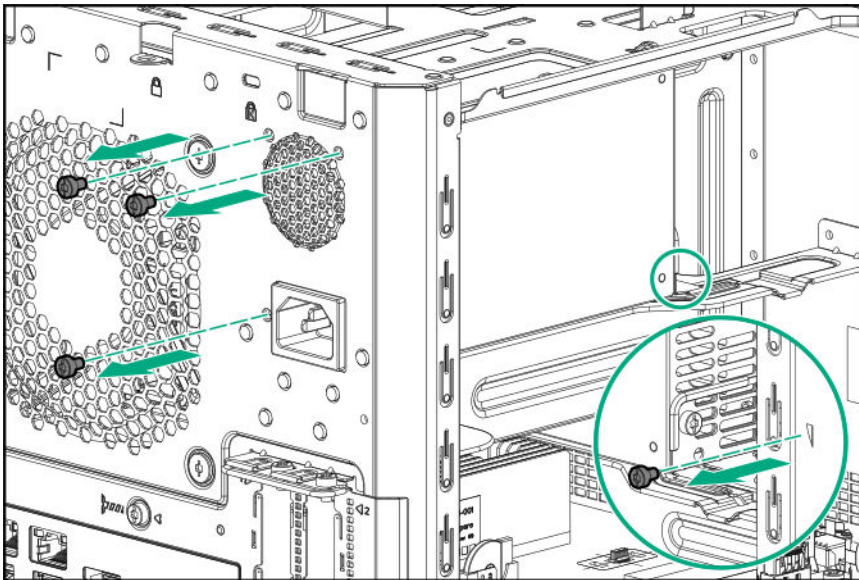


3. Pull out all the power supply cables towards the left side of the chassis.



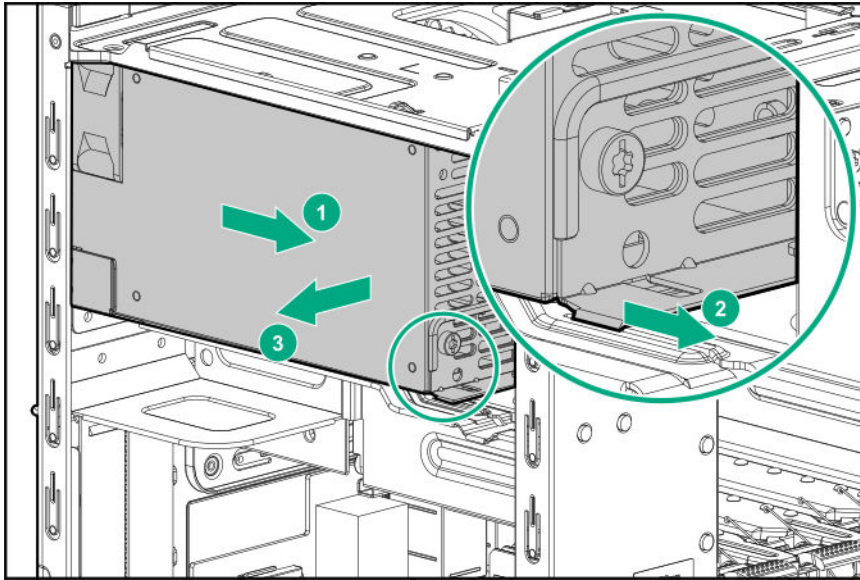
4. Remove the power supply screws:

- Three screws on the rear panel
- One screw on the power supply bracket

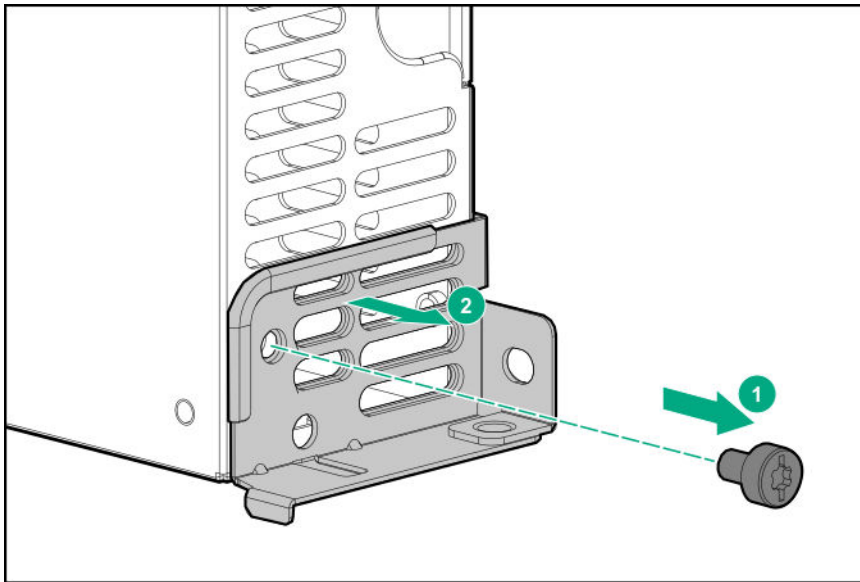


5. Remove the power supply:

- a. Press a finger against the power jack to push the power supply from the rear panel wall.
- b. Slide the power supply towards the front side of the server until the power supply bracket is disengaged from the chassis.
- c. Remove the power supply from the power supply bay.



