

# HP ProLiant MicroServer

## Maintenance and Service Guide



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# 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, see 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 Agréé 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 spedisce direttamente al cliente per la sostituzione. Vi sono due categorie di parti CSR:

- **Obbligatorie**—Parti che devono essere necessariamente riparate dal cliente. Se il cliente ne affida la riparazione ad 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 garanteservice 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>).

## Garanteservice "Parts Only"

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

Voor de Parts Only garanteservice 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.

## カスタマーセルフリペア

修理時間を短縮し、故障部品の交換における高い柔軟性を確保するために、HP製品には多数の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** - カスタマーセルフリペアが必須の部品。当該部品について、もしもお客様が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** - カスタマーセルフリペアが任意である部品。この部品もカスタマーセルフリペア用です。当該部品について、もしもお客様が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、カスタマーセルフリペア用ではありません。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、当該部品がカスタマーセルフリペア除外品である旨が記載されています。

部品供給が可能な場合、地域によっては、CSR部品を翌営業日に届くように発送します。また、地域によっては、追加費用を負担いただくことにより同日または4時間以内に届くように発送することも可能な場合があります。サポートが必要なときは、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。カスタマーセルフリペアの際には、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.

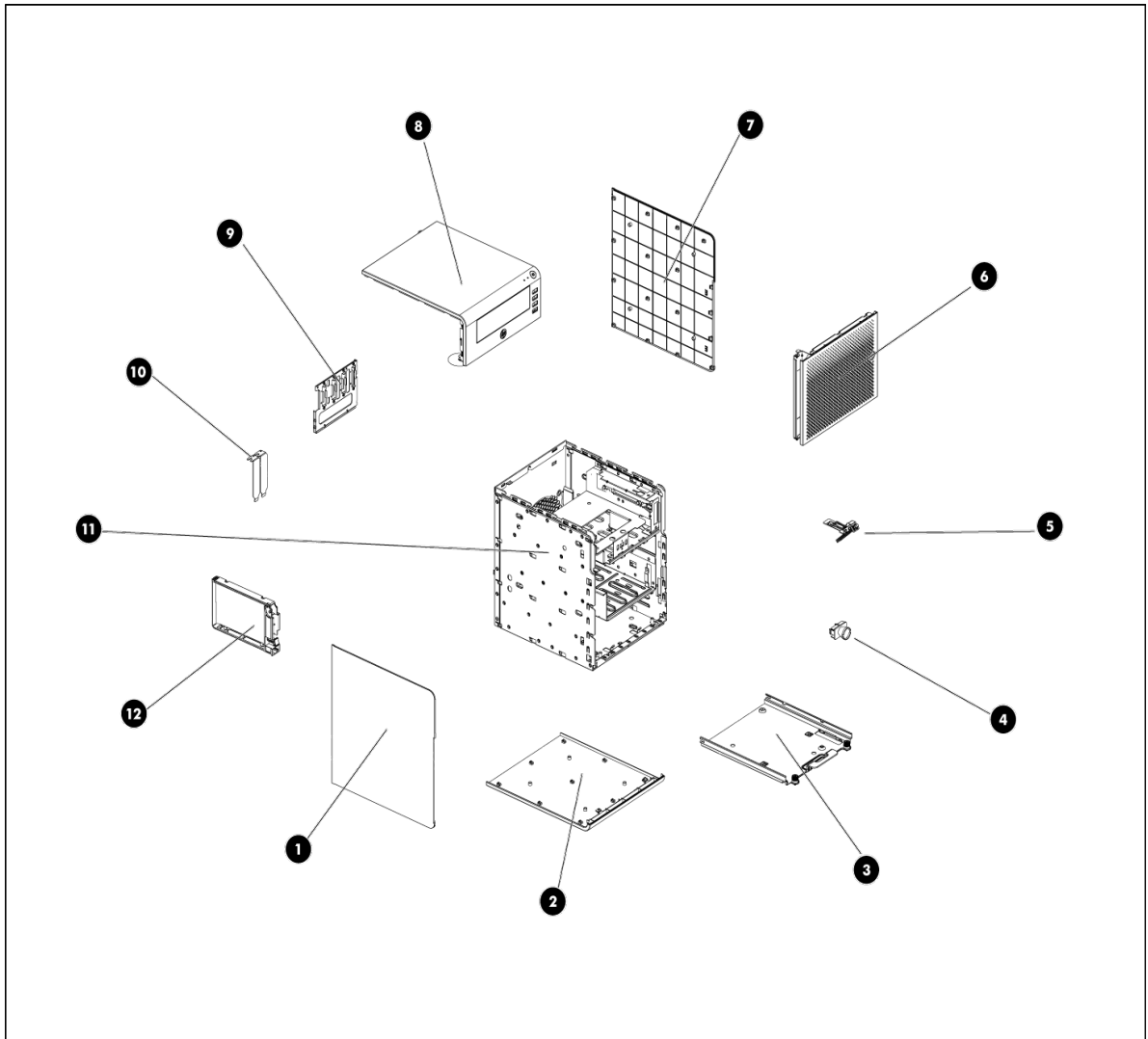
## 부품 제공 보증 서비스

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





<b>Item</b>	<b>Description</b>	<b>Spare part number</b>	<b>Customer self repair</b>
1	Left panel	—	—
2	Bottom panel	—	—
3	System board tray	—	—
4	Health LED	—	—
5	Power button bracket	—	—
6	Front panel door	624880-001	Optional <sup>2</sup>
7	Right panel	—	—
8	Top panel	—	—
9	Cable bracket	—	—
10	Expansion slot cover	—	—
11	Chassis	—	—
12	Drive carrier	624879-001	Optional <sup>2</sup>

<sup>1</sup>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.

<sup>2</sup>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.

<sup>3</sup>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.

<sup>1</sup>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.

<sup>2</sup>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.

<sup>3</sup>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.

<sup>1</sup>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.

<sup>2</sup>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 aggiuntive a seconda del tipo di garanzia previsto per il prodotto.

<sup>3</sup>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.

<sup>1</sup>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.

<sup>2</sup>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.

<sup>3</sup>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.

<sup>1</sup>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.

<sup>2</sup>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.

<sup>3</sup>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.

<sup>1</sup>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.

<sup>2</sup>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 garanteservice voor het product.

<sup>3</sup>No: Nee—Sommige HP onderdelen zijn niet ontwikkeld voor reparatie door de klant. In verband met de garanti voorwaarden moet het onderdeel door een geautoriseerde Service Partner worden vervangen. Deze onderdelen worden in de geïllustreerde onderdelencatalogus aangemerkt met "Nee".

<sup>1</sup>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.

<sup>2</sup>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.

<sup>3</sup>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.

<sup>1</sup>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。

<sup>2</sup>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。

<sup>3</sup>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。

<sup>1</sup>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。

<sup>2</sup>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。

<sup>3</sup>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”。

<sup>1</sup>Mandatory: 強制的 — 客戶自行維修所使用的零件是強制的。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。

<sup>2</sup>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。

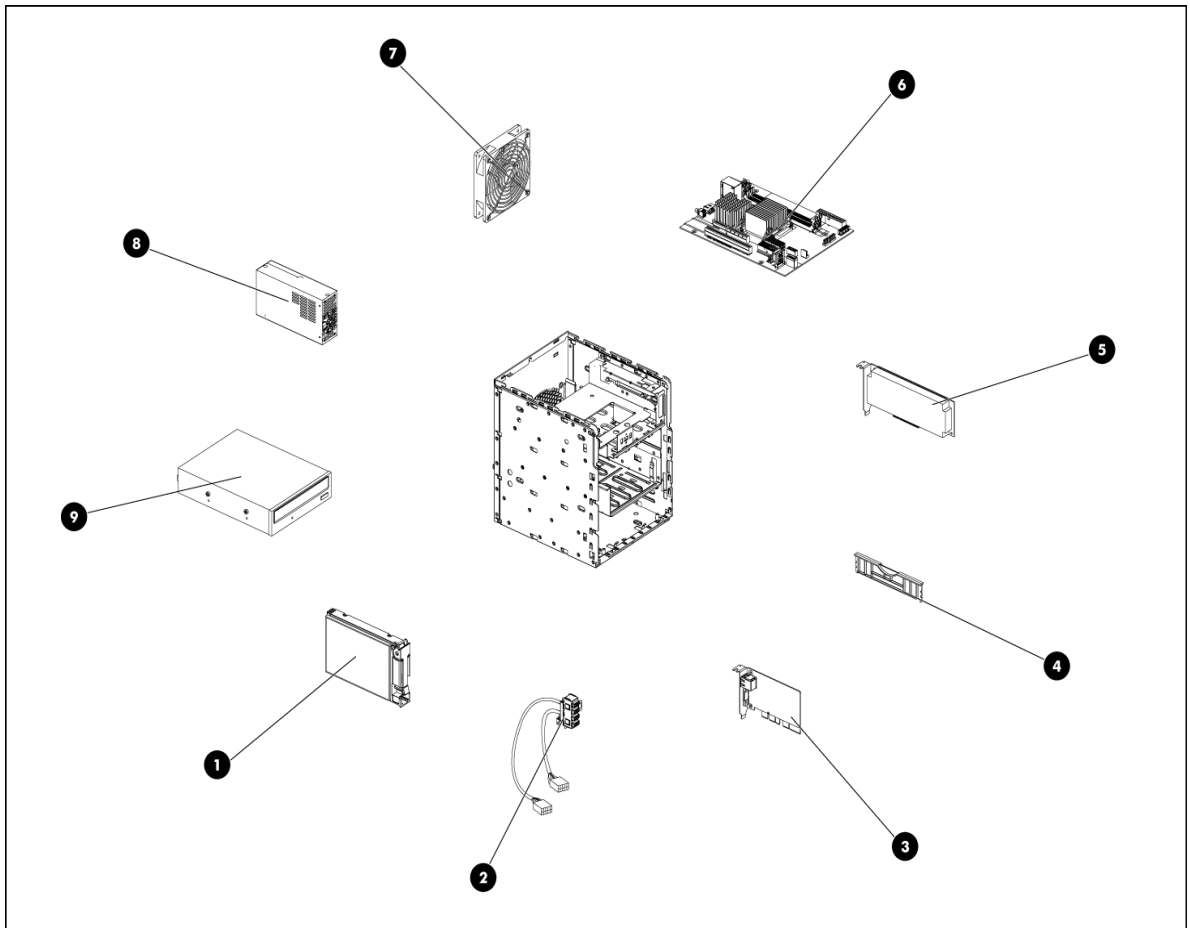
<sup>3</sup>No: 否 — 某些 HP 零件沒有消費者可自行維修的設計。為符合客戶保固，HP 需要授權的服務供應商更換零件。這些零件在圖示的零件目錄中，被標示為「否」。

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

<sup>2</sup> 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.

<sup>3</sup> 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	Spare part number	Customer self repair
1	Drives	—	—
	160 GB LFF SATA hard drive	483096-001	Optional <sup>2</sup>
	250 GB LFF SATA hard drive	459315-001	Optional <sup>2</sup>
	500 GB LFF SATA hard drive	459316-001	Optional <sup>2</sup>
2	Front USB assembly	—	—
3	IPMI card	624877-001	Optional <sup>2</sup>
4	Memory modules	—	—
	1 GB PC3-10600E UDIMM	501539-001	Mandatory <sup>1</sup>
	2 GB PC3-10600E UDIMM	595101-001	Mandatory <sup>1</sup>
	4 GB PC3-10600E UDIMM	595102-001	Mandatory <sup>1</sup>
5	PCIe card	—	—
6	System board	—	—
	System board with 1.3-GHz processor	620826-001	Optional <sup>2</sup>
	System board with 1.5-GHz processor	661787-001	Optional <sup>2</sup>
	System board with 2.2-GHz processor	708503-001	Optional <sup>2</sup>
7	System fan	620828-001	Mandatory <sup>1</sup>
8	Power supplies	—	—
	150 W power supply	620827-001	Optional <sup>2</sup>
	200 W power supply	625147-001	Optional <sup>2</sup>
9	DVD-RW drive	624592-001	Mandatory <sup>1</sup>

<sup>1</sup>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.

<sup>2</sup>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.

<sup>3</sup>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.

<sup>1</sup>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.

<sup>2</sup>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.

<sup>3</sup>No: Non—Certains 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.

<sup>1</sup>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.

<sup>2</sup>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 aggiuntive a seconda del tipo di garanzia previsto per il prodotto.

<sup>3</sup>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.

<sup>1</sup>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.

<sup>2</sup>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.

<sup>3</sup>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.

<sup>1</sup>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.

<sup>2</sup>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.

<sup>3</sup>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.

<sup>1</sup>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.

<sup>2</sup>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.

<sup>3</sup>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".

<sup>1</sup>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.

<sup>2</sup>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.

<sup>3</sup>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.

<sup>1</sup>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。

<sup>2</sup>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。

<sup>3</sup>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。

<sup>1</sup>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。

<sup>2</sup>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。

<sup>3</sup>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”。

<sup>1</sup>Mandatory: 強制的 — 客戶自行維修所使用的零件是強制的。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。

<sup>2</sup>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，則可能也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。

<sup>3</sup>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」。

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

<sup>2</sup> 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.

<sup>3</sup> 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.



# HP contact information

For United States and worldwide contact information, see the Contact HP website (<http://www.hp.com/go/assistance>).

In the United States:

- To contact HP by phone, call 1-800-334-5144. For continuous quality improvement, calls may be recorded or monitored.
- If you have purchased a Care Pack (service upgrade), see the Support & Drivers website (<http://www8.hp.com/us/en/support-drivers.html>). If the problem cannot be resolved at the website, call 1-800-633-3600. For more information about Care Packs, see the HP website (<http://pro-aq-sama.houston.hp.com/services/cache/10950-0-0-225-121.html>).

## Before you contact HP

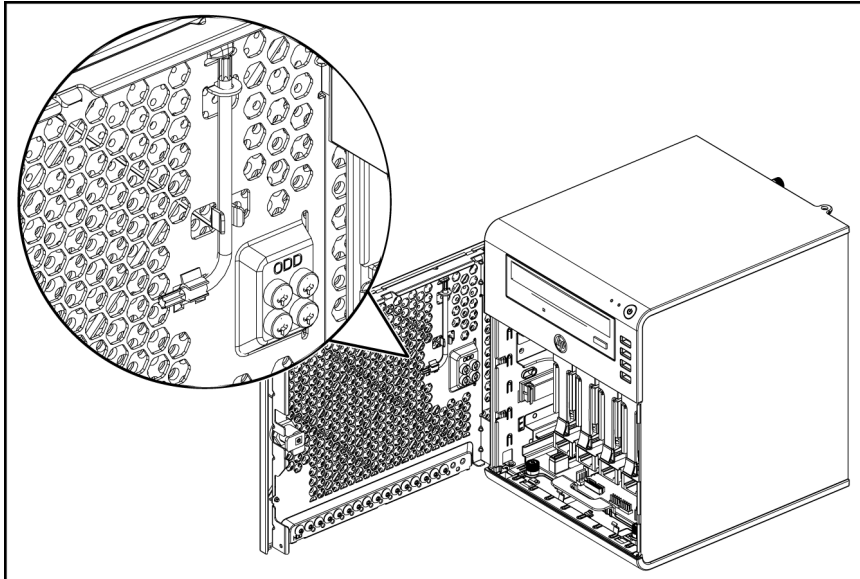
Be sure to have the following information available before you call HP:

- Active Health System log (HP ProLiant Gen8 or later products)  
Download and have available an Active Health System log for 3 days before the failure was detected. For more information, see the *HP iLO 4 User Guide for HP Intelligent Provisioning User Guide* on the HP website (<http://www.hp.com/go/ilo/docs>).
- Technical support registration number (if applicable)
- Product serial number (printed on the serial pull tab located on the front panel)
- 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

---

# Removal and replacement procedures

## Required tools



In performing any hardware configuration procedure you may need the following tools:

- System screwdriver (secured to the front panel door)  
All hardware screws used in the server can be removed or fastened by using the system screwdriver.
- All spare screws are located on the back side of the front panel door.

