HP ProLiant DL580 Generation 5 Server Maintenance and Service Guide

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Intended audience

This guide is for an experienced service technician. HP assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels and are familiar with weight and stability precautions for rack installations.

Contents

Customer self repair

HP 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 HP (or HP service providers or service partners) identifies that the repair can be accomplished by the use of a CSR part, HP 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 HP 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 HP 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 HP parts are not designed for customer self repair. In order to satisfy the customer warranty, HP 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 HP Technical Support Center and a technician will help you over the telephone. HP specifies in the materials shipped with a replacement CSR part whether a defective part must be returned to HP. In cases where it is required to return the defective part to HP, you must ship the defective part back to HP 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 HP billing you for the replacement. With a customer self repair, HP will pay all shipping and part return costs and determine the courier/carrier to be used.

For more information about HP's Customer Self Repair program, contact your local service provider. For the North American program, refer to the HP website (http://www.hp.com/go/selfrepair).

Parts only warranty service

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

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

Réparation par le client (CSR)

Les produits HP 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, HP (ou ses partenaires ou mainteneurs agréés) détermine que la réparation peut être effectuée à l'aide d'une pièce CSR, HP 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 HP 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 HP de remplacer ces pièces, l'intervention peut ou non vous être facturée, selon le type de garantie applicable à votre produit.

REMARQUE: Certaines pièces HP ne sont pas conçues pour permettre au client d'effectuer lui-même la réparation. Pour que la garantie puisse s'appliquer, HP 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 bénéficier d'une assistance téléphonique, appelez le Centre d'assistance technique HP. Dans les documents envoyés avec la pièce de rechange CSR, HP 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, HP se réserve le droit de vous facturer les coûts de remplacement. Dans le cas d'une pièce CSR, HP 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 HP, contactez votre Mainteneur Agrée local. Pour plus d'informations sur ce programme en Amérique du Nord, consultez le site Web HP (http://www.hp.com/go/selfrepair).

Service de garantie "pièces seules"

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

Dans le cadre de ce service, la réparation des pièces CSR par le client est obligatoire. Si vous demandez à HP 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 HP sono realizzati con numerosi componenti che possono essere riparati direttamente dal cliente (CSR, Customer Self Repair). Se in fase di diagnostica HP (o un centro di servizi o di assistenza HP) identifica il guasto come riparabile mediante un ricambio CSR, HP lo spedirà direttamente al cliente per la sostituzione. Vi sono due categorie di parti CSR:

- **Obbligatorie** – Parti che devono essere necessariamente riparate dal cliente. Se il cliente ne affida la riparazione ad HP, 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 HP, potrebbe dover sostenere spese addizionali a seconda del tipo di garanzia previsto per il prodotto.

NOTA: alcuni componenti HP non sono progettati per la riparazione da parte del cliente. Per rispettare la garanzia, HP 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 HP. Nel materiale fornito con una parte di ricambio CSR, HP specifica se il cliente deve restituire dei componenti. Qualora sia richiesta la resa ad HP del componente difettoso, lo si deve spedire ad HP 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 HP. Nel caso di riparazione da parte del cliente, HP sostiene tutte le spese di spedizione e resa e sceglie il corriere/vettore da utilizzare.

Per ulteriori informazioni sul programma CSR di HP contattare il centro di assistenza di zona. Per il programma in Nord America fare riferimento al sito Web HP (http://www.hp.com/go/selfrepair).

Servizio di garanzia per i soli componenti

La garanzia limitata HP può includere un servizio di garanzia per i soli componenti. Nei termini di garanzia del servizio per i soli componenti, HP 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 HP, dovrà sostenere le spese di spedizione e di manodopera per il servizio.

Customer Self Repair

HP Produkte enthalten viele CSR-Teile (Customer Self Repair), um Reparaturzeiten zu minimieren und höhere Flexibilität beim Austausch defekter Bauteile zu ermöglichen. Wenn HP (oder ein HP Servicepartner) bei der Diagnose feststellt, dass das Produkt mithilfe eines CSR-Teils repariert werden kann, sendet Ihnen HP 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 HP 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 HP vornehmen lassen möchten, können bei diesem Service je nach den für Ihr Produkt vorgesehenen Garantiebedingungen zusätzliche Kosten anfallen.

HINWEIS: Einige Teile sind nicht für Customer Self Repair ausgelegt. Um den Garantieanspruch des Kunden zu erfüllen, muss das Teil von einem HP 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 HP technische Support Center

anrufen und sich von einem Mitarbeiter per Telefon helfen lassen. Den Materialien, die mit einem CSR-Ersatzteil geliefert werden, können Sie entnehmen, ob das defekte Teil an HP zurückgeschickt werden muss. Wenn es erforderlich ist, das defekte Teil an HP 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 HP Ihnen das Ersatzteil in Rechnung stellen. Im Falle von Customer Self Repair kommt HP für alle Kosten für die Lieferung und Rücksendung auf und bestimmt den Kurier-/Frachtdienst.

Weitere Informationen über das HP Customer Self Repair Programm erhalten Sie von Ihrem Servicepartner vor Ort. Informationen über das CSR-Programm in Nordamerika finden Sie auf der HP Website unter (http://www.hp.com/go/selfrepair).

Parts-only Warranty Service (Garantieservice ausschließlich für Teile)

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

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

Reparaciones del propio cliente

Los productos de HP 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, HP (o los proveedores o socios de servicio de HP) identifica que una reparación puede llevarse a cabo mediante el uso de un componente CSR, HP le enviará dicho componente directamente para que realice su sustitución. Los componentes CSR se clasifican en dos categorías:

- **Obligatorio:** componentes para los que la reparación por parte del usuario es obligatoria. Si solicita a HP 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 para los que la 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 HP realice su sustitución, puede o no conllevar costes adicionales, dependiendo del tipo de servicio de garantía correspondiente al producto.

NOTA: Algunos componentes no están diseñados para que puedan ser reparados por el usuario. Para que el usuario haga valer su garantía, HP 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 HP y recibirá ayuda telefónica por parte de un técnico. Con el envío de materiales para la sustitución de componentes CSR, HP especificará si los componentes defectuosos deberán devolverse a HP. En aquellos casos en los que sea necesario devolver algún componente a HP, 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, HP podrá cobrarle por el de sustitución. En el caso de todas sustituciones que lleve a cabo el cliente, HP 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 HP, póngase en contacto con su proveedor de servicios local. Si está interesado en el programa para Norteamérica, visite la página web de HP siguiente (http://www.hp.com/go/selfrepair).

Servicio de garantía exclusivo de componentes

La garantía limitada de HP puede que incluya un servicio de garantía exclusivo de componentes. Según las condiciones de este servicio exclusivo de componentes, HP 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 HP 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 HP 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 HP (of een HP Service Partner) bij de diagnose vaststelt dat de reparatie kan worden uitgevoerd met een CSR-onderdeel, verzendt HP 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 HP 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 HP verzoekt deze onderdelen voor u te vervangen, kunnen daarvoor extra kosten in rekening worden gebracht, afhankelijk van het type garantieservice voor het product.

OPMERKING: Sommige HP 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 gewenst is, belt u een HP Service Partner om via de telefoon technische ondersteuning te ontvangen. HP vermeldt in de documentatie bij het vervangende CSR-onderdeel of het defecte onderdeel aan HP moet worden geretourneerd. Als het defecte onderdeel aan HP moet worden teruggezonden, moet u het defecte onderdeel binnen een bepaalde

periode, gewoonlijk vijf (5) werkdagen, retourneren aan HP. Het defecte onderdeel moet met de bijbehorende documentatie worden geretourneerd in het meegeleverde verpakkingsmateriaal. Als u het defecte onderdeel niet terugzendt, kan HP u voor het vervangende onderdeel kosten in rekening brengen. Bij reparatie door de klant betaalt HP alle verzendkosten voor het vervangende en geretourneerde onderdeel en kiest HP zelf welke koerier/transportonderneming hiervoor wordt gebruikt.

Neem contact op met een Service Partner voor meer informatie over het Customer Self Repair programma van HP. Informatie over Service Partners vindt u op de HP website (http://www.hp.com/go/selfrepair).

Garantieservice "Parts Only"

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

Voor de Parts Only garantieservice is vervanging door CSR-onderdelen verplicht. Als u HP 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 HP 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 HP (ou fornecedores/parceiros de serviço da HP) concluir que o reparo pode ser efetuado pelo uso de uma peça CSR, a peça de reposição será enviada diretamente ao cliente. Existem duas categorias de peças CSR:

- **Obrigatória** – Peças cujo reparo feito pelo cliente é obrigatório. Se desejar que a HP 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 HP 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 HP não são projetadas para o reparo feito pelo cliente. A fim de cumprir a garantia do cliente, a HP 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 HP para que um técnico o ajude por telefone. A HP especifica nos materiais fornecidos com a peça CSR de reposição se a peça com defeito deve ser devolvida à HP. Nos casos em que isso for necessário, é preciso enviar a peça com defeito à HP dentro do período determinado, normalmente cinco (5) dias úteis. A peça com defeito deve ser enviada com a documentação correspondente no material de transporte fornecido. Caso não o faça, a HP poderá cobrar a reposição. Para as peças de reparo feito pelo cliente, a HP 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 HP, entre em contato com o fornecedor de serviços local. Para o programa norte-americano, visite o site da HP (http://www.hp.com/go/selfrepair).

Serviço de garantia apenas para peças

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

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

顧客自己修理保証サービス

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、HP製品には多数の顧客自己修理（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HP（HPまたはHP正規保守代理店）が判断した場合、HP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通りがあります。

- 必須 - 顧客自己修理が必須の部品。当該部品について、もしもお客様がHP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 - 顧客自己修理が任意である部品。この部品も顧客自己修理用です。当該部品について、もしもお客様がHP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： HP製品の一部の部品は、顧客自己修理用ではありません。製品の保証を継続するためには、HPまたはHP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、当該部品が顧客自己修理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、HPの修理受付窓口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HP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HP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HP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、HPから部品費用が請求されます。顧客自己修理の際には、HPは送料および部品返送費を全額負担し、使用する宅配便会社や運送会社を指定します。

部品のみ保証サービス

HP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HP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はお客様の負担となります。

客户自行维修

HP 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 HP（或 HP 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，HP 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 HP 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 HP 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，HP 可能收取或不再收取任何附加费用。

注：某些 HP 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，HP 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 HP 技术支持中心，将会有技术人员通过电话为您提供帮助。HP 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 HP。如果要求您将有缺陷的部件返还给 HP，那么您必须在规定期限内（通常是五 (5) 个工作日）将缺陷部件发给 HP。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，HP 可能会要求您支付更换费用。客户自行维修时，HP 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 HP 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 HP 网站 (http://www.hp.com/go/selfrepair)。

仅部件保修服务

您的 HP 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，HP 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 HP 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

HP 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 HP（或 HP 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 HP 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 HP 更換這些零件，HP 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 HP 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 HP 零件沒有消費者可自行維修的設計。為符合客戶保固，HP 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「HP 技術支援中心」，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，HP 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 HP，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 HP。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，HP 可能要向您收取替換費用。針對客戶自行維修情形，HP 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 HP 的「客戶自行維修」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 HP 網站 (http://www.hp.com/go/selfrepair)。

僅限零件的保固服務

您的「HP 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，HP 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 HP 更換這些零件，HP 將會向您收取此服務所需的外出費用與勞動成本。

고객 셀프 수리

HP 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 HP(또는 HP 서비스 공급업체 또는 서비스 협력업체)에서 CSR 부품을 사용하여 수리가 가능하다고 판단되면 HP는 해당 부품을 바로 사용자에게 보내어 사용자가 교체할 수 있도록 합니다. CSR 부품에는 두 가지 종류가 있습니다.

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

참고: 일부 HP 부품은 고객 셀프 수리가 불가능하도록 설계되었습니다. HP는 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 HP 기술 지원 센터로 전화하십시오. 전문 기술자가 전화로 도움을 줄 것입니다. HP는 결함이 발생한 부품을 HP로 반환해야 하는지 여부를 CSR 교체 부품과 함께 배송된 자료에 지정합니다. 결함이 발생한 부품을 HP로 반환해야 하는 경우에는 지정된 기간 내(통상 영업일 기준 5일)에 HP로 반환해야 합니다. 이 때 결함이 발생한 부품은 제공된 포장 재료에 넣어 관련 설명서와 함께 반환해야 합니다. 결함이 발생한 부품을 반환하지 않는 경우 HP가 교체 부품에 대해 비용을 청구할 수 있습니다. 고객 셀프 수리의 경우, HP는 모든 운송 및 부품 반환 비용을 부담하며 이용할 운송업체 및 택배 서비스를 결정합니다.

HP 고객 셀프 수리 프로그램에 대한 자세한 내용은 가까운 서비스 제공업체에 문의하십시오. 북미 지역의 프로그램에 대해서는 HP 웹 사이트(http://www.hp.com/go/selfrepair)를 참조하십시오.

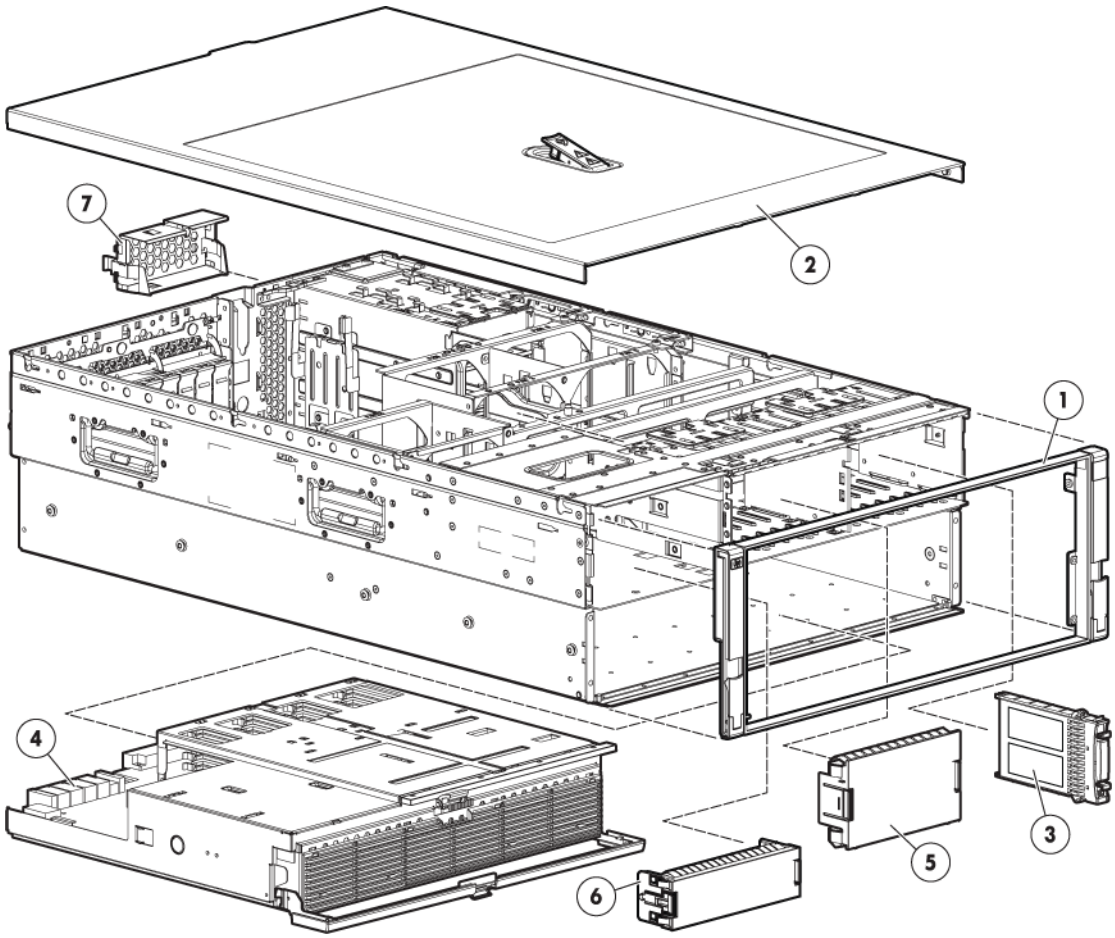
부품 제공 보증 서비스

HP 제한 보증에는 부품 제공 보증 서비스가 포함될 수 있습니다. 이러한 경우 HP는 부품 제공 보증 서비스의 조건에 따라 교체 부품만을 무료로 제공합니다.

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

Illustrated parts catalog

Mechanical components



Item	Description	Assembly part number	Spare part number	Customer self repair (on page 6)
1	Rack bezel, ProLiant DL580 G5 Server	443256-001	449431-001	Mandatory[1]
2	Access panel, ProLiant DL580 G5 Server	443254-001	449429-001	Mandatory[1]
3	Blank, hard drive	376383-001	392613-001	Mandatory[1]
4	Processor memory module assembly	013062-001	449415-001	Optional[2]
—	Blank kit, ProLiant DL580 G5 Server *	—	449433-001	Mandatory[1]

Item	Description	Assembly part number	Spare part number	Customer self repair (on page 6)
5	Blank, SAS cage	443259-001	—	Mandatory[1]
6	Blank, tape drive	443262-001	—	Mandatory[1]
7	Blank, power supply	440204-001	—	Mandatory[1]
8	Tower bezel, ProLiant DL580 G5 Server *	443351-001	457900-001	Mandatory[1]
9	Tool, T-15 Torx *	107473-001	199630-001	Mandatory[1]

*Not shown
[1]Mandatory—Parts for which customer self repair is mandatory. If you request HP to replace these parts, you will be charged for the travel and labor costs of this service.
[2]Optional—Parts for which customer self repair is optional. These parts are also designed for customer self repair. If, however, you require that HP replace them for you, there may or may not be additional charges, depending on the type of warranty service designated for your product.
[3]No—Some HP parts are not designed for customer self repair. In order to satisfy the customer warranty, HP requires that an authorized service provider replace the part. These parts are identified as "No" in the Illustrated Parts Catalog.

[1]Mandatory: Obligatoire—Pièces pour lesquelles la réparation par le client est obligatoire. Si vous demandez à HP de remplacer ces pièces, les coûts de déplacement et main d'œuvre du service vous seront facturés.
[2]Optional: 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 HP de remplacer ces pièces, l'intervention peut ou non vous être facturée, selon le type de garantie applicable à votre produit.
[3]No: Non—Certaines pièces HP ne sont pas conçues pour permettre au client d'effectuer lui-même la réparation. Pour que la garantie puisse s'appliquer, HP 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.

[1]Mandatory: Obbligatorie—Parti che devono essere necessariamente riparate dal cliente. Se il cliente ne affida la riparazione ad HP, deve sostenere le spese di spedizione e di manodopera per il servizio.
[2]Optional: 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 HP, potrebbe dover sostenere spese addizionali a seconda del tipo di garanzia previsto per il prodotto.
[3]No: Non CSR—Alcuni componenti HP non sono progettati per la riparazione da parte del cliente. Per rispettare la garanzia, HP richiede che queste parti siano sostituite da un centro di assistenza autorizzato. Tali parti sono identificate da un “No” nel Catalogo illustrato dei componenti.

[1]Mandatory: Zwingend—Teile, die im Rahmen des Customer Self Repair Programms ersetzt werden müssen. Wenn Sie diese Teile von HP ersetzen lassen, werden Ihnen die Versand- und Arbeitskosten für diesen Service berechnet.
[2]Optional: 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 HP vornehmen lassen möchten, können bei diesem Service je nach den für Ihr Produkt vorgesehenen Garantiebedingungen zusätzliche Kosten anfallen.
[3]No: Kein—Einige Teile sind nicht für Customer Self Repair ausgelegt. Um den Garantieanspruch des Kunden zu erfüllen, muss das Teil von einem HP Servicepartner ersetzt werden. Im illustrierten Teilekatalog sind diese Teile mit „No“ bzw. „Nein“ gekennzeichnet.

[1]Mandatory: Obligatorio—componentes para los que la reparación por parte del usuario es obligatoria. Si solicita a HP que realice la sustitución de estos componentes, tendrá que hacerse cargo de los gastos de desplazamiento y de mano de obra de dicho servicio.
[2]Optional: Opcional— componentes para los que la 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

HP realice su sustitución, puede o no conllevar costes adicionales, dependiendo del tipo de servicio de garantía correspondiente al producto.
[3]No: No—Algunos componentes no están diseñados para que puedan ser reparados por el usuario. Para que el usuario haga valer su garantía, HP pone como condición que un proveedor de servicios autorizado realice la sustitución de estos componentes. Dichos componentes se identifican con la palabra “No” en el catálogo ilustrado de componentes.

[1]Mandatory: Verplicht—Onderdelen waarvoor Customer Self Repair verplicht is. Als u HP verzoekt deze onderdelen te vervangen, komen de reiskosten en het arbeidsloon voor uw rekening.
[2]Optional: Optioneel—Onderdelen waarvoor reparatie door de klant optioneel is. Ook deze onderdelen zijn ontworpen voor reparatie door de klant. Als u echter HP verzoekt deze onderdelen voor u te vervangen, kunnen daarvoor extra kosten in rekening worden gebracht, afhankelijk van het type garantieservice voor het product.
[3]No: Nee—Sommige HP 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".

[1]Mandatory: Obrigatória—Peças cujo reparo feito pelo cliente é obrigatório. Se desejar que a HP substitua essas peças, serão cobradas as despesas de transporte e mão-de-obra do serviço.
[2]Optional: 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 HP as substitua, pode haver ou não a cobrança de taxa adicional, dependendo do tipo de serviço de garantia destinado ao produto.
[3]No: Nenhuma—Algumas peças da HP não são projetadas para o reparo feito pelo cliente. A fim de cumprir a garantia do cliente, a HP exige que um técnico autorizado substitua a peça. Essas peças estão identificadas com a marca “No” (Não), no catálogo de peças ilustrado.

[1]Mandatory：必須 - 顧客自己修理が必須の部品。当該部品について、もしもお客様がHPに交換作業を依頼される場合には、その修理サービスに関する交通費および人件費がお客様に請求されます。

[2]Optional：任意 - 顧客自己修理が任意である部品。この部品も顧客自己修理用です。当該部品について、もしもお客様がHP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、費用を負担していただくことなく保証サービスを受けることができます。

[3]No：除外 - HP製品の一部の部品は、顧客自己修理用ではありません。製品の保証を継続するためには、HPまたはHP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、当該部品が顧客自己修理除外品である旨が記載されています。

[1]Mandatory: 强制性的 — 要求客户必须自行维修的部件。如果您请求 HP 更换这些部件，则必须为该服务支付差旅费和人工费用。

[2]Optional: 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 HP 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，HP 可能收取或不再收取任何附加费用。

[3]No: 否 — 某些 HP 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，HP 要求授权服务提供商更换相关部件。这些部件在部件图解目录中标记为“否”。

[1]Mandatory: 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 HP 更換這些零件，HP 將會向您收取此服務所需的外出費用與勞動成本。

[2]Optional: 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 HP 為您更換，則可能需要也可能不需要負擔額外的費用，端視針對此產品指定的保固服務類型而定。

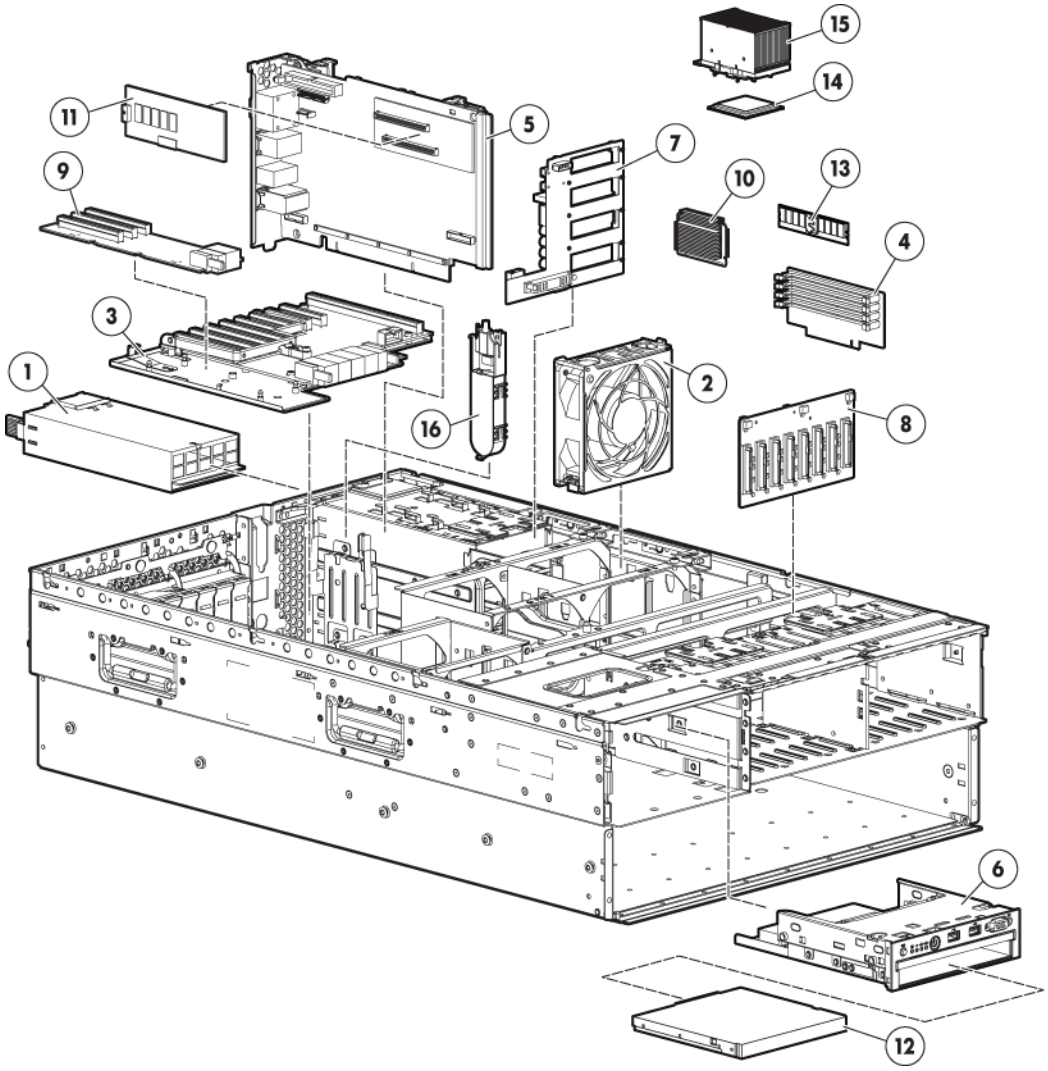
[3]No: 否 — 某些 HP 零件沒有消費者可自行維修的設計。為符合客戶保固，HP 需要授權的服務供應商更換零件。這些零件在圖示的零件目錄中，被標示為「否」。

[1] Mandatory: 필수 — 고객 셀프 수리가 의무 사항인 필수 부품. 사용자가 HP에 이 부품의 교체를 요청할 경우 이 서비스에 대한 출장비 및 작업비가 청구됩니다.