6. Remove the power supply bracket.



Install the power supply

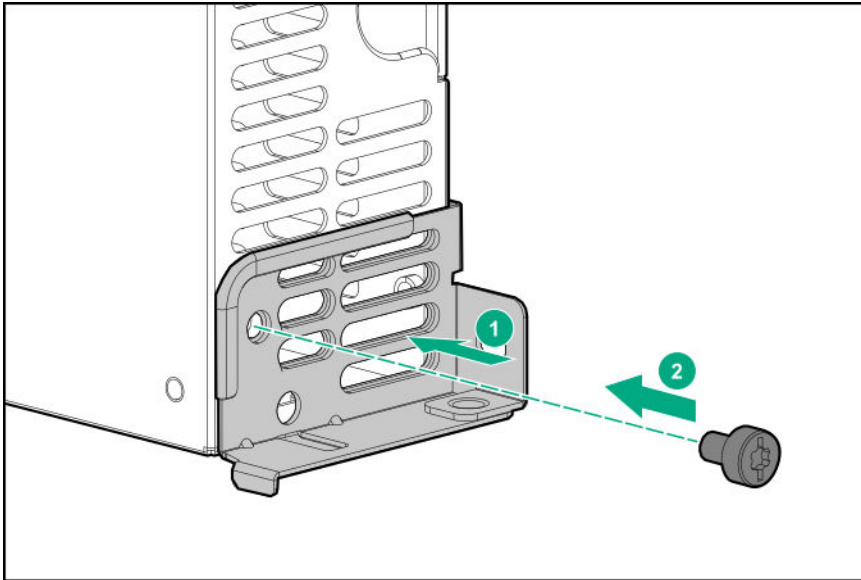
Prerequisites

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

- T-15 Torx screwdriver
- **Power supply spare**

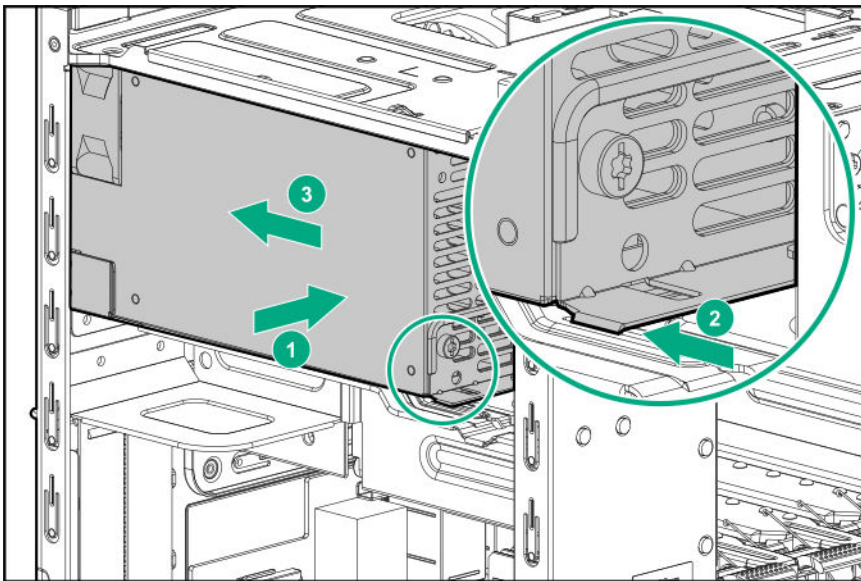
Procedure

1. Install the power supply bracket.



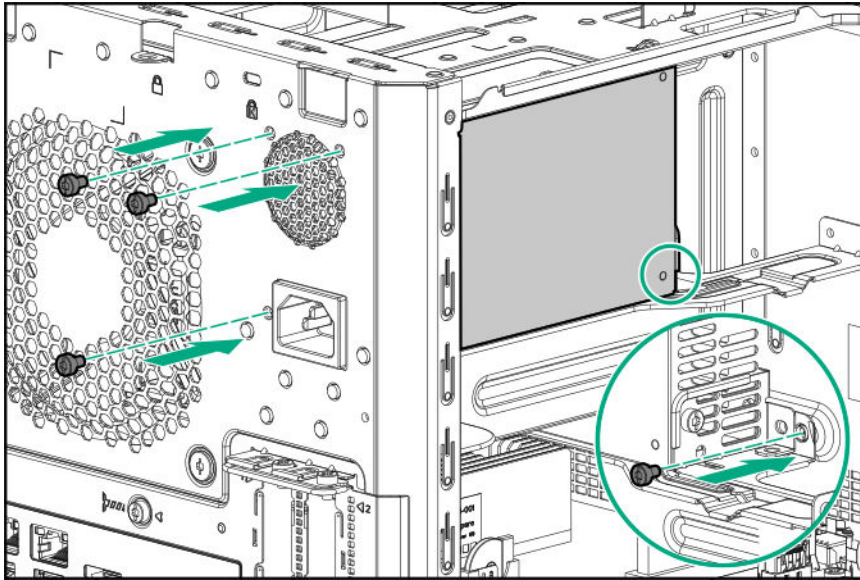
2. Install the power supply:

- a. Install the power supply in the power supply bay.
- b. Ensure that the power supply bracket is engaged in the chassis.
- c. Slide the power supply towards the rear panel wall.



3. Install the power supply screws:

- Three screws on the rear panel
- One screw on the power supply bracket



4. Connect the power supply cables:
 - a. Route the power supply cables through their respective chassis openings.
 - b. Connect the power supply cables to their respective cable connectors.
 - c. Bundle the extra length of the P3 power supply cable in the cable ties located on the top chassis.

For a detailed view of these cable routing, see [Power supply cabling](#).

System battery replacement

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. 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 disassemble, crush, puncture, short external contacts, or dispose the battery in fire or water.
- If the server no longer automatically displays the correct date and time, then replace the battery that provides power to the real-time clock. Under normal use, battery life is 5 to 10 years.

Replacing a system battery

Procedure

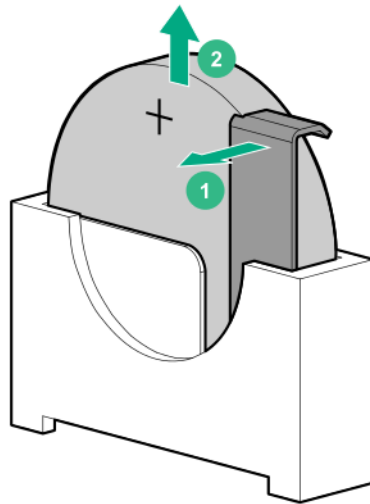
1. [Power down the server](#) on page 22.
2. Disconnect the power cord from the AC source, and then from the server.
3. Disconnect all peripheral cables from the server.
4. [Remove the chassis cover](#) on page 24.
5. [Remove the system board assembly](#) on page 25.
6. [Replace the system battery](#) on page 62.
7. [Install the system board assembly](#) on page 27.
8. [Install the chassis cover](#) on page 28.
9. Connect all peripheral cables to the server.

10. Connect the power cord to the server power jack, and then to the AC source.
11. **Power up the server** on page 29.

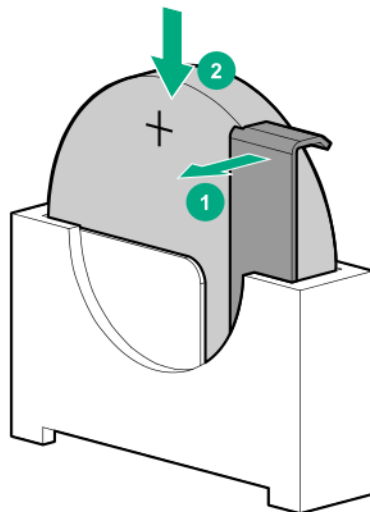
Replace the system battery

Procedure

1. **Locate the battery on the system board.**
2. Slightly push the metal tab, and then remove the system battery from its socket.



3. Slightly push the metal lab, and then install the new system battery in the socket.



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

Replacing the system board assembly

Procedure

1. **Power down the server** on page 22.
2. Disconnect the power cord from the AC source, and then from the server.
3. Disconnect all peripheral cables from the server.
4. **Remove the chassis cover** on page 24.
5. If installed, remove the internal USB device.
6. **Remove the system board assembly** on page 63.
7. **Install the new system board assembly**.
8. If removed, install the internal USB device.
9. **Install the chassis cover** on page 28.
10. Connect all peripheral cables to the server.
11. Connect the power cord to the server power jack, and then to the AC source.
12. **Power up the server** on page 29.
13. **Re-enter the system serial and SKU numbers.**