The following references and software tools may also be used:

- IPMI Event Log
- Diagnostics software

## Server warnings and cautions

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

---

**⚠ 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:** The server must always be operated with the system covers on. Proper cooling is not achieved when the system covers are removed.

---

**⚠ CAUTION:** Whenever installing hardware or performing maintenance procedures requiring access to internal components, it is recommended that users first back up all server data to avoid loss.

---



**IMPORTANT:** Before removing any serviceable parts, determine whether the part is hot-plug or non-hot-plug. If the device is non-hot-plug, you must power down the server. Non-hot-plug devices in the server include the processor, all boards, memory modules, fan, expansion boards, and all system drives.

---



**IMPORTANT:** Review the specifications of a new component before installing it to make sure it is compatible with the server. When you integrate new components into the system, record its model and serial number, and any other pertinent information for future reference. After completing any removal or replacement procedure, run the diagnostics program to verify that all components operate properly.

---

# Symbols on equipment

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



---

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

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

---



---

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

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

---



---

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

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

---



---

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

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

---



99.8 kg  
220 lb

---

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

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

---



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

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

---

# Electrostatic discharge information

An electrostatic discharge (ESD) can damage static-sensitive devices or microcircuitry. Proper packaging and grounding techniques are necessary precautions to prevent damage. To prevent electrostatic damage, observe the following precautions:

- Transport products in static-safe containers such as conductive tubes, bags, or boxes.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free stations.
- Cover workstations with approved static-dissipating material. Use a wrist strap connected to the work surface, and properly grounded (earthed) tools and equipment.
- Keep work area free of nonconductive materials, such as ordinary plastic assembly aids and foam packing.
- Make sure that you are always properly grounded (earthed) when touching a static-sensitive component or assembly.
- Avoid touching pins, leads, or circuitry.
- Always place drives with the Printed Circuit Board (PCB) assembly-side down.
- Use conductive field service tools.

## Pre-installation procedure

Perform the steps below before you open the server or before you remove or replace any component.

1. Perform data backup.
2. Turn off the server and all the peripherals connected to it.
3. Unplug all cables from the power outlets to avoid exposure to high energy levels that may cause burns when parts are short circuited by metal objects such as tools or jewelry.  
If necessary, label each cable to expedite reassembly.
4. Disconnect all telecommunication cables to avoid exposure to shock hazard from ringing voltages.
5. Open the server according to the instructions described in the “System covers” section later in this chapter.
6. Follow the ESD precautions listed previously in this chapter when handling any hardware component.



**IMPORTANT:** To streamline the configuration process, read through the entire installation/removal procedure first and make sure you understand it before you begin.

---

# Post-installation procedure


Perform the steps below after installing or removing a server component.

1. Be sure all components are installed according to the described step-by-step instructions.
2. Check to make sure you have not left loose tools or parts inside the server.
3. Reinstall any expansion board, peripheral, and system cables that have previously been removed.


---

**⚠ CAUTION:** Do not operate the server for more than ten minutes with the access panel and disk drives removed. Otherwise, improper cooling airflow may damage the system components.

---

4. Reinstall the system covers.
5. Connect all external cables and the AC power cord to the system.
6. Press the power button  on the front panel to turn on the server.

# Powering down the server

The server does not completely power down when the power button  is pressed. The button toggles between On and Standby. The standby position removes power from most electronics and the drives, but some internal circuitry remains active. To completely remove all power from the system, disconnect all power cords from the server.

---

**⚠ WARNING:** Hazardous voltages are present inside the server. Always disconnect AC power from the server and other associated assemblies while working inside the unit. Serious injury may result if this warning is not observed.

---

**⚠ 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.
- 

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

---

1. Shut down the server as directed by the operating system documentation.
2. Disconnect the AC power cord from the AC outlet and then from the server.
3. Check that the power LED indicator is turned off and that the fan noise has stopped.
4. Disconnect all external peripheral devices from the server.

# Cable management

Always follow good cable management practices when working inside the computer.

- Keep cables away from major heat sources like the heatsink.
- Do not jam cables on top of expansion cards or memory modules. Printed circuit cards are not designed to withstand excessive pressure.

- Keep cables clear of sliding or moveable parts to prevent cutting or crimping.
- When folding a flat ribbon cable, never fold to a sharp crease. Sharp creases may damage the wires.
- Some flat ribbon cables come prefolded. Never change the folds on these cables.
- Do not sharply bend any cable. A sharp bend can break the internal wires.
- Never bend a SATA data cable tighter than a 30 mm (1.18 in) radius.
- Never crease a SATA data cable.
- Do not rely on components like the drive cage, power supply, or system cover to push cables down into the chassis.

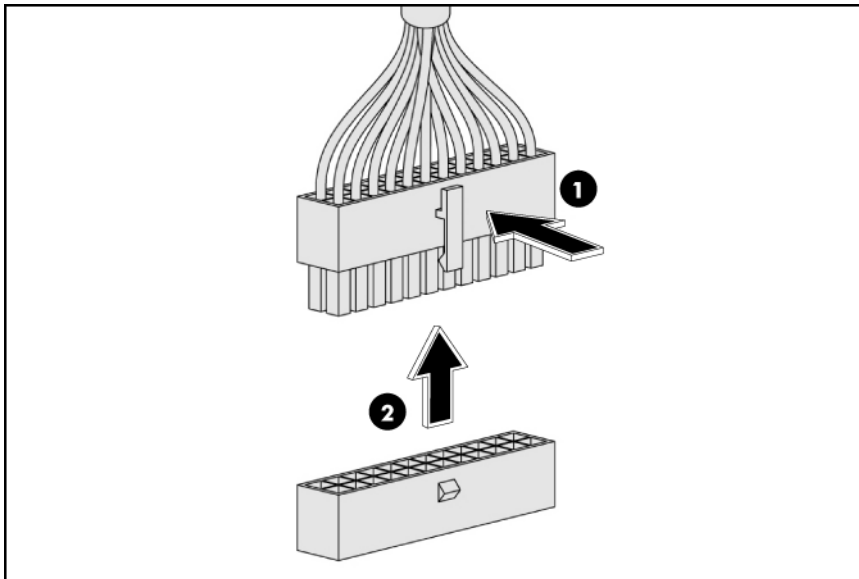
### **To disconnect a power supply cable from the system board:**

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**⚠ CAUTION:** Always pull the connector. NEVER pull on the cable. Pulling on the cable can damage the cable and result in a failed power supply.

---

1. Squeeze on the top of the retaining latch attached to the cable end of the connector.
2. Grasp the cable end of the connector and pull it straight up.



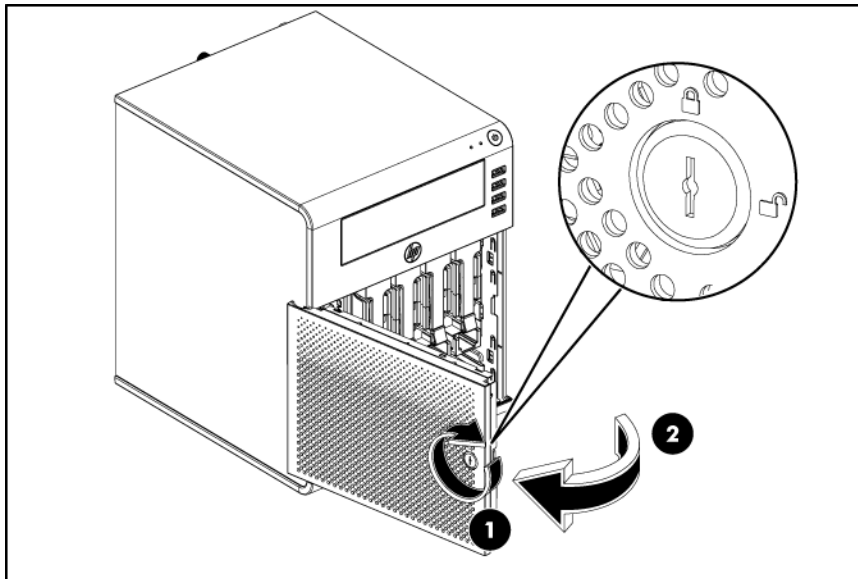
# System cover

## Panel door

The main chassis area is protected by the front panel door. This door must be opened to access the internal components and the system board cable connections of the system drives.

### To open the door:

1. Using the HP ProLiant MicroServer key to unlock the panel door.
2. Open the panel door of the server. If necessary, remove any components or cables that prevent access to the slot.



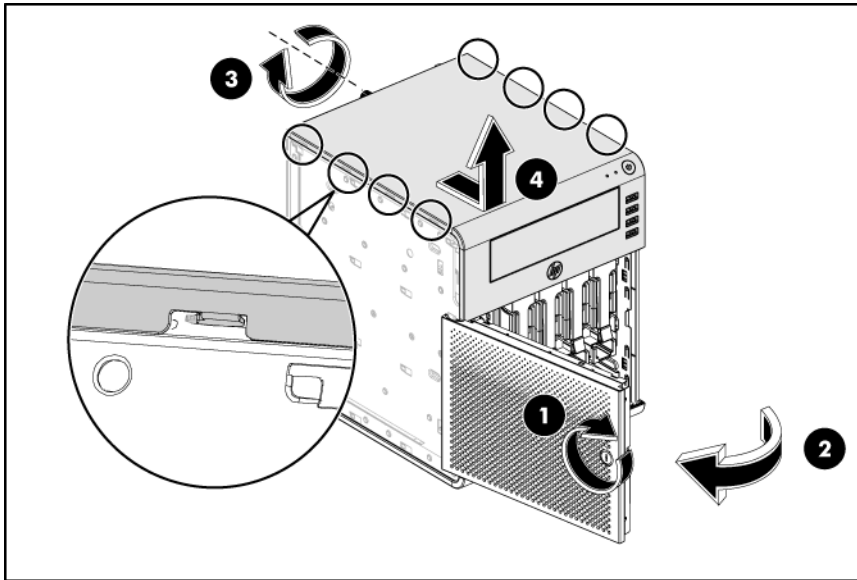


## Top panel

The ODD is shielded by the top cover. This cover must be removed when configuring the ODD and connecting the HDD cables with the PSU cables.

### To remove the top panel:

1. Use the HP ProLiant MicroServer key to unlock the panel door.
2. Open the panel door of the server. If necessary, remove any components or cables that prevent access to the slot.
3. Loosen the rear thumbscrew which locks the panel on the chassis.
4. Slide the top panel forward, and then lift to remove it from the chassis.



5. Place the top cover in a safe place for reinstallation later.

# Drive bay configuration

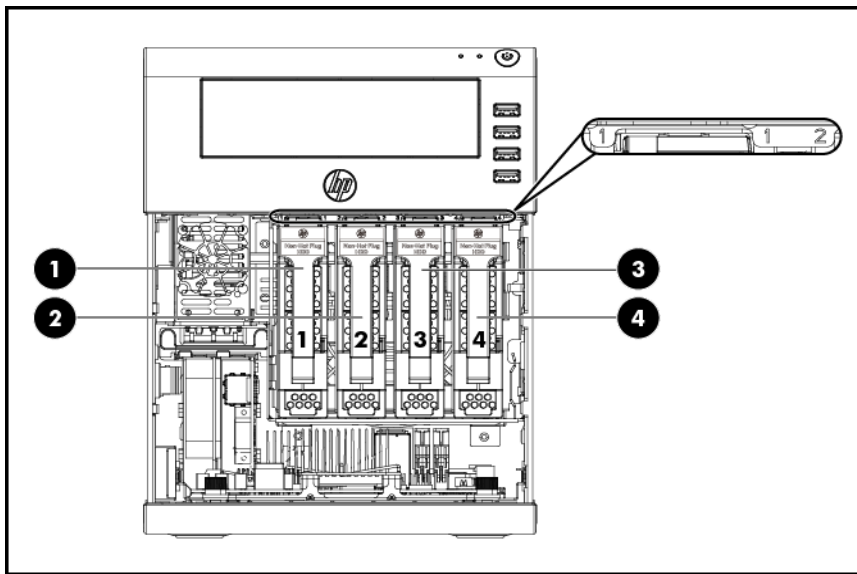
The server supports four drive bays—four drive bays for 3.5-inch non-hot-plug SATA hard disk drives (HDD).

**NOTE:** The server does not support hot-plug hard disk drives.

See the product QuickSpecs on the [HP Product Bulletin website](#) and check the options list for this server model for the latest information on supported system drives.



**IMPORTANT:** When installing the hard drives, should install them from hard drive 1, then hard drive 2, hard drive 3 and hard drive 4.

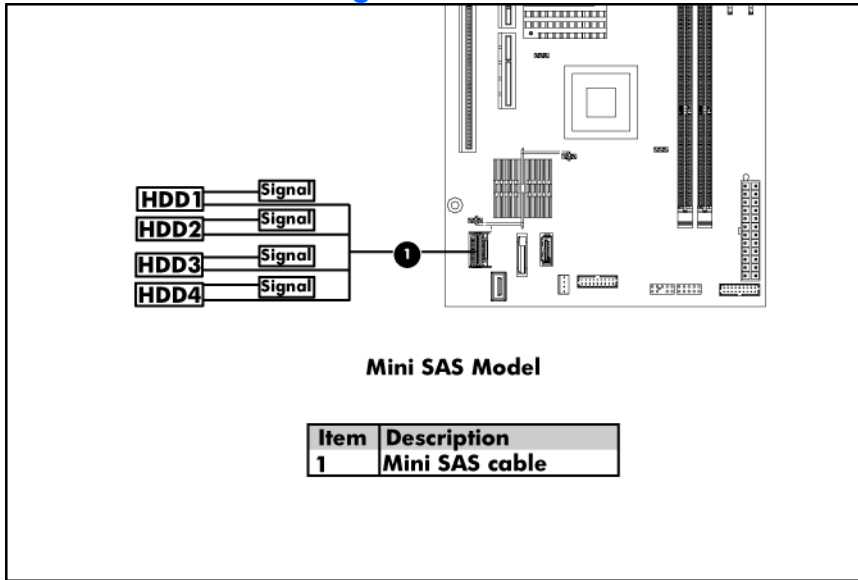


Item	Description
1	Hard disk drive 1
2	Hard disk drive 2
3	Hard disk drive 3
4	Hard disk drive 4

## System drive cable management

The figures in this section illustrate the system drives' data and power cable connections.