[2] Optional: 옵션 — 고객 셀프 수리가 선택 사항인 부품. 이 부품들도 고객 셀프 수리가 가능하도록 설계되었습니다. 하지만 사용자가 HP에 이 부품의 교체를 요청할 경우 사용자가 구입한 제품에 해당하는 보증 서비스 유형에 따라 추가 비용 없이 교체가 가능할 수 있습니다.

[3] No: No — 고객 셀프 수리가 불가능하도록 설계된 HP 부품. 이 부품들은 고객 셀프 수리가 불가능하도록 설계되었습니다. HP는 고객 보증을 만족시키기 위해 공인 서비스 제공업체를 통해 부품을 교체하도록 하고 있습니다.

System components



Item	Description	Assembly part number	Spare part number	Customer self repair (on page 6)
—	**System components**	—	—	—
1	Power supply, 1200 W	440785-001	441830-001	Mandatory[1]
2	Fan, 120-mm, hot-plug	439235-001	449430-001	Mandatory[1]
—	**Boards**	—	—	—
3	System board, ProLiant DL580 G5 Server	013059-001	449414-001	No[3]
4	Memory expansion board	013065-001	449416-001	Optional[2]
5	SPI board	013068-001	449417-001	Optional[2]
—	**System Insight Display**	—	—	—
6a	System Insight Display (SATA DVD drive) *	448384-002	501024-001	Optional[2]
6b	System Insight Display (PATA DVD drive) *	448384-001	449418-001	Optional[2]

Item	Description	Assembly part number	Spare part number	Customer self repair (on page 6)
7	Power backplane, ProLiant DL580 G5 Server	451885-001	449419-001	No[3]
8	SAS backplane	013151-001	449420-001	Optional[2]
9	Expansion slot options	—	—	—
—	PCI-X 3 Slot Option Card	013081-001	449421-001	Optional[2]
—	PCI Express x8 3 Slot Option Card	013084-001	449422-001	Optional[2]
10	PPM	450964-001	449428-001	Mandatory[1]
11	Smart Array cache module options	—	—	—
—	Smart Array cache module, 512 MB *	012764-003	405835-001	Optional[2]
—	Smart Array cache module, 256 MB *	012764-004	405836-001	Optional[2]
—	**Media devices**	—	—	—
12a	SATA DVD-ROM drive	484034-001	481428-001	Mandatory[1]
12b	PATA DVD-ROM drive	383696-002	399959-001	Mandatory[1]
—	**Memory**	—	—	—
13	DIMM, fully-buffered, PC2-5300	—	—	—
—	512 MB *	398705-051	416470-001	Mandatory[1]
—	1 GB *	398706-051	416471-001	Mandatory[1]
—	2 GB *	398707-051	416472-001	Mandatory[1]
—	4 GB *	398708-061	416473-001	Mandatory[1]
—	8 GB *	398709-071	416474-001	Mandatory[1]
—	**Processors**	—	—	—
14	Intel® Xeon® 2.4-GHz 2x4M 80W processor kit **	450251-001	452458-001	Optional[2]
—	Intel® Xeon® 2.4-GHz 2x3M 80W processor kit **	450252-001	452459-001	Optional[2]
—	Intel® Xeon® 2.13-GHz 2x2M 80W processor kit **	450253-001	452460-001	Optional[2]
—	Intel® Xeon® 1.60-GHz 2x2M 80W processor kit **	450253-002	452461-001	Optional[2]
—	Intel® Xeon® 2.93-GHz 2x4M 130W processor kit ***	450250-001	452457-001	Optional[2]
—	Intel® Xeon® 1.86-GHz 2x4M 50W processor kit **	450254-001	452462-001	Optional[2]
—	Intel® Xeon® 2.93-GHz 2x4M 80W processor kit **	450255-001	452563-001	Optional[2]
—	Intel® Xeon® 2.67-GHz 16M 130W processor kit **	493376-001	495178-001	Optional[2]
—	Intel® Xeon® 2.4-GHz 12M 90W processor kit **	481208-002	490067-001	Optional[2]

Item	Description	Assembly part number	Spare part number	Customer self repair (on page 6)
—	Intel® Xeon® 2.4-GHz 16M 130W processor kit **	481209-002	490065-001	Optional[2]
—	Intel® Xeon® 2.13-GHz 12M 90W processor kit **	493379-001	490066-001	Optional[2]
—	Intel® Xeon® 2.13-GHz 8M 90W processor kit **	493382-001	495179-001	Optional[2]
—	Intel® Xeon® 2.13-GHz 12M 65W processor kit **	493377-001	496517-001	Optional[2]
15	Heatsink assemblies	—	—	—
—	Processor heatsink assembly, 50/80W *	353802-014	453834-001	Optional[2]
—	Processor heatsink assembly, 130W *	459538-001	454594-001	Optional[2]
—	**Miscellaneous**	—	—	—
16	Smart Array BBWC battery pack	381573-001	398648-001	Optional[2]
17	Battery, 3V, Lithium *	166899-001	153099-001	Mandatory[1]
18	Power cord, C13–C14, 6-ft *	142263-001	142258-001	Mandatory[1]
19	Rack mount kit, universal *	374503-001	377839-001	Mandatory[1]
20	Tower bezel *	443351-001	457900-001	Mandatory[1]
—	**Cables**	—	—	—
21	Cable kit, ProLiant DL580 G5 Server *	—	449432-001	No[3]
22	Cable assembly, DVD *	108950-057	—	No[3]
23	Cable assembly, video, USB, UID, power *	441192-001	—	No[3]
24	Cable assembly, fan *	441208-001	—	No[3]
25	Cable, SAS power *	394038-003	—	No[3]
26	Cable, SAS data *	361316-013	—	No[3]
27	Cable assembly, media/tape drive *	441455-001	—	No[3]
28	Cable tie	100266-001	—	No[3]
29	Cable assembly, 5A BBWC battery *	408658-001	409124-001	Mandatory[1]
30	Cable assembly, SATA power/data	484355-002	501025-001	Optional[2]
—	**Hard drives**	—	—	—
31	Hot-plug SAS hard drive *	—	—	—
—	36-GB, 10,000-rpm, 6.35-cm (2.5-in)	375859-B21	376596-001	Mandatory[1]
—	36-GB, 15,000-rpm, 6.35-cm (2.5-in)	431933-B21	432322-001	Mandatory[1]
—	72-GB, 10,000-rpm, 6.35-cm (2.5-in)	375861-B21	376597-001	Mandatory[1]
—	72-GB, 15,000-rpm, 6.35-cm (2.5-in)	431935-001	432321-001	Mandatory[1]
—	146-GB, 10,000-rpm, 6.35-cm (2.5-in)	431958-B21	432230-001	Mandatory[1]
32	Hot-plug SFF SATA hard drive *	—	—	—
—	60-GB, 5,400-rpm	379306-B21	382264-001	Mandatory[1]

Item	Description	Assembly part number	Spare part number	Customer self repair (on page 6)
—	120-GB, 5,400-rpm	431786-B21	431908-001	Mandatory[1]

*Not shown
**When replacing the processor, you must also replace the heatsink (part number 453834-001).
***When replacing the processor, you must also replace the heatsink (part number 454594-001).
[1]Mandatory—Parts for which customer self repair is mandatory. If you request HP to replace these parts, you will be charged for the travel and labor costs of this service.
[2]Optional—Parts for which customer self repair is optional. These parts are also designed for customer self repair. If, however, you require that HP replace them for you, there may or may not be additional charges, depending on the type of warranty service designated for your product.
[3]No—Some HP parts are not designed for customer self repair. In order to satisfy the customer warranty, HP requires that an authorized service provider replace the part. These parts are identified as "No" in the Illustrated Parts Catalog.

[1]Mandatory: Obligatoire—Pièces pour lesquelles la réparation par le client est obligatoire. Si vous demandez à HP de remplacer ces pièces, les coûts de déplacement et main d'œuvre du service vous seront facturés.
[2]Optional: 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 HP de remplacer ces pièces, l'intervention peut ou non vous être facturée, selon le type de garantie applicable à votre produit.
[3]No: Non—Certaines pièces HP ne sont pas conçues pour permettre au client d'effectuer lui-même la réparation. Pour que la garantie puisse s'appliquer, HP 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.

[1]Mandatory: Obbligatorie—Parti che devono essere necessariamente riparate dal cliente. Se il cliente ne affida la riparazione ad HP, deve sostenere le spese di spedizione e di manodopera per il servizio.
[2]Optional: 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 HP, potrebbe dover sostenere spese addizionali a seconda del tipo di garanzia previsto per il prodotto.
[3]No: Non CSR—Alcuni componenti HP non sono progettati per la riparazione da parte del cliente. Per rispettare la garanzia, HP richiede che queste parti siano sostituite da un centro di assistenza autorizzato. Tali parti sono identificate da un “No” nel Catalogo illustrato dei componenti.

[1]Mandatory: Zwingend—Teile, die im Rahmen des Customer Self Repair Programms ersetzt werden müssen. Wenn Sie diese Teile von HP ersetzen lassen, werden Ihnen die Versand- und Arbeitskosten für diesen Service berechnet.
[2]Optional: 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 HP vornehmen lassen möchten, können bei diesem Service je nach den für Ihr Produkt vorgesehenen Garantiebedingungen zusätzliche Kosten anfallen.
[3]No: Kein—Einige Teile sind nicht für Customer Self Repair ausgelegt. Um den Garantieanspruch des Kunden zu erfüllen, muss das Teil von einem HP Servicepartner ersetzt werden. Im illustrierten Teilekatalog sind diese Teile mit „No“ bzw. „Nein“ gekennzeichnet.

[1]Mandatory: Obligatorio—componentes para los que la reparación por parte del usuario es obligatoria. Si solicita a HP que realice la sustitución de estos componentes, tendrá que hacerse cargo de los gastos de desplazamiento y de mano de obra de dicho servicio.
[2]Optional: Opcional— componentes para los que la 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 HP realice su sustitución, puede o no conllevar costes adicionales, dependiendo del tipo de servicio de garantía correspondiente al producto.
[3]No: No—Algunos componentes no están diseñados para que puedan ser reparados por el usuario. Para que el usuario haga valer su garantía, HP pone como condición que un proveedor de servicios autorizado realice la sustitución de estos componentes. Dichos componentes se identifican con la palabra “No” en el catálogo ilustrado de componentes.

[1]Mandatory: Verplicht—Onderdelen waarvoor Customer Self Repair verplicht is. Als u HP verzoekt deze onderdelen te vervangen, komen de reiskosten en het arbeidsloon voor uw rekening.
[2]Optional: Optioneel—Onderdelen waarvoor reparatie door de klant optioneel is. Ook deze onderdelen zijn ontworpen voor reparatie door de klant. Als u echter HP verzoekt deze onderdelen voor u te vervangen, kunnen daarvoor extra kosten in rekening worden gebracht, afhankelijk van het type garantieservice voor het product.
[3]No: Nee—Sommige HP 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".

[1]Mandatory: Obrigatória—Peças cujo reparo feito pelo cliente é obrigatório. Se desejar que a HP substitua essas peças, serão cobradas as despesas de transporte e mão-de-obra do serviço.
[2]Optional: 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 HP as substitua, pode haver ou não a cobrança de taxa adicional, dependendo do tipo de serviço de garantia destinado ao produto.
[3]No: Nenhuma—Algumas peças da HP não são projetadas para o reparo feito pelo cliente. A fim de cumprir a garantia do cliente, a HP exige que um técnico autorizado substitua a peça. Essas peças estão identificadas com a marca “No” (Não), no catálogo de peças ilustrado.

[1]Mandatory：必須 - 顧客自己修理が必須の部品。当該部品について、もしもお客様がHPに交換作業を依頼される場合には、その修理サービスに関する交通費および人件費がお客様に請求されます。

[2]Optional：任意 - 顧客自己修理が任意である部品。この部品も顧客自己修理用です。当該部品について、もしもお客様がHP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、費用を負担していただくことなく保証サービスを受けることができます。

[3]No：除外 - HP製品の一部の部品は、顧客自己修理用ではありません。製品の保証を継続するためには、HPまたはHP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、当該部品が顧客自己修理除外品である旨が記載されています。

[1]Mandatory: 强制性的 — 要求客户必须自行维修的部件。如果您请求 HP 更换这些部件，则必须为该服务支付差旅费和人工费用。

[2]Optional: 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 HP 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，HP 可能收取或不再收取任何附加费用。

[3]No: 否 — 某些 HP 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，HP 要求授权服务提供商更换相关部件。这些部件在部件图解目录中标记为“否”。

[1]Mandatory: 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 HP 更換這些零件，HP 將會向您收取此服務所需的外出費用與勞動成本。

[2]Optional: 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 HP 為您更換，則可能需要也可能不需要負擔額外的費用，端視針對此產品指定的保固服務類型而定。

[3]No: 否 — 某些 HP 零件沒有消費者可自行維修的設計。為符合客戶保固，HP 需要授權的服務供應商更換零件。這些零件在圖示的零件目錄中，被標示為「否」。

[1] Mandatory: 필수 — 고객 셀프 수리가 의무 사항인 필수 부품. 사용자가 HP에 이 부품의 교체를 요청할 경우 이 서비스에 대한 출장비 및 작업비가 청구됩니다.

[2] Optional: 옵션 — 고객 셀프 수리가 선택 사항인 부품. 이 부품들도 고객 셀프 수리가 가능하도록 설계되었습니다. 하지만 사용자가 HP에 이 부품의 교체를 요청할 경우 사용자가 구입한 제품에 해당하는 보증 서비스 유형에 따라 추가 비용 없이 교체가 가능할 수 있습니다.

[3] No: No — 고객 셀프 수리가 불가능하도록 설계된 HP 부품. 이 부품들은 고객 셀프 수리가 불가능하도록 설계되었습니다. HP는 고객 보증을 만족시키기 위해 공인 서비스 제공업체를 통해 부품을 교체하도록 하고 있습니다.

Removal and replacement procedures

Required tools

You need the following items for some procedures:

- Torx T-15 screwdriver (provided with the server ("Rear panel components" on page 71))
- Phillips screwdriver
- Flathead screwdriver
- Diagnostics Utility

Safety considerations

Before performing service procedures, review all the safety information.

Preventing electrostatic discharge

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

To prevent electrostatic damage:

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

Server warnings and cautions

Before installing a server, be sure that you understand the following warnings and cautions.

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

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

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

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

Preparation procedures

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

- Power down the server (on page 26).

  If you must remove a server from a rack or a non-hot-plug component from a server, power down the server.
- Extend the server from the rack ("Extending the server from the rack" on page 27).

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

  For more information about telco rack solutions, refer to the RackSolutions.com website (http://www.racksolutions.com/hp).
- Remove the server from the rack ("Removing the server from the rack" on page 28).

  If the rack environment, cabling configuration, or the server location in the rack creates awkward conditions, remove the server from the rack.
- Remove the access panel ("Removing the access panel" on page 28).

  If you are servicing internal components, remove the access panel.

Power down the server

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

IMPORTANT: If installing a hot-plug device, it is not necessary to power down the server.

1. Shut down the OS as directed by the OS documentation.
2. Press the Power On/Standby button to place the server in standby mode. When the server enters standby power mode, the system power LED changes to amber.
3. Disconnect the power cords.

The system is now without power.

Extending the server from the rack

The design of the server enables you to access several components through the front of the server. You do not need to extend the server from the rack to install or access the following components:

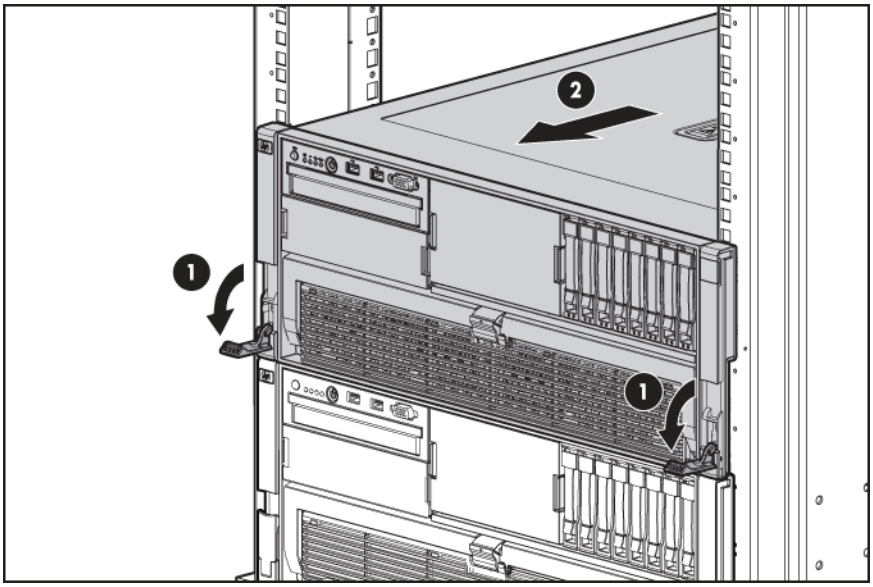
- Processors
- PPMs
- Memory
- Processor memory module
- Hard drives

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

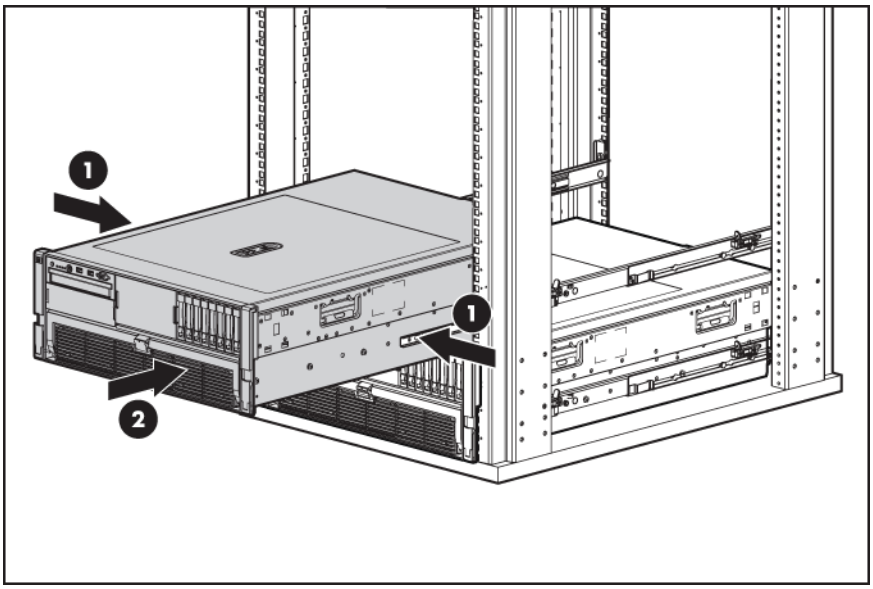
WARNING: To reduce the risk of personal injury, be careful when pressing the server rail-release latches and sliding the server into the rack. The sliding rails could pinch your fingers.

To extend the server from the rack:

1. Pull down the quick-release levers on each side of the server to release the server from the rack.
2. Extend the server on the rack rails until the server rail-release latches engage.



3. After performing the installation or maintenance procedure, slide the server into the rack by pressing the server rail-release latches.



Removing the server from the rack

WARNING: The server weighs approximately 36.3 kg–49.9 kg (80 lb–110 lb). To reduce the risk of injury due to the weight of the server, remove the following components before removing the server from the rack:

- Processor memory module ("Removing the processor memory module" on page 29)
- Hard drives ("Hard drive" on page 31)
- Power supplies (on page 44)

The server weighs 21.8 kg (48 lb) with these components removed and might require two people to remove the server from the rack.

1. Power down the server (on page 26).
2. Remove the following components to reduce the weight of the server:
   - Processor memory module ("Removing the processor memory module" on page 29)
   - Hard drives ("Hard drive" on page 31)
   - Power supplies (on page 44)
3. Disconnect the cabling, and remove the server from the rack. For more information, see the documentation that ships with the rack mounting option.
4. Place the server on a sturdy, level surface.

Removing the access panel

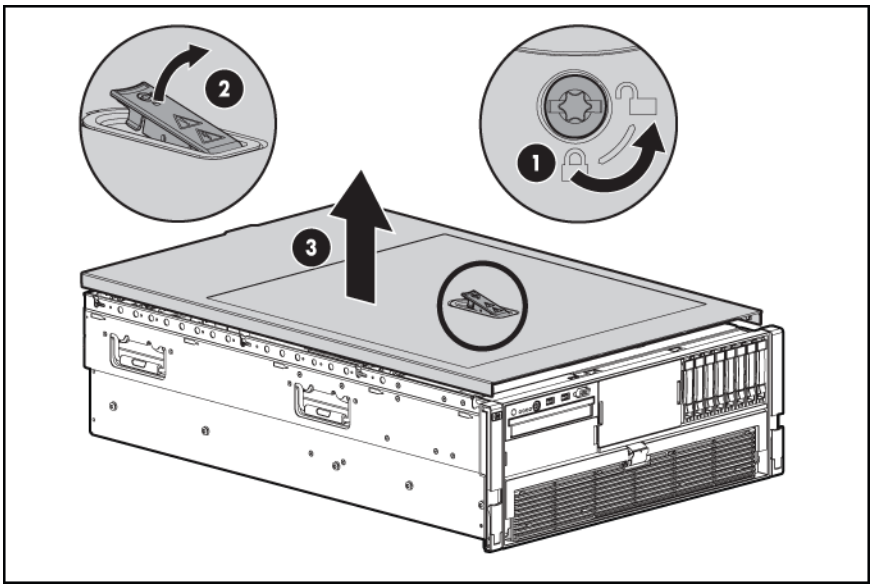
WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

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

1. Extend the server from the rack, if applicable ("Extending the server from the rack" on page 27).
2. Unlock the latch using a T-15 Torx screwdriver.

   NOTE: The T-15 Torx screwdriver is shipped with the server and can be located on the rear panel ("Rear panel components" on page 71).

3. Lift up on the hood latch, and remove the access panel.



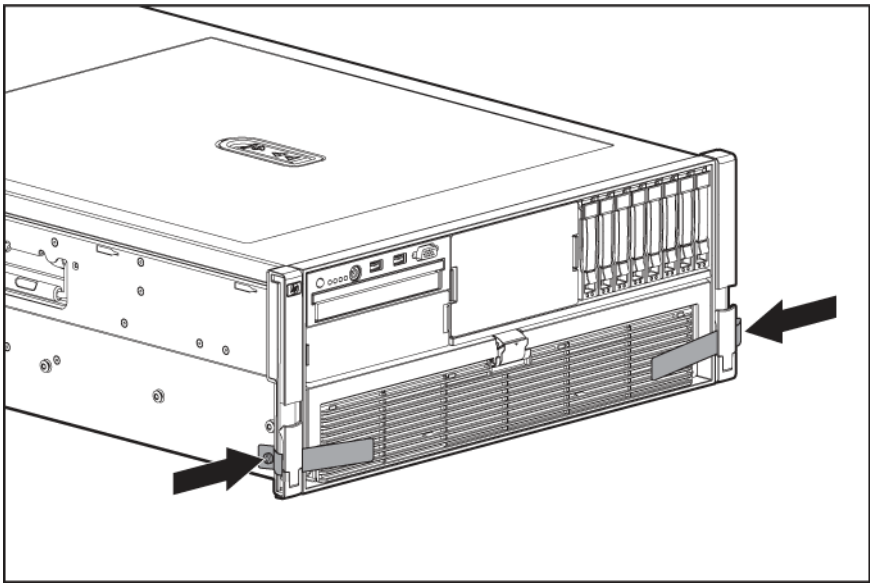
4. After installing hardware options, replace the access panel. Be sure that the panel is securely locked into place before powering up the server.

Removing the processor memory module

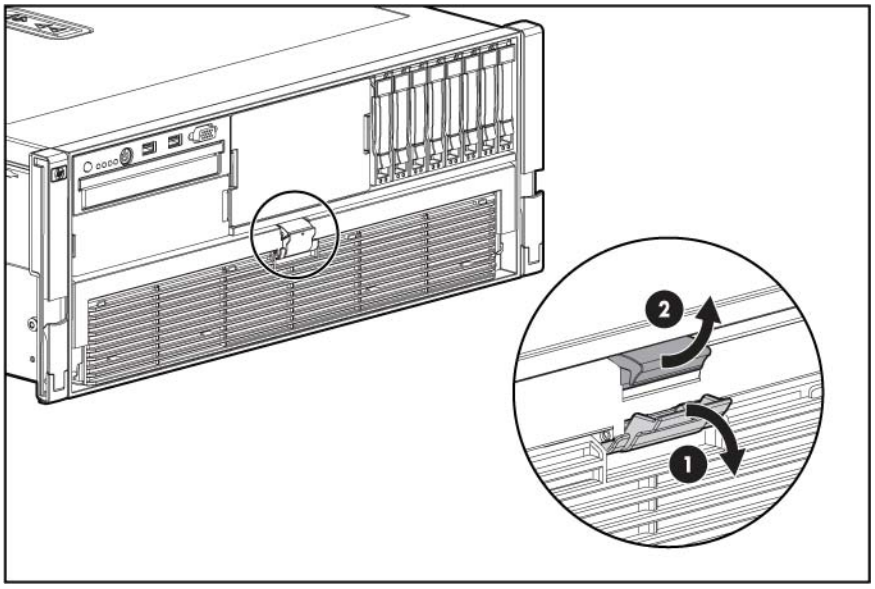
WARNING: Use caution when installing the processor memory module or removing the processor memory module. The processor memory module is very heavy when fully populated.