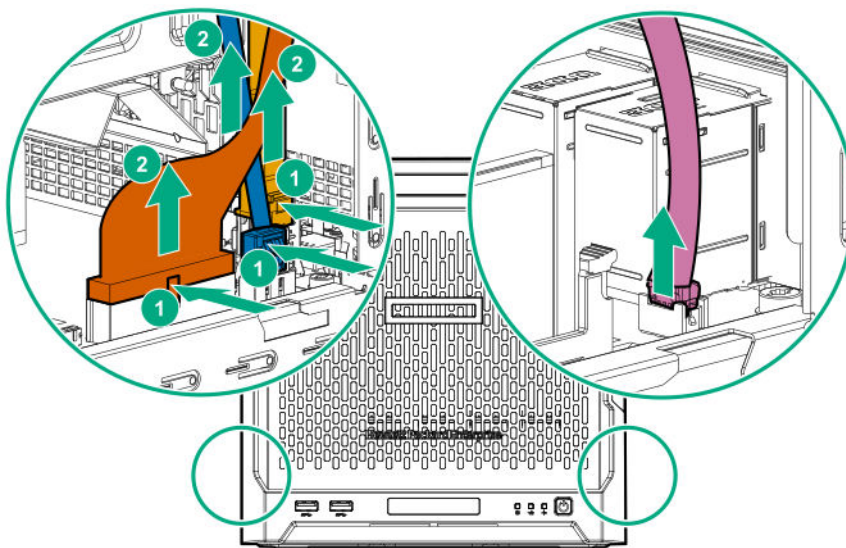
Remove the system board assembly

Prerequisites

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

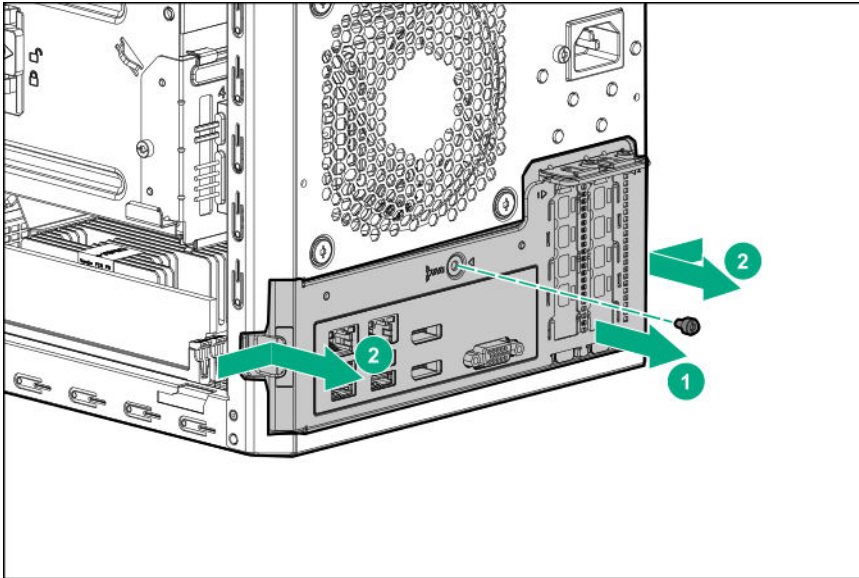
Procedure

1. To serve as a reference for system cable connections when the system board assembly is installed back into the server, take a picture of the current system board cable connections.
2. Disconnect the following system cables:
 - Power supply cable
 - Optical drive or SSD SATA cable (optional)
 - LFF/SFF drive SATA cable – This cable can either be connected to the system board or to an installed Smart Array controller board
 - Fan cable



3. Remove the system board assembly screw.

4. Place the finger in the notch on the either side of the system board tray assembly, and then pull out the assembly.



5. Remove all the DIMMs.
6. If installed, remove all expansion boards.

Install the system board assembly

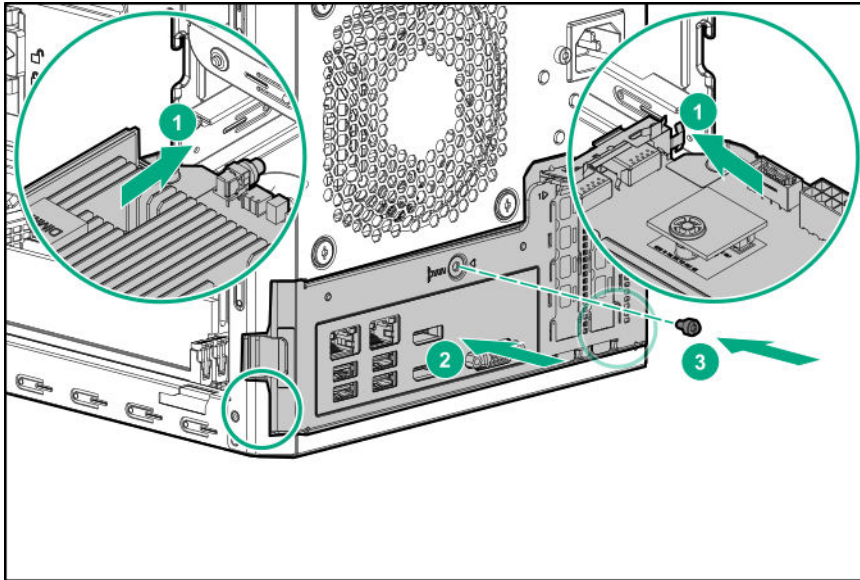
Prerequisites

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

- T-15 Torx screwdriver
- **System board assembly spare**

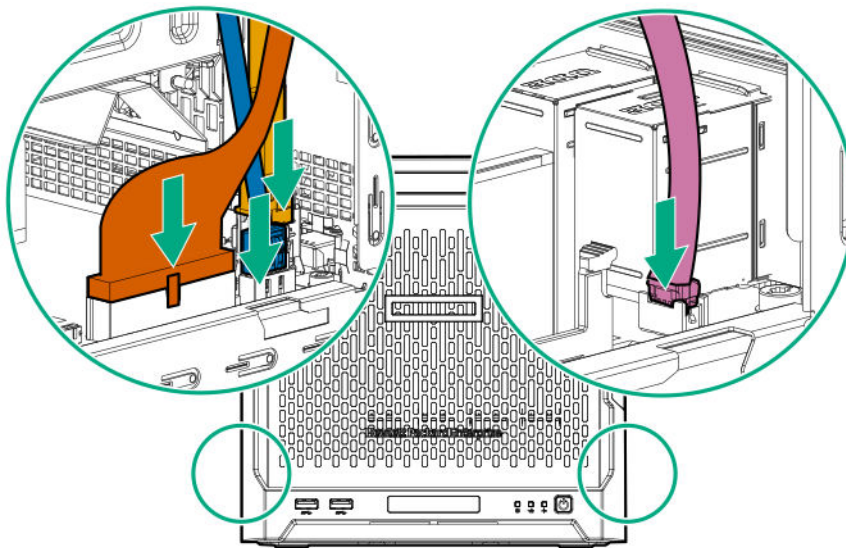
Procedure

1. Install the components removed from the old system board on the new system board spare. This might include one or more of the following:
 - DIMMs
 - Expansion boards
2. Slide the system board assembly into the chassis.
3. Press against the system board assembly until it clicks into place.
4. Install the system board assembly screw.



5. Connect the following system cables:

- Power supply cable
- Optical drive or SSD SATA cable (optional)
- LFF/SFF drive SATA cable - This cable can either be connected to the system board or to an installed Smart Array controller board
- Fan cable



Re-entering the system serial and SKU numbers

The system serial number (S/N) and SKU number (PID) are visible on the label located above the fan ventilation holes on the rear panel.

Procedure

1. To access the Aptio Setup Utility, on the enter setup prompt, press the **F2** or **Del** key.
2. Select **Advanced > View FRU Information**, and then press the **Enter** key.
3. Select **System Serial Number**, and then press the **Enter** key.
4. Enter the serial number, and then press the **Enter** key

This serial number should always match the system serial number located on the chassis.

5. Select **System SKU Number**, and then press the **Enter** key.
6. Enter the system SKU number, and then press the **Enter** key.

This SKU number should always match the system SKU number located on the chassis.

7. To confirm the changes and exit the utility, press the **F4** key.

The server automatically reboots.

Replacing the external RDX backup system

This server supports several RDX backup system spare parts. For more information on replacing these parts, see the Storage section of the Hewlett Packard Enterprise Information Library:

<http://www.hpe.com/info/storage/docs>

HP Trusted Platform Module

The TPM is not a customer-removable part.



CAUTION:

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

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

Troubleshooting

Troubleshooting resources

Use the following resources for troubleshooting the system:

- For information on resolving common problems, comprehensive courses of action for fault isolation and identification, issue resolution, and software maintenance, see the *HPE ProLiant MicroServer Gen10* at:
<http://www.hpe.com/info/gen10-troubleshooting>
- For information on the latest server download options, issue resolutions, user documentation, and product advisories, see the HPE ProLiant MicroServer Gen10 support page at:
<http://www.hpe.com/support/microservergen10>

Diagnostic tools

Product QuickSpecs

For more information about product features, specifications, options, configurations, and compatibility, see the product QuickSpecs on the HPE ProLiant MicroServer Gen10 website:

<http://www.hpe.com/servers/microserver>

Aptio Setup Utility

The Aptio Setup Utility is embedded in the system ROM. This utility enables you to perform a wide range of configuration activities, including the following:

- Configuring system devices and installed options
- Enabling and disabling system features
- Displaying system information
- Selecting the primary boot controller
- Configuring memory options

Using the Aptio Setup Utility

To use the Aptio Setup Utility, use the following keys:

Key	Action
F2 or Del (during POST)	Access the Aptio Setup Utility.
Left and right arrows	Navigate the menus.
Up and down arrows	Navigate menu items.
Enter	Select menu items.
F4	Save selections and exit the utility.
F1	Access help for the highlighted configuration option.
Esc	Exit the utility.