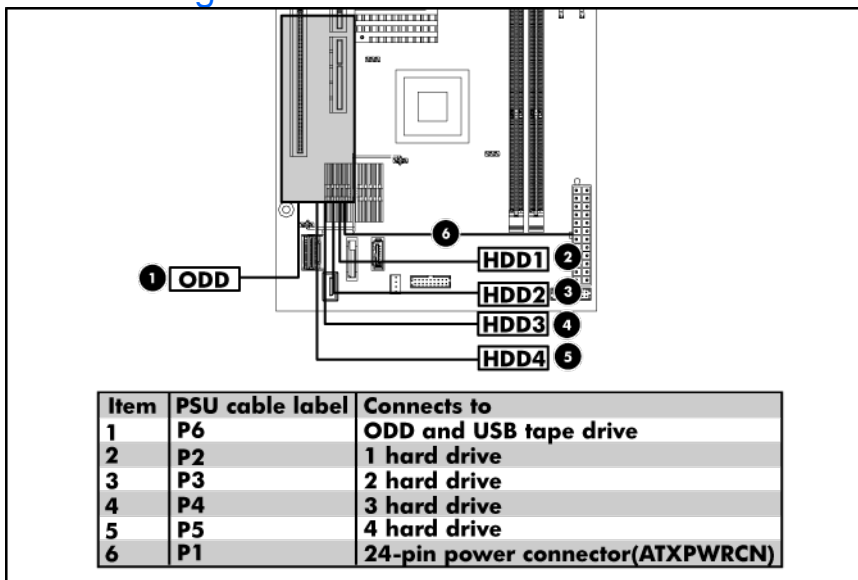
## SATA SKU data cable management



**NOTE:** Make sure the lock side of the Mini-SAS cable faces the battery when installing the Mini-SAS cable.

Item	Description	HP spare PN
1	Mini-SAS cable	624881-001

## Power cable management



Item	PSU cable label	Connects to
1	P6	Option drive
2	P2	1 hard drive
3	P3	2 hard drive

Item	PSU cable label	Connects to
4	P4	3 hard drive
5	P5	4 hard drive
6	P1	24-pin power connector

## Hard disk drive

Hard drives installed in the server are labeled as HDD1, HDD 2, HDD 3, and HDD 4 from left to right, when viewed from the front of the server.

The drive bays can accommodate large form factor (LFF) non-hot-plug SATA hard drives.

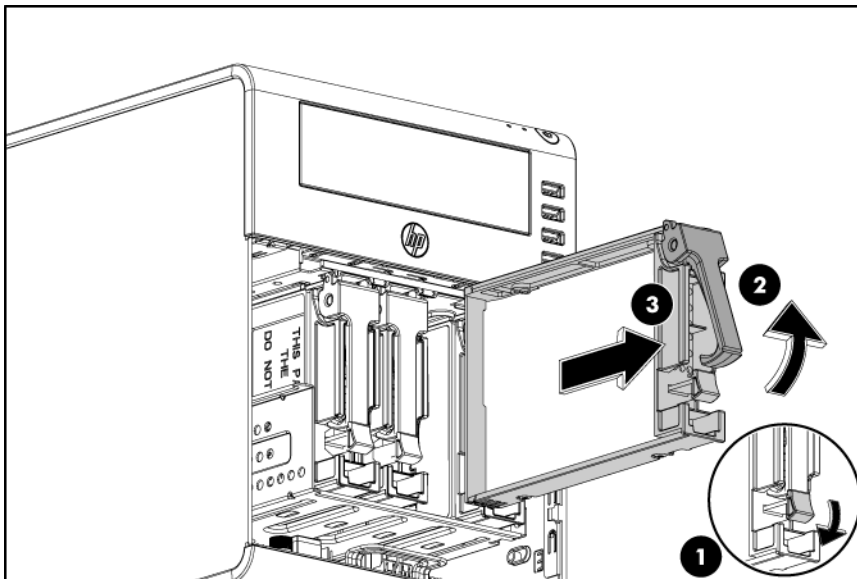
### Guidelines for installing hard drives

- Install only hard drive models specified for your HP ProLiant MicroServer. Installing unsupported hard drives may damage the system by consuming power and generating heat in excess of the server's operating tolerance. This condition may result in a loss of system and/or data integrity.
- If you removed the HDD without plans of installing a new one, you must reinstall the carrier in the chassis for proper cooling of the system.

#### To install a hard drive:

1. Power off the server.
2. Open the panel door.
3. Remove the drive:
  - a. Press the drive carrier button to release the handle.
  - b. Extend the ejector lever.
  - c. Use the ejector lever to pull the drive out of the cage.

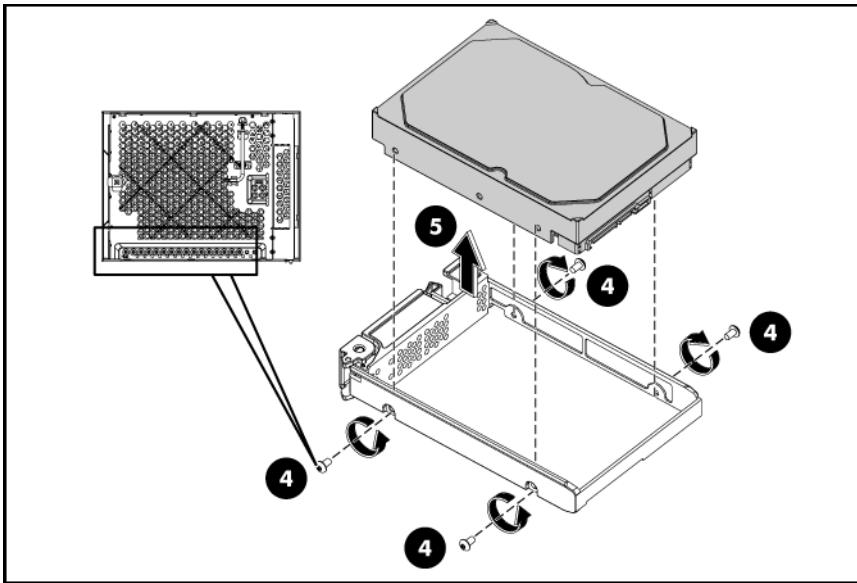
Make sure to support the drive when pulling it out of the cage.



4. Remove the drive from the carrier:
  - a. Remove the screws securing the drive module.

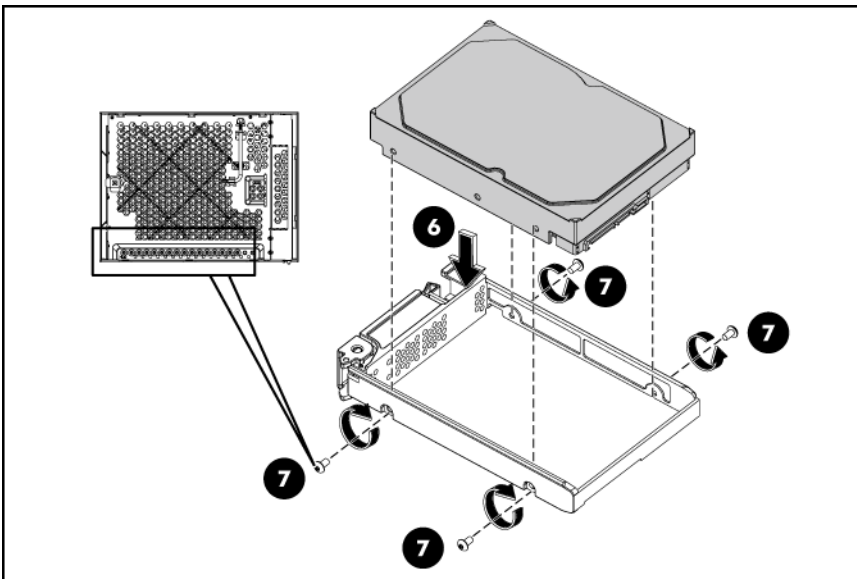
Use these screws to install the new drive.

- b. Remove the drive from the carrier.



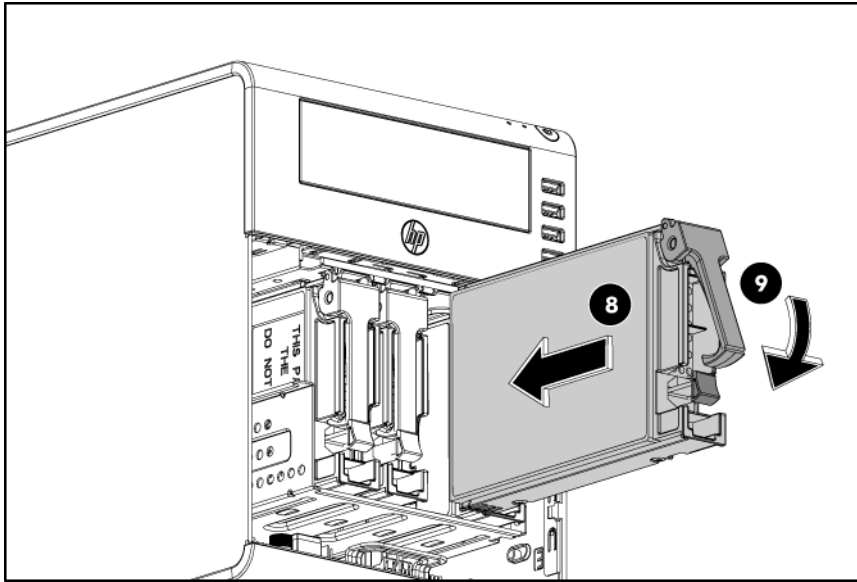
5. Install the drive in the drive carrier:

- a. Align the hard drive inside the carrier.
- b. Use the screws removed in step 4a to secure the drive in the carrier.



6. Install the drive in the drive bay:

- a. Slide drive assembly into the drive bay.
- b. Close the ejector lever to secure the drive.



7. Perform the post-installation procedure.

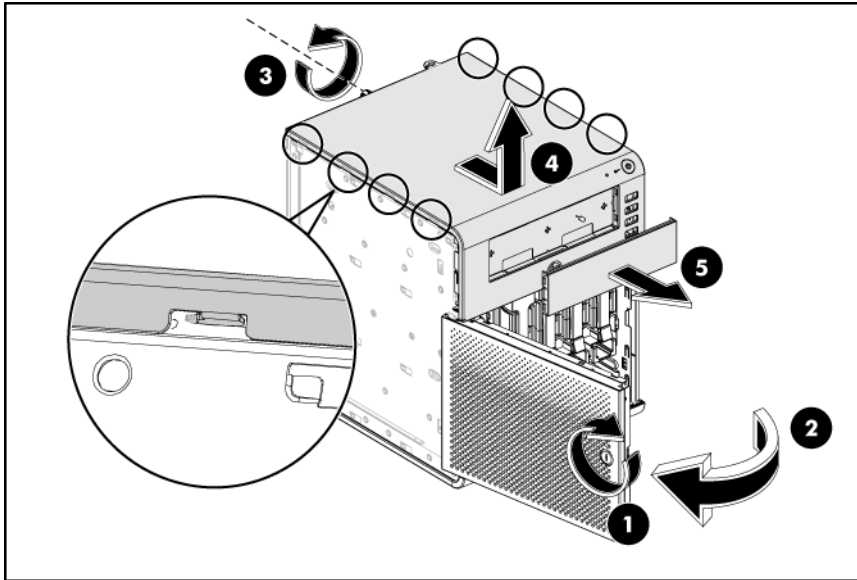
## Optical disc drive

The following SATA ODD models are supported:

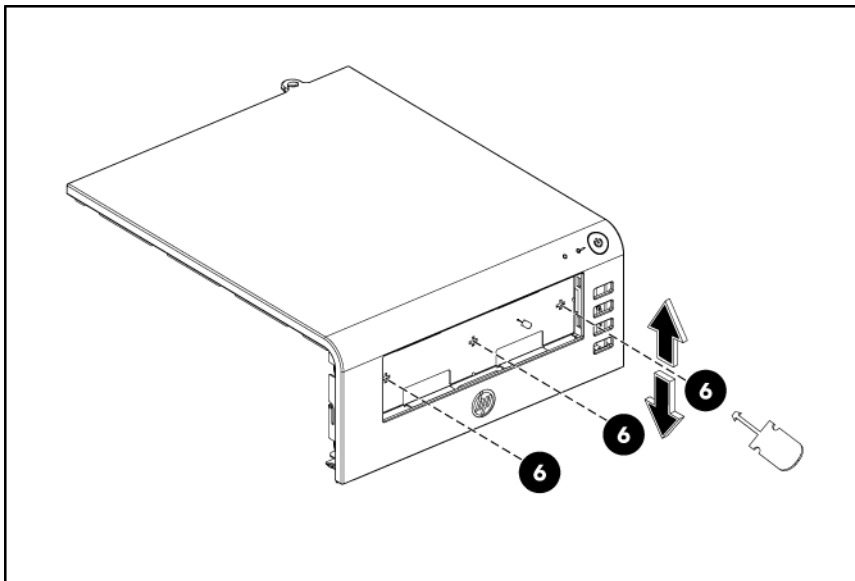
- DVD drive
- DVD-RW drive

### To install an optical disc drive:

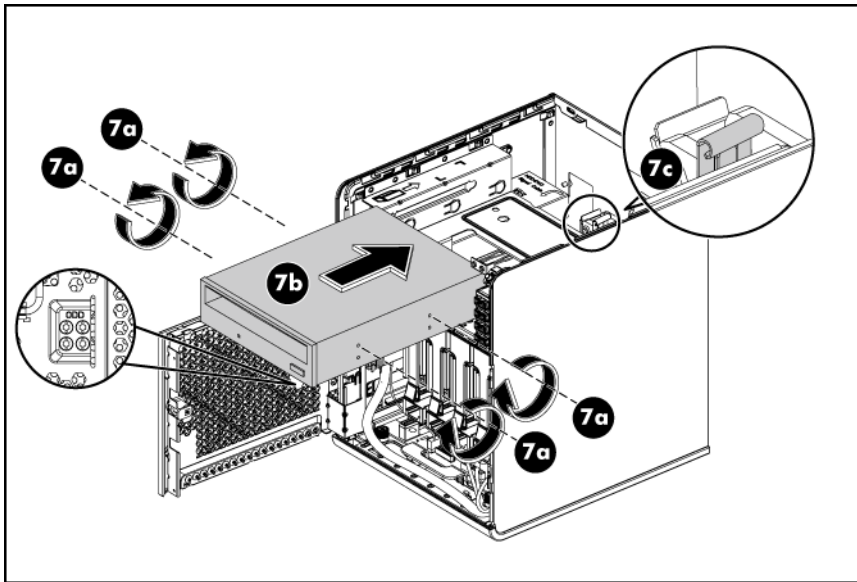
1. Using the HP ProLiant MicroServer key to unlock the panel door.
2. Open the panel door of the server. If necessary, remove any components or cables that prevent access to the slot.
3. Loosen the rear thumbscrew which locks the panel on the chassis.
4. Slide the top panel forward, and then lift to remove it from the chassis.
5. Remove the plastic faceplate from the top panel. Store it for future use.