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

2. If the shipping screws are installed, remove them. The shipping screw locations are marked with tags on both sides of the server for easy identification.

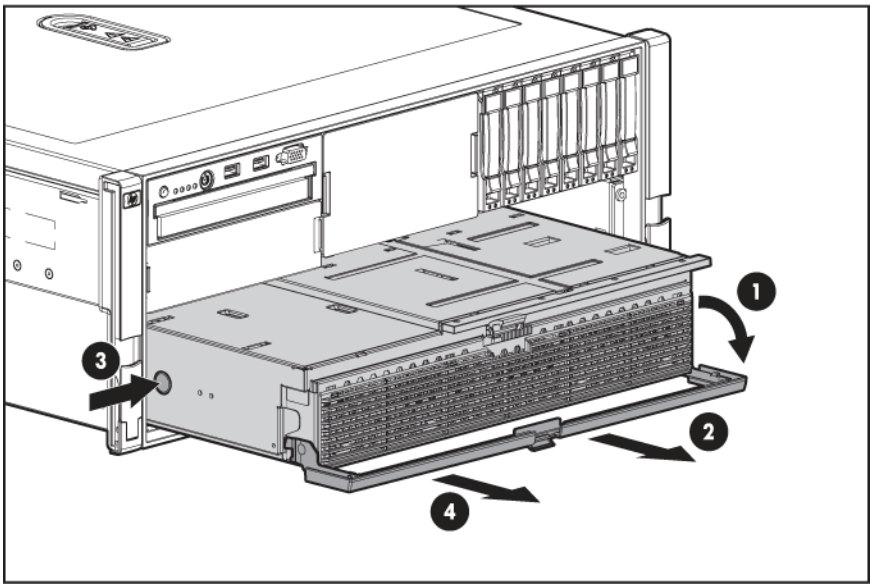


3. Release the latches on the lever.

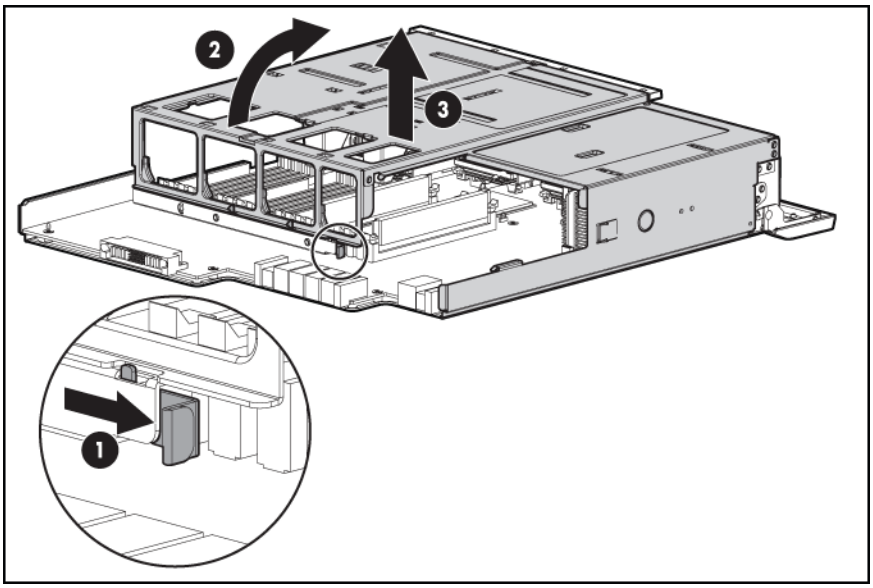


4. Lower the handle, and pull the processor memory module out of the server until the release latches catch.

5. Firmly holding the processor memory module, press the release buttons and pull the module out of the server.



6. Remove the processor memory module cover.



To replace the component, reverse the removal procedure.

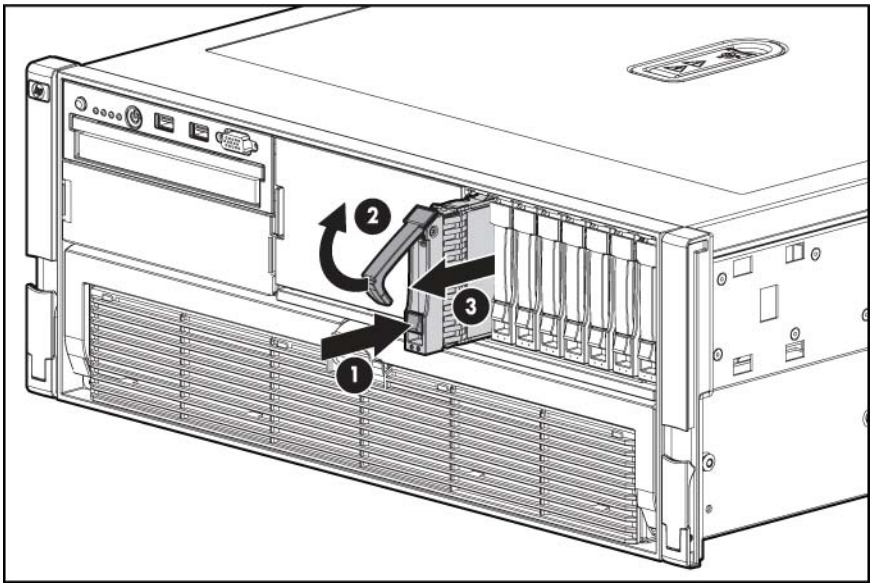
Hard drive

△ **CAUTION:** Always power down the server if the boot partition resides on the drive you are replacing or if you are replacing the only drive in the server.

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

1. Determine the status of the hard drive from the hot-plug hard drive LEDs ("SAS hard drive LEDs" on page 78).

2. Back up all data on the hard drive.
3. Remove the hard drive.

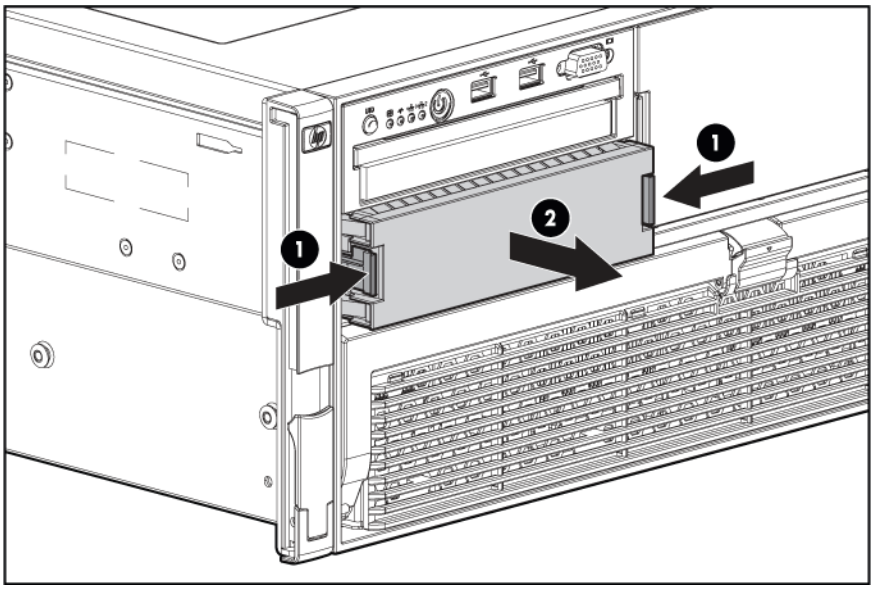


To replace the component, reverse the removal procedure.

Tape drive blank

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

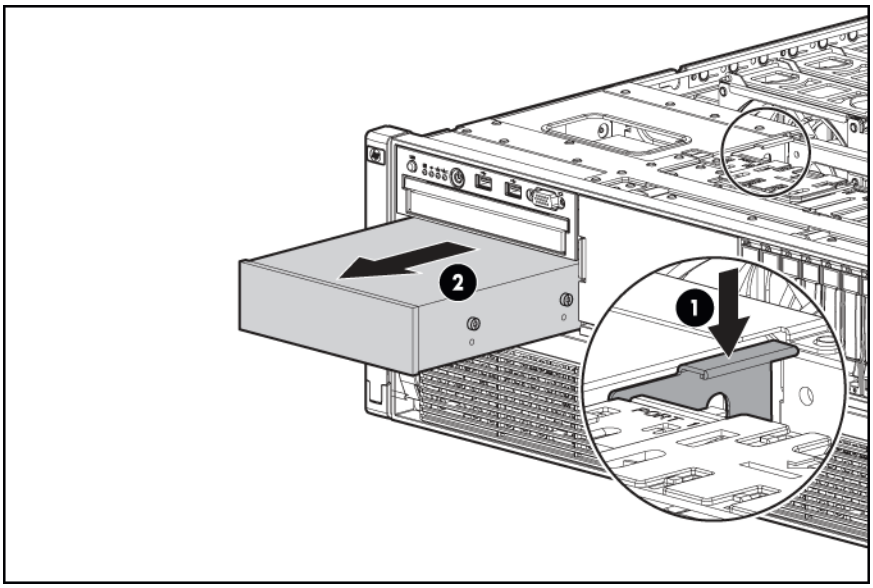
Press the tabs, and pull out the blank.



To replace the component, reverse the removal procedure.

Tape drive

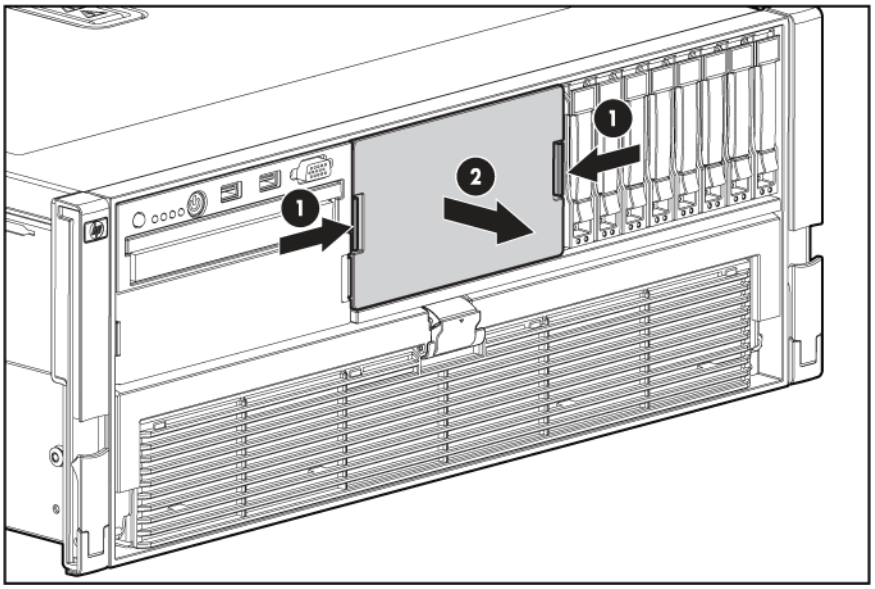
1. Power down the server (on page 26).
2. Extend the server from the rack ("Extending the server from the rack" on page 27).
3. Remove the access panel ("Removing the access panel" on page 28).
4. Disconnect the data and power cables from the rear of the tape drive.
5. Push the tab, and pull out the tape drive.



To replace the component, reverse the removal procedure.

SAS drive cage blank

Press the tabs, and pull out the blank.

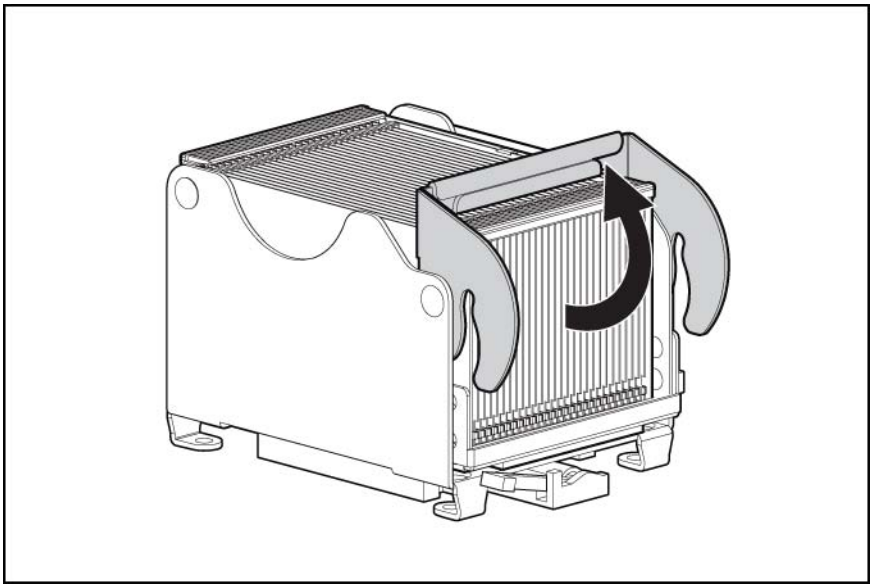


Processor assembly

WARNING: To reduce the risk of personal injury from hot surfaces, allow the heatsink to cool before touching it.

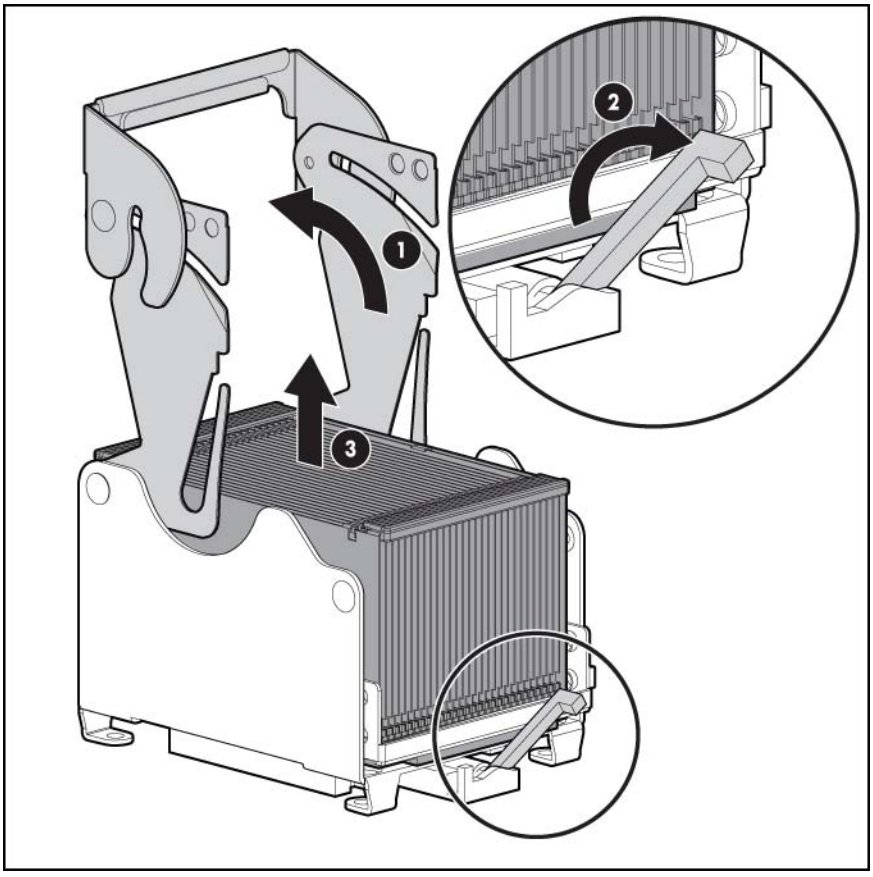
IMPORTANT: When replacing the processor, you must also replace the heatsink. For information on ordering the heatsink, see the Illustrated Parts Catalog (on page 17).

1. Power down the server (on page 26).
2. Remove the processor memory module, and open the cover ("Removing the processor memory module" on page 29).
3. Unlock the processor retaining bracket.

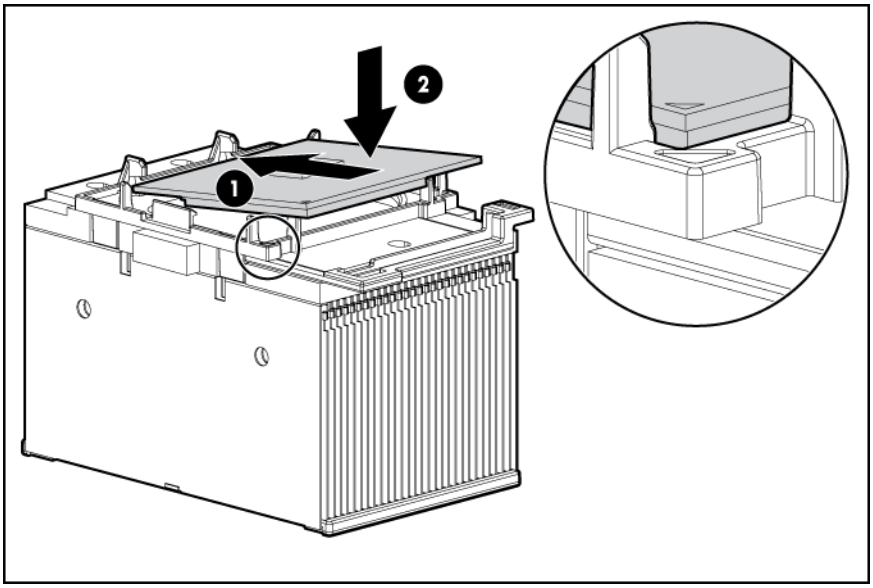


4. Open the processor retaining bracket.
5. Open the processor locking lever.
6. Remove the processor ("Processor assembly" on page 34).

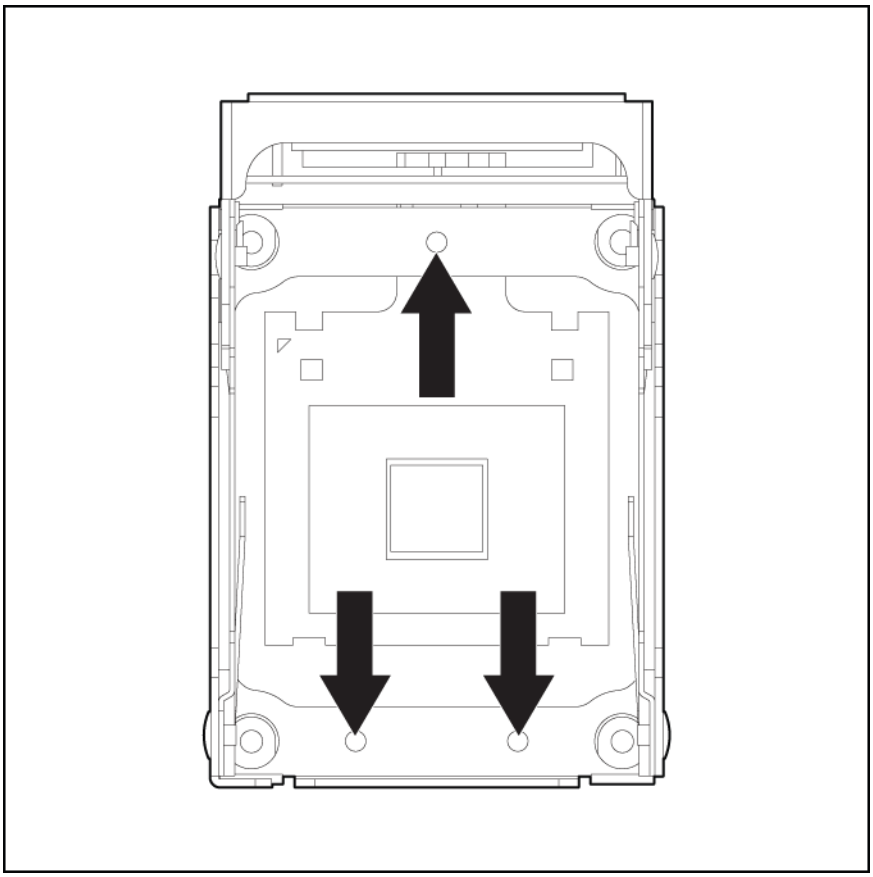
IMPORTANT: Do not separate the processor from the heatsink. For information on packing and returning the failed processor assembly to HP, see the packing instructions included in the processor spare kit.



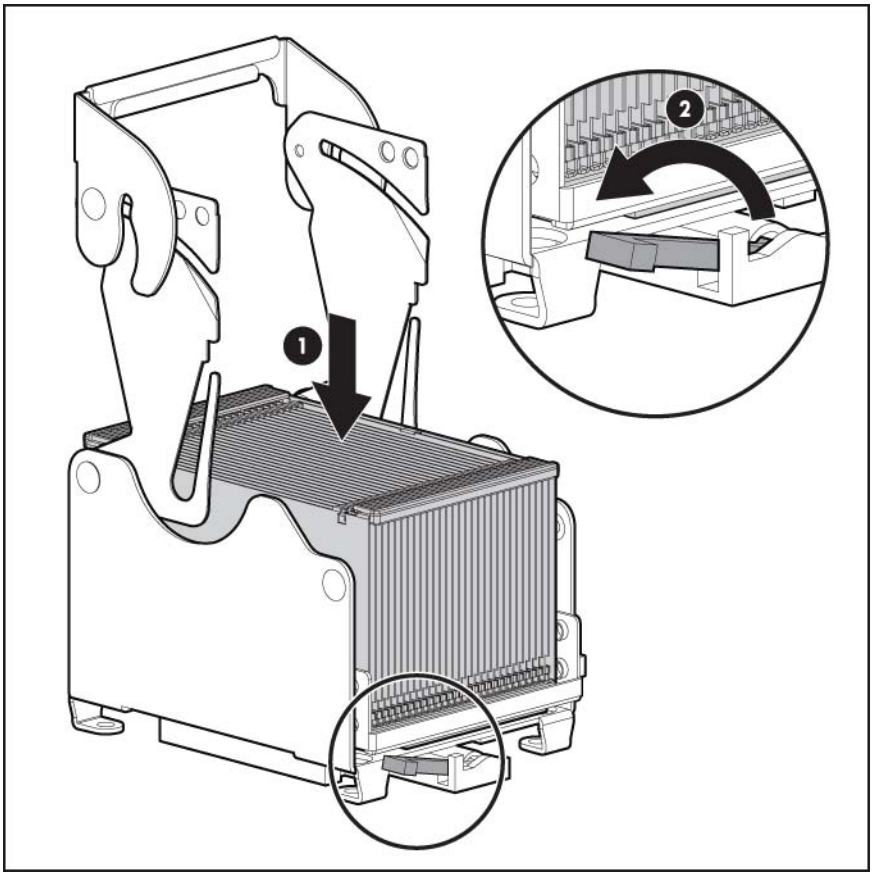
7. Assemble the processor and heatsink.
   a. Remove the thermal interface protective cover from the heatsink.
   b. Align the processor with the retainer on the heatsink. Be sure that the triangle printed on the corner of the processor aligns with the triangle on the retainer.
   c. Insert the processor into the retainer, and press down firmly until the processor clicks into place.



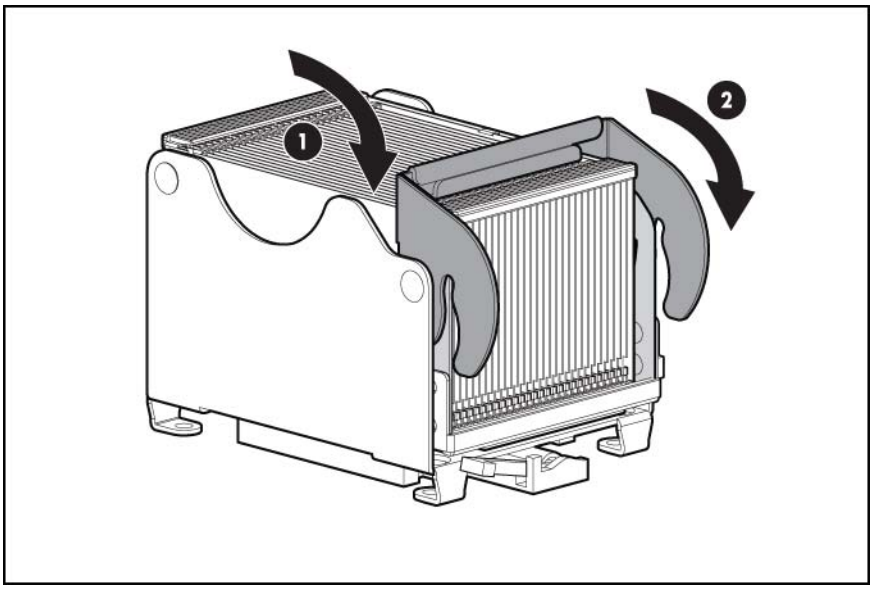
8. Align the guide pins on the base of the processor retaining bracket to the three corresponding guide slots on the processor assembly.