Default configuration settings are applied to the server in either of the following scenarios:

- When the system powers up for the first time
- When the system is restored to the default settings

Default configuration settings are sufficient for typical server operations. However, you can modify the configuration settings as needed. The system prompts you to access the Aptio Setup Utility every time the system is powered up.

Restoring and customizing configuration settings

The following options are available for restoring or customizing the configuration settings:

- Reset all configuration settings to the factory default settings.
- Restore and use the system default configuration settings.
- Configure default settings as necessary, and then save the configuration as the user default configuration.
- Restore the user default configuration.

To restore the user default configuration, select **Save & Exit > Default Option > Restore User Default**.

Clearing the BIOS configuration settings

The server BIOS configuration settings such as the system date and time, boot sequence, and hardware settings are stored in the CMOS. These settings are configured in the Aptio Setup Utility.

You might need to clear the CMOS if any of the following conditions occur:

- POST errors or boot issues
- Corrupted BIOS settings
- Incorrect settings made in the Aptio Setup Utility have caused error messages to be unreadable.
- If there is a hardware compatibility issue of a known compatible component.
- If the power-on password is forgotten.

CAUTION:

Be careful when clearing or altering the BIOS settings. Changing some settings might prevent the server from booting up correctly or might result in data loss.

Clearing the CMOS resets the BIOS settings to their factory default state. To clear the CMOS:

- If the Aptio Setup Utility is accessible, **use the Restore Defaults option under the Save & Exit menu.**
- If the Aptio Setup Utility is not accessible, **use the CMOS header.**

After clearing the CMOS, use the Aptio Setup Utility to reconfigure the BIOS settings.

Clearing the BIOS settings by using the Aptio Setup Utility

Procedure

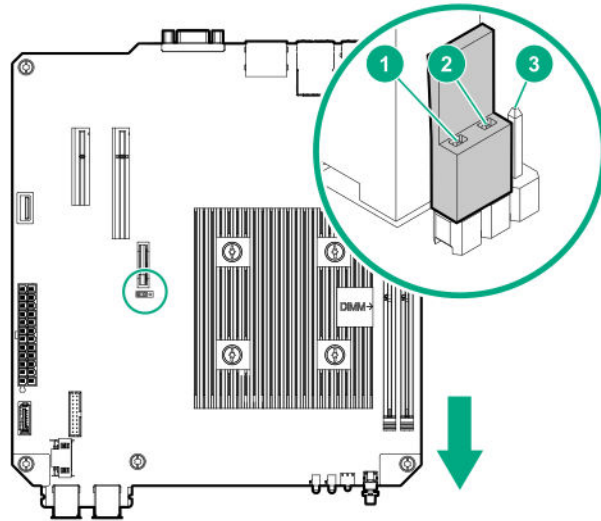
1. Reboot the server.
2. To access the Aptio Setup Utility, on the enter setup prompt, press the **F2** or **Del** key.
3. Select the **Save & Exit** menu.
4. Under **Default Options**, select **Restore Defaults**, and then press the **Enter** key.
5. Select **Yes**.
6. To confirm the change and exit the utility, press the **F4** key.

Clearing the BIOS settings by using the CMOS header

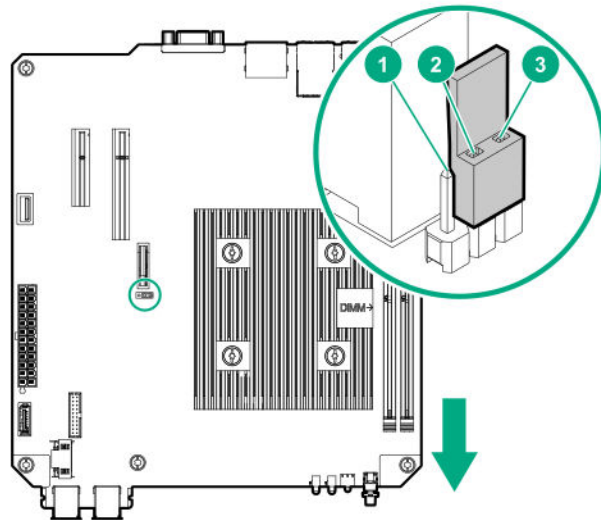
The arrow shown in the steps 6 and 7 illustrations points to the front of the server.

Procedure

1. **Power down the server** on page 22.
2. Disconnect the power cord from the AC source, and then from the server.
3. Disconnect all peripheral cables from the server.
4. **Remove the chassis cover** on page 24.
5. **Remove the system board assembly** on page 25.
6. Remove the jumper from its default position on pins 2 and 3, and place them on pins 1 and 2.



7. After five seconds, remove the jumper from pins 1 and 2, and move it back to the default position on pins 2 and 3.



8. **Install the system board assembly** on page 27.
9. **Install the chassis cover** on page 28.
10. Connect all peripheral cables to the server.
11. Connect the power cord to the server power jack, and then to the AC source.
12. **Power up the server** on page 29.

Marvell Storage Utility

The Marvell Storage Utility (MSU) is a configuration and management utility for the embedded Marvell 88SE9230 PCIe to SATA 6Gb/s Controller. This Marvell storage controller supports hardware RAID 0, 1, and 10 levels. Use the MSU to create and manage RAID virtual disks and arrays using the drives connected to the embedded storage controller.

To enable MSU access through GUI or CLI, **install the MSU in the server**.

For more information, see the *Marvell Storage Utility User Guide for HPE MicroServer Gen10* in the Hewlett Packard Enterprise Support Center website:

Installing the Marvell Storage Utility

Procedure

1. Go to the HPE ProLiant MicroServer Gen10 download page:
<http://www.hpe.com/downloads/microservergen10>
2. Click **drivers, software & firmware**.
3. Select the server OS from the operating system drop-down menu.
4. Click **Utility**.
5. Download the Marvell Storage Utility (MSU) for HPE MicroServer Gen10 Server package to the target server.
6. Unzip the package and open the `Marvell_MSU` folder.
7. Follow the installation procedure described in the `instructions.txt` file.

Marvell BIOS Utility

The Marvell BIOS Utility (MBU) is built into the ROM of the embedded Marvell 88SE9230 PCIe to SATA 6Gb/s Controller. This Marvell storage controller supports the hardware RAID 0, 1, and 10 levels. Use the MBU to create and manage RAID virtual disks and arrays using the drives connected to the embedded storage controller.

For more information, see the *Marvell BIOS Utility User Guide for HPE MicroServer Gen10* in the Hewlett Packard Enterprise Support Center website:

<http://www.hpe.com/info/microservergen10-docs>

Accessing the Marvell BIOS Utility under UEFI boot mode

The UEFI boot mode is the server default boot mode.

Procedure

1. Go to the HPE ProLiant MicroServer Gen10 download page:
<http://www.hpe.com/downloads/microservergen10>
2. Click **drivers, software & firmware**.
3. Select **OS Independent** from the operating system drop-down menu.
4. Click **Utility**.
5. Download the Marvell BIOS Utility (UEFI) for HPE MicroServer Gen10 Server package.
6. Unzip the package and copy the `ui64.efi` file in a USB key.
7. Attach the USB key to the server, and then reboot the server.
8. To access the One-Time Boot Menu, press the **F11** key when prompted.
9. Select **UEFI: Built-in EFI Shell**, and then press the **Enter** key.
10. To obtain the assigned file system volume for the USB key, enter the `map -r` command at the UEFI Shell prompt.
11. Change to the file system that contains the `ui64.efi` file, and then press the **Enter** key.
12. Enter the following command:

```
fs0:\> ui64.efi
```

where 0 is the server directory for the USB device containing the `ui64.efi` file.

Accessing the Marvell BIOS Utility under legacy boot mode

Procedure

1. Reboot the server.
2. On the POST drive information screen, press **Ctrl+M**.

HPE Smart Storage Administrator

The HPE SSA is a configuration and management tool for HPE Smart HBA and Smart Array controller options. The HPE SSA exists in the following interface formats:

- HPE SSA GUI
- HPE SSA CLI
- HPE SSA Scripting

Although all formats support configuration tasks, some of the advanced tasks are available in only one format.