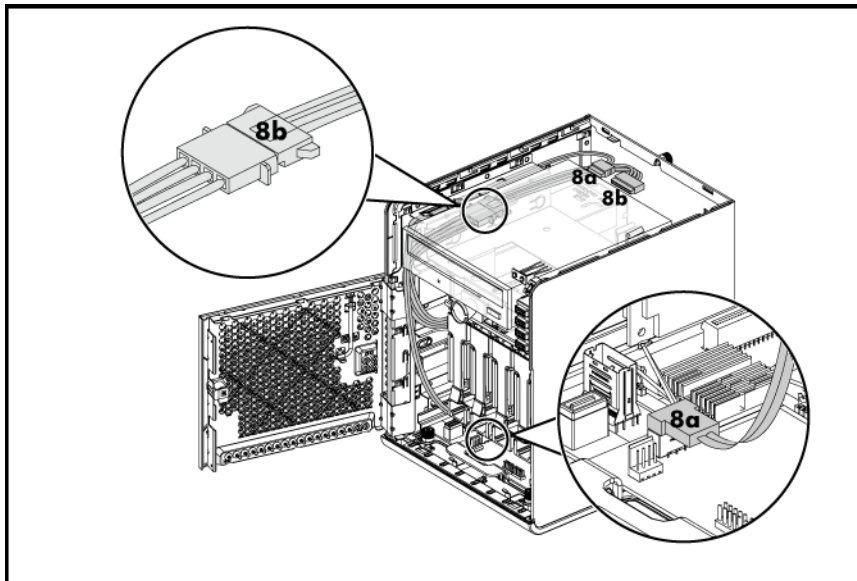
6. Use a screwdriver to toggle the metal faceplate off the top panel. The metal faceplate is no longer needed when a device is installed in the removable media drive bay.



7. Install the optical drive:
  - a. Remove four spare optical drive screws from the rear side of the panel door.
  - b. Install the screws onto the drive.
  - c. Slide the drive into the media drive bay until it clicks into place.

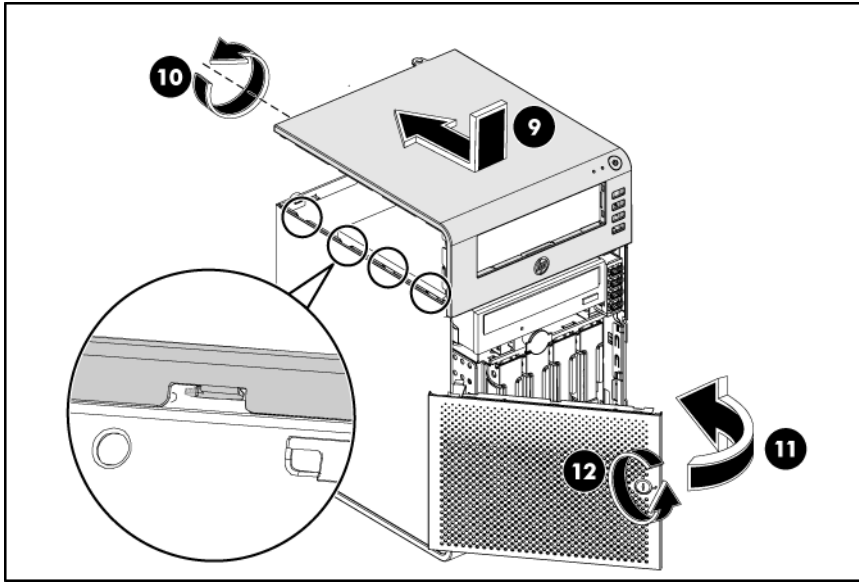


8. Connect the optical drive cables:
  - a. Connect the data cable to the optical drive, and then connect the end to the system board (J24).
  - b. Connect the power cable to the optical drive, and then connect the other end to the power supply unit's optical drive connector (P6).



9. Slide the top panel back onto the chassis.
10. Tighten the rear thumbscrew to lock the top panel in place.
11. Close the panel door of the server.
12. Use the HP ProLiant MicroServer key to lock the panel door.





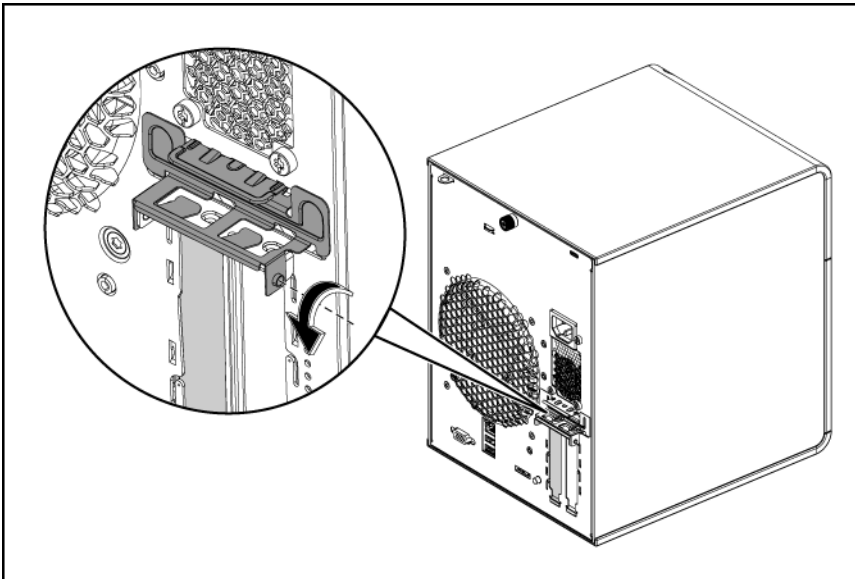
# System board configuration

Refer to the following sections for instructions about how to remove or replace the processor, the memory modules, the expansion cards, and the system battery. Procedure for installing the HP MicroServer Remote Access Card option is also provided.

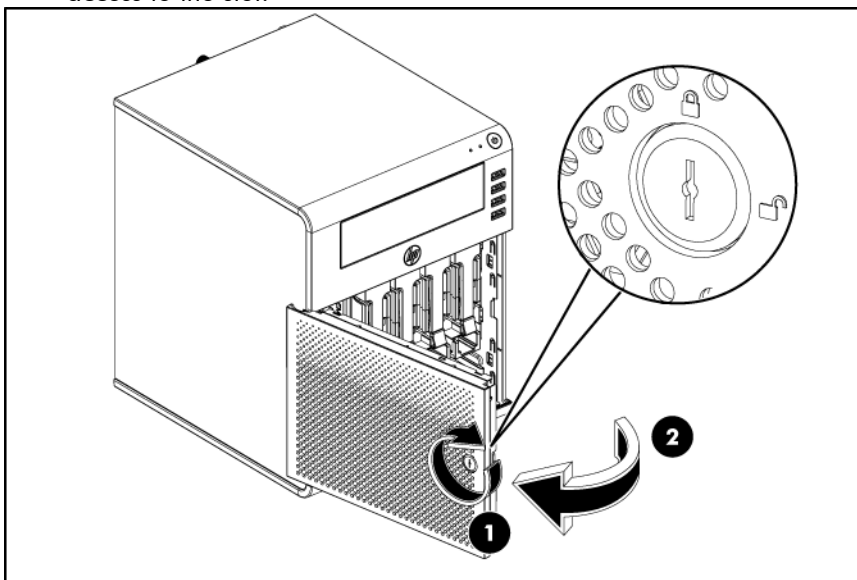
## Remove the system board

If PCI card is installed then follow below two steps to release the PCI card, if not, go to step 1:

- Rotate the PCI holder as described in below figure to release the PCI bracket.
- Check the bracket to ensure there are no screws secured before removing the tray.

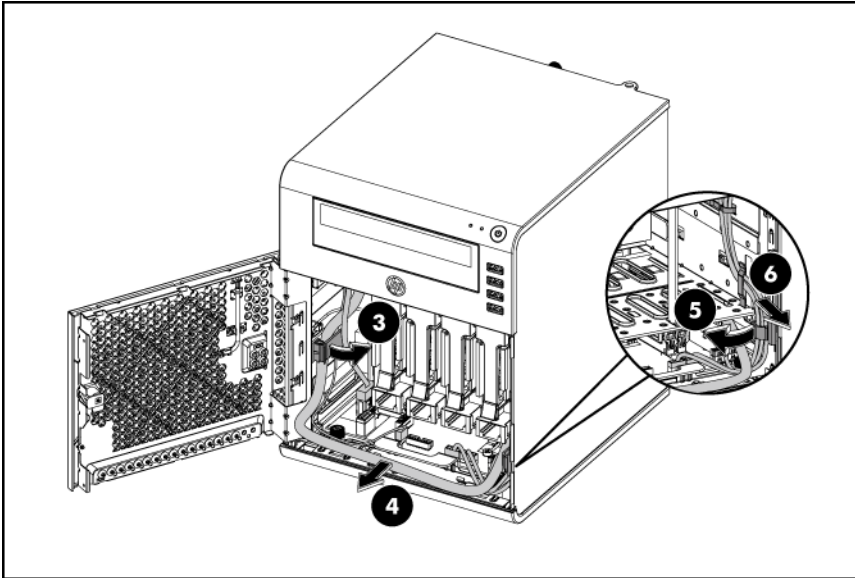


1. Use the HP ProLiant MicroServer Key to unlock the panel door.
2. Open the panel door of the server. If necessary, remove any components or cables that prevent access to the slot.

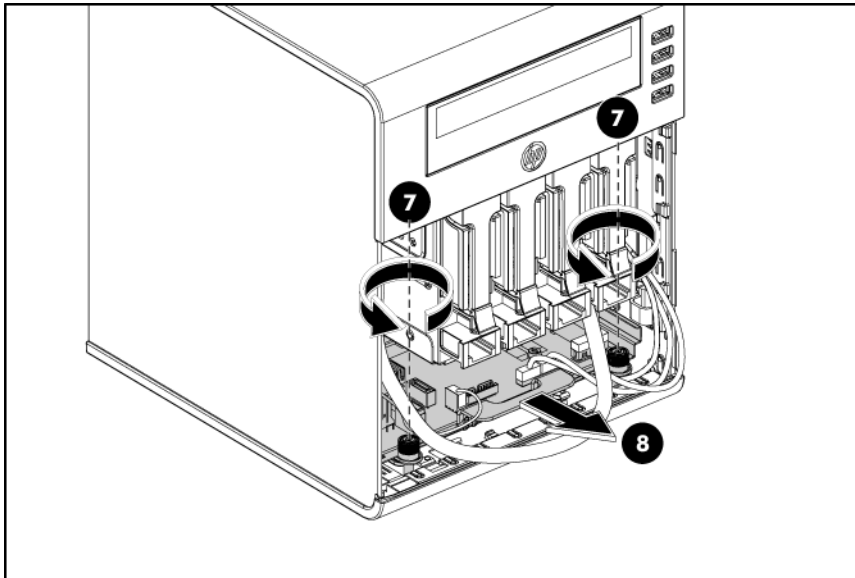


3. Unlock the cable clamp as shown in step 3.

4. Pull the power cable and fan cable out.
5. Unlock the cable clamp as shown in step 5.
6. Pull the bundle of cables out.



7. Loosen the thumbscrews on both sides of the system tray.
8. Pull out the system tray.

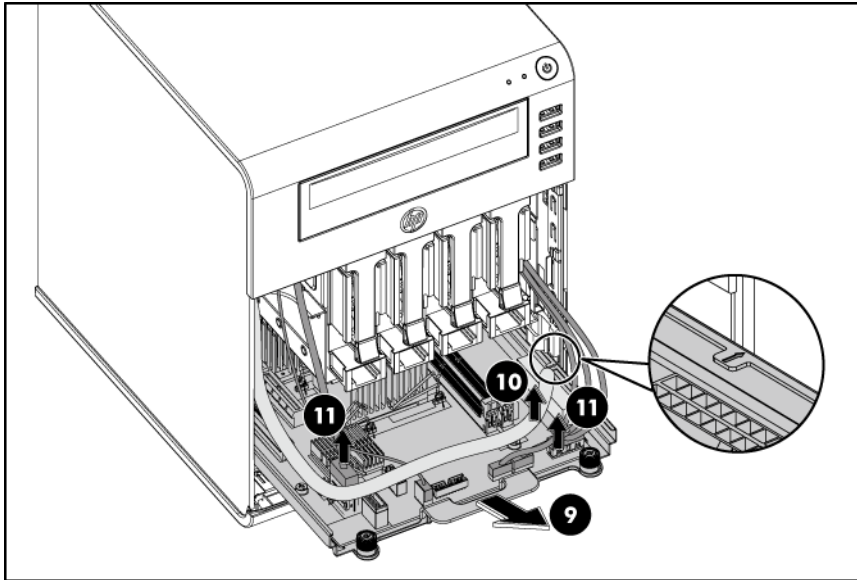


9. Pull the system tray out until it stops on its own. An arrow sticker should be visible on the side of the system tray.
10. Disconnect the power cable on the system board.
11. Disconnect the USB cable, fan cable, Mini-SAS cable and LED cable on the system board.

---

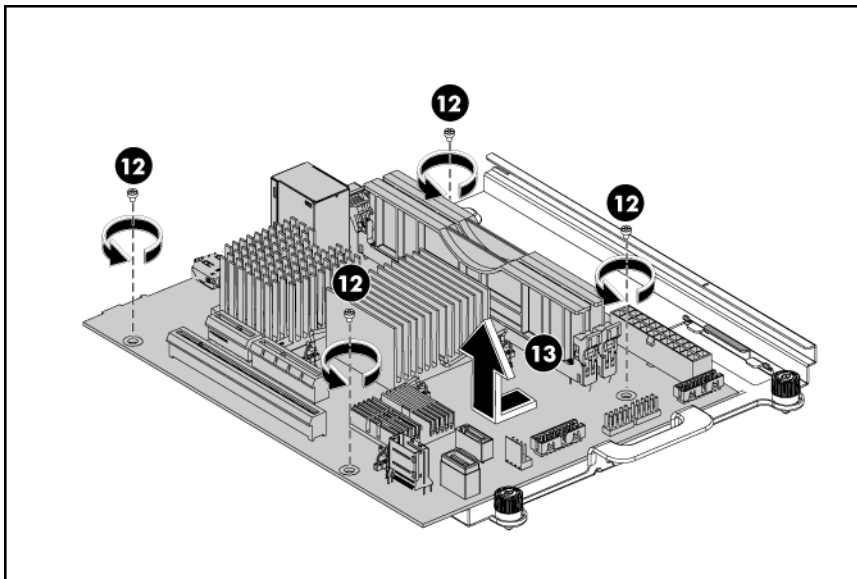
**⚠ CAUTION:** Avoid pinching the cables when sliding the system board tray into the chassis.

---



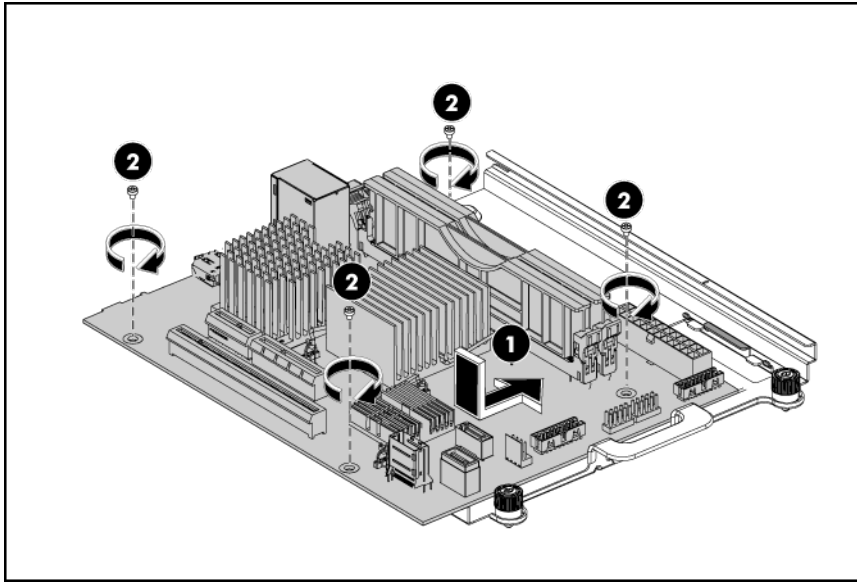
**IMPORTANT:** Need completely remove the system tray from the chassis before attempting to remove or replace any component on the system board.