9. Insert the processor assembly into the processor socket, and close the locking lever.



10. Close and lock the processor retaining bracket.



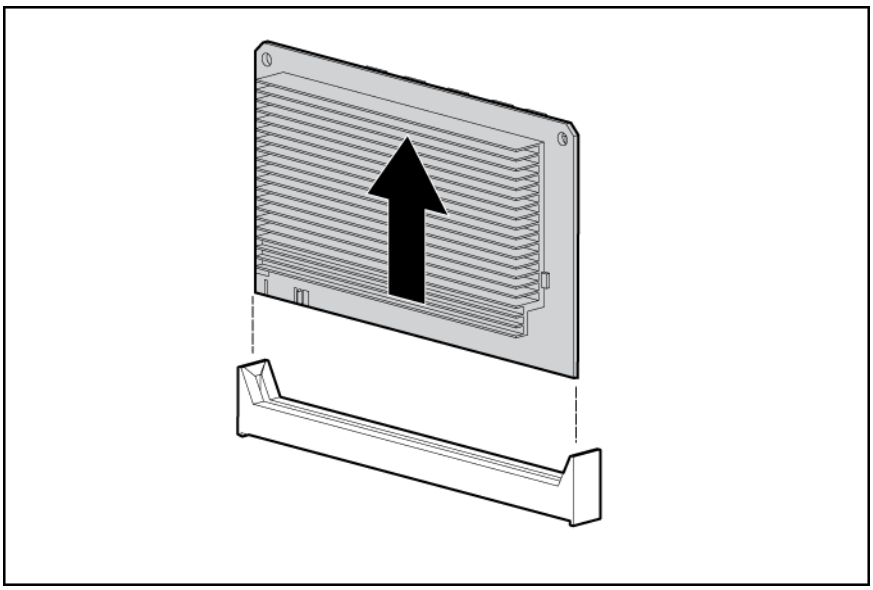
11. Replace the processor memory module cover.
12. Install the processor memory module into the server.
13. Power up the server.

PPM

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

IMPORTANT: Always install a PPM when you install a processor. The system fails to boot if the PPM is missing.

1. Power down the server (on page 26).
2. Remove the processor memory module, and open the cover ("Removing the processor memory module" on page 29).
3. Remove the PPM.

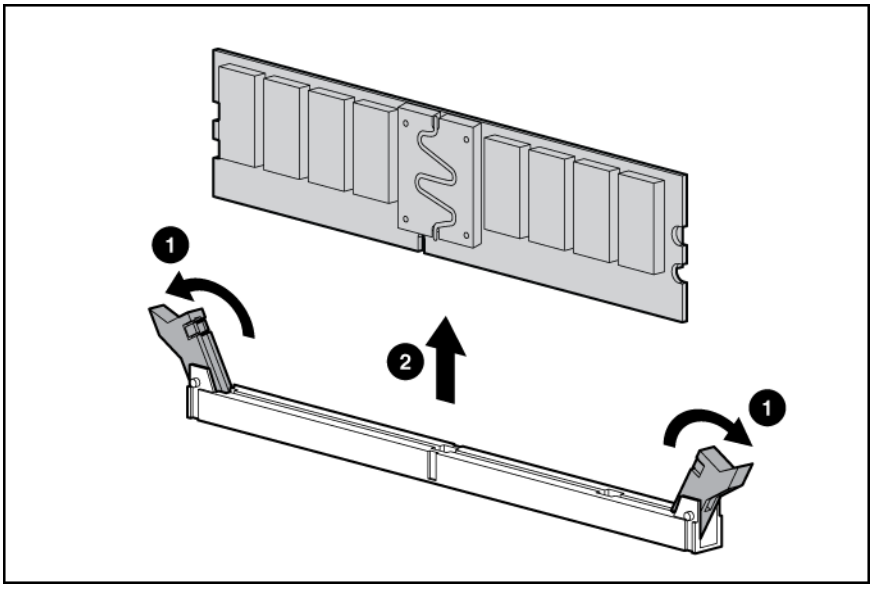


To replace the component, reverse the removal procedure.

FBDIMMs

1. Power down the server (on page 26).
2. Remove the processor memory module, and open the cover ("Removing the processor memory module" on page 29).
3. Open the FBDIMM slot latches.

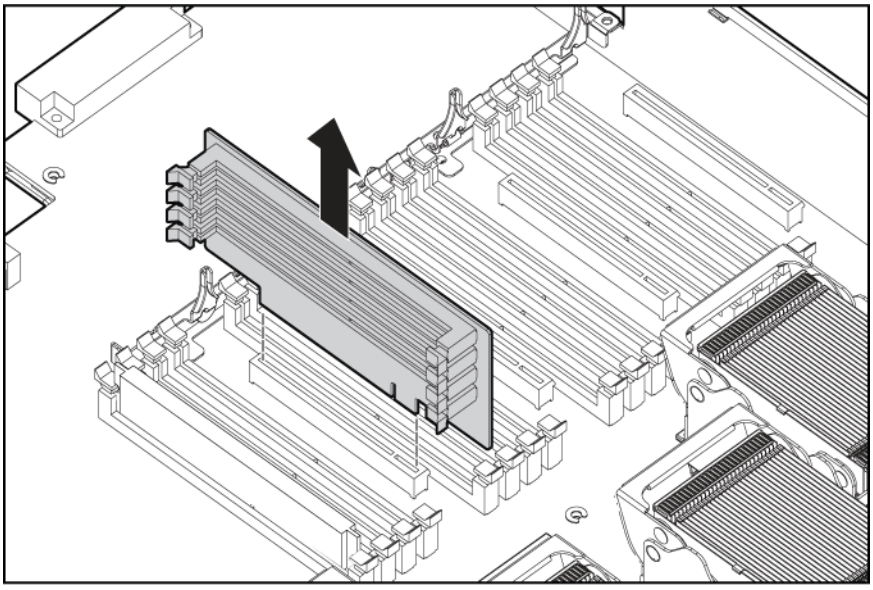
4. Remove the FBDIMM.



To replace the component, reverse the removal procedure.

Memory expansion boards

1. Power down the server (on page 26).
2. Remove the processor memory module, and open the cover ("Removing the processor memory module" on page 29).
3. Remove the memory expansion board.



4. Remove each FBDIMM ("FBDIMMs" on page 38), and install it in the same location on the new memory expansion board.
5. Install the memory expansion board in the same location on processor memory module.

Processor memory module

To replace the processor memory module:

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

WARNING: Use caution when installing the processor memory module or removing the processor memory module. The processor memory module is very heavy when fully populated.

2. Remove the processor memory module, and open the cover ("Removing the processor memory module" on page 29).
3. Remove each processor ("Processor assembly" on page 34), and install it in the same location in the new processor memory module.

IMPORTANT: Be sure to install the processors in same location in the new processor memory module. For example, the processor from socket 1 must be installed in socket 1 of the new processor memory module. See the processor migration instructions that ship with the processor memory module for more information.

4. Remove each PPM ("PPM" on page 38), and install it in the same location in the new processor memory module.
5. Remove each memory expansion board ("Memory expansion boards" on page 39), and install it in the same location in the new processor memory module.
6. Remove each FBDIMM ("FBDIMMs" on page 38), and install it in the same location in the new processor memory module.

IMPORTANT: Be sure to install FBDIMMs in the same banks on the spare processor memory module. For example, the FBDIMM from slot 1A must be installed in slot 1A in the new processor memory module.

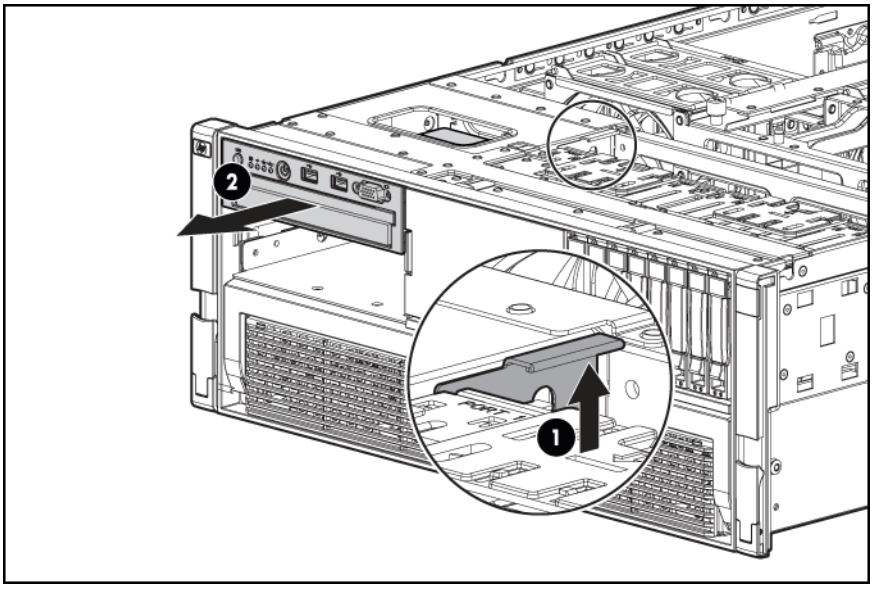
7. Close the processor memory module cover.
8. Install the processor memory module into the server.
9. Power up the server.

Systems Insight Display assembly

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

1. Power down the server (on page 26).
2. Extend or remove the server from the rack ("Extending the server from the rack" on page 27).
3. Remove the access panel ("Removing the access panel" on page 28).
4. Remove the tape drive blank (on page 32), if installed.
5. Remove the data cable connected to the rear of the Systems Insight Display assembly.
6. Remove the data and power cables connected to the DVD board of the System Insight Display assembly. If a SATA DVD drive is installed, remove the cable connected to the rear of the DVD drive.

7. Press the locking latch, and push the Systems Insight Display assembly through the front of the server.



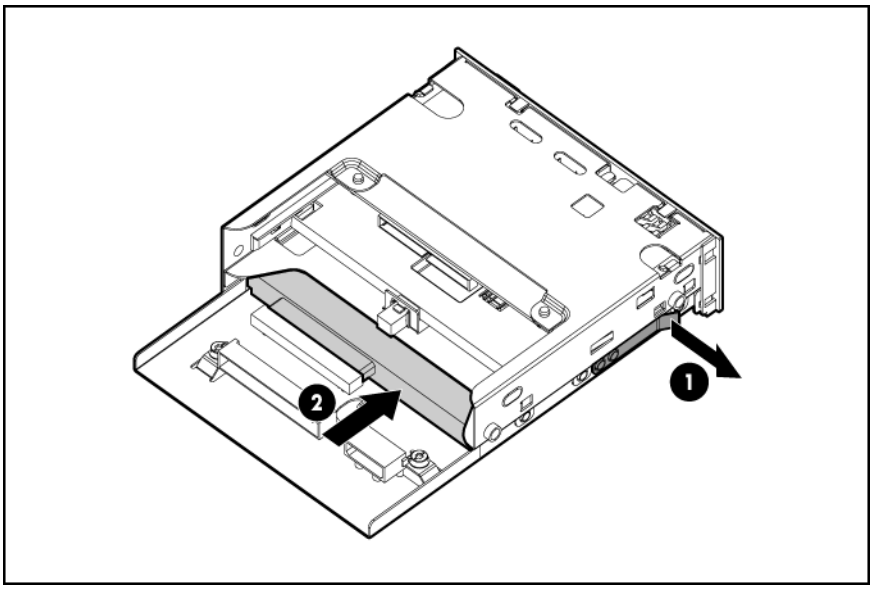
8. Remove the DVD drive (on page 41) from the Systems Insight Display assembly, and then install the drive into the new assembly.
9. To replace the component, reverse the removal procedure. If a SATA DVD drive is installed, before installing the Systems Insight Display assembly into the server, route the cable through the open bay, and then connect the cable to the rear of the DVD drive.

DVD drive

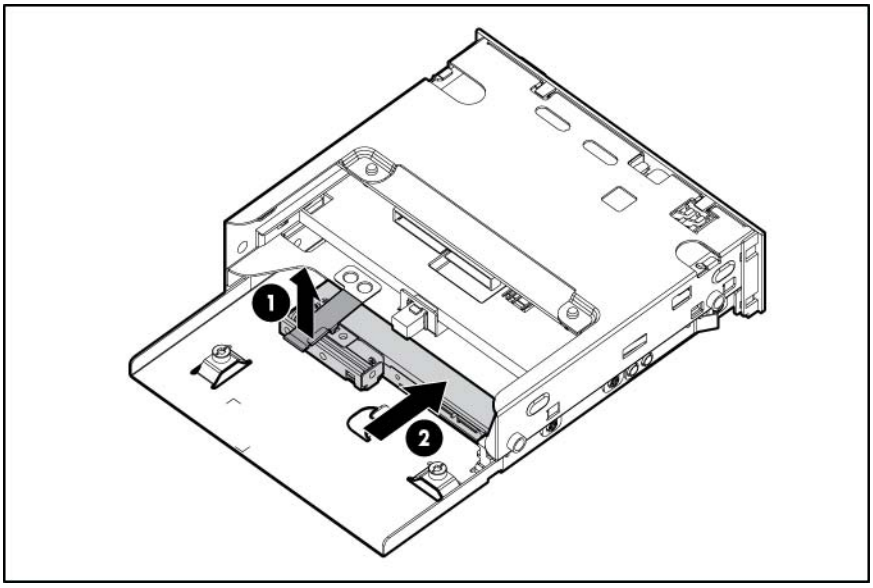
△ **CAUTION:** When routing cables, always be sure that the cables are not in a position where they can be pinched or crimped.

1. Power down the server (on page 26).
2. Extend or remove the server from the rack ("Extending the server from the rack" on page 27).
3. Remove the access panel ("Removing the access panel" on page 28).
4. Remove the tape drive blank (on page 32), if installed.
5. Remove the Systems Insight Display assembly (on page 40).
6. Eject the DVD drive using one of the following procedures:

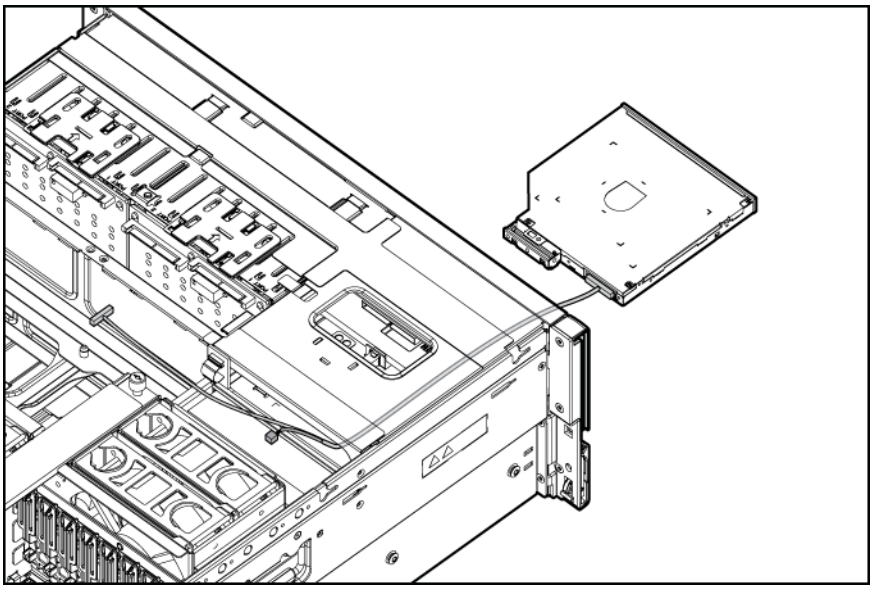
- Pull the spring clip, and push the rear of the DVD drive through the front of the Systems Insight Display assembly.



- If a SATA DVD drive is installed, lift the tab, and push the rear of the DVD drive through the front of the Systems Insight Display assembly.

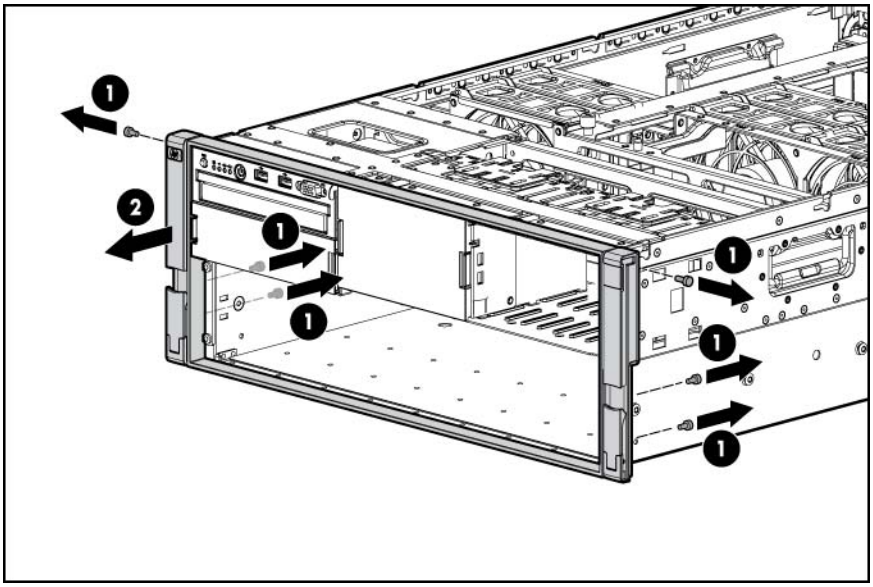


7. To replace the component, reverse the removal procedure. If a SATA DVD drive is installed, before installing the Systems Insight Display assembly into the server, route the cable through the open bay, and then connect the cable to the rear of the DVD drive.



Front bezel

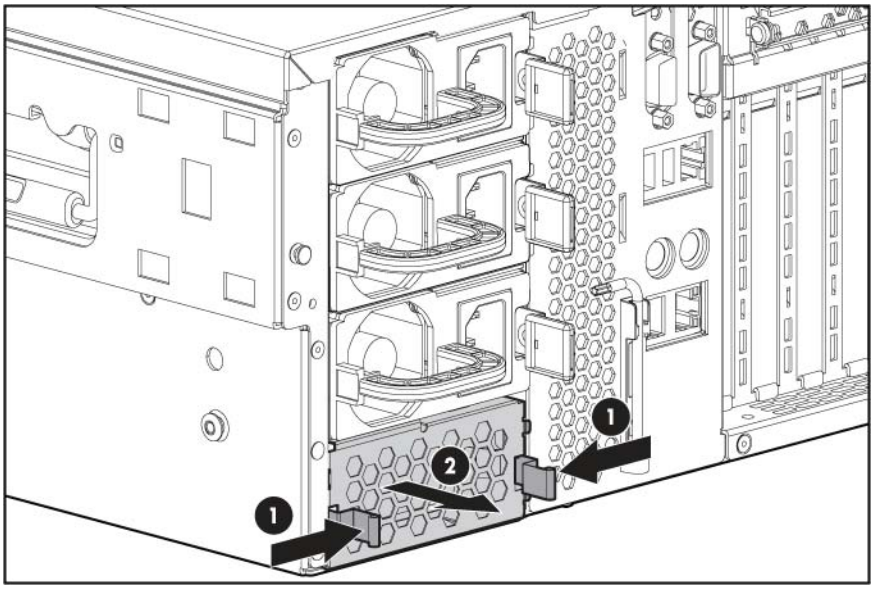
1. Power down the server (on page 26).
2. Extend the server from the rack ("Extending the server from the rack" on page 27).
3. Remove the access panel ("Removing the access panel" on page 28).
4. Remove the processor memory module ("Removing the processor memory module" on page 29).
5. Remove the Systems Insight Display assembly (on page 40).
6. Remove the screws, and pull the bezel from the server.



To replace the component, reverse the removal procedure.

Power supply blank

Press the tab, and remove the blank from the server.

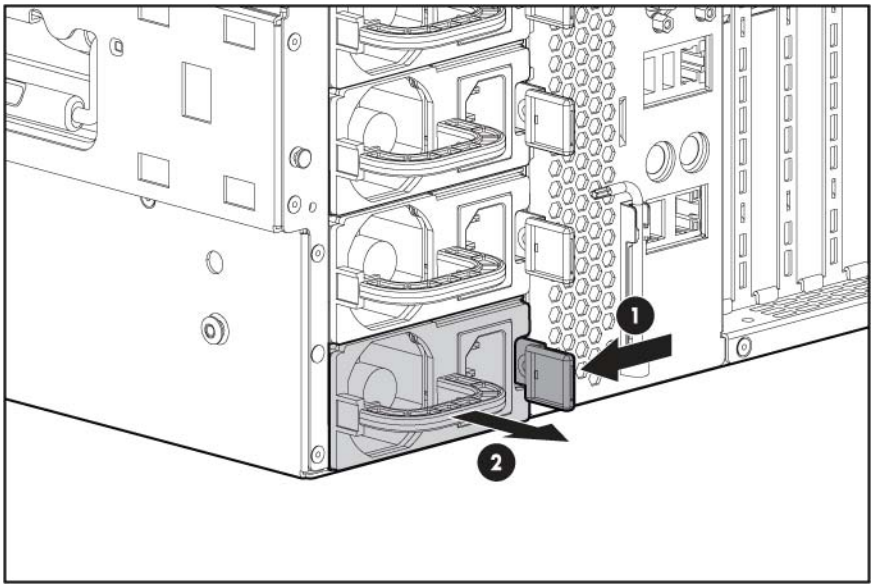


To replace the component, reverse the removal procedure.

Power supplies

IMPORTANT: If there are less than two power supplies installed, power down the server before removing the power supply.

1. Disconnect the power cord from the power supply.
2. Remove the power supply.

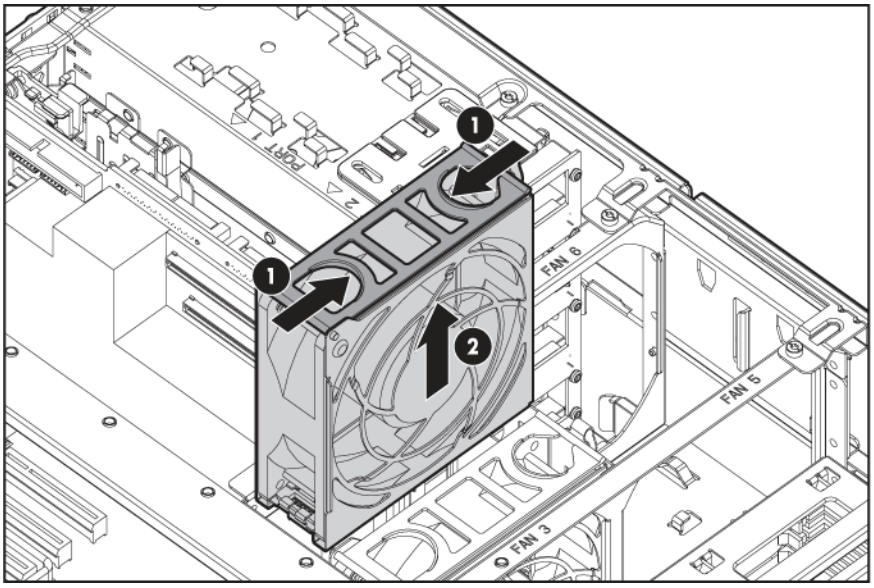


To replace the component, reverse the removal procedure.

Fans

IMPORTANT: Remove and replace one fan at a time. If the system detects two fan failures in the same zone, the server shuts down to avoid thermal damage.

1. Remove the access panel ("Removing the access panel" on page 28).
2. Remove the malfunctioning hot-plug fan from the server.



To replace the component, reverse the removal procedure.

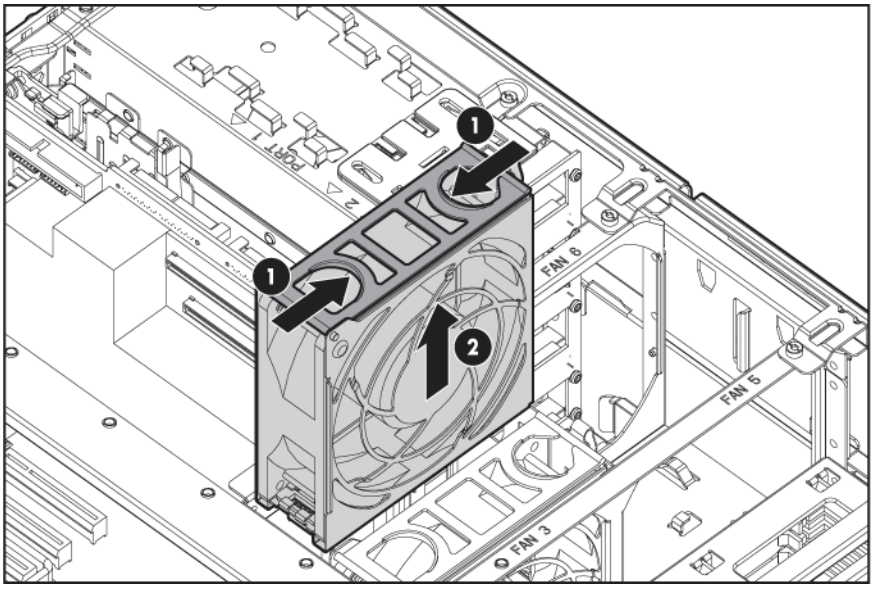
Fan cable assembly

WARNING: Use caution when installing the processor memory module or removing the processor memory module. The processor memory module is very heavy when fully populated.

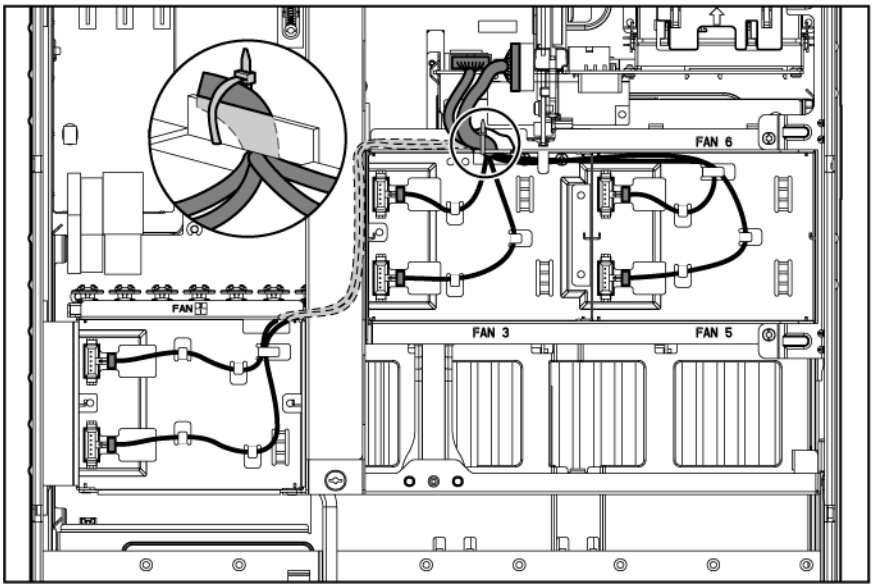
CAUTION: To prevent damage to the fan cable assembly, do not over tighten the cable tie.