In this server, HPE SSA can be accessed in both online and offline modes. In online mode, SSA is only accessible from the local server.

To access, install, and launch HPE SSA in an online environment, download the HPE SSA executables from the Hewlett Packard Enterprise Support Center website (<http://www.hpe.com/support/hpesc>). Under **Select your HPE product**, enter the product name or number, and then click **Go**.

To access, install, and launch HPE SSA in an offline environment, download the HPE SSA ISO image from the HPE Smart Storage Administrator website:

<http://www.hpe.com/servers/ssa>

For more information, see the *HPE Smart Storage Administrator User Guide*:

http://www.hpe.com/support/SSA_UG_en

USB support

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

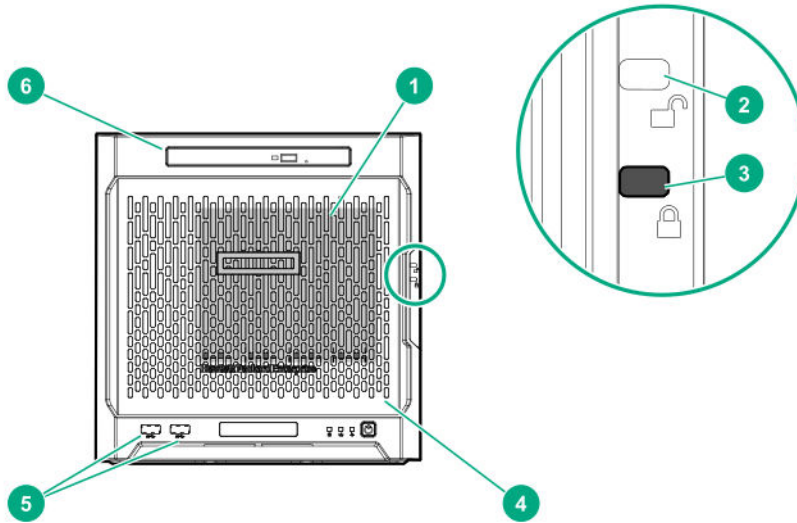
- USB 3.0 capable devices operate at USB 2.0 speeds when installed in a USB 2.0 port.
- In UEFI boot mode, Hewlett Packard Enterprise provides legacy USB support in the preboot environment before the operating system loads for USB 1.0, USB 2.0, and USB 3.0 speeds.
- In legacy boot mode, Hewlett Packard Enterprise provides legacy USB support in the preboot environment before the operating system loads for USB 1.0 and USB 2.0 speeds. USB 3.0 ports can be used with all devices in legacy boot mode but are not available at USB 3.0 speeds in the preboot environment. Standard USB support (USB support from within the operating system) is provided by the OS through the appropriate USB device drivers. Support for USB 3.0 varies by operating system.

The pre-OS behavior of the USB ports is configurable in the **Aptio Setup Utility**.

Component identification

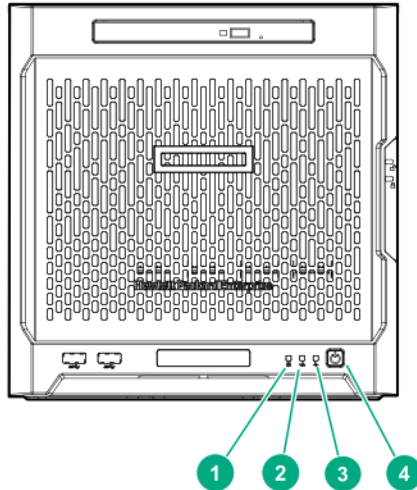
This chapter describes the external and internal server features and components.

Front panel components



Item	Component	Description
1	Drive bays (4, behind the front bezel)	By default, the drive bays support 3.5-inch LFF SATA drives. To support 2.5-inch SFF drives, install the SFF drive converter option.
2	Front bezel unlock indicator	To remove the front bezel from the chassis, this groove must show the blue indicator.
3	Front bezel lock indicator	To lock the front bezel in the chassis, this groove must show the blue indicator.
4	Front bezel	To access the front drive bays, remove this bezel.
5	USB 3.0 ports (2)	Connect USB 3.0 devices to these ports. USB 3.0 support after POST varies by operating system.
6	Media bay	When the relevant enablement options kits are installed, this bay supports either a slim-type optical disc drive or solid state drive option.

Front panel LEDs and buttons



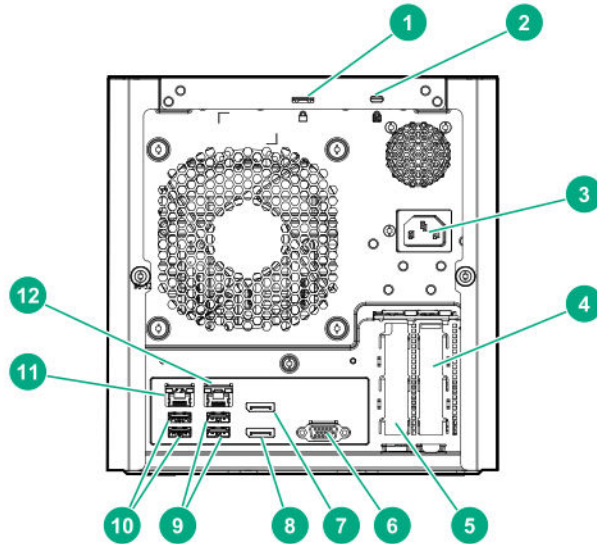
Item	Description	Status
1	Drive activity LED	Flashing green = Ongoing drive activity Off = No drive activity This LED only reflects the status of LFF/SFF drives and SSD that are connected to the onboard SATA ports.
2	NIC status LED	Solid green = Linked to network Flashing green = Network active Off = No network activity This LED only reflects the status of Ethernet connections managed by the embedded Broadcom BCM5720 Gigabit Ethernet controller.
3	Health LED	Solid green = Normal Flashing amber = One or more components is in degraded condition. ¹ Flashing red = One or more components is in critical condition. ¹
4	Power on/Standby button and system power LED	Flashing green = Ongoing power-on sequence Solid green = System on and normal operation Amber = System in standby Off = No power present ²

¹ To identify which component is in the degraded or critical state, reboot the server. A POST error message screen showing the affected component will appear for about 30 seconds. Depending on how critical the component health status is, the system boot may or may not be completed. For troubleshooting information, see the [HPE ProLiant MicroServer Gen10 Troubleshooting Guide](#).

² If the server does not power on, verify the following items:

- The site power is available.
- The power cord is properly connected to the server power jack and to a working power source.
- The internal power supply cable is properly connected to the system board.

Rear panel components



Item	Component	Description
1	Padlock eye	To lock the chassis cover and prevent access to the internal components, attach a padlock here.
2	Kensington security slot	To secure the server to a heavy or immovable object, connect an anti-theft security cable here.
3	Power jack	Connects the power cord.
4	Expansion slot 2, PCIe3 x4 (1)	For additional hardware capabilities, install a compatible low-profile PCIe expansion board here. This expansion slot supports expansion boards with a physical connector link widths of up to x16. ¹
5	Expansion slot 1, PCIe3 x8 (8, 4, 1)	For additional hardware capabilities, install a compatible low-profile PCIe expansion board here. This expansion slot supports expansion boards with a physical connector link widths of up to x16. ¹
6	Video port	Connects to an analog VGA monitor or projector.
7	Display port 1	Connects to a digital display device, such as a high-resolution set top boxes or TV displays. ²
8	Display port 2	Connects to a digital display device, such as a high-resolution set top boxes or TV displays. ²