12. Remove the four screws that secure the system board to the tray
13. Slide the system board and lift it to release the board away from the tray.

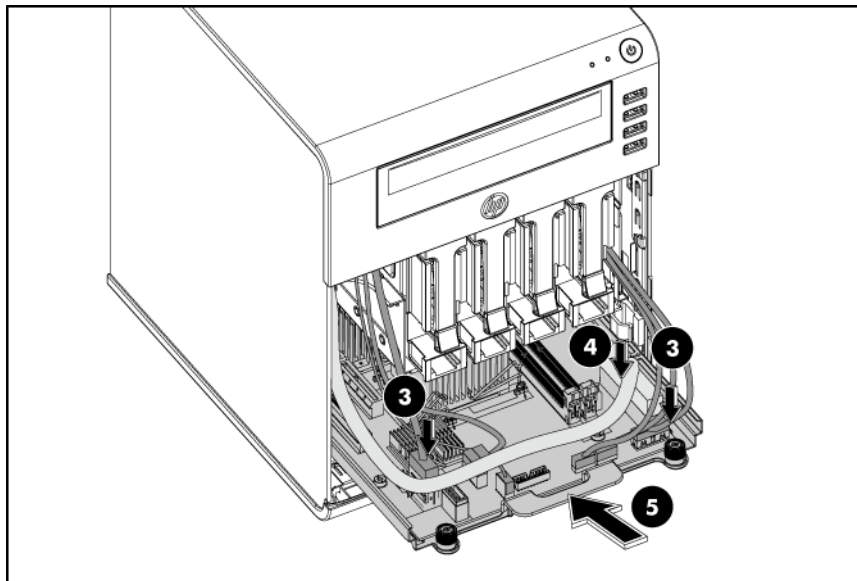


## Install the system board

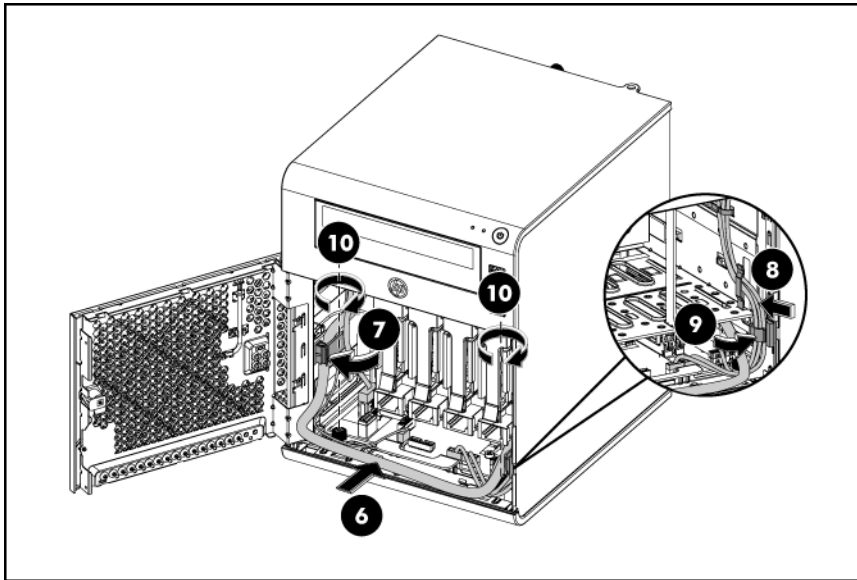
1. Slide the system board backward on the tray.
2. Fasten the four screws to secure the board on the tray.



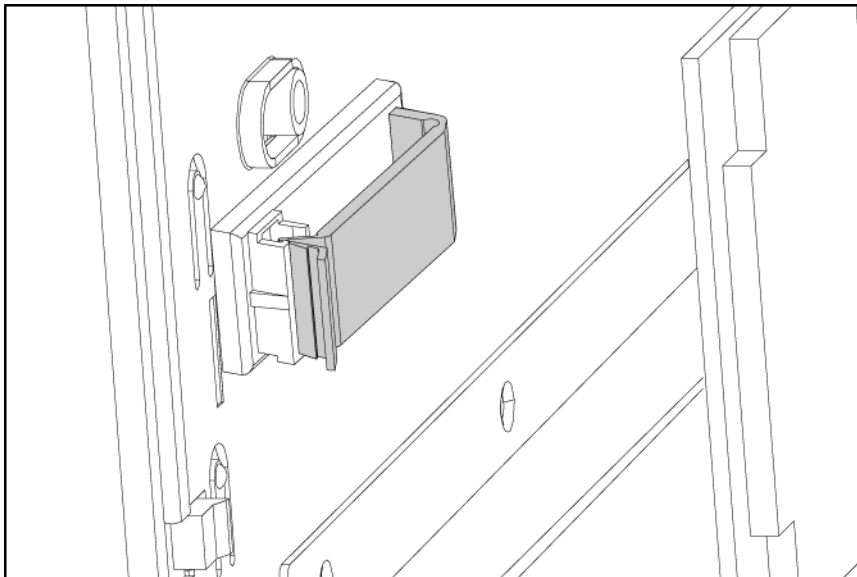
3. Connect the Mini-SAS cable, LED cable and two USB cables to connectors on system board.
4. Connect the power cable and fan cable to connectors on system board.
5. Completely push the system tray into the server.



6. Place the power cable under the tray handle in the server. Put the power cable and fan cable together inside the left cable clamp of the chassis.
7. Lock the cable clamp to secure the power cable and fan cable.
8. Place the LED cable and two USB cables in the server.
9. Secure the cables using the cable clamp on the right side of the chassis.
10. Tighten the two thumbscrews on both sides of the system tray.



11. Rotate and snap in the PCI holder on the back of the chassis.



12. Make sure that all components are installed according to the described step-by-step instructions

13. Verify that you have not left tools or loose parts inside the server.

---

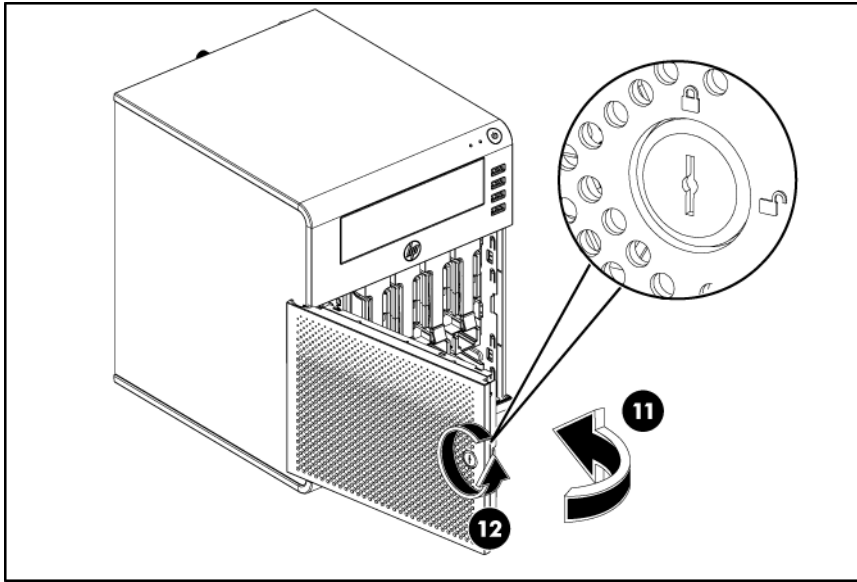
**NOTE:** Always carefully release the cables from the factory install cable clip before disconnecting all cables on the system board and re-insert cables into the factory install cable clip after reinstalling all cables.

---

14. Connect all external cables and the AC power cord to the system.

15. Close the panel door of the server.

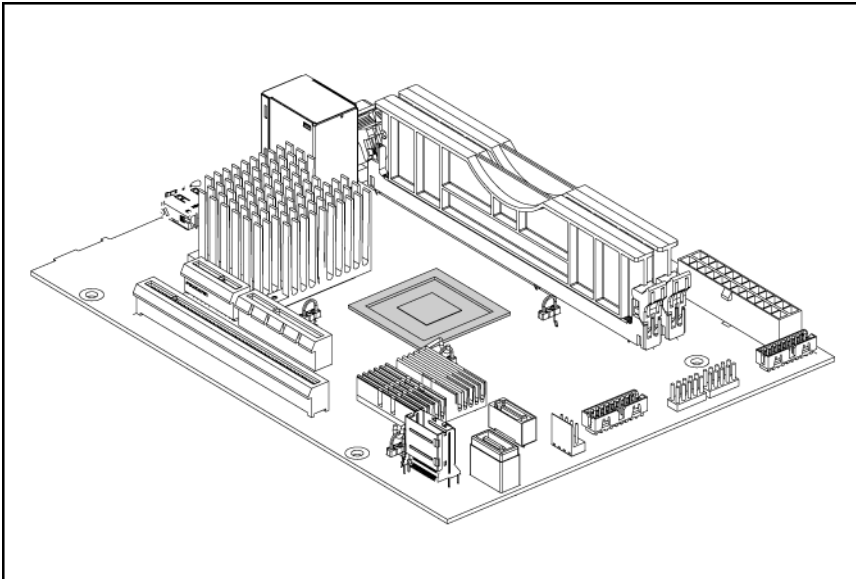
16. Use the HP ProLiant MicroServer key to lock the panel door.



17. Press the power button  to turn on the server.

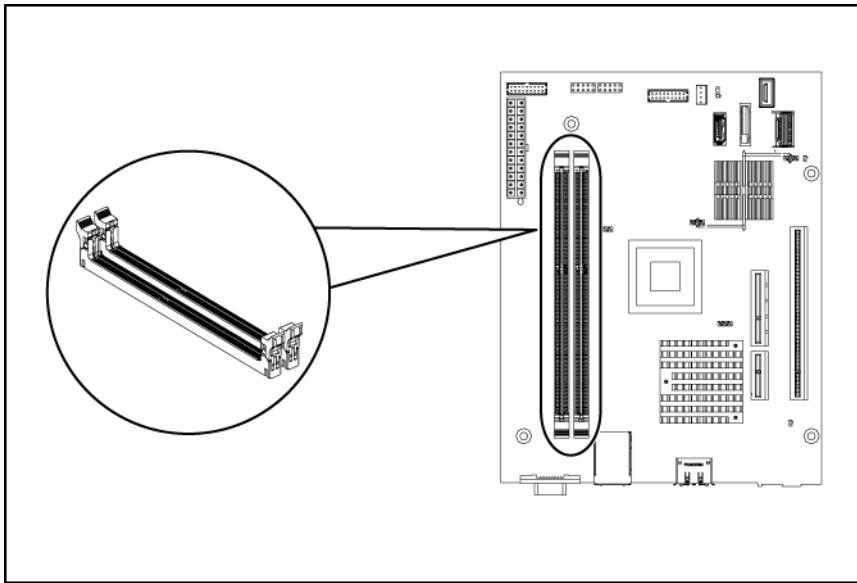
## Processor

The AMD processor is embedded in the system board.

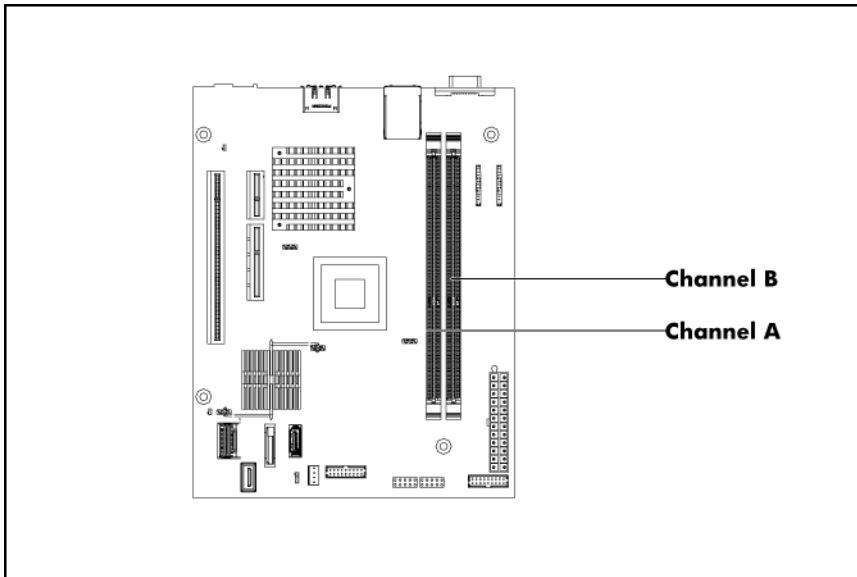


## Memory

The system has two DIMM slots that support up to 8 GB maximum system memory (4 GB in each of the two DIMM slots).



## Memory configuration



## Memory installation guidelines

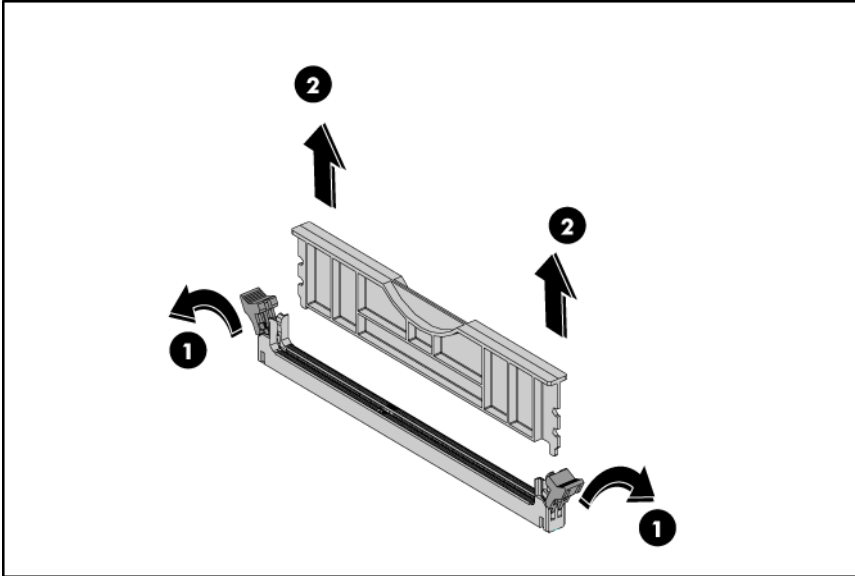
Observe the following important guidelines when installing memory modules:

- Use only HP supported unbuffered ECC DDRIII DIMM in 1 GB, 2 GB or 4 GB capacities (Up to 800 MHz).
- All DIMMs installed must be of the same speed.
- DIMMs can be damaged by improper handling. Always use an anti-static wrist strap and grounding mat, and discharge static electricity before touching DIMMs.