1. Power down the server (on page 26).
2. Remove the processor memory module ("Removing the processor memory module" on page 29).
3. Extend or remove the server from the rack ("Extending the server from the rack" on page 27).
4. Remove the access panel ("Removing the access panel" on page 28).

5. Remove the fans.



6. Disconnect and remove the fan cable assembly.
7. Install and route the new fan cable assembly (on page 84).
8. Install the cable tie around the cables and the bottom of the fan bay.
9. Pull the cable tie until the cables are secured against the fan bay. Do not over tighten the cable tie.
10. Position the cable tie so the locking mechanism is outside of the fan bay, and trim any excess.



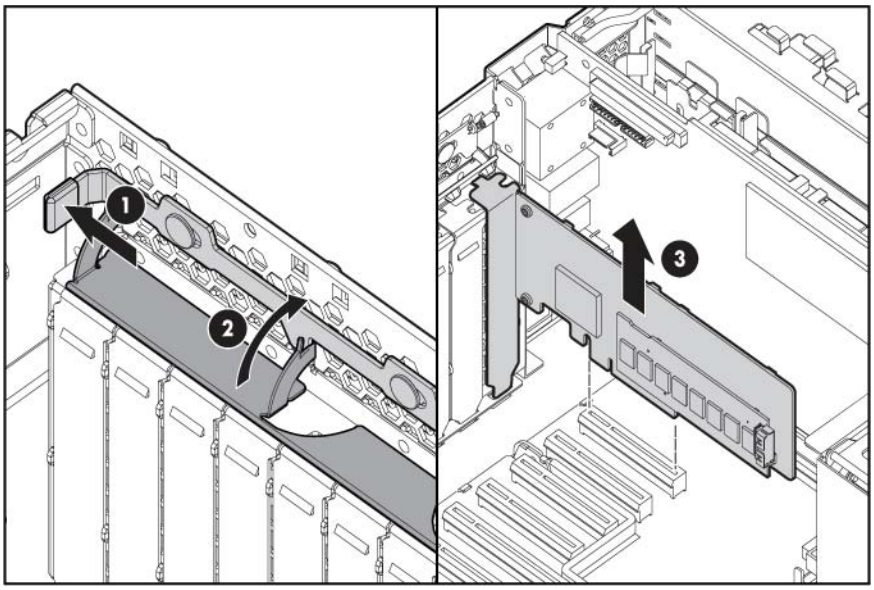
11. Install the processor memory module into the server. Carefully slide it into place, and verify that the cable tie and fan cable assembly do not interfere with the processor memory module. If necessary, adjust the position of the cable assembly and cable tie.
12. Remove the processor memory module ("Removing the processor memory module" on page 29).
13. Install the fans.
14. Install the access panel.
15. Install the server into the rack.

16. Install the processor memory module into the server.
17. Power up the server, and resume normal server operations.

Non-hot-plug expansion boards

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

1. Power down the server (on page 26).
2. Extend or remove the server from the rack ("Extending the server from the rack" on page 27).
3. Remove the access panel ("Removing the access panel" on page 28).
4. Disconnect any internal or external cables attached to the expansion board.
5. Open the PCI latch.
6. Unlock the retaining clip (for full-length expansion boards).
7. Remove the expansion board.



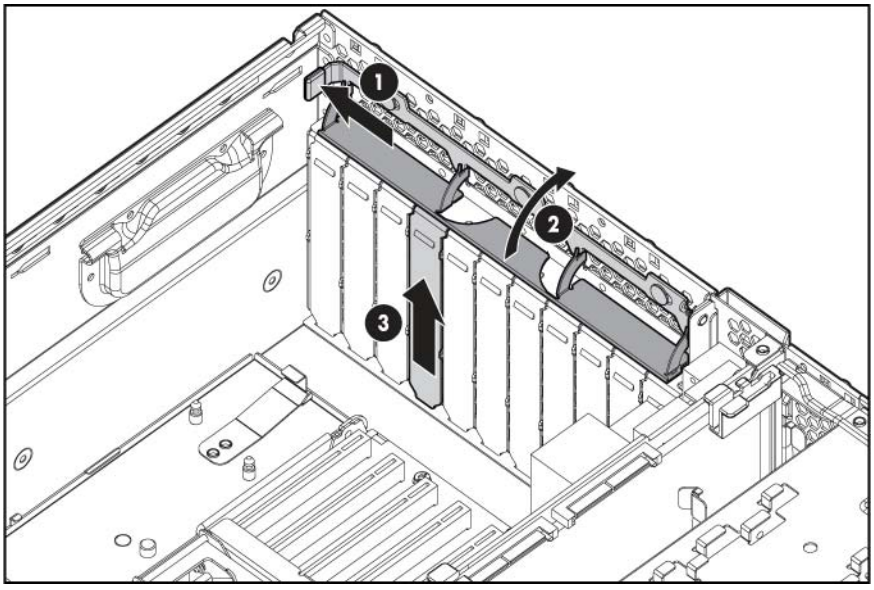
To replace the component, reverse the removal procedure.

Expansion slot cover

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

1. Power down the server (on page 26).
2. Extend or remove the server from the rack ("Extending the server from the rack" on page 27).
3. Remove the access panel ("Removing the access panel" on page 28).

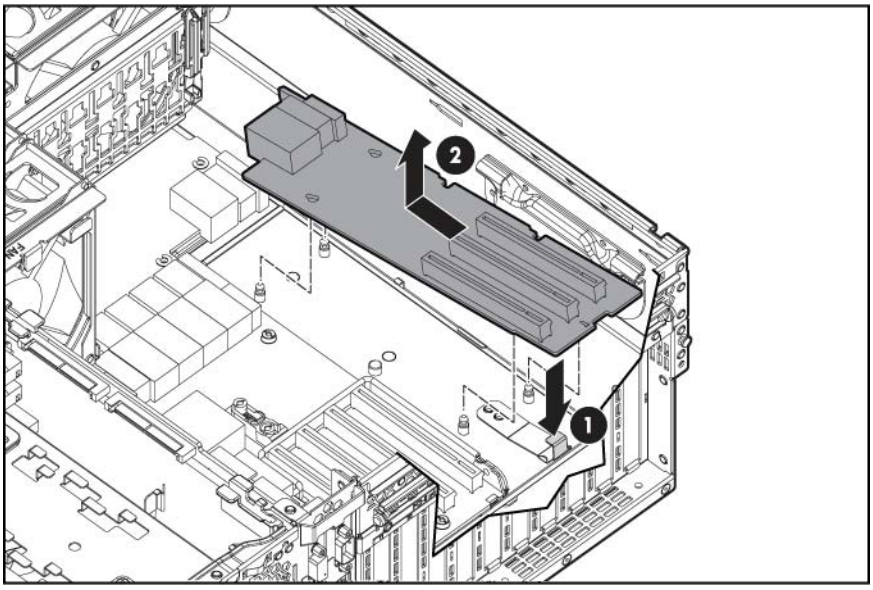
4. Open the latch, and remove the expansion slot cover.



To replace the component, reverse the removal procedure.

PCI-X or PCI Express x8 3 Slot Option Card

1. Power down the server (on page 26).
2. Extend or remove the server from the rack ("Extending the server from the rack" on page 27).
3. Remove the processor memory module ("Removing the processor memory module" on page 29).
4. Remove the access panel ("Removing the access panel" on page 28).
5. Remove the expansion boards from slots 1 through 3 ("Non-hot-plug expansion boards" on page 47).
6. Slide the card forward, and lift the card from the server.



To replace the component, reverse the removal procedure.

Battery-backed write cache procedures

Two types of procedures are provided for the BBWC option:

- Removal and replacement of failed components:
  - Removing the cache module ("Removing the BBWC cache module" on page 50)
  - Removing the battery pack ("Removing the BBWC battery pack" on page 49)
- Recovery of cached data from a failed server ("Recovering data from the battery-backed write cache" on page 51)

> **CAUTION:** Do not detach the cable that connects the battery pack to the cache module. Detaching the cable causes any unsaved data in the cache module to be lost.

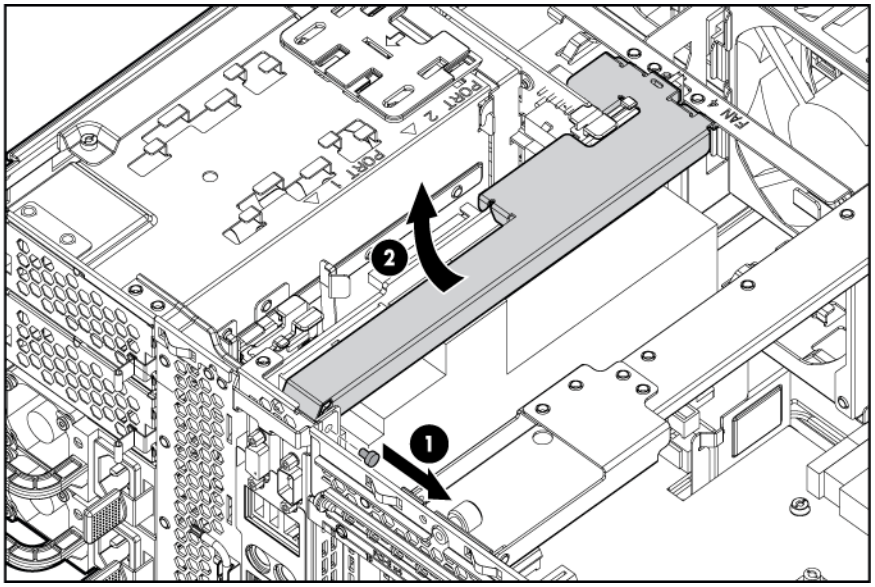
Removing the BBWC battery pack

> **CAUTION:** To prevent a server malfunction or damage to the equipment, do not add or remove the battery pack while an array capacity expansion, RAID level migration, or stripe size migration is in progress.

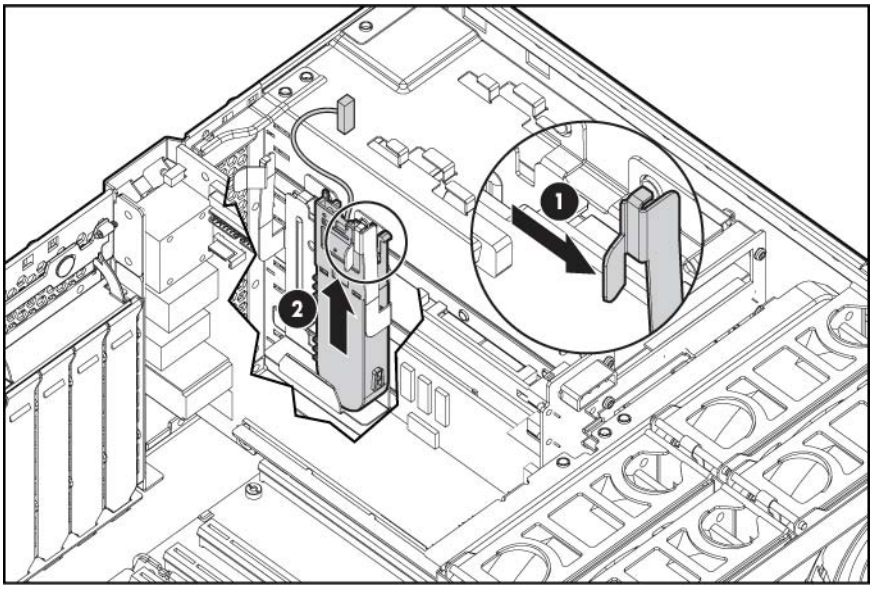
> **CAUTION:** After the server is powered down, wait 15 seconds and then check the amber LED before unplugging the cable from the cache module. If the amber LED blinks after 15 seconds, do not remove the cable from the cache module. The cache module is backing up data, and data is lost if the cable is detached.

> **CAUTION:** Do not detach the cable that connects the battery pack to the cache module. Detaching the cable causes any unsaved data in the cache module to be lost.

1. Power down the server (on page 26).
2. Extend or remove the server from the rack ("Extending the server from the rack" on page 27).
3. Remove the access panel ("Removing the access panel" on page 28).
4. If the bracket is installed, remove the bracket.



5. Press the tab, and remove the battery pack from the battery retainer.



6. Disconnect the cable from the cache module only if the battery pack is not being used to recover data from the server or transfer data to another server.

To replace the component, reverse the removal procedure.

After installing a battery pack, you might see a POST message during reboot indicating that the array accelerator (cache) is temporarily disabled. This behavior is normal because the new battery pack is likely to have a low charge. You do not need to take any action because the recharge process begins when the battery pack is installed. The controller operates properly while the battery pack recharges, although the performance advantage of the array accelerator is absent. When the battery pack has been charged to a satisfactory level, the array accelerator is automatically enabled.

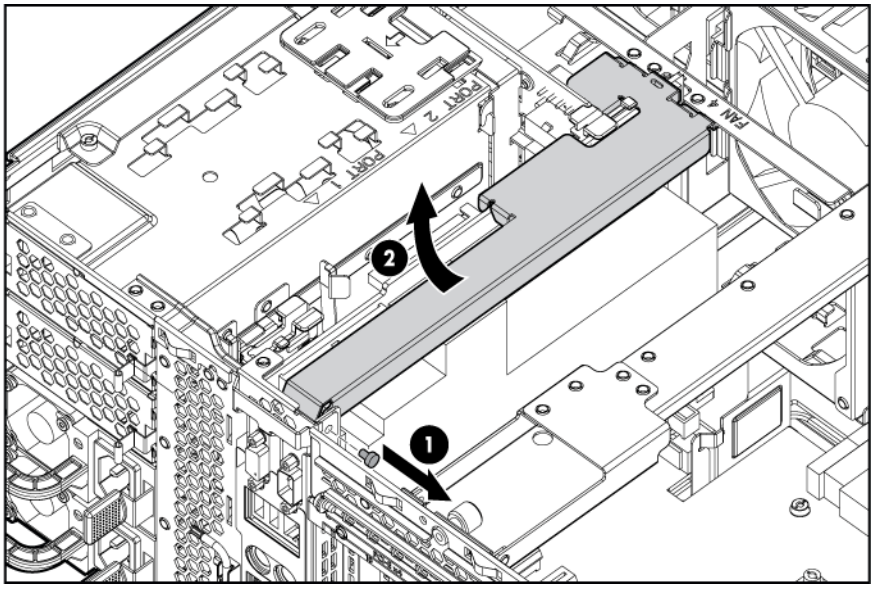
Removing the BBWC cache module

△ **CAUTION:** After the server is powered down, wait 15 seconds and then check the amber LED before unplugging the cable from the cache module. If the amber LED blinks after 15 seconds, do not remove the cable from the cache module. The cache module is backing up data, and data is lost if the cable is detached.

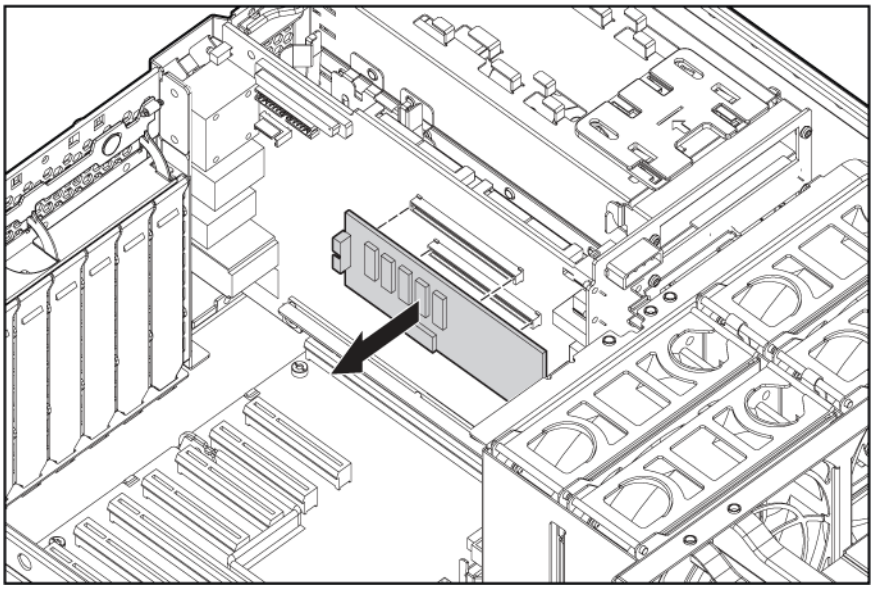
△ **CAUTION:** Do not detach the cable that connects the battery pack to the cache module. Detaching the cable causes any unsaved data in the cache module to be lost.

1. Power down the server (on page 26).
2. Extend the server from the rack ("Extending the server from the rack" on page 27).
3. Remove the access panel ("Removing the access panel" on page 28).

4. If the bracket is installed, remove the bracket.



5. If the existing cache is connected to a battery, observe the BBWC Status LED ("Battery pack LEDs" on page 79).
   - If the LED is blinking every 2 seconds, data is still trapped in the cache. Restore system power, and repeat the previous steps.
   - If the LED is not lit, disconnect the battery cable from the cache.
6. Pull the cache module away from the SPI board.



To replace the component, reverse the removal procedure.

Recovering data from the battery-backed write cache

If the server fails, you can recover any data temporarily trapped in the BBWC by using the following procedure.

CAUTION: Before starting this procedure, read the information about protecting against electrostatic discharge ("Preventing electrostatic discharge" on page 25).

1. Perform one of the following:
   - Set up a recovery server station using an identical server model. Do not install any internal drives or BBWC in this server. (This is the preferred option.)
   - Find a server that has enough empty drive bays to accommodate all the drives from the failed server and that meets all the other requirements for drive and array migration.
2. Power down the failed server ("Power down the server" on page 26). If any data is trapped in the cache module, an amber LED on the module blinks every 15 seconds.

CAUTION: Do not detach the cable that connects the battery pack to the cache module. Detaching the cable causes any unsaved data in the cache module to be lost.

3. Transfer the hard drives from the failed server to the recovery server station.
4. Remove the BBWC [cache module ("Removing the BBWC cache module" on page 50) and battery pack ("Removing the BBWC battery pack" on page 49)] from the failed server.
5. Perform one of the following:
   - Install the BBWC into an empty BBWC DIMM socket on the system board of the recovery server.
   - Install the BBWC into an empty BBWC DIMM socket on any Smart Array Controller in the recovery server.
6. Power up the recovery server. A 1759 POST message is displayed, stating that valid data was flushed from the cache. This data is now stored on the drives in the recovery server. You can now transfer the drives (and controller, if one was used) to another server.

Battery

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

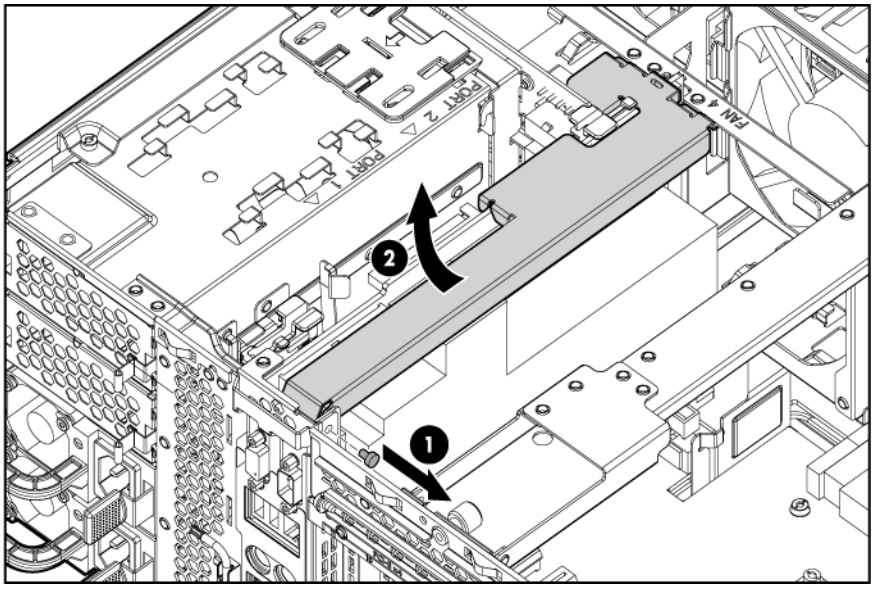
WARNING: The computer contains an internal lithium manganese dioxide, a vanadium pentoxide, or an alkaline battery pack. A risk of fire and burns exists if the battery pack is not properly handled. To reduce the risk of personal injury:

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

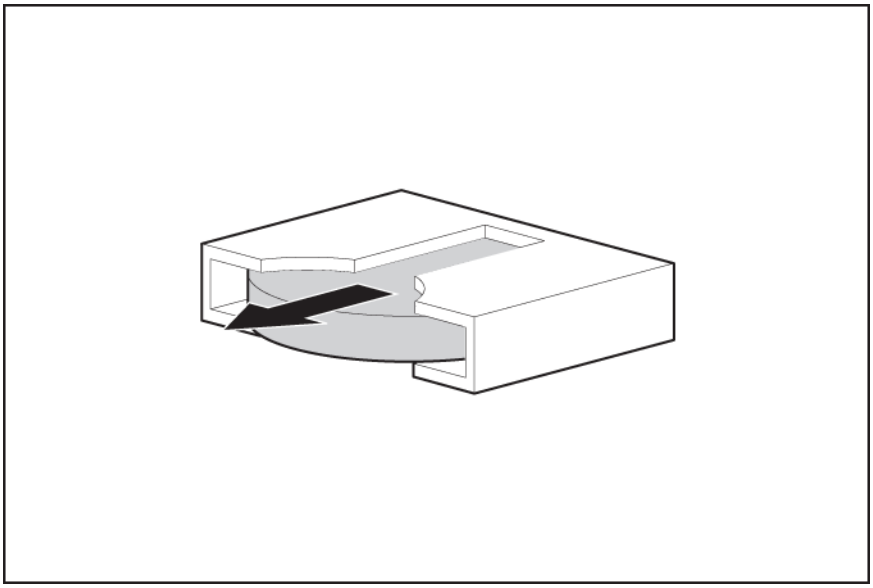
To remove the battery:

1. Power down the server (on page 26).
2. Extend or remove the server from the rack ("Extending the server from the rack" on page 27).
3. Remove the access panel ("Removing the access panel" on page 28).

4. If the bracket is installed, remove the bracket.



5. Locate the battery ("SPI board components" on page 76).
6. Remove the battery.



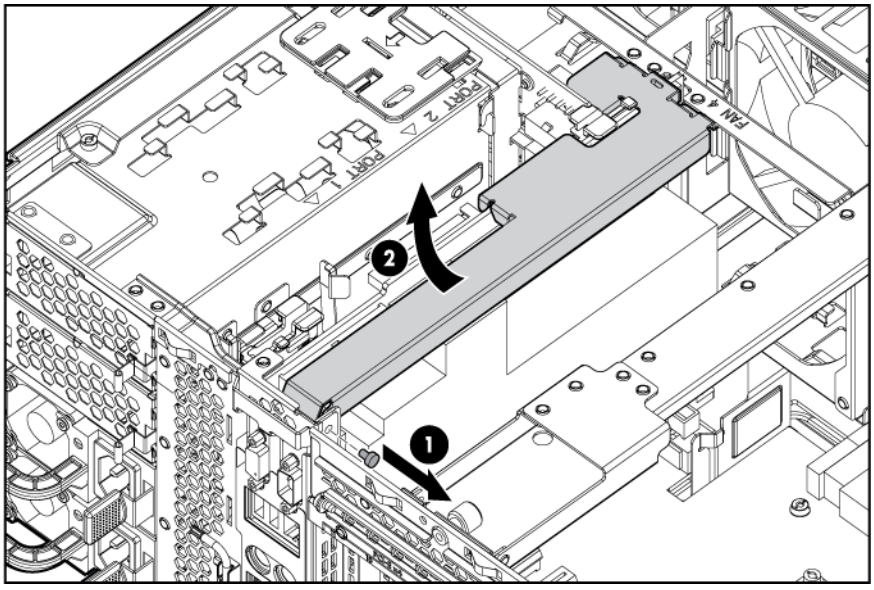
To replace the component, reverse the removal procedure.

Run the RBSU to configure the server after replacing the battery. See the HP ROM-Based Setup Utility User Guide on the Documentation CD for more detailed information.

SPI board

1. Power down the server (on page 26).
2. Extend or remove the server from the rack ("Extending the server from the rack" on page 27).
3. Remove the processor memory module ("Removing the processor memory module" on page 29).
4. Remove the access panel ("Removing the access panel" on page 28).

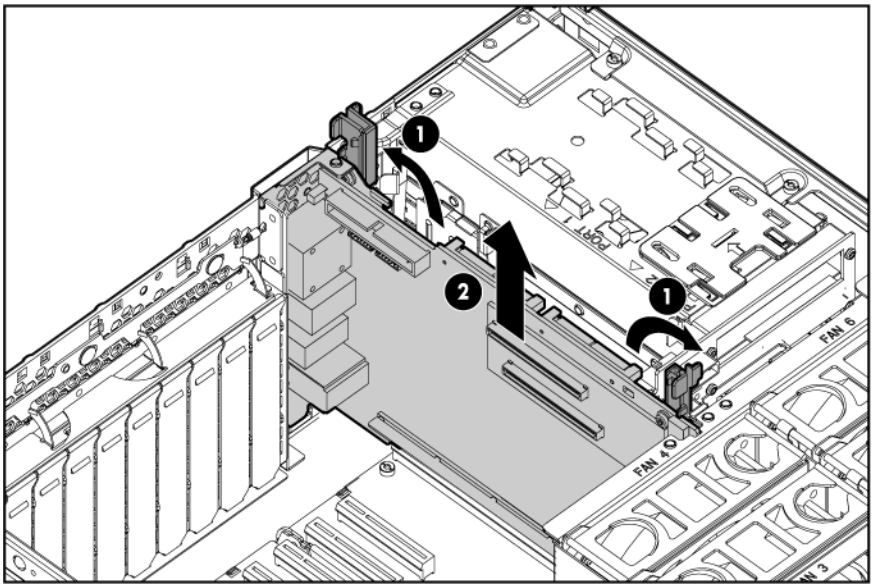
5. If the bracket is installed, remove the bracket.