Table Continued

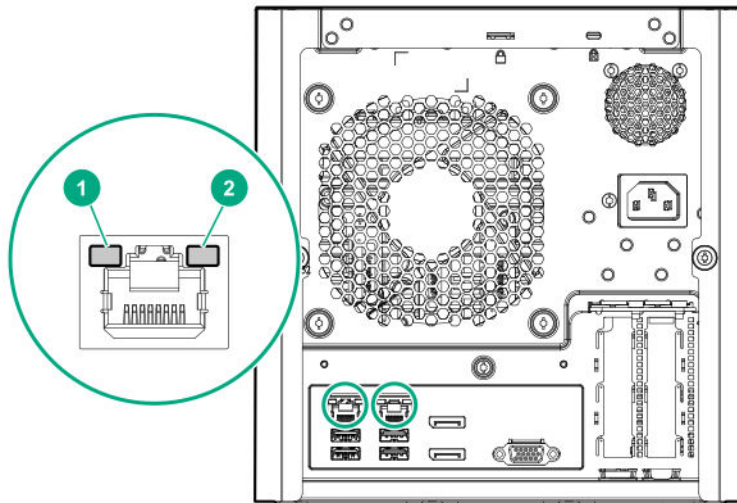
Item	Component	Description
9	USB 2.0 ports (2)	Connect USB 2.0 devices to these ports.
10	USB 3.0 ports (2)	Connect USB 3.0 devices to these ports. USB 3.0 support after POST varies by operating system.
11	NIC port 1 (1 Gb)	Connect an Ethernet cable here to connect the server to a wired network. ³
12	NIC port 2 (1 Gb)	Connect an Ethernet cable here to connect the server to a wired network. ³

¹ This expansion slot is open-ended, which enables down-plugging. Down-plugging means a larger-width expansion board can be installed in a smaller-width connector. For this server, the expansion slot supports low-profile expansion boards with a physical connector link width of up to $\times 16$. The board operates at the highest common negotiable link width specified for the slot.

² To support 4K resolution at a full 60 Hz frame rate, this Display port requires dual-channel memory configuration. Single-channel memory configuration will only support up to 30 Hz frame rate.

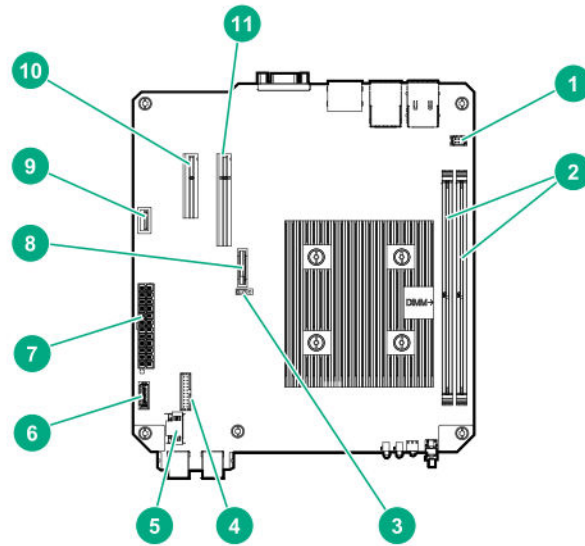
³ This NIC port supports 10/100/1000 Mbps data transfer rate per port.

Rear panel LEDs



Item	Description	Status
1	NIC link LED	Solid green = Link exists Off = No link exists
2	NIC status LED	Solid green = Linked to network Flashing green = Network active Off = No network activity

System board components

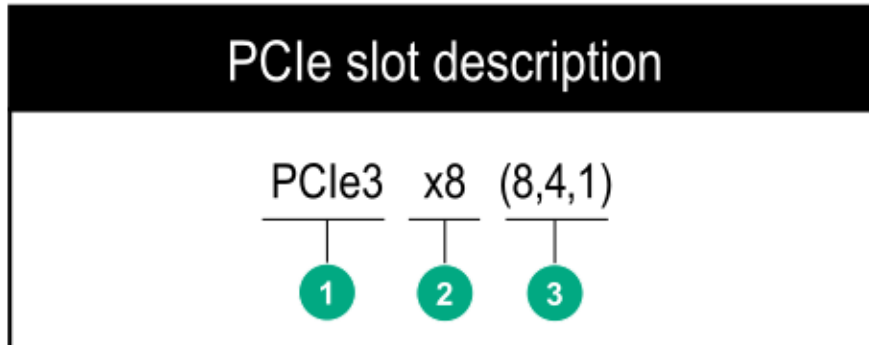


Item	Component	Description
1	Fan connector	Connects the fan cable.
2	DIMM slots	These slots support standard UDIMMs with ECC only.
3	CMOS header	Use the jumper on this header to clear the CMOS.
4	TPM connector	This connector supports the TPM 2.0 option for data security solution.
5	LFF/SFF drive SATA port	Connects the LFF/SFF drive SATA cable. ¹
6	Optical drive or SSD SATA port	Connects the optical drive or SSD SATA cable. ¹
7	System board power connector	Connects the power supply cable.
8	System battery	This battery provides power to the server real-time clock and BIOS settings.
9	Internal USB 2.0 port	Connect internal USB devices to this port.
10	Expansion slot 2, PCIe3 x4 (1)	For additional hardware capabilities, install a compatible low-profile PCIe expansion board here. This expansion slot supports expansion boards with a physical connector link widths of up to x16. ²
11	Expansion slot 1, PCIe3 x8 (8, 4, 1)	For additional hardware capabilities, install a compatible low-profile PCIe expansion board here. This expansion slot supports expansion boards with a physical connector link widths of up to x16. ²

¹ These are SATA 6Gb/s ports.

² This expansion slot is open-ended, which enables down-plugging. Down-plugging means a larger-width expansion board can be installed in a smaller-width connector. For this server, the expansion slot supports low-profile expansion boards with a physical connector link widths of up to ×16. The board operates at the highest common negotiable link width specified for the slot.

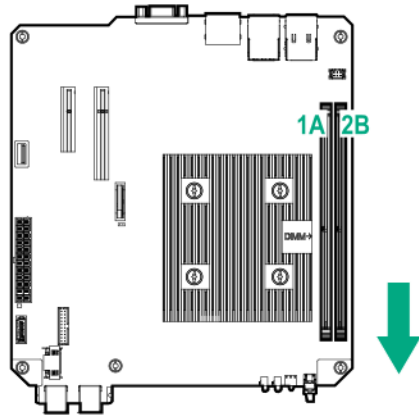
PCIe slot description



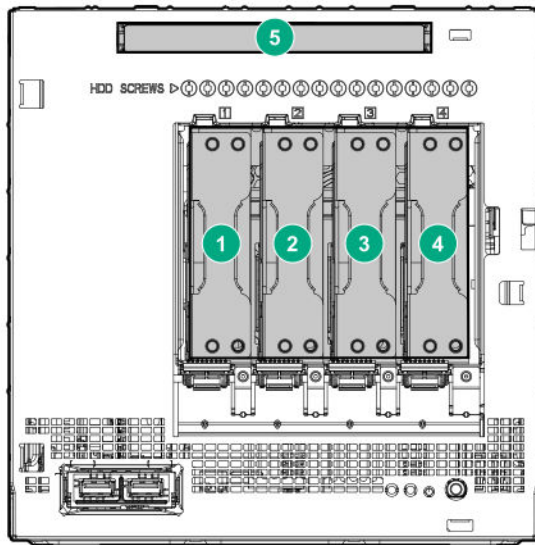
Item	Description	Definition
1	PCI Express version	<p>Each PCIe version corresponds to a specific data transfer rate between the processor and peripheral devices. Generally, a version update corresponds to an increase in transfer rate.</p> <ul style="list-style-type: none"> • PCIe 1.x • PCIe 2.x • PCIe 3.x <p>The PCIe technology is under constant development. For the latest information, see the PCI-SIG website.</p>
2	Physical connector link width	<p>PCIe devices communicate via 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 ×16 being the largest size in common use.</p> <ul style="list-style-type: none"> • ×1 • ×2 • ×4 • ×8 • ×16
3	Negotiable link width	<p>These numbers correspond to the maximum link bandwidth supported by the slot.</p>

DIMM slot locations

The DIMM slots are numbered 1 and 2. The arrow in the following illustration points to the front of the server.