### To remove a memory module:

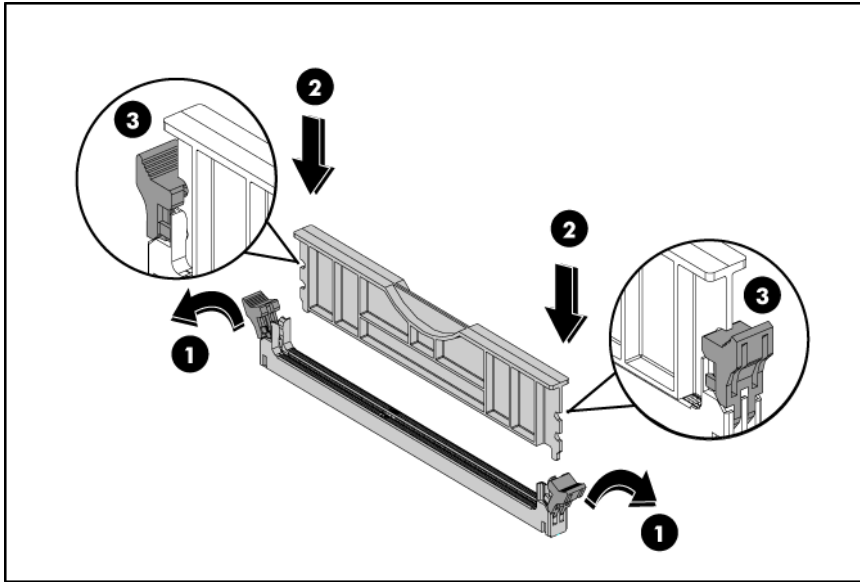
1. Perform the procedure on the “[Remove the system board](#)” section on page 5.
2. Remove any accessory boards or cables that prevent access to the DIMM slots.
3. Remove the memory module.



### To install a memory module:

1. Locate an empty DIMM slot on the system board.
2. If necessary, open the holding clips of the selected DIMM slot.
3. Remove the memory module from its protective packaging, handling it by the edges.
4. Install the memory module.
  - a. Open the DIMM slot latches.
  - b. Align the notch on the bottom edge of the memory module with the keyed surface of the DIMM slot, and then fully press the memory module into the slot until the latches snap back into place.

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

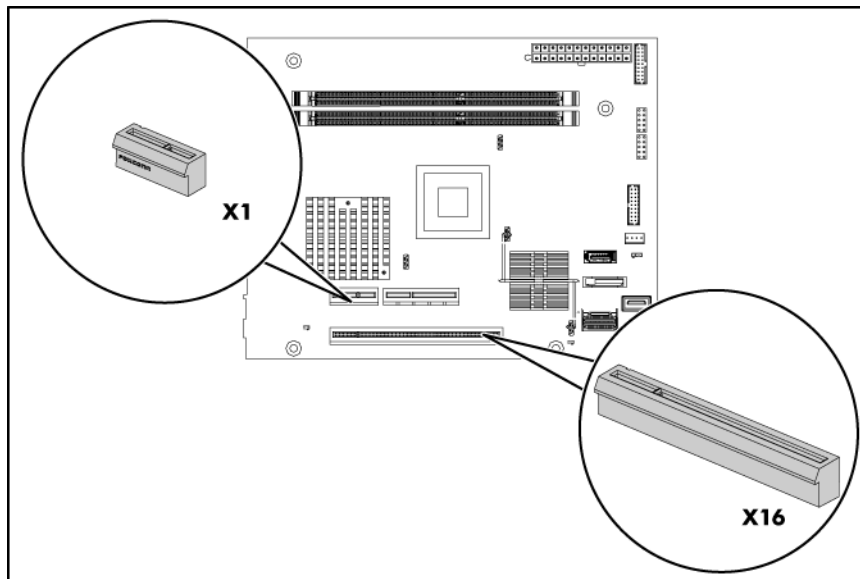


5. Perform the post-installation procedure.

# Expansion board

## System board PCI expansion slots

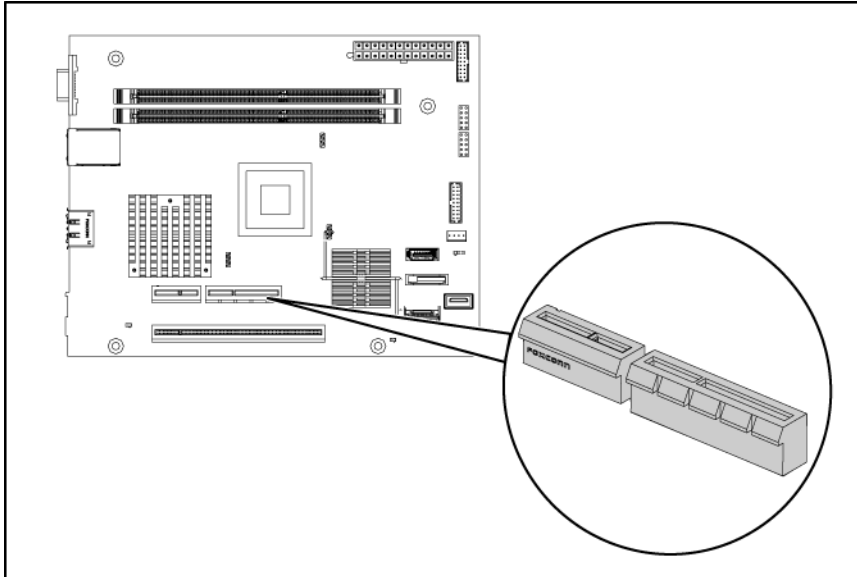
There are two PCI Express expansion slots on the system board.



Slot code	Slot type	Interconnect	Function
Expansion slot	PCI Express x1 and s4	x1	Supports a low-profile PCIe x1 expansion board
	PCI Express x16	x16	Supports a low-profile PCIe x16 graphic controller (25 W, max)

# HP ProLiant MicroServer Remote Access Card

This document provides instructions for installing the Remote Access Card in your HP ProLiant MicroServer. This option allows users to perform server access tasks remotely over a LAN or the Internet. The connector is shown in the figure below.



## Installation guidelines

The procedures in this document are intended for individuals who are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels.

- 
- ⚠ WARNING:** Failure to properly turn off the server before you open the server or before you start removing or installing hardware components may cause serious damage as well as bodily harm.

---

  - ⚠ WARNING:** To reduce the risk of personal injury from hot surfaces, allow the chassis and any installed hardware component to cool before touching them.

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  - ⚠ CAUTION:** Observe ESD safety precautions when handling any hardware component.

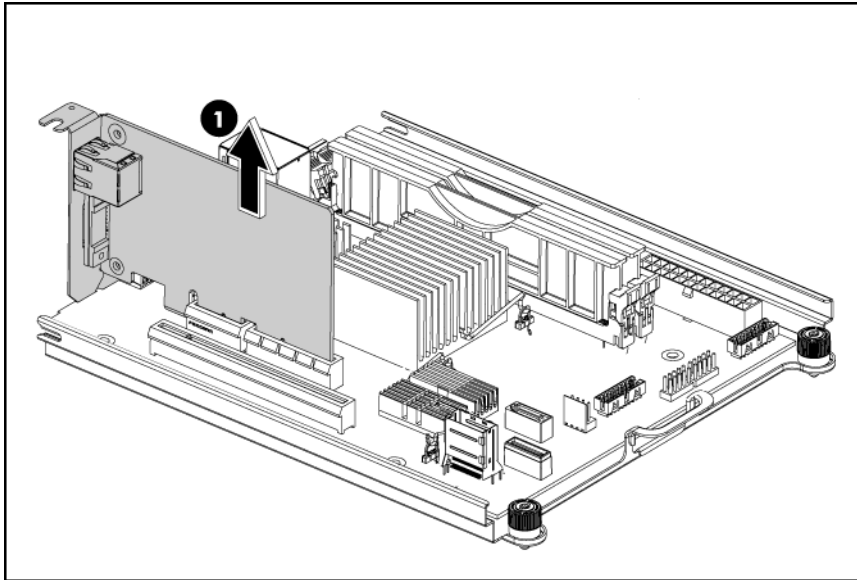
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  - 📋 IMPORTANT:** Observe the pre-installation procedure before installing the IPMI card.

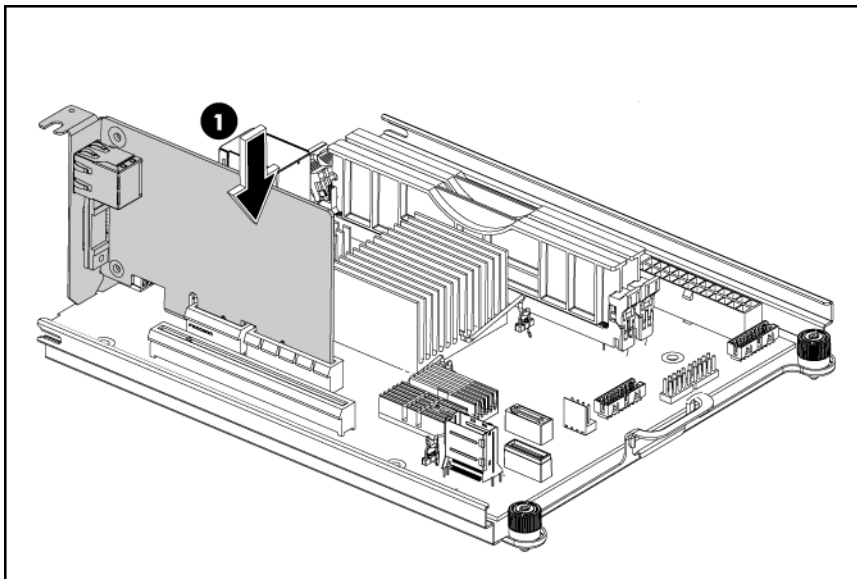
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### To install the Remote Access Card:

1. Follow the steps of removing the system tray out of the chassis.
2. Lift the Remote Access Card to release it from the connector (1).



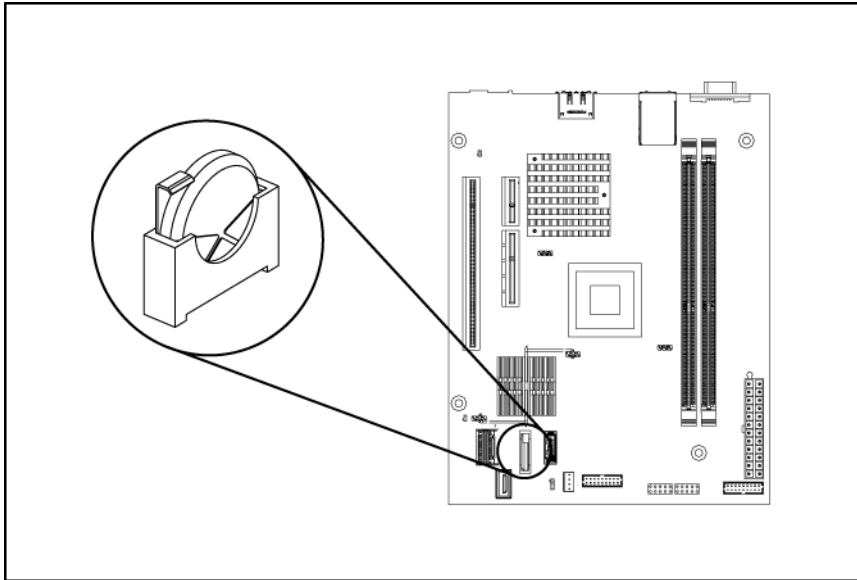
3. Put the card into an anti-static bag.
4. Install a new Remote Access Card:
  - a. Align the card with the system PCIe slot
  - b. Press the card down to ensure the full connection with the board.



5. Follow the steps of installing the system tray.

## System battery

The server uses a nonvolatile memory that requires a battery to retain system information when power is removed. This 3-volt 230-mAh lithium coin cell battery is located on the system board.



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

## System battery replacement warnings

Observe the following reminders when replacing the system battery:

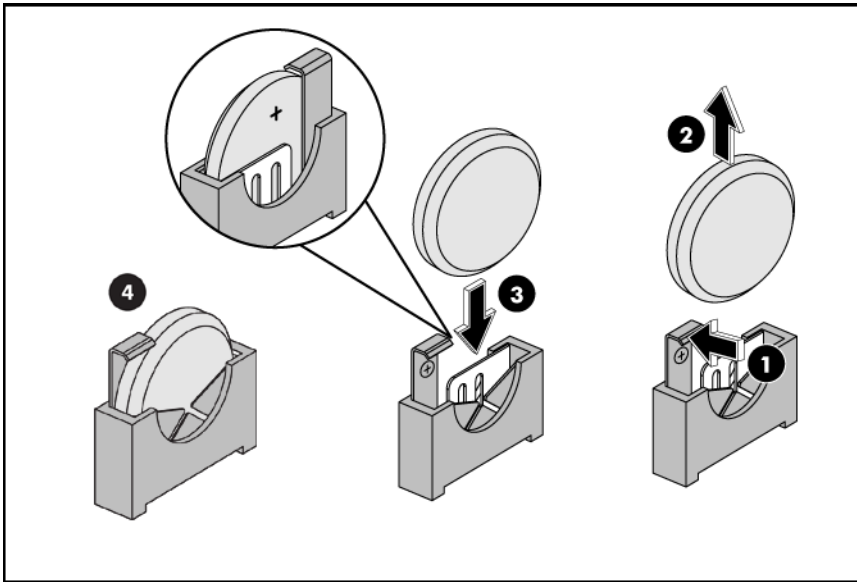
- Replace the battery with the same type as the battery recommended by HP. Use of another battery may present a risk of fire or explosion.
- A risk of fire and chemical burn exists if the battery is not handled properly. Do not disassemble, crush, puncture, or short external contacts, or expose the battery to temperatures higher than 60°C (140°F).
- Do not dispose of used battery in water or fire. Dispose of used batteries according to manufacturer's instructions.
- Loss of BIOS settings occurs when the battery is removed. BIOS settings must be reconfigured whenever the battery is replaced.

### To replace the system battery:

1. Perform the pre-installation procedure.
4. Perform the procedure on the [“Remove the system board”](#) section on page 5.
2. Locate the system battery.
3. Push the metal clamp that extends above the top part of the battery (1).
4. Remove the old battery (2).
5. Insert the new battery into the socket, and then push it down until the clamp snaps over it (3).