6. Disconnect all cables from the SPI board.

IMPORTANT: If replacing the SPI board or clearing NVRAM, you must re-enter the server serial number through RBSU ("Re-entering the server serial number and product ID" on page 57).

7. Raise the levers, and lift the SPI board from the server.



To replace the component, reverse the removal procedure.

System board

WARNING: The server weighs approximately 36.3 kg–49.9 kg (80 lb–110 lb). To reduce the risk of injury due to the weight of the server, remove the following components before removing the server from the rack:

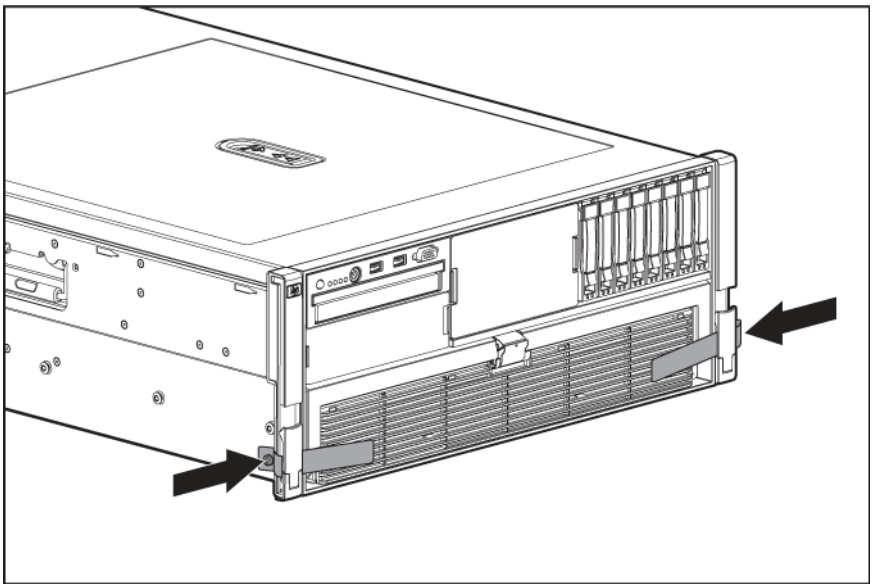
- Processor memory module ("Removing the processor memory module" on page 29)
- Hard drives ("Hard drive" on page 31)
- Power supplies (on page 44)

The server weighs 21.8 kg (48 lb) with these components removed and might require two people to remove the server from the rack.

CAUTION: Before starting this procedure, read the information about protecting against electrostatic discharge ("Preventing electrostatic discharge" on page 25).

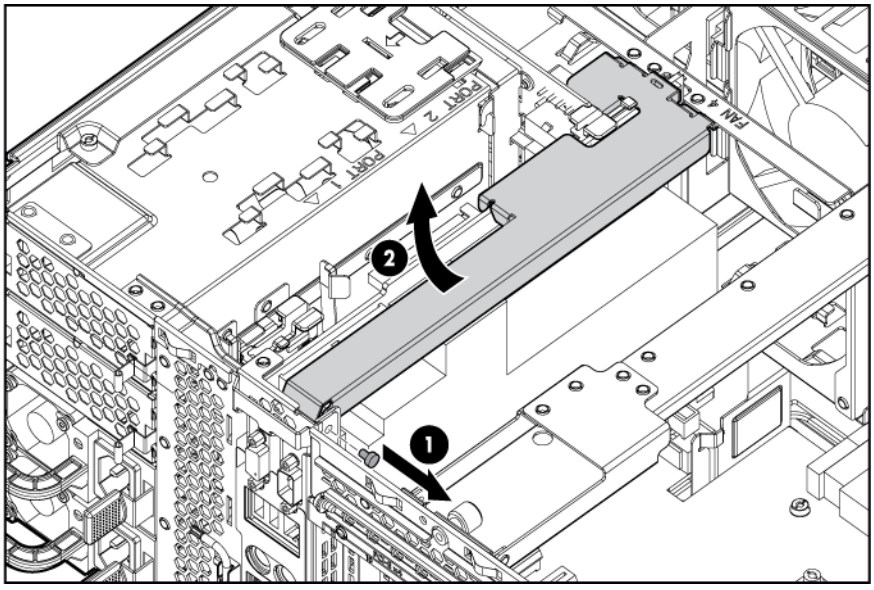
CAUTION: Only authorized technicians trained by HP should attempt to remove the system board. If you believe the system board requires replacement, contact HP Technical Support before proceeding.

1. Power down the server (on page 26).
2. Remove the server from the rack ("Removing the server from the rack" on page 28).
3. Remove the access panel ("Removing the access panel" on page 28).
4. If the shipping screws are installed, remove them. The shipping screw locations are marked with tags on both sides of the server for easy identification.

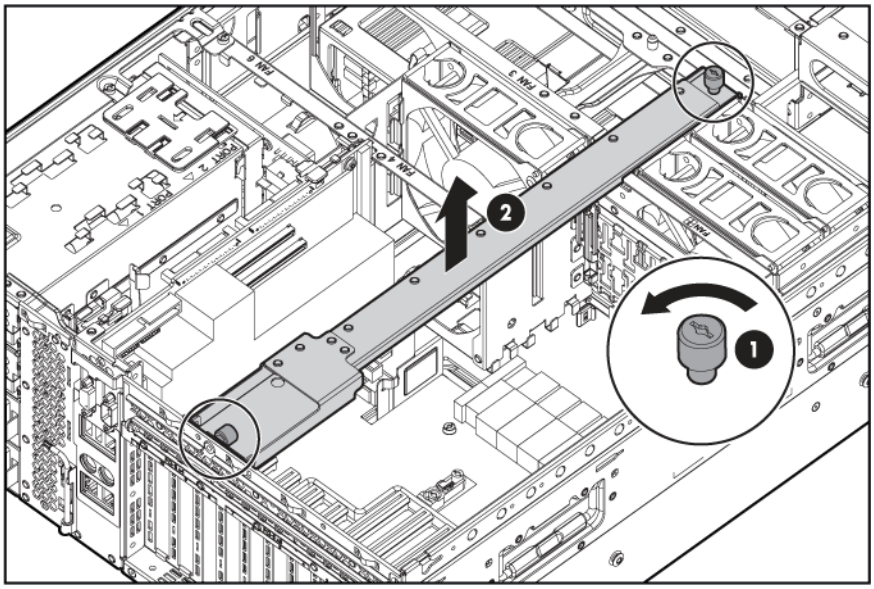


5. Remove the processor memory module ("Removing the processor memory module" on page 29).

6. If the bracket is installed, remove the bracket.

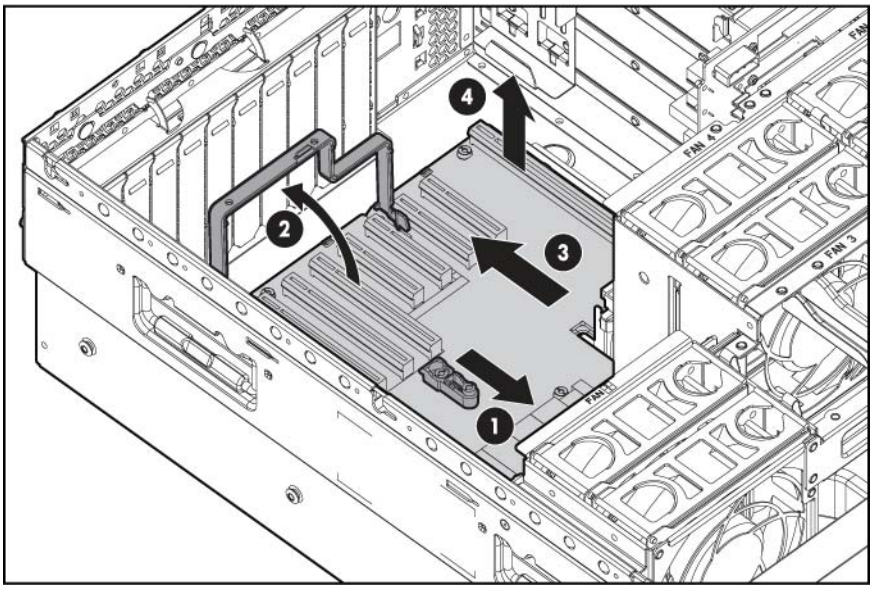


7. Loosen the thumbscrews, and remove the center bracket.



8. Remove the PCI-X or PCI Express x8 3 slot Option Card (on page 48), if installed.
9. Remove the SPI board (on page 53).
10. Disconnect all cables connected to the system board.
11. Remove the system board from the server.
    a. To release the handle, slide the latch toward the front of the server.
    b. Rotate the handle to an upright position.
    c. Slide the board toward the rear of the server.

d. Lift the system board from the server.



To replace the component, reverse the removal procedure.

Re-entering the server serial number and product ID

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

1. During the server startup sequence, press the **F9** key to access RBSU.
2. Select the **Advanced Options** menu.
3. Select **Serial Number.** The following warning is displayed:

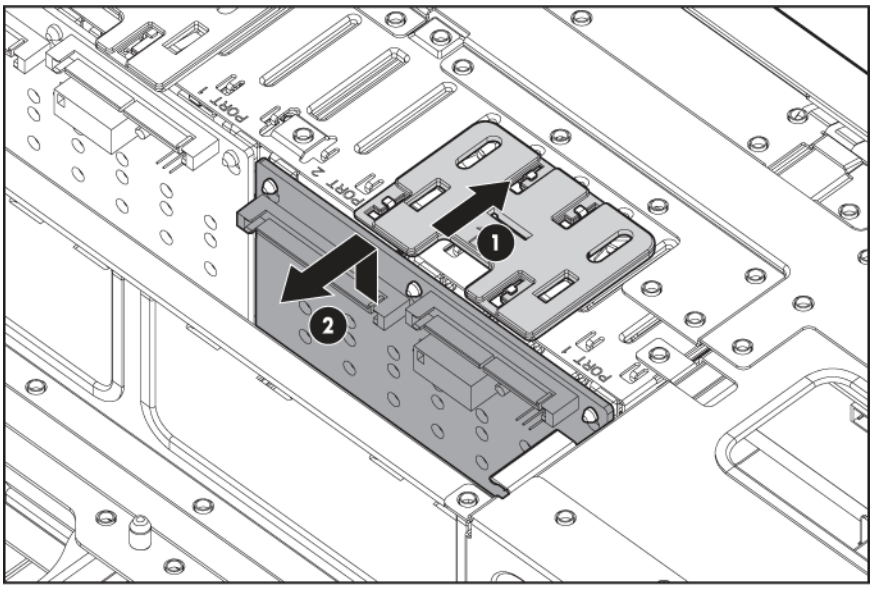
   ```
   Warning: The serial number should ONLY be modified by qualified service
   personnel. This value should always match the serial number located on
   the chassis.
   ```
4. Press the **Enter** key to clear the warning.
5. Enter the serial number.
6. Select **Product ID.** The following warning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

   ```
   Warning: The Product ID should ONLY be modified by qualified service
   personnel. This value should always match the Product ID located on the
   chassis.
   ```
7. Enter the product ID, and press the **Enter** key.
8. Press the **Esc** key to close the menu.
9. Press the **Esc** key to exit RBSU.
10. Press the **F10** key to confirm exiting RBSU. The server automatically reboots.

SAS backplane

1. Power down the server (on page 26).
2. Extend the server from the rack ("Extending the server from the rack" on page 27).
3. Remove the access panel ("Removing the access panel" on page 28).
4. Remove all hard drives ("Hard drive" on page 31) from the bays attached to the SAS backplane.

5. Disconnect all cables from the SAS backplane.
6. Slide the plastic retainer to the front of the server.
7. Lift the backplane, slide the board over the anchoring pins, and lift the board out of the server.

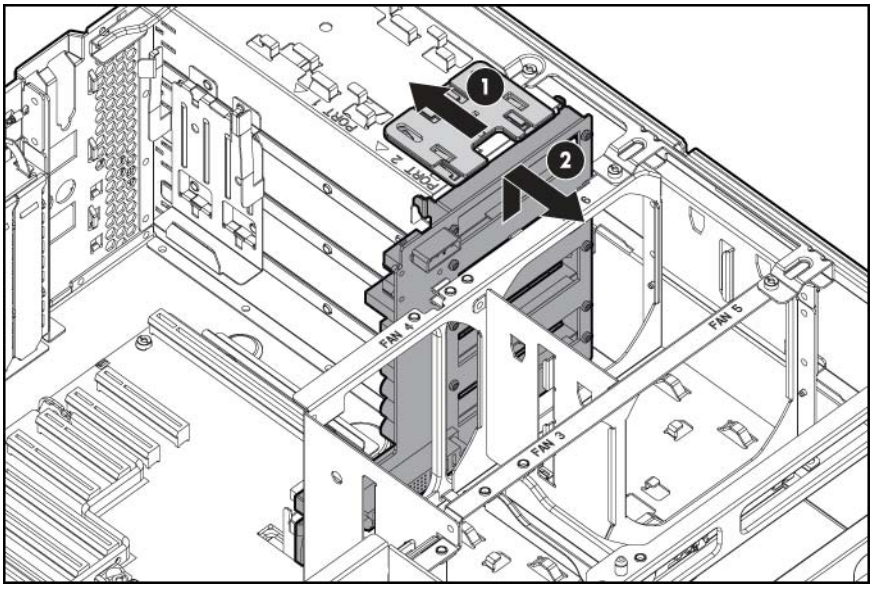


To replace the component, reverse the removal procedure.

Power backplane

1. Power down the server (on page 26).
2. Extend or remove the server from the rack ("Extending the server from the rack" on page 27).
3. Remove the access panel ("Removing the access panel" on page 28).
4. Remove all power supplies ("Power supplies" on page 44).
5. Remove the SPI board (on page 53).
6. Remove the system board ("System board" on page 54).
7. Disconnect all cables from the backplane.
8. Slide the plastic retainer to the rear of the server.

9. Lift the backplane, slide the board over the anchoring pins, and lift the board out of the server.



To replace the component, reverse the removal procedure.

Diagnostic tools

SmartStart software

SmartStart is a collection of software that optimizes single-server setup, providing a simple and consistent way to deploy server configuration. SmartStart has been tested on many ProLiant server products, resulting in proven, reliable configurations.

SmartStart assists the deployment process by performing a wide range of configuration activities, including:

- Configuring hardware using embedded configuration utilities, such as RBSU and ORCA
- Preparing the system for installing "off-the-shelf" versions of leading operating system software
- Installing optimized server drivers, management agents, and utilities automatically with every assisted installation
- Testing server hardware using the Insight Diagnostics Utility ("HP Insight Diagnostics" on page 63)
- Installing software drivers directly from the CD. With systems that have internet connection, the SmartStart Autorun Menu provides access to a complete list of ProLiant system software.
- Enabling access to the Array Configuration Utility, Array Diagnostic Utility, and Erase Utility

SmartStart is included in the HP ProLiant Essentials Foundation Pack. For more information about SmartStart software, refer to the HP ProLiant Essentials Foundation Pack or the HP website (http://h18013.www1.hp.com/products/servers/management/smartstart/index.html).

SmartStart Scripting Toolkit

The SmartStart Scripting Toolkit is a server deployment product that delivers an unattended automated installation for high-volume server deployments. The SmartStart Scripting Toolkit is designed to support ProLiant BL, ML, and DL servers. The toolkit includes a modular set of utilities and important documentation that describes how to apply these new tools to build an automated server deployment process.

Using SmartStart technology, the Scripting Toolkit provides a flexible way to create standard server configuration scripts. These scripts are used to automate many of the manual steps in the server configuration process. This automated server configuration process cuts time from each server deployed, making it possible to scale server deployments to high volumes in a rapid manner.

For more information, and to download the SmartStart Scripting Toolkit, refer to the HP website (http://www.hp.com/servers/sstoolkit).

HP Instant Support Enterprise Edition

ISEE is a proactive remote monitoring and diagnostic tool to help manage your systems and devices, a feature of HP support. ISEE provides continuous hardware event monitoring and automated notification to identify and prevent potential critical problems. Through remote diagnostic scripts and vital system

configuration information collected about your systems, ISEE enables fast restoration of your systems. Install ISEE on your systems to help mitigate risk and prevent potential critical problems.

For more information on ISEE, refer to the HP website (http://www.hp.com/hps/hardware/hw_enterprise.html).

To download HP ISEE, visit the HP website (http://www.hp.com/hps/hardware/hw_downloads.html).

For installation information, refer to the HP ISEE Client Installation and Upgrade Guide (ftp://ftp.hp.com/pub/services/hardware/info/isee_client.pdf).

Option ROM Configuration for Arrays

Before installing an operating system, you can use the ORCA utility to create the first logical drive, assign RAID levels, and establish online spare configurations.

The utility also provides support for the following functions:

- Reconfiguring one or more logical drives
- Viewing the current logical drive configuration
- Deleting a logical drive configuration
- Setting the controller to be the boot controller

If you do not use the utility, ORCA will default to the standard configuration.

For more information regarding array controller configuration, refer to the controller user guide.

For more information regarding the default configurations that ORCA uses, refer to the *HP ROM-Based Setup Utility User Guide* on the Documentation CD.

HP ROM-Based Setup Utility

RBSU is a configuration utility embedded in ProLiant servers that performs a wide range of configuration activities that can include the following:

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

For more information on RBSU, see the *HP ROM-Based Setup Utility User Guide* on the Documentation CD or the HP website (http://www.hp.com/support/smartstart/documentation).

ROMPaq utility

The ROMPaq utility enables you to upgrade the system firmware (BIOS) or Lights-Out 100 firmware. To upgrade the firmware, insert a ROMPaq diskette into the diskette drive or ROMPaq USB Key into an available USB port and boot the system.

The ROMPaq utility checks the system and provides a choice (if more than one exists) of available firmware revisions.

For more information about the ROMPaq utility, see the HP website (http://www.hp.com/go/support).

System Online ROM flash component utility

The Online ROM Flash Component Utility enables system administrators to efficiently upgrade system or controller ROM images across a wide range of servers and array controllers. This tool has the following features:

- Works offline and online
- Supports Microsoft® Windows NT®, Windows® 2000, Windows Server™ 2003, Novell Netware, and Linux operating systems

  IMPORTANT: This utility supports operating systems that may not be supported by the server. For operating systems supported by the server, see the HP website (http://www.hp.com/support).

- Integrates with other software maintenance, deployment, and operating system tools
- Automatically checks for hardware, firmware, and operating system dependencies, and installs only the correct ROM upgrades required by each target server

To download the tool and for more information, see the HP website (http://www.hp.com/support).

Integrated Management Log

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

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

- From within HP SIM ("HP Systems Insight Manager" on page 63)
- From within Survey Utility
- From within operating system-specific IML viewers
  - For NetWare: IML Viewer
  - For Windows®: IML Viewer
  - For Linux: IML Viewer Application
- From within the iLO 2 user interface
- From within HP Insight Diagnostics (on page 63)

For more information, refer to the Management CD in the HP ProLiant Essentials Foundation Pack.

Insight Lights-Out 2 technology

The iLO 2 subsystem is a standard component of selected ProLiant servers that provides server health and remote server manageability. The iLO 2 subsystem includes an intelligent microprocessor, secure memory, and a dedicated network interface. This design makes iLO 2 independent of the host server and its

operating system. The iLO 2 subsystem provides remote access to any authorized network client, sends alerts, and provides other server management functions.

Using iLO 2, you can:

- Remotely power up, power down, or reboot the host server.
- Send alerts from iLO 2 regardless of the state of the host server.
- Access advanced troubleshooting features through the iLO 2 interface.
- Diagnose iLO 2 using HP SIM through a web browser and SNMP alerting.

For more information about iLO 2 features, refer to the iLO 2 documentation on the Documentation CD or on the HP website (http://www.hp.com/servers/lights-out).

Automatic Server Recovery

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

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

HP Systems Insight Manager

HP SIM is a web-based application that allows system administrators to accomplish normal administrative tasks from any remote location, using a web browser. HP SIM provides device management capabilities that consolidate and integrate management data from HP and third-party devices.

IMPORTANT: You must install and use HP SIM to benefit from the Pre-Failure Warranty for processors, SAS and SATA hard drives, and memory modules.

For additional information, refer to the Management CD in the HP ProLiant Essentials Foundation Pack or the HP SIM website (http://www.hp.com/go/hpsim).

HP Insight Diagnostics

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

HP Insight Diagnostics Offline Edition performs various in-depth system and component testing while the OS is not running. To run this utility, launch the SmartStart CD.

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

For more information or to download the utility, refer to the HP website (http://www.hp.com/servers/diags).

USB support

HP provides both standard USB support and legacy USB support. Standard support is provided by the operating system through the appropriate USB device drivers. HP provides support for USB devices before the operating system loads through legacy USB support, which is enabled by default in the system ROM. HP hardware supports USB version 1.1 or 2.0, depending on the version of the hardware.

Legacy USB support provides USB functionality in environments where USB support is normally not available. Specifically, HP provides legacy USB functionality for:

- POST
- RBSU
- Diagnostics
- DOS
- Operating environments which do not provide native USB support

For more information on ProLiant USB support, refer to the HP website (http://h18004.www1.hp.com/products/servers/platforms/usb-support.html).

Troubleshooting the system using port 85 codes

1. Locate the port 85 code display.

IMPORTANT: Be sure the port 84/85 switch is set to display port 85 codes.

2. Locate the code in the following table.

   For example, if the port 85 code displays "31h," see "Processor-related port 85 codes (on page 64)" for more information.

Port 85 code	Description
3xh	Port 85 codes in this format indicate processor-related errors. See "Processor-related port 85 codes (on page 64)" for more information.
4xh	Port 85 codes in this format indicate memory-related errors. See "Memory-related port 85 codes (on page 65)" for more information.
6xh	Port 85 codes in this format indicate expansion board-related errors. See "Expansion board-related port 85 codes (on page 66)" for more information.
All other codes, including 00h, 01h, and 5xh	Port 85 codes in this range cover several areas. See the section "Miscellaneous port 85 codes (on page 67)" for more information.

3. Reference the designated section in this guide for the appropriate troubleshooting steps.

Processor-related port 85 codes

Processor-related port 85 codes display in the format 3xh.

IMPORTANT: Reboot the server after completing each numbered step. If the error condition continues, proceed with the next step.

To troubleshoot processor-related error codes:

1. Bring the server to base configuration by removing all components that are not required by the server to complete POST. This process can include removing all:
   - Expansion boards ("Non-hot-plug expansion boards" on page 47)
   - Processors ("Processor assembly" on page 34), except the processor installed in socket 1

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

   - PPMs ("PPM" on page 38), except the PPM installed in slot 1
   - DIMMs ("FBDIMMs" on page 38), except the first bank
   - Hard drives ("Hard drive" on page 31)
   - Peripheral devices
2. Reseat the processor in socket 1.
3. Reseat the remaining processors, rebooting after each installation to identify any failed processors.

IMPORTANT: Populate the processors in the following order: 1, 2, 4, 3.

IMPORTANT: Always install a PPM when you install a processor. The system fails to boot if the PPM is missing.

4. Replace the processor in socket 1.
5. Replace the processor board, if applicable.
6. Replace the system board.

IMPORTANT: If replacing the system board or clearing NVRAM, you must re-enter the server serial number through RBSU ("Re-entering the server serial number and product ID" on page 57).

Memory-related port 85 codes

Memory-related port 85 codes display in the format 4xh.

IMPORTANT: Reboot the server after completing each numbered step. If the error condition continues, proceed with the next step.

To troubleshoot memory-related error codes:

1. Check the memory LEDs ("Systems Insight Display" on page 70) for any identified errors or failed DIMMs, and take corrective action.
2. Bring the server to base configuration by removing all components that are not required by the server to complete POST. This process can include removing all:
   - Expansion boards ("Non-hot-plug expansion boards" on page 47)
   - Processors ("Processor assembly" on page 34), except the processor installed in socket 1

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

- PPMs ("PPM" on page 38), except the PPM installed in slot 1
- DIMMs ("FBDIMMs" on page 38), except the first bank
- Hard drives ("Hard drive" on page 31)
- Peripheral devices

3. Reseat the remaining memory boards, rebooting after each installation to isolate any failed memory boards, if applicable.
4. Replace the DIMMs with a remaining bank of memory.
5. Replace the memory board, if applicable.
6. Replace the system board.

IMPORTANT: If replacing the system board or clearing NVRAM, you must re-enter the server serial number through RBSU ("Re-entering the server serial number and product ID" on page 57).

Expansion board-related port 85 codes

Expansion board-related port 85 codes display in the format 6xh.

IMPORTANT: Reboot the server after completing each numbered step. If the error condition continues, proceed with the next step.

To troubleshoot expansion board-related error codes:

1. Reseat all expansion boards.
2. Bring the server to base configuration by removing all components that are not required by the server to complete POST. This process can include removing all:
   - Expansion boards ("Non-hot-plug expansion boards" on page 47)
   - Processors ("Processor assembly" on page 34), except the processor installed in socket 1

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

   - PPMs ("PPM" on page 38), except the PPM installed in slot 1
   - DIMMs ("FBDIMMs" on page 38), except the first bank
   - Hard drives ("Hard drive" on page 31)
   - Peripheral devices
3. Install the expansion boards one at a time, rebooting between each installation to isolate the failed expansion board.
4. Replace the failed expansion board, if applicable.
5. Replace the PCI riser board, if applicable.
6. Replace the system board.