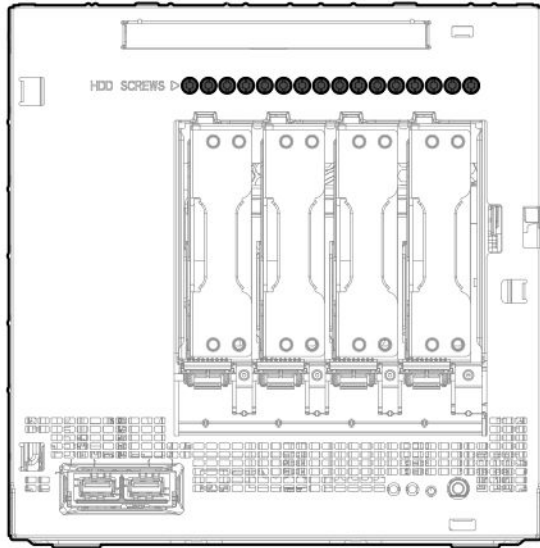
Drive numbering



Item	Description
1-4	LFF/SFF drives
5	Solid state drive or optical disc drive

Drive screws

There are 16 T-15 Torx screws located above the drive bays. Use these screws to install LFF or SFF drives in the server.



Cabling

Cabling overview

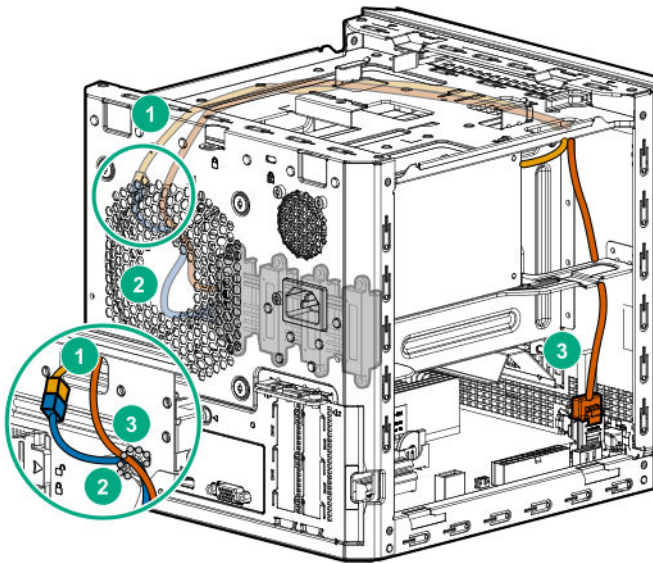
This section provides guidelines that help you make informed decisions about cabling the server and hardware options to optimize performance.

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

Four-bay non-hot-plug drive cabling

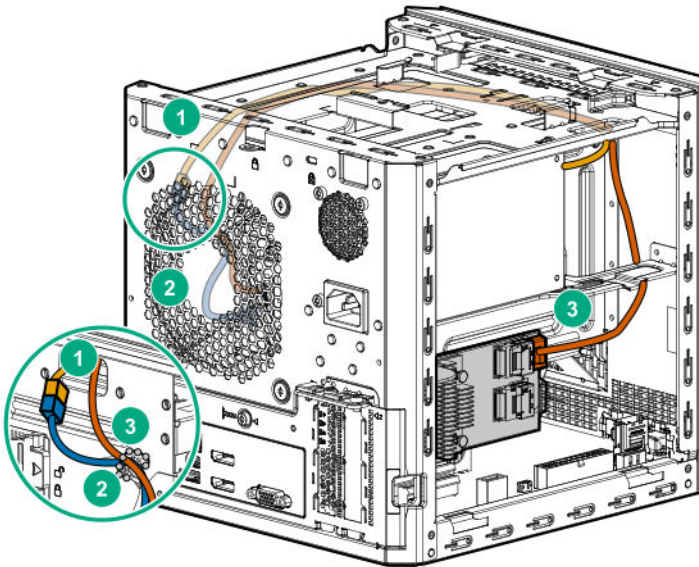
The four-bay non-hot-plug drive cable assembly consists of the drive power and SATA cables attached to a bracket. If either the drive power or SATA cable becomes defective, the entire cable assembly will need to be replaced.

- LFF/SFF drive SATA cable connected to the system board



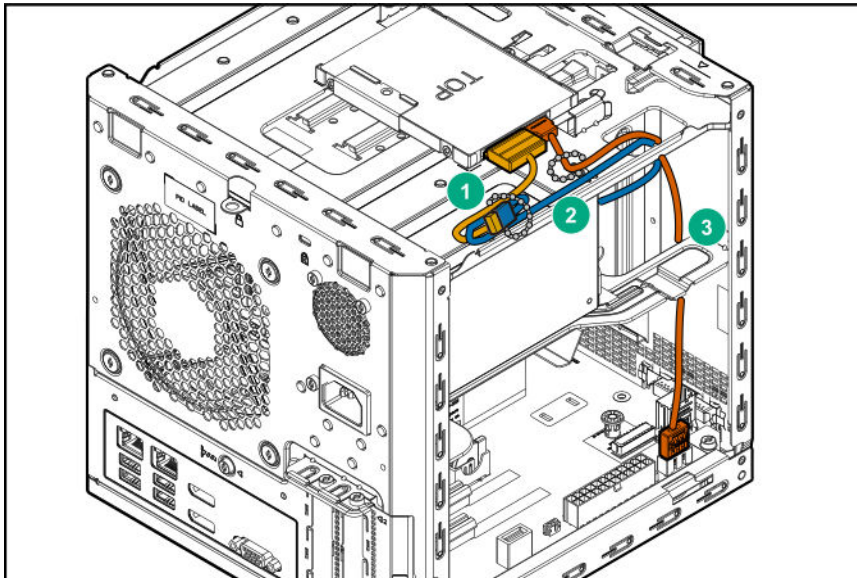
Item	Description
1	P2 power supply cable
2	LFF/SFF drive power cable
3	LFF/SFF drive SATA cable

- LFF/SFF drive SATA cable connected to an HBA



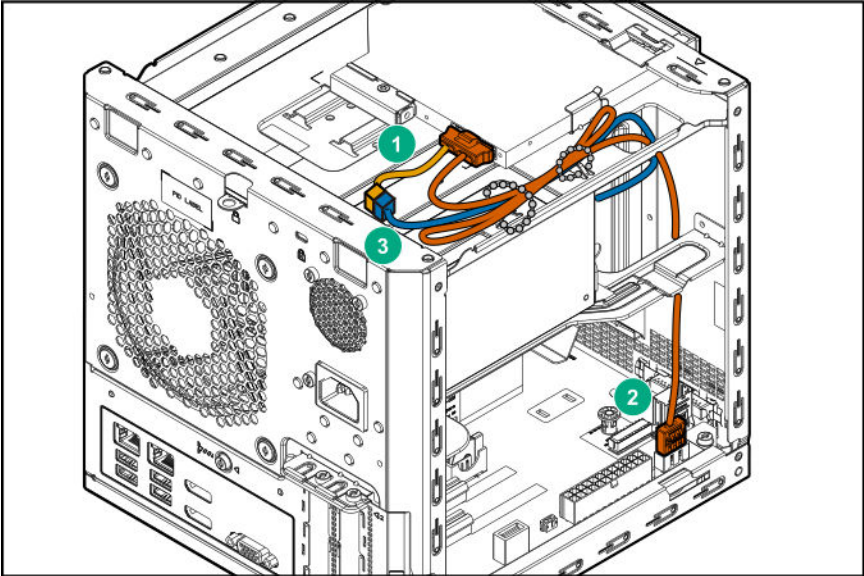
Item	Description
1	P2 power supply cable
2	LFF/SFF drive power cable
3	LFF/SFF drive SATA cable