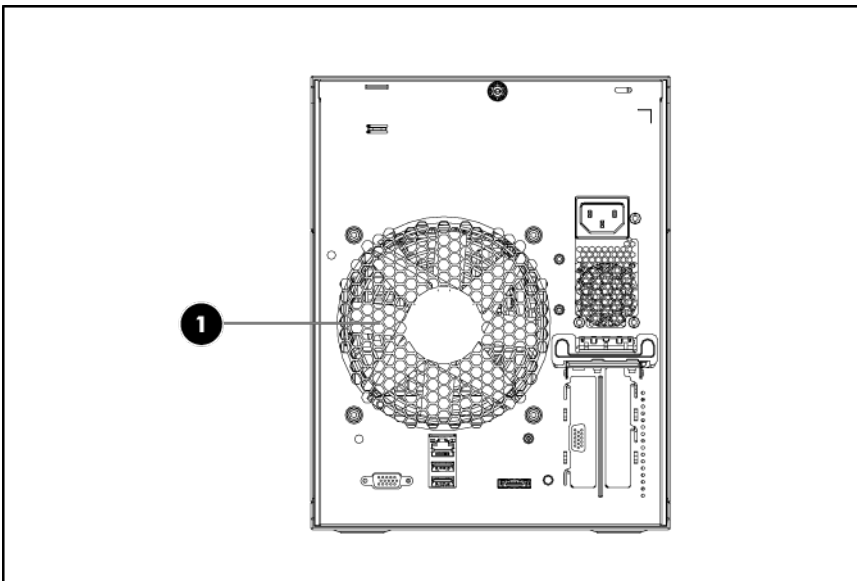
**IMPORTANT:** If the battery socket you got is not as described as the one in the following figure, be sure the positive side of the battery is facing the outside of the socket.



6. Perform the post-installation procedure.

## System fan

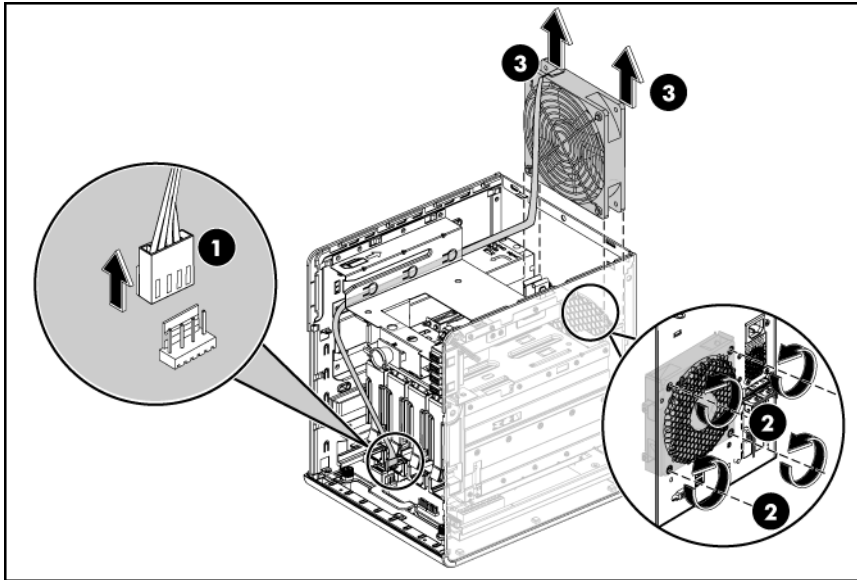
The server has one system fan located on the chassis back panel wall.



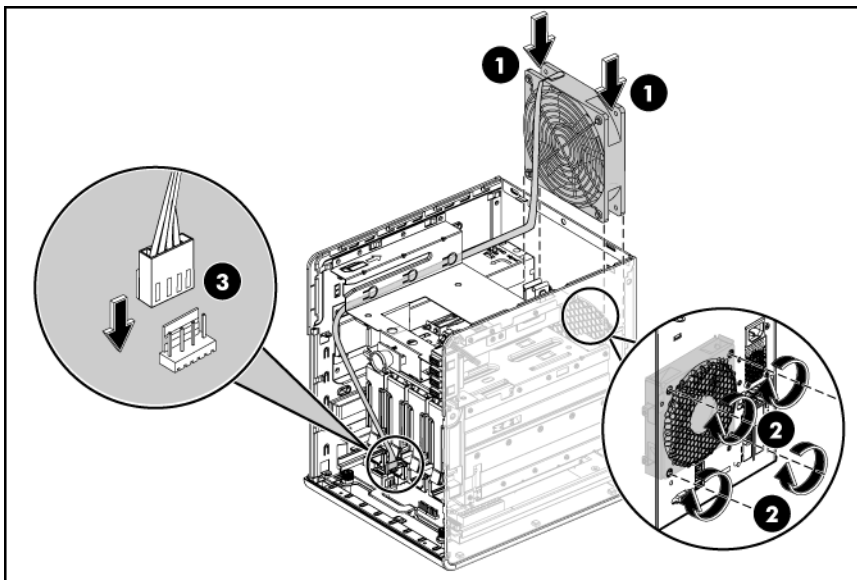
A new system fan can be installed to allow the server to operate properly in case the default system fan becomes defective.

### To replace the system fan:

1. Perform the pre-installation procedure.
2. Remove the defective system fan:
  - a. Disconnect the fan cable from its system board connector (1).
  - b. Remove the four screws on the rear panel (2)
  - c. Grasp the fan by the two handles, and lift it up from the chassis (3).



3. Remove the system fan from its protective packaging.
4. Install the new system fan:
  - a. Route the fan cable through the vacated fan bracket.
  - b. Insert the fan in the fan bracket (1).
  - c. Fasten the four screws (2).
  - d. Connect the fan cable to its corresponding board connector (3).

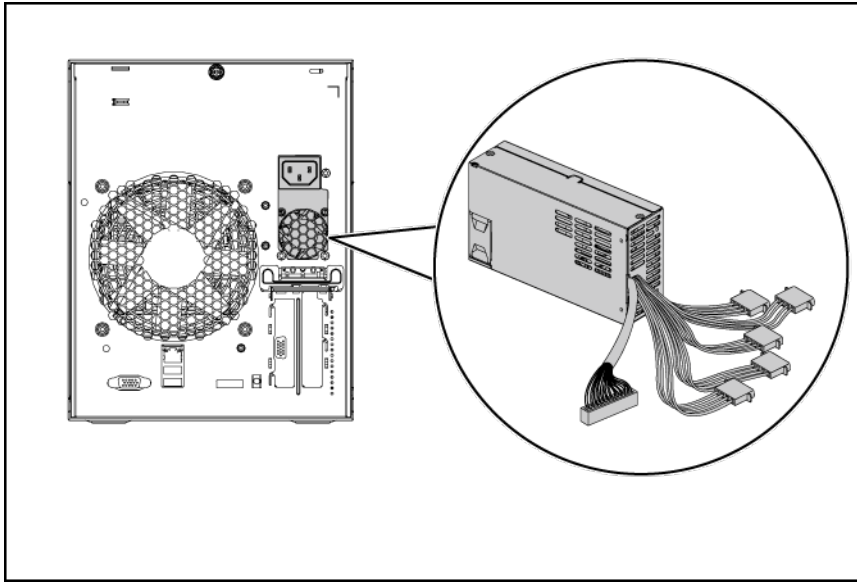


5. Perform the post-installation procedure.

## Power supply unit

The server uses a standard PSU with PFC (power factor correction) function.





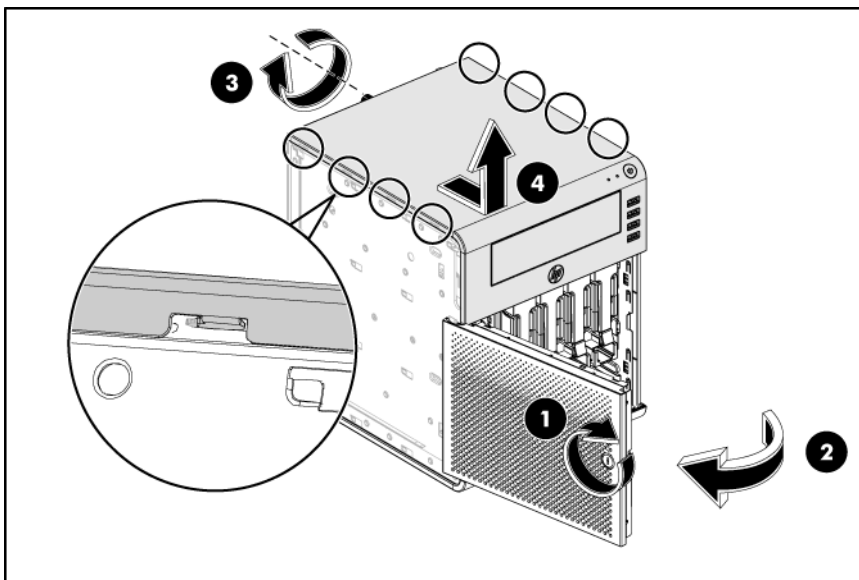
## Installing the power supply unit

The system supports Server Standard & Compliant supplies, along with any other compatible supplies that may be developed.

### Power supply unit installation guidelines


Installation instructions for the MicroServer standard multi-outputs power supply. To simplify the standard power supply unit installation, the user must remove and re-install the ODD.

1. Use the HP ProLiant MicroServer key to unlock the panel door.
2. Open the panel door of the server and remove any components or cables that prevent access to the slot.
3. Loosen the rear thumbscrew which locks the top panel on the chassis.
4. Slide the top panel forward and then lift to remove it from the chassis.



5. Disconnect the power cables:
  - a. Disconnect the SATA ODD power cable and ODD cable.


---

 **IMPORTANT:** Slide the ODD out of chassis before disconnecting the four hard drive power cables

---

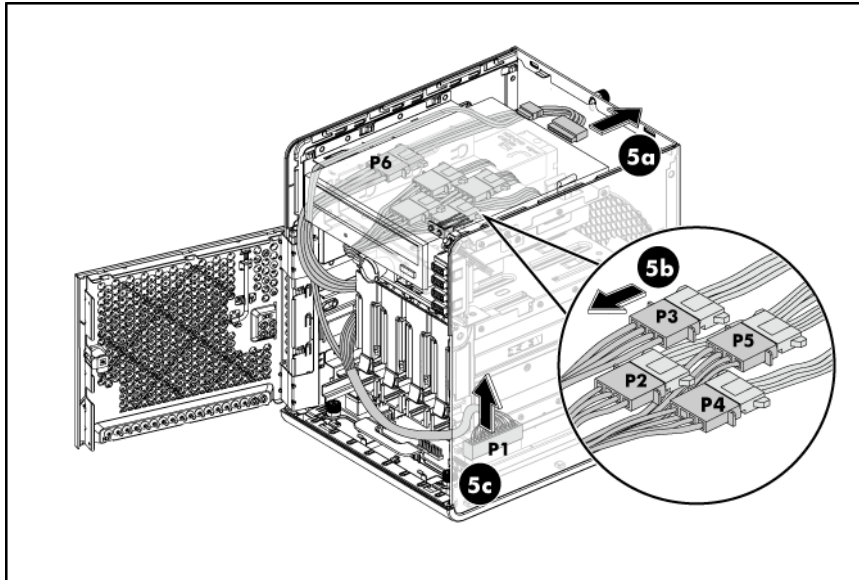
- b. Disconnect the four hard drive power cables.

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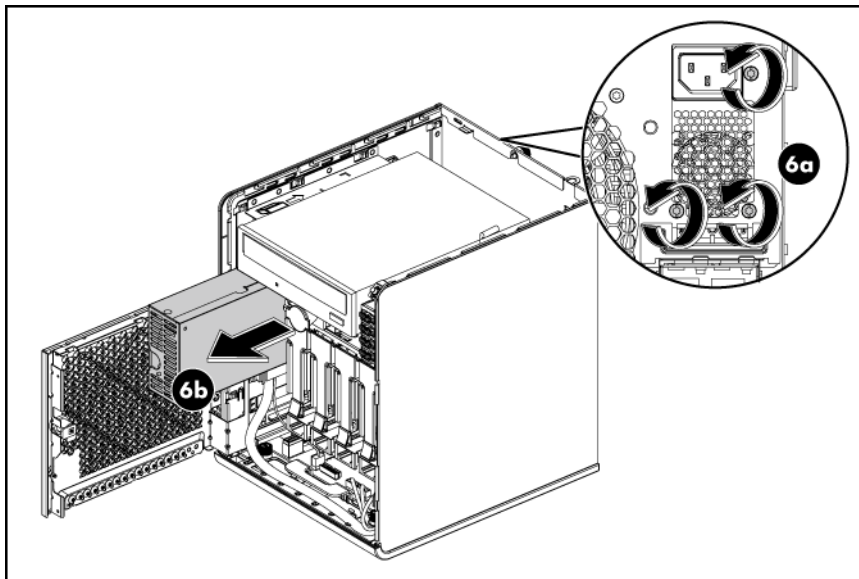
 **IMPORTANT:** Pull out the system tray by following the procedure steps described in the [“Remove the system board”](#) section.

---

- c. Disconnect the power cable from the system tray.



6. Remove the standard power supply unit out of the chassis:
  - a. Unfasten the three screws on the back of chassis to release the power supply unit.
  - b. Pull the standard power supply unit out of the chassis.

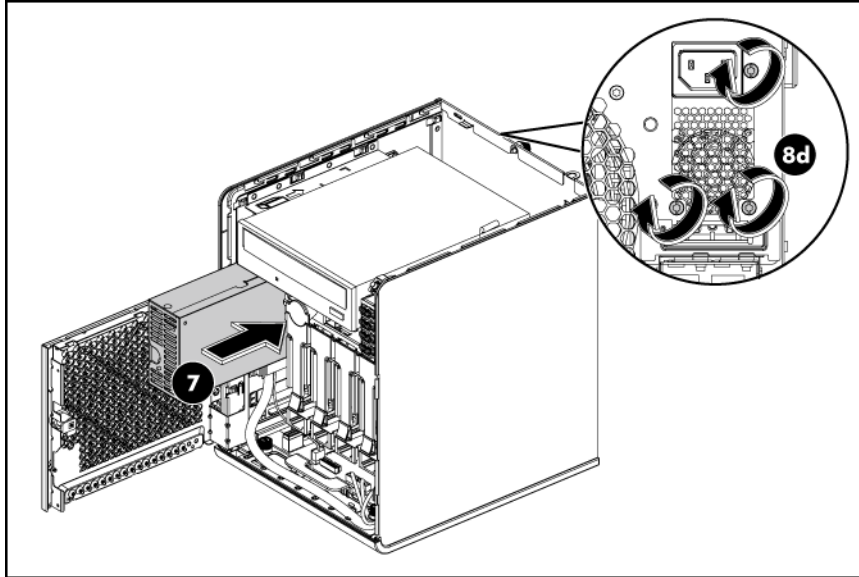


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 **IMPORTANT:** Reinstall the optical drive by following the procedures described in the [“To install an optical disc drive:”](#) section on page 38.