IMPORTANT: If replacing the system board or clearing NVRAM, you must re-enter the server serial number through RBSU ("Re-entering the server serial number and product ID" on page 57).

Miscellaneous port 85 codes

To troubleshoot all other port 85 codes:

IMPORTANT: Reboot the server after completing each numbered step. If the error condition continues, proceed with the next step.

1. Bring the server to base configuration by removing all components that are not required by the server to complete POST. This process can include removing all:
   - Expansion boards ("Non-hot-plug expansion boards" on page 47)
   - Processors ("Processor assembly" on page 34), except the processor installed in socket 1

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

   - PPMs ("PPM" on page 38), except the PPM installed in slot 1
   - DIMMs ("FBDIMMs" on page 38), except the first bank
   - Hard drives ("Hard drive" on page 31)
   - Peripheral devices
2. Install each remaining system component, rebooting between each installation to isolate any failed components.
3. Clear the system NVRAM ("System maintenance switch" on page 75).
4. Replace the system board.

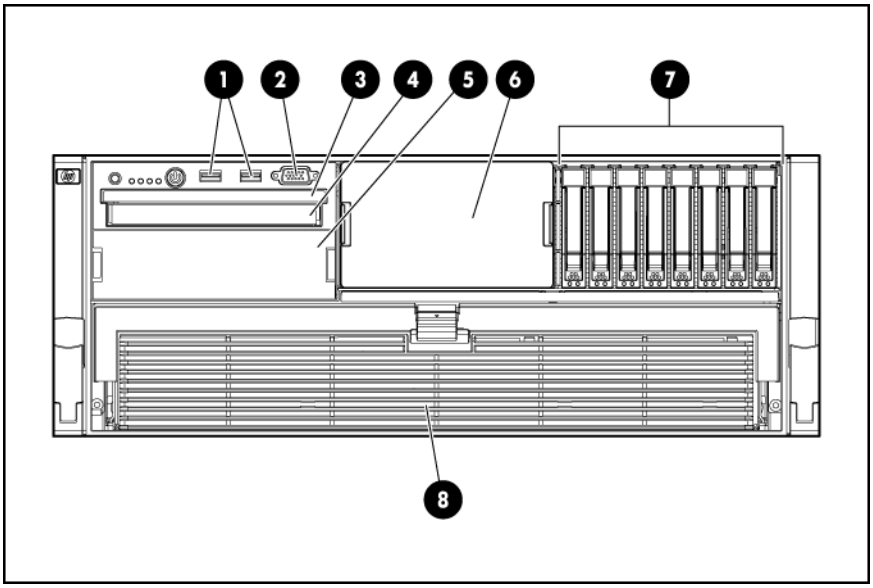
IMPORTANT: If replacing the system board or clearing NVRAM, you must re-enter the server serial number through RBSU ("Re-entering the server serial number and product ID" on page 57).

Troubleshooting Guide

For troubleshooting information, see the *HP ProLiant DL580 Generation 5 User Guide* or the *ProLiant Servers Troubleshooting Guide* on the HP website (http://www.hp.com).

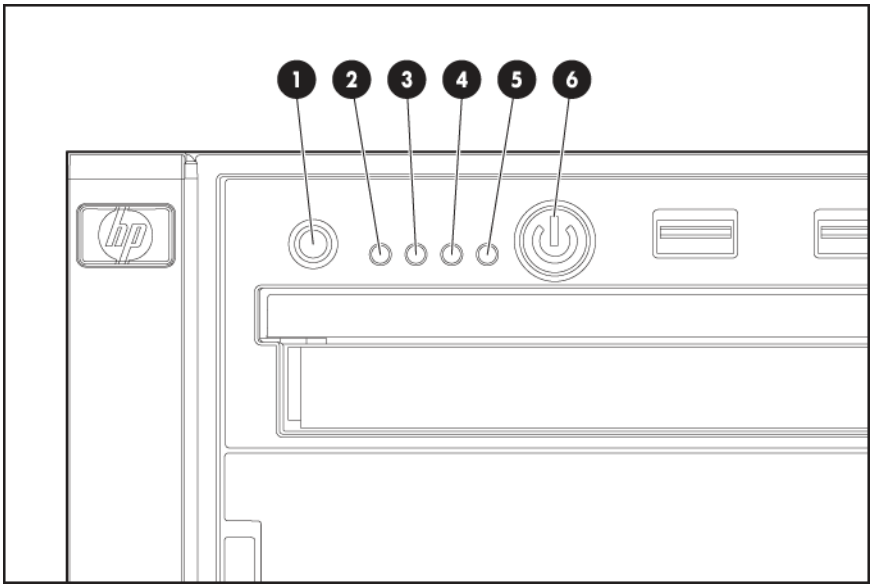
Server component identification

Front panel components



Item	Description
1	USB connectors
2	Video connector
3	Systems Insight Display
4	DVD drive bay
5	Optional tape drive or blank
6	Optional hard drive bay or blank
7	Hard drive bay
8	Processor memory module

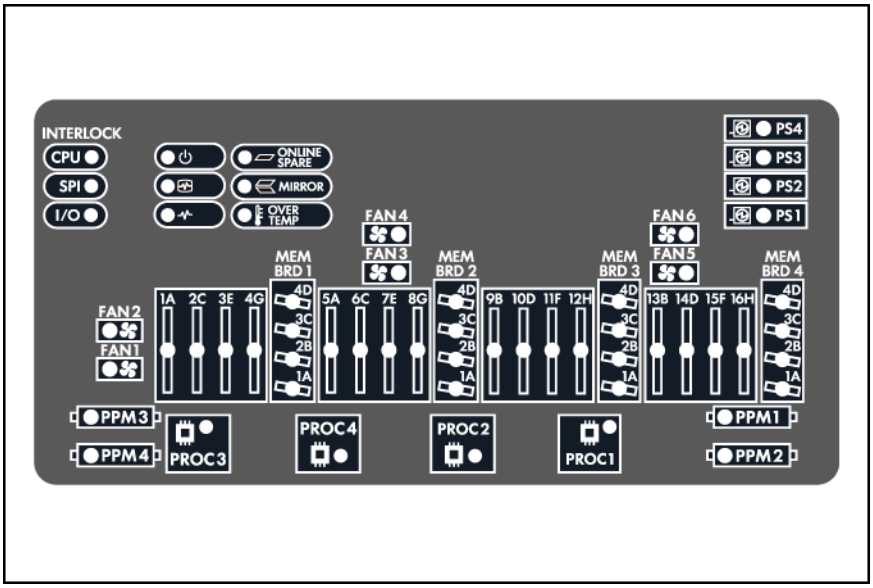
Front panel LEDs and buttons



Item	Description	Status
1	UID switch and LED	Blue—Activated Blue (flashing)—Server being managed remotely Off—Deactivated
2	Internal system health LED	Green—Normal (system on) Amber (flashing)—Internal system health degraded Red (flashing)—Internal system health critical Off—Normal (system off)
3	External system health LED	Green—Normal (system on) Amber (flashing)—External system health degraded Red (flashing)—External system health critical Off—Normal (system off)
4	NIC 1 link/activity LED	Green—Linked to network Green (flashing)—Linked with activity on the network Off—No network connection
5	NIC 2 link/activity LED	Green—Linked to network Green (flashing)—Linked with activity on the network Off—No network connection
6	Power on/Standby button and LED	Amber—System has AC power and is in standby mode. Green—System has AC power and is turned on. Off—System has no AC power.

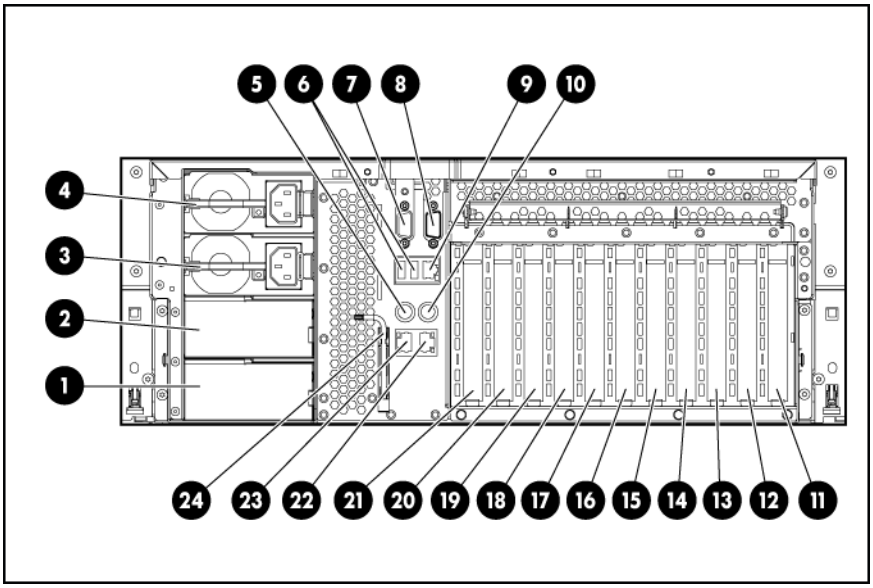
Systems Insight Display

The Systems Insight Display LEDs represent the server and component layout.



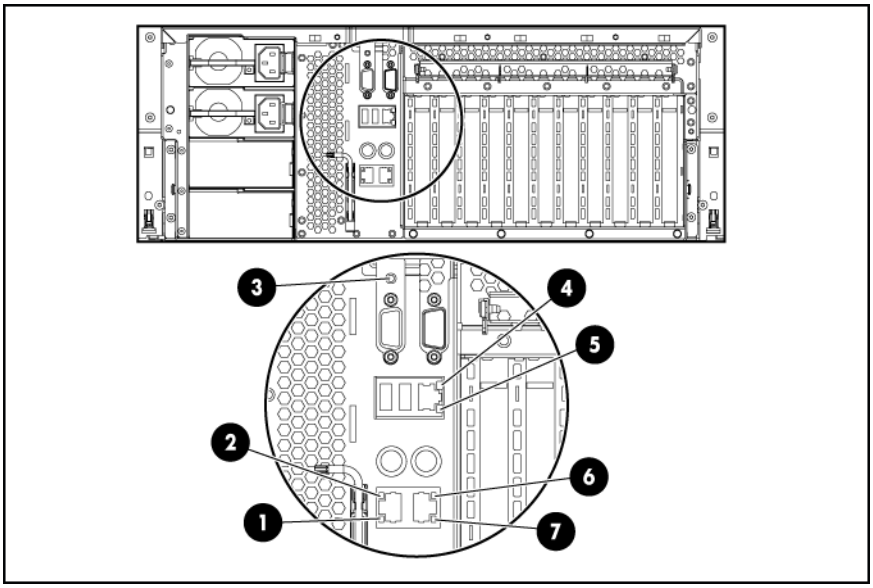
LED	Description
ONLINE SPARE	Off—No protection Green—Protection enabled Amber—Memory failure occurred Amber (flashing)—Memory configuration error
MIRROR	Off—No protection Green—Protection enabled Amber—Memory failure occurred Amber (flashing)—Memory configuration error
All other LEDs	Off—Normal Amber—Failed or missing component

Rear panel components



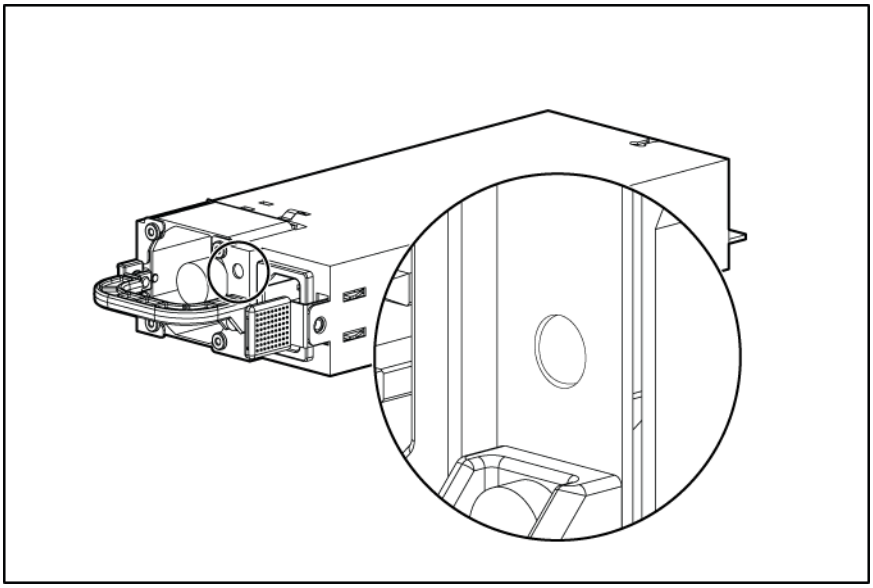
Item	Description	Item	Description
1	Power supply bay 4 (optional)	13	PCI-X non-hot-plug for PCI Express x8 non-hot-plug expansion slot 3 (optional)
2	Power supply bay 3 (optional)	14	PCI Express x8 non-hot-plug expansion slot 4
3	Power supply bay 2	15	PCI Express x8 non-hot-plug expansion slot 5
4	Power supply bay 1	16	PCI Express x8 non-hot-plug expansion slot 6
5	Keyboard connector	17	PCI Express x8 non-hot-plug expansion slot 7
6	USB connectors	18	PCI Express x4 non-hot-plug expansion slot 8
7	Video connector	19	PCI Express x4 non-hot-plug expansion slot 9
8	Serial connector	20	PCI Express x4 non-hot-plug expansion slot 10
9	iLO 2 NIC connector	21	PCI Express x4 non-hot-plug expansion slot 11
10	Mouse connector	22	NIC 2 connector
11	PCI-X non-hot-plug or PCI Express x8 non-hot-plug expansion slot 1 (optional)	23	NIC 1 connector
12	PCI-X non-hot-plug or PCI Express x8 non-hot-plug expansion slot 2 (optional)	24	Torx T-15 tool

Rear panel LEDs and buttons



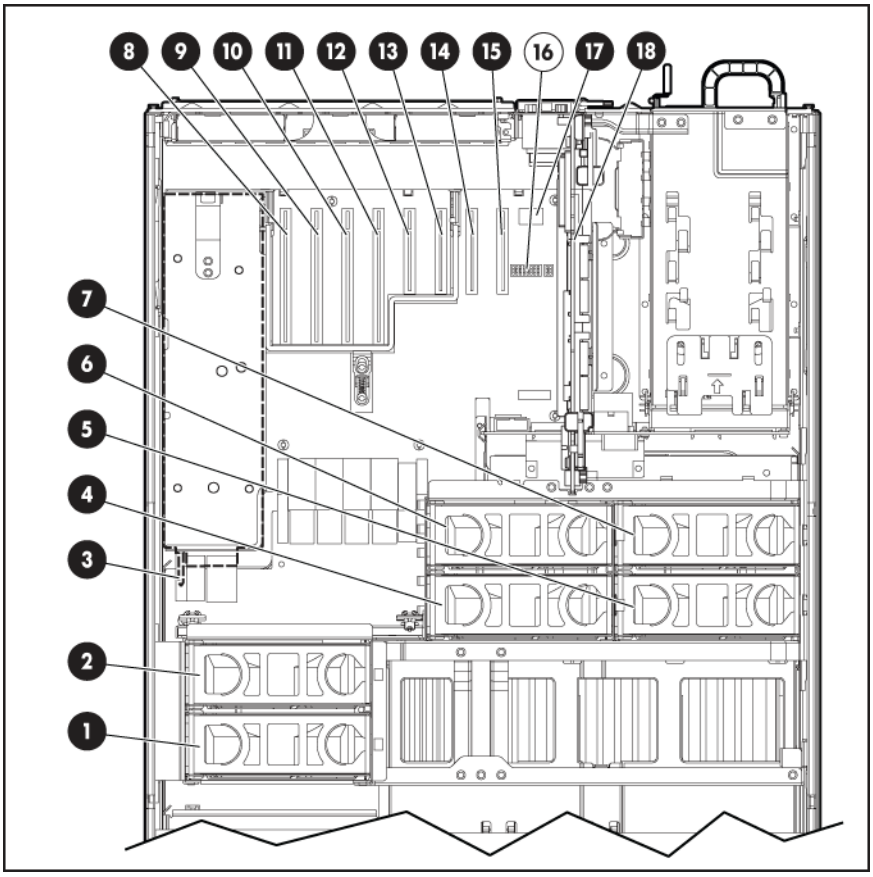
Item	Description	LED color	Status
1	NIC 2 Activity LED	Green	On or flashing—Network activity Off—No network activity
2	NIC 2 Link LED	Green	On—Linked to network Off—Not linked to network
3	UID	Blue	On—Front UID button activated Off—Normal
4	iLO 2 NIC Activity LED	Green	On or flashing—Network activity Off—No network activity
5	iLO 2 NIC Link LED	Green	On—Linked to network Off—Not linked to network
6	NIC 1 Link LED	Green	On—Linked to network Off—Not linked to network
7	NIC 1 Activity LED	Green	On or flashing—Network activity Off—No network activity

Power supply LED



Power LED (green)	Failure LED (amber)	Status
Off	Off	No AC power to power supply units
On	Off	AC present. Standby output on. Power supply DC output on and OK
Off	On	Power supply failure (includes overvoltage and overtemperature)

System board components



Item	Description
1	Fan 1
2	Fan 2
3	Connector for: • PCI Express x8 3 Slot Option Card (optional) • PCI-X 3 Slot Option Card (optional)
4	Fan 3
5	Fan 5
6	Fan 4
7	Fan 6
8	PCI Express x8 non-hot-plug expansion slot 4
9	PCI Express x8 non-hot-plug expansion slot 5
10	PCI Express x8 non-hot-plug expansion slot 6
11	PCI Express x8 non-hot-plug expansion slot 7
12	PCI Express x4 non-hot-plug expansion slot 8
13	PCI Express x4 non-hot-plug expansion slot 9
14	PCI Express x4 non-hot-plug expansion slot 10
15	PCI Express x4 non-hot-plug expansion slot 11

Item	Description
16	System maintenance switch (SW1)
17	Port 84/85 code display
18	SPI board

System maintenance switch

The system maintenance switch (SW1) is an eight-position switch that is used for system configuration. The switch 7 and switch 8 settings determine which codes display on the system board ("System board components" on page 74). The default position for all eight positions is Off.

Position	Description	Function
S1	iLO 2 Security	Off = iLO 2 security is enabled On = iLO 2 security is disabled
S2	Configuration lock	Off = System configuration can be changed On = System configuration is locked
S3	Reserved	Reserved
S4	Reserved	Reserved
S5	Password protection override	Off = No function On = Clears power-on password and administrator password
S6	Invalidate configuration	Off = Normal On = Clears NVRAM

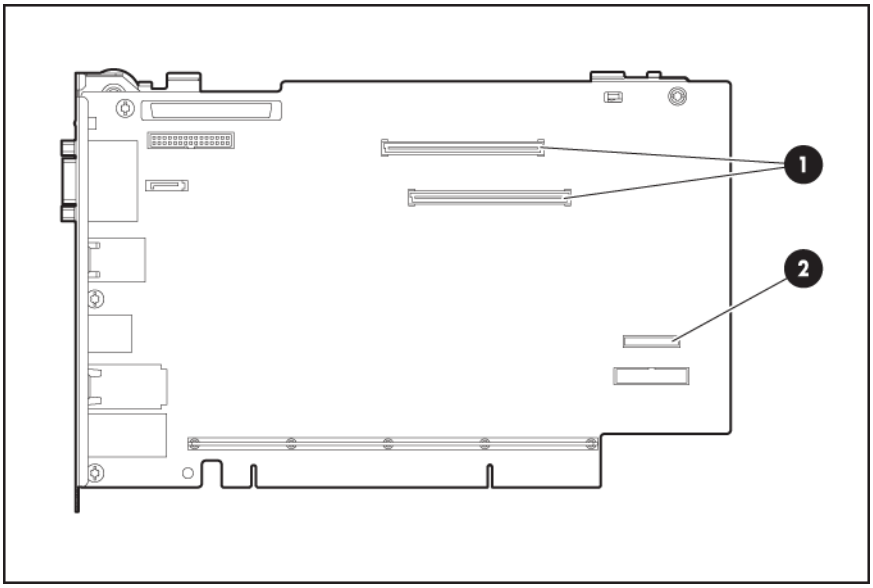
Switch 7	Switch 8	Function
Off	Off	Displays port 85 codes (default)
Off	On	Displays port 84 codes
On	Off	Displays iLO codes
On	On	Displays Noboot codes

Setting the switch to view port 85 codes

To view port 84 and 85 codes ("Troubleshooting the system using port 85 codes" on page 64):

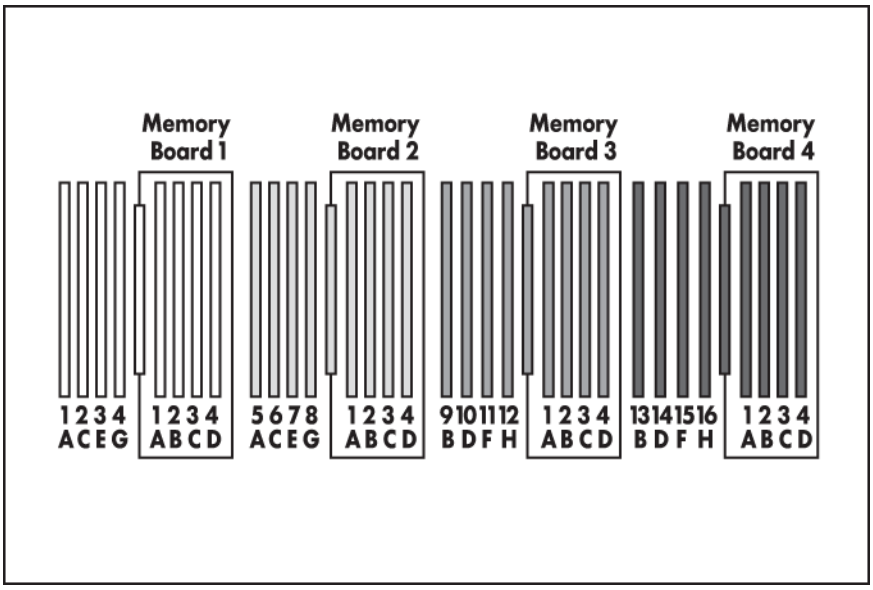
1. Extend the server from the rack ("Extending the server from the rack" on page 27).
2. Remove the access panel ("Removing the access panel" on page 28).
3. Locate the switch on the system board ("System board components" on page 74).
4. Set the system maintenance switch (on page 75) to view port 85 codes.

SPI board components



Item	Description
1	BBWC cache module connectors
2	Battery

FBDIMM slot locations

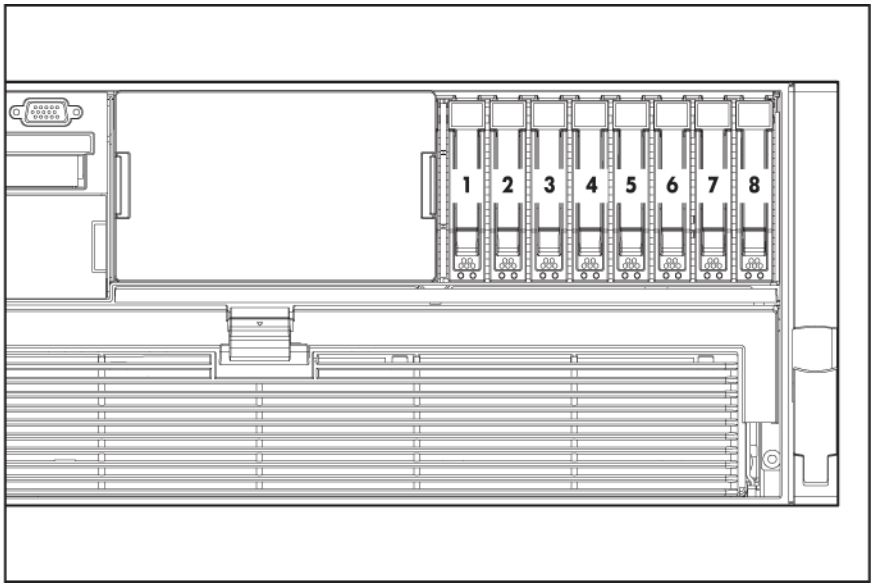


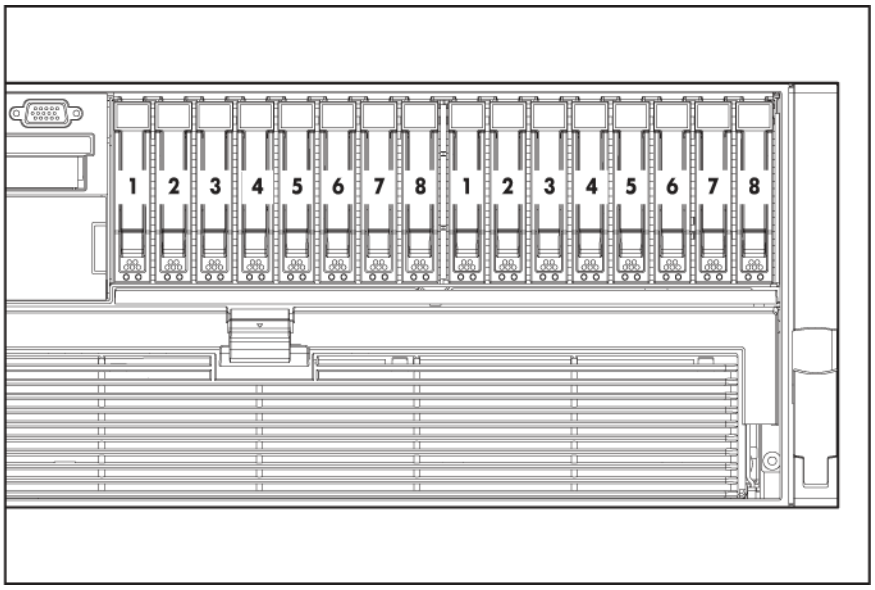
The server contains 16 FBDIMM slots on the processor-memory board, which are numbered sequentially from 1 to 16. The paired banks are identified by the letters A through H.