Solid state drive cabling



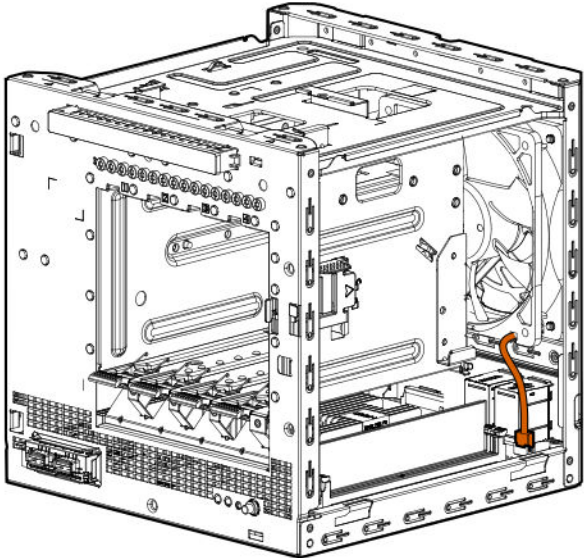
Item	Description
1	SSD power cable
2	P3 power supply cable
3	SSD SATA cable

Optical drive cabling

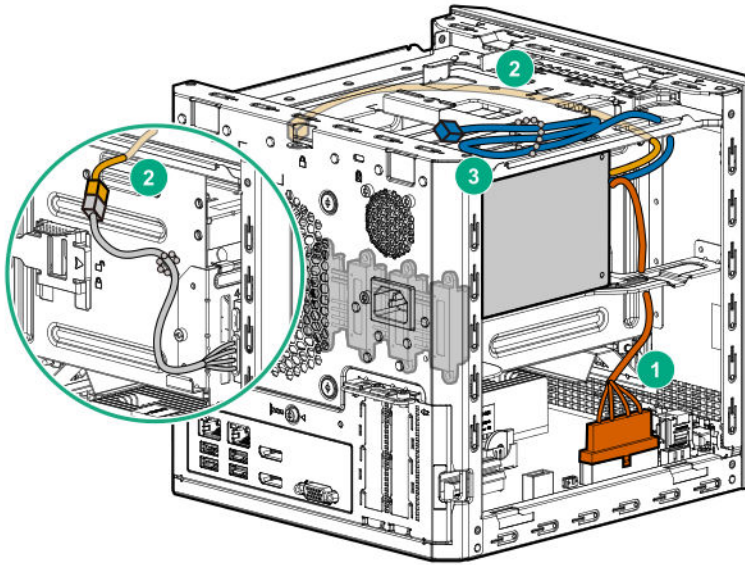


Item	Description
1	Optical drive power cable
2	Optical drive SATA cable
3	P3 power supply cable

Fan cabling



Power supply cabling



Item	PSU cable marker	Description
1	P1	System board power cable
2	P2	LFF/SFF drive power cable
3	P3	Optical drive/SSD power cable

Specifications

Environmental specifications

Specification	Value
Temperature range¹	—
Operating ²	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	10% to 90% 28°C (82.4°F) maximum wet bulb temperature (noncondensing) across the operating temperature range of 0°C to 40°C.
Nonoperating	5% to 95% 38.7°C (101.7°F), maximum wet bulb temperature

¹ All temperature ratings shown are for sea level. An altitude derating of 1.0°C per 304.8 m (1.8°F per 1000 ft) to 3048 m (10,000 ft) is applicable. No direct sunlight allowed. Maximum rate of change is 20°C per hour (36°F per hour). The upper limit and rate of change might be limited by the type and number of options installed.

² System performance during standard operation might degrade if there is a fan fault or if the internal server temperature is above 30°C (86°F).

Server specifications

Dimension	Value
Height	23.50 cm (9.25 in)
Depth	25.40 cm (10.00 in)
Width	23.00 cm (9.06 in)
Weight (approximate values)	
Minimum (one drive and one DIMM installed, no media drive or expansion board installed)	6.495 kg (14.32 lb)
Maximum (four drives, two DIMMs, optical drive or SSD, and two expansion boards installed)	9.69 kg (21.36 lb)

Power supply specifications

The server is configured with a non-hot-plug, nonredundant 200 W power supply.

200 W power supply specifications

Specification	Value
Input requirements	
Rated input voltage	100 V AC to 240 V AC
Rated input frequency	50 Hz to 60 Hz
Rated input current	3.5 A at 100 V AC
Rated input power	244 W at 115 V AC
Efficiency	>82% at full load
Power supply output	
Rated steady-state power	200 W
Maximum peak power	200 W
Rated output power	200 W

Websites

General websites

Hewlett Packard Enterprise Information Library

www.hpe.com/info/EIL

Subscription Service/Support Alerts

www.hpe.com/support/e-updates

Single Point of Connectivity Knowledge (SPOCK) Storage compatibility matrix

www.hpe.com/storage/spock

Storage white papers and analyst reports

www.hpe.com/storage/whitepapers

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

Product websites

Product QuickSpecs

<http://www.hpe.com/servers/microserver>

HPE ProLiant MicroServer Gen10 support page

<http://www.hpe.com/support/microservergen10>

HPE ProLiant MicroServer Gen10 documents

<http://www.hpe.com/info/microservergen10-docs>

Support and other resources

Accessing Hewlett Packard Enterprise Support

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

Information to collect

- Technical support registration number (if applicable)
- Product name, model or version, and serial number
- Operating system name and version
- Firmware version
- Error messages
- Product-specific reports and logs
- Add-on products or components
- Third-party products or components

Accessing ClearOS support

To access ClearOS support for purchased subscriptions, use the following contact information:

- Phone:
 - North America: +1-800-977-0574
 - International: +1-801-851-5555
- Email: support@clearcenter.com

For more information on ClearOS configuration, see the *ClearOS 7 on HPE ProLiant Servers Configuration Guide* at:

<http://www.hpe.com/support/ClearOS-IG>

Accessing updates

- Some software products provide a mechanism for accessing software updates through the product interface. Review your product documentation to identify the recommended software update method.
- To download product updates:

Hewlett Packard Enterprise Support Center

www.hpe.com/support/hpesc

Hewlett Packard Enterprise Support Center: Software downloads

www.hpe.com/support/downloads

Software Depot

www.hpe.com/support/softwaredepot

- To subscribe to eNewsletters and alerts:

www.hpe.com/support/e-updates

- To view and update your entitlements, and to link your contracts and warranties with your profile, go to the Hewlett Packard Enterprise Support Center **More Information on Access to Support Materials** page:

www.hpe.com/support/AccessToSupportMaterials

 **IMPORTANT:**

Access to some updates might require product entitlement when accessed through the Hewlett Packard Enterprise Support Center. You must have an HPE Passport set up with relevant entitlements.

Warranty information

[HPE ProLiant and x86 Servers and Options](#)

[HPE Enterprise Servers](#)

[HPE Storage Products](#)

[HPE Networking Products](#)

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:

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:

www.hpe.com/info/reach

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

www.hpe.com/info/ecodata

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

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, send any errors, suggestions, or comments to Documentation Feedback (docsfeedback@hpe.com). When submitting your feedback, include the document title, part number, edition, and publication date located on the front cover of the document. For online help content, include the product name, product version, help edition, and publication date located on the legal notices page.

Acronyms and abbreviations

APU

Accelerated Processing Unit

CSR

Customer Self Repair

ETY

Entry (HPE drive family)

HBA

host bus adapter

HPE SSA

HPE Smart Storage Administrator

ISO

International Organization for Standardization

LFF

large form factor

MDL

Midline (HPE drive family)

PCIe

Peripheral Component Interconnect Express

POST

Power-On Self-Test

PSU

power supply unit

REACH

Registration, Evaluation, Authorization, Restriction of Chemicals (European Union chemical regulatory framework)

RI

read intensive (HPE SSD category)

RoHS

Restriction of Hazardous Substances

SATA

serial ATA

SSD

solid state drive

TPM

Trusted Platform Module

UDIMM

unregistered dual in-line memory module

UEFI

Unified Extensible Firmware Interface