Four FBDIMM slots located on each optional memory board are numbered from 1 to 4. The paired banks are identified by the letters A through D.

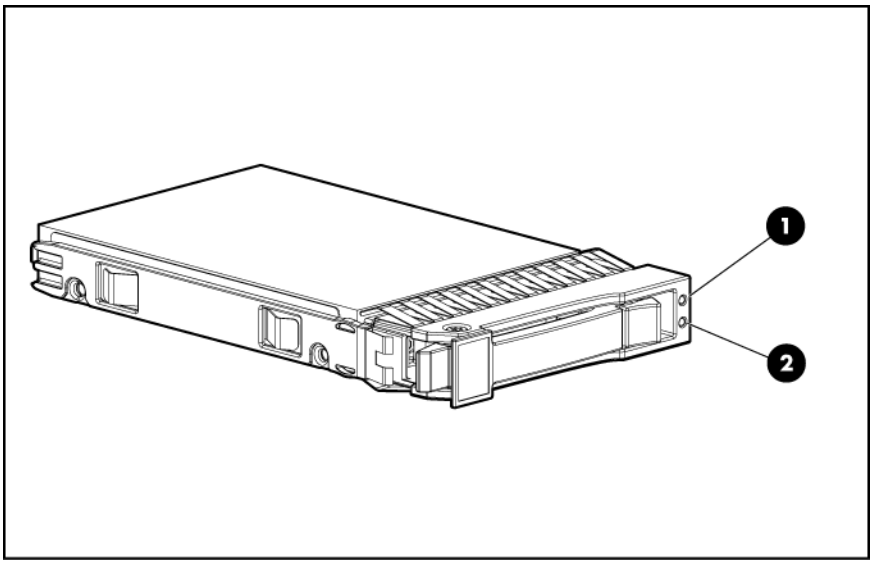
See "Memory options" in the *HP ProLiant DL580 Generation 5 User Guide* for DIMM population guidelines.

SAS device numbers





SAS hard drive LEDs



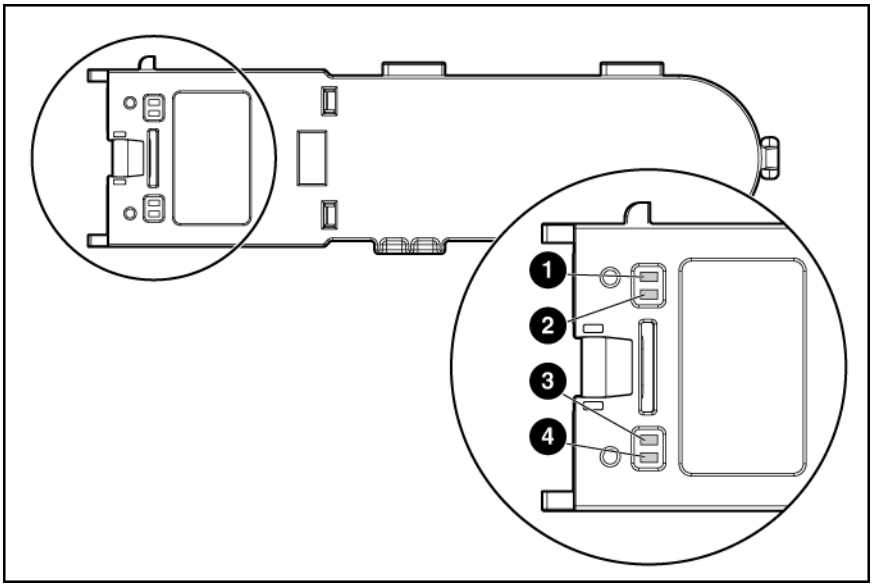
Item	Description
1	Fault/UID LED (amber/blue)
2	Online LED (green)

SAS hard drive LED combinations

Online/activity LED (green)	Fault/UID LED (amber/blue)	Interpretation
On, off, or flashing	Alternating amber and blue	The drive has failed, or a predictive failure alert has been received for this drive; it also has been selected by a management application.
On, off, or flashing	Steadily blue	The drive is operating normally, and it has been selected by a management application.
On	Amber, flashing regularly (1 Hz)	A predictive failure alert has been received for this drive. Replace the drive as soon as possible.
On	Off	The drive is online, but it is not active currently.
Flashing regularly (1 Hz)	Amber, flashing regularly (1 Hz)	**Do not remove the drive. Removing a drive may terminate the current operation and cause data loss.** The drive is part of an array that is undergoing capacity expansion or stripe migration, but a predictive failure alert has been received for this drive. To minimize the risk of data loss, do not replace the drive until the expansion or migration is complete.
Flashing regularly (1 Hz)	Off	**Do not remove the drive. Removing a drive may terminate the current operation and cause data loss.** The drive is rebuilding, or it is part of an array that is undergoing capacity expansion or stripe migration.
Flashing irregularly	Amber, flashing regularly (1 Hz)	The drive is active, but a predictive failure alert has been received for this drive. Replace the drive as soon as possible.

Online/activity LED (green)	Fault/UID LED (amber/blue)	Interpretation
Flashing irregularly	Off	The drive is active, and it is operating normally.
Off	Steadily amber	A critical fault condition has been identified for this drive, and the controller has placed it offline. Replace the drive as soon as possible.
Off	Amber, flashing regularly (1 Hz)	A predictive failure alert has been received for this drive. Replace the drive as soon as possible.
Off	Off	The drive is offline, a spare, or not configured as part of an array.

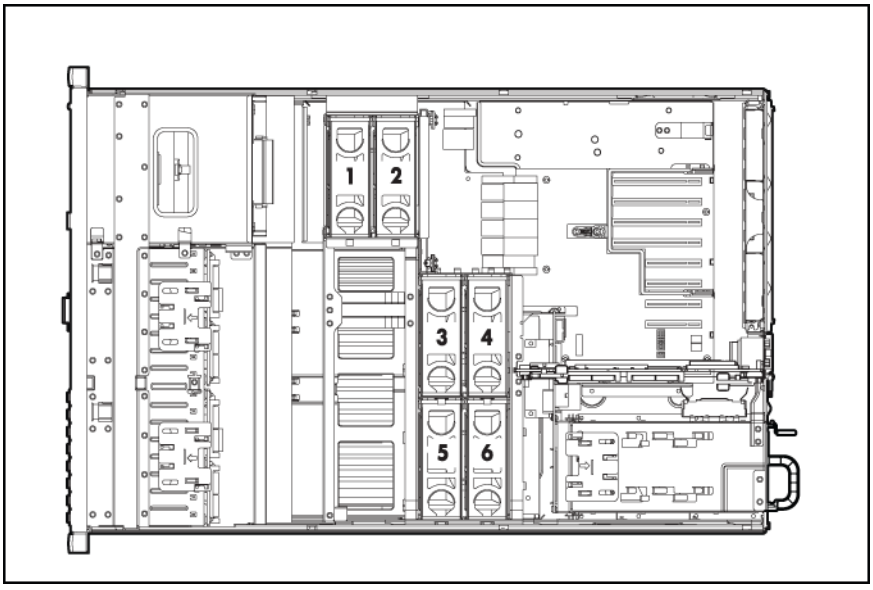
Battery pack LEDs



Item ID	Color	Description
1	Green	System Power LED. This LED glows steadily when the system is powered up and 12 V system power is available. This power supply is used to maintain the battery charge and provide supplementary power to the cache microcontroller.
2	Green	Auxiliary Power LED. This LED glows steadily when 3.3V auxiliary voltage is detected. The auxiliary voltage is used to preserve BBWC data and is available any time that the system power cords are connected to a power supply.
3	Amber	Battery Health LED. To interpret the illumination patterns of this LED, see the following table.
4	Green	BBWC Status LED. To interpret the illumination patterns of this LED, see the following table.

LED3 pattern	LED4 pattern	Interpretation
—	One blink every two seconds	The system is powered down, and the cache contains data that has not yet been written to the drives. Restore system power as soon as possible to prevent data loss. Data preservation time is extended any time that 3.3 V auxiliary power is available, as indicated by LED 2. In the absence of auxiliary power, battery power alone preserves the data. A fully-charged battery can normally preserve data for at least two days. The battery lifetime also depends on the cache module size. For further information, refer to the controller QuickSpecs on the HP website (http://www.hp.com).
—	Double blink, then pause	The cache microcontroller is waiting for the host controller to communicate.
—	One blink per second	The battery pack is below the minimum charge level and is being charged. Features that require a battery (such as write cache, capacity expansion, stripe size migration, and RAID migration) are temporarily unavailable until charging is complete. The recharge process takes between 15 minutes and two hours, depending on the initial capacity of the battery.
—	Steady glow	The battery pack is fully charged, and posted write data is stored in the cache.
—	Off	The battery pack is fully charged, and there is no posted write data in the cache.
One blink per second	One blink per second	An alternating green and amber blink pattern indicates that the cache microcontroller is executing from within its boot loader and receiving new flash code from the host controller.
Steady glow	—	There is a short circuit across the battery terminals or within the battery pack. BBWC features are disabled until the battery pack is replaced. The life expectancy of a battery pack is typically more than three years.
One blink per second	—	There is an open circuit across the battery terminals or within the battery pack. BBWC features are disabled until the battery pack is replaced. The life expectancy of a battery pack is typically more than three years.

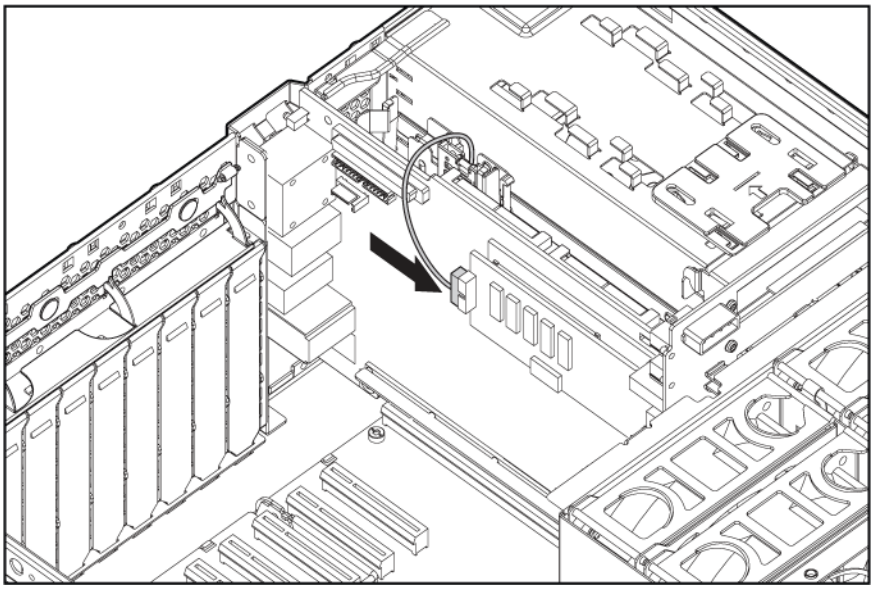
Fan locations



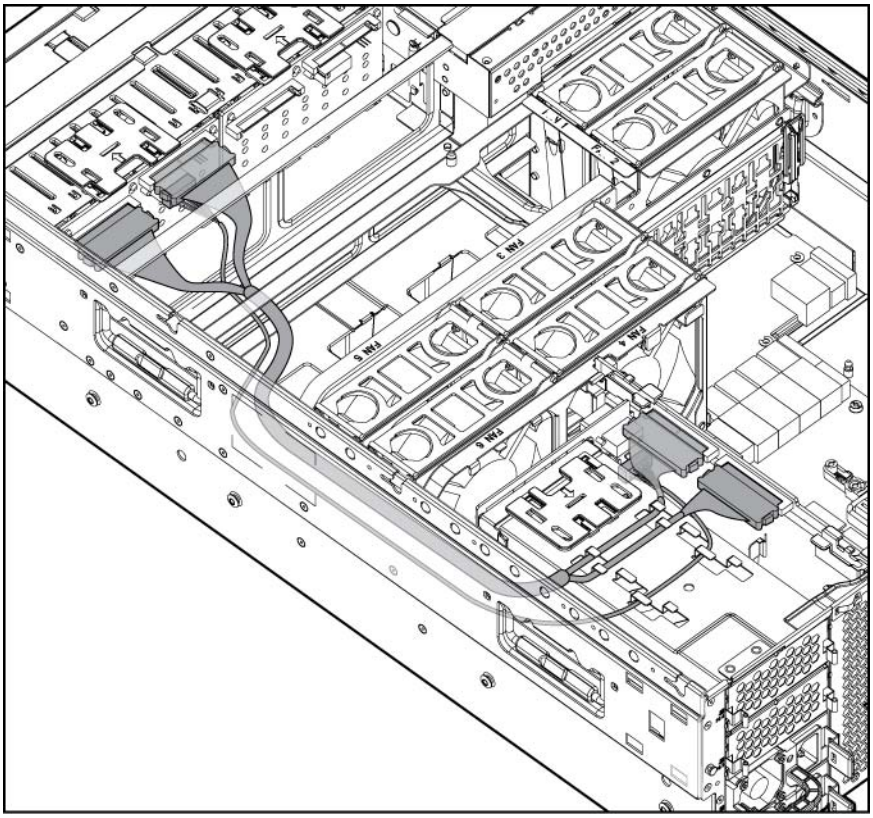
Cabling

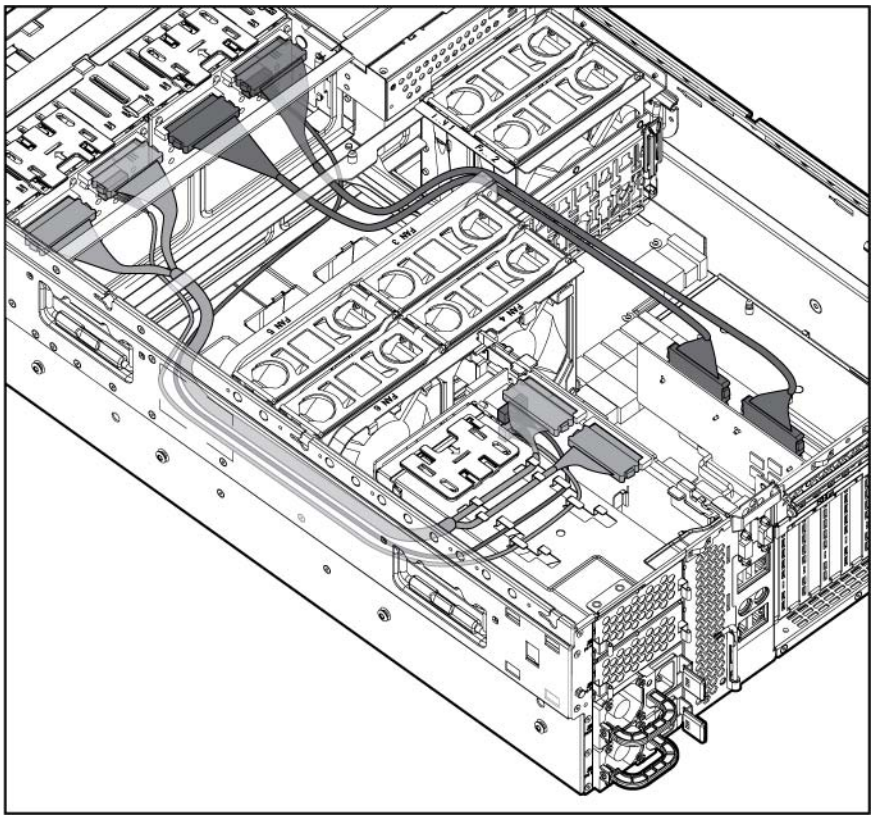
BBWC cabling

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

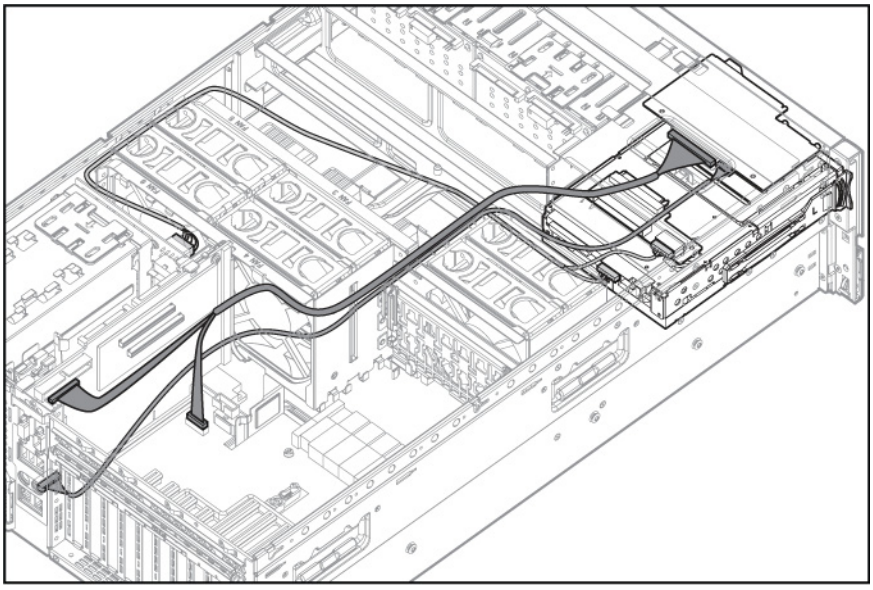


Hard drive cabling

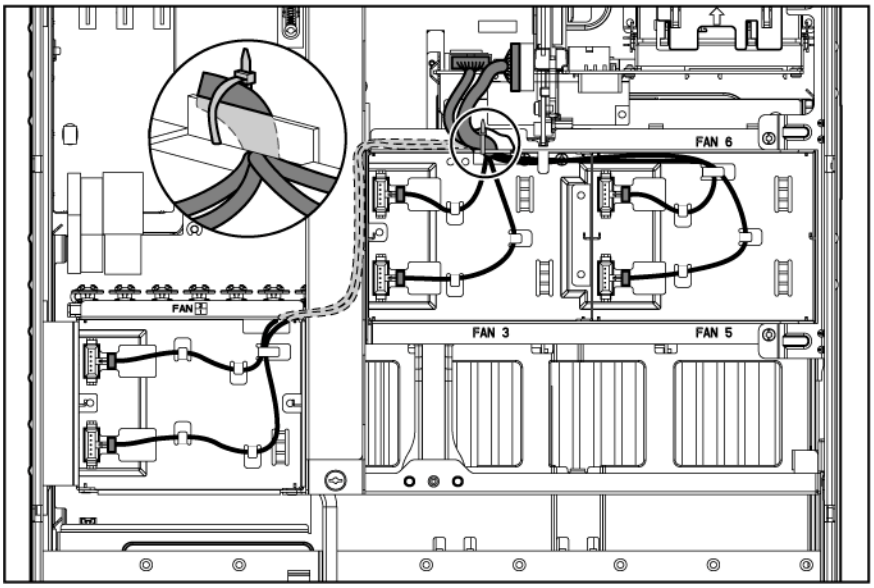




Tape drive cabling

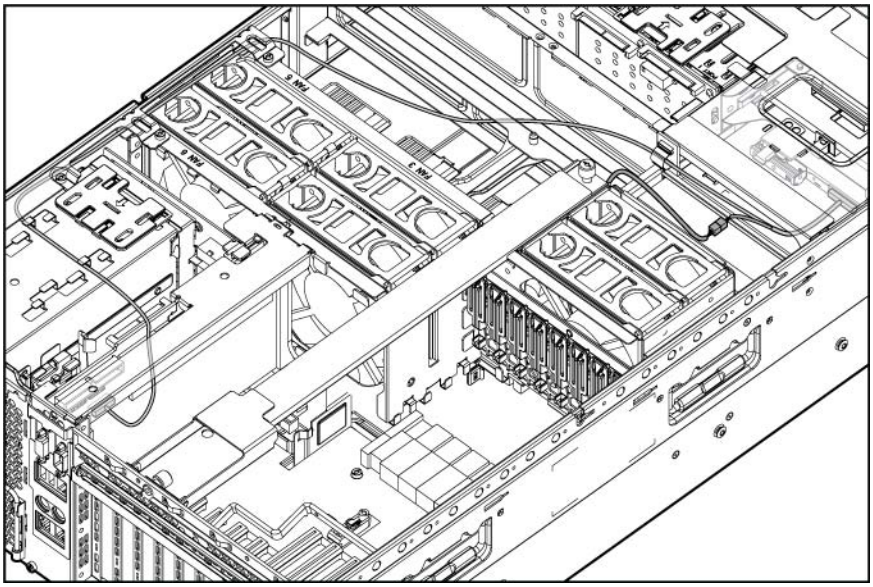


Fan cable assembly



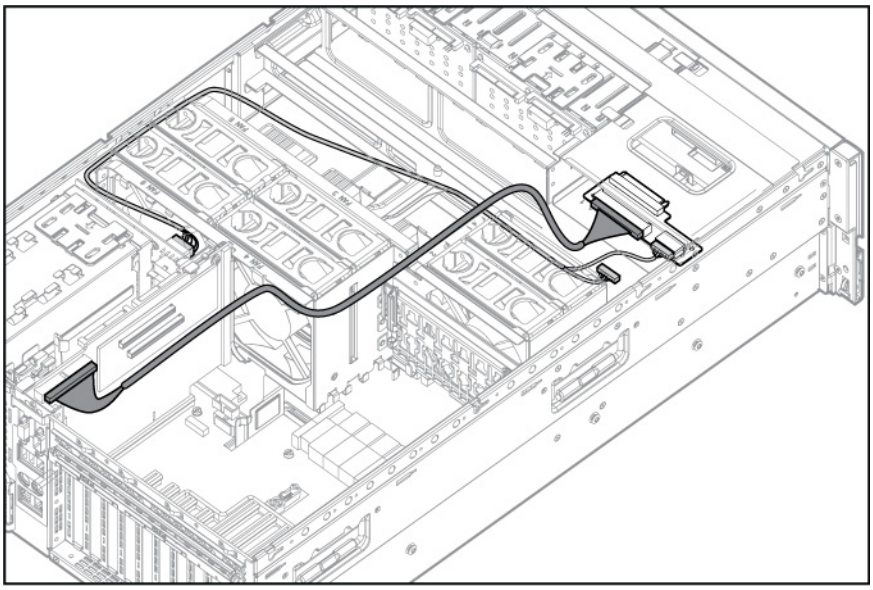
SATA DVD drive cabling

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



DVD drive cabling

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



Specifications

Environmental specifications

Specification	Value
Temperature range*	
Operating	10°C to 35°C (50°F to 95°F)
Shipping	-40°C to 70°C (-40°F to 158°F)
Maximum wet bulb temperature	28°C (82.4°F)
Relative humidity (noncondensing)**	
Operating	10% to 90%
Non-operating	5% to 95%

* All temperature ratings shown are for sea level. An altitude derating of 1°C per 300 m (1.8°F per 1,000 ft) to 3048 m (10,000 ft) is applicable. No direct sunlight allowed.
** Storage maximum humidity of 95% is based on a maximum temperature of 45°C (113°F). Altitude maximum for storage corresponds to a pressure minimum of 70 KPa.

Server specifications

Specification	Value
Dimension	—
Height	17.6 cm (6.94 in)
Depth	67.3 cm (26.5 in)
Width	46.3 cm (19.0 in)
Weight (maximum)	47.6 kg (105 lb)
Weight (no drives installed)	36.3 kg (80 lb)
Input requirement	—
Rated input voltage	100–127 VAC 200–240 VAC
Rated input frequency	50–60 Hz
Rated input current	@ 100 VAC–12A @ 200 VAC–8A
Rated input power	@100 VAC–1161 W @200 VAC–1598 W
BTUs per hour	@100 VAC–3960 BTU @200 VAC–5450 BTU
Power supply output	—

Specification	Value
Power supply output	910 W (low line) 1300 W (high line)

Technical support

Before you contact HP

Be sure to have the following information available before you call HP:

- Technical support registration number (if applicable)
- Product serial number
- Product model name and number
- Product identification number
- Applicable error messages
- Add-on boards or hardware
- Third-party hardware or software
- Operating system type and revision level

HP contact information

For the name of the nearest HP authorized reseller:

- See the Contact HP worldwide (in English) webpage (http://welcome.hp.com/country/us/en/wwcontact.html).

For HP technical support:

- In the United States, for contact options see the Contact HP United States webpage (http://welcome.hp.com/country/us/en/contact_us.html). To contact HP by phone:
  - Call 1-800-HP-INVENT (1-800-474-6836). This service is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored.
  - If you have purchased a Care Pack (service upgrade), call 1-800-633-3600. For more information about Care Packs, refer to the HP website (http://www.hp.com/hps).
- In other locations, see the Contact HP worldwide (in English) webpage (http://welcome.hp.com/country/us/en/wwcontact.html).

Acronyms and abbreviations

ABEND

abnormal end

ASR

Automatic Server Recovery

BBWC

battery-backed write cache

BIOS

Basic Input/Output System

CSA

Canadian Standards Association

DOS

disk operating system

FBDIMM

fully buffered DIMM

iLO 2

Integrated Lights-Out 2

IML

Integrated Management Log

ISEE

Instant Support Enterprise Edition

LED

light-emitting diode

NIC

network interface controller

NVRAM

non-volatile memory

ORCA

Option ROM Configuration for Arrays

OS

operating system

PCI

peripheral component interface

PCI-X

peripheral component interconnect extended

POST

Power-On Self Test

PPM

processor power module

RAID

redundant array of inexpensive (or independent) disks

RBSU

ROM-Based Setup Utility

ROM

read-only memory

SAS

serial attached SCSI

SATA

serial ATA

SCSI

small computer system interface

SDRAM

synchronous dynamic RAM

SFF

small form-factor

SIM

Systems Insight Manager

SNMP

Simple Network Management Protocol

SPI

system peripheral interface

UID

unit identification

USB

universal serial bus

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