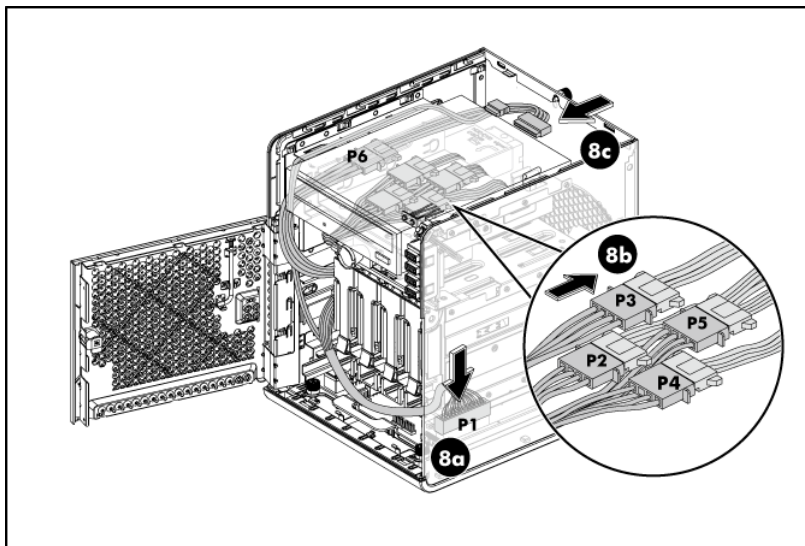
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7. Install the replacement power supply unit in the chassis:

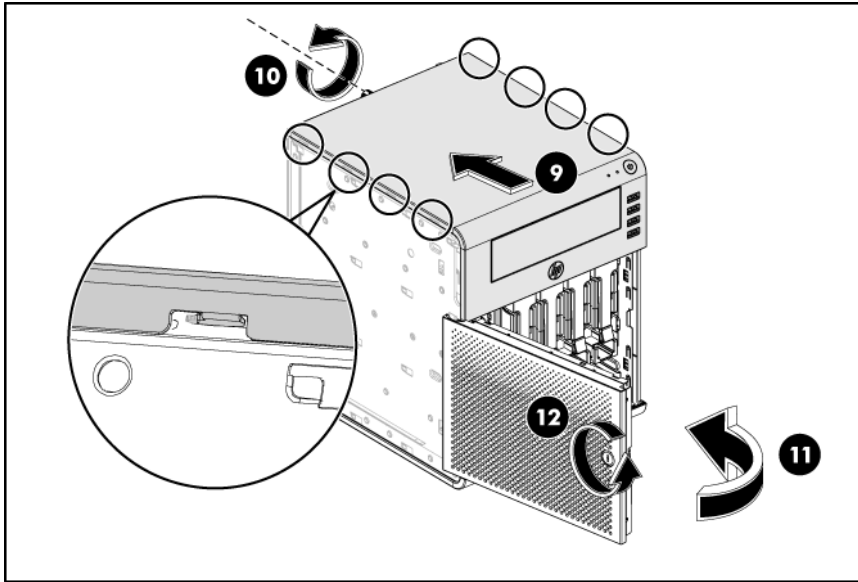


**IMPORTANT:** Check the PSU cable label before connecting them. Go to page 35 for a reference figure on proper PSU cable connections.

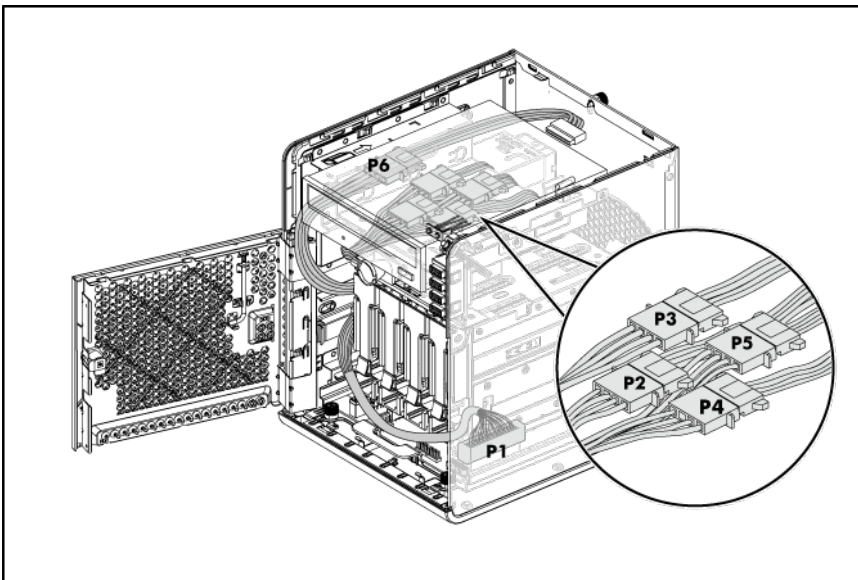
8. Connect the power cables:
  - a. Connect the power cable P1 to the 24-pin power connector on the system board (J12).
  - b. Connect the power cable P2, P3, P4 and P5 to hard drives 1, 2, 3 and 4 respectively.
  - c. Connect the power cable P6 to the ODD and connect the ODD cable.
  - d. Fasten the three screws on the back of chassis to secure the power supply unit (see the picture above).



9. After installing the power supply and connecting the power cables, slide the top panel to reinstall it into the chassis.
10. Fasten the rear thumbscrew to secure the top panel on the chassis.
11. Close the front panel door of the server.
12. Use the HP ProLiant MicroServer key to lock the panel door.



Item	PSU cable label	Connects to
1	P1	24-pin power connector on the system board(J12)
2	P2	Hard drive1
3	P3	Hard drive2
4	P4	Hard drive3
5	P5	Hard drive4
6	P6	Option drive



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# Diagnostic tools

## User Diagnostics

User Diagnostics is a proactive server management tool, available in HP website (<http://www.hp.com>) that provides diagnostics and troubleshooting capabilities to assist IT administrators who verify server installations, troubleshoot problems, and perform repair validation.

User Diagnostics performs various in-depth system and component testing while the OS is not running.

For more information or to download the utility, see the HP website (<http://www.hp.com>).

## IPMI Event Log

The IPMI Event Log is a log that is generated by the management controller when it detects significant or critical system management events. This includes messages for events such as 'temperature threshold exceeded', 'voltage threshold exceeded', 'power fault', etc.

### To view the IPMI event log:

1. Turn on the monitor and the server.  
If the server is already turned on, save your data and exit all open applications, and then restart the server.
2. During POST, press **F10** to access the AMI BIOS Setup Utility.
3. In the Advanced menu screen, select the **IPMI** field, and then press **Enter**.
4. Select **System Event Log**, and then press **Enter**.

For more information on the IPMI Card, see the *HP Microserver Remote Access Card User Manual* on HP website (<http://www.hp.com>).

## Reset the MicroServer Remote Access Card password to default

The user can use the IPMI tool with KCS to reset password. The following IPMI command illustrates how to reset the administrator password to "password" by linux ipmitool:-

```
Ipmitool raw 18 47 82 2 0x70 0x61 0x73 0x73 0x77 0x6f 0x72 0x64 0x00 0x00  
0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00
```

---

**NOTE:** The password be encrypted and storied in flash, user can not only recover the password by update flash data. After reflashing the firmware, all data, password and configurations will be reset to default.

---

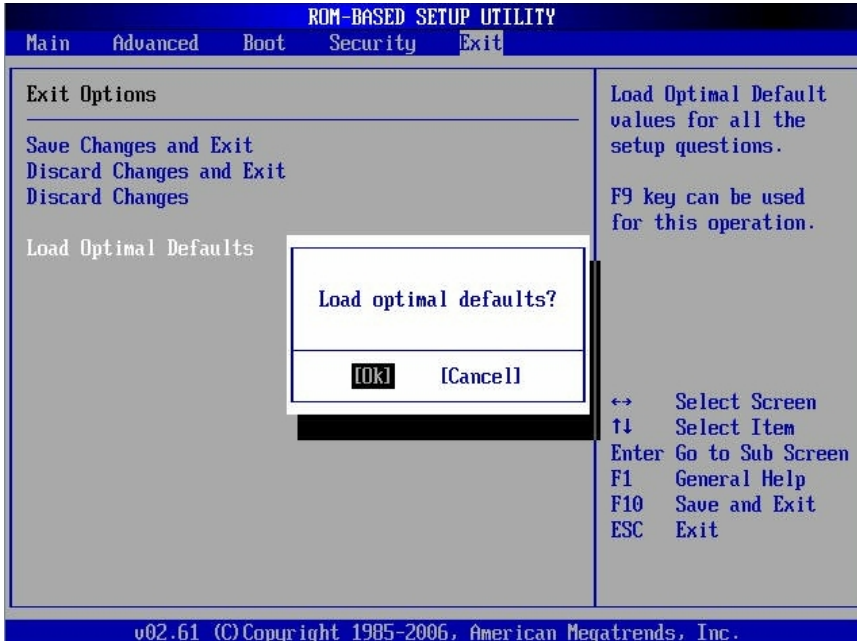
The MicroServer Remote Access Card support the following character categories:

- Uppercase letters: A, B, C
- Lowercase letters: a, b, c

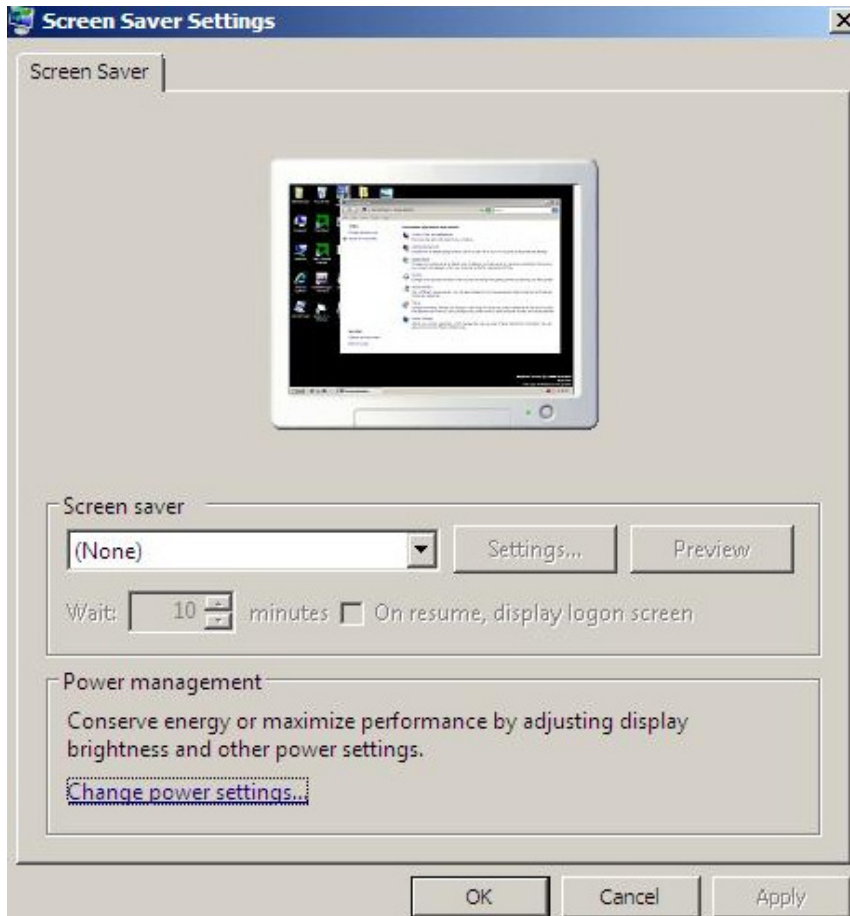
- Numbers: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9
- Symbol (special characters): ` ~ @ # \$ % & \* ( ) \_ - + = { } [ ] \ | : ; " ' < > , . ? /

## Graceful shutdown function

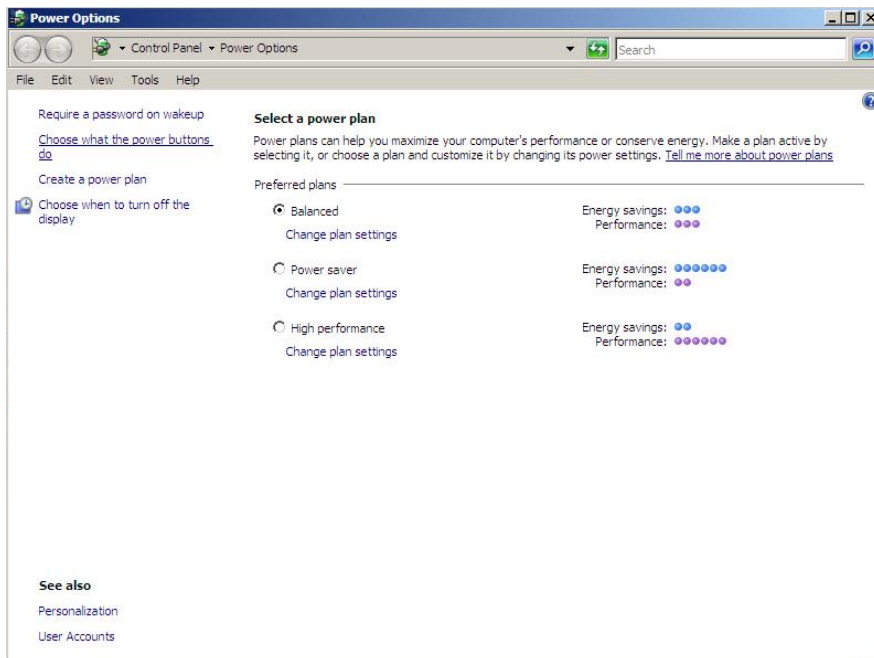
1. When system temperature reached to trip caution point or system fan failed, the system will do a graceful shut down to protect data loss. Graceful shut down Setting Step
2. Update the latest BIOS and load default in RBSU.



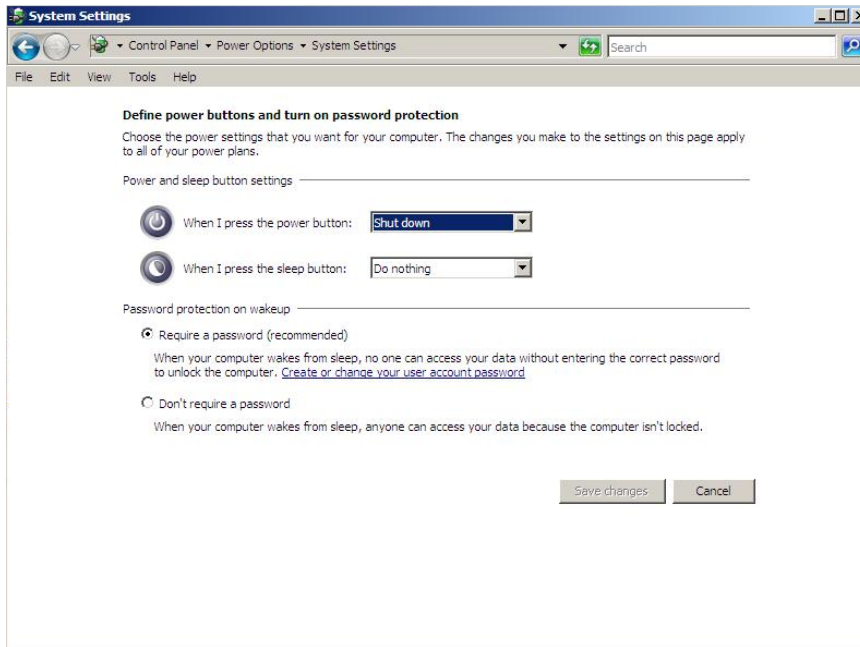
3. Install Windows 2008 R2 Edition.
4. Log into the Windows operating system, and install all required drivers (chipset, VGA, NIC, iBMC).
  - a. Select **Shut down** in the OS screen saver setting.
  - b. In screensaver setting, click **Change power setting**.



c. Click **Choose what the power buttons do**.



d. From the *When I press the power button*: drop-down menu, select **Shut down**, and then click **Save changes**.



When system fan fails or sensor temperature is higher than caution point, the system will gracefully shutdown.

The system temperature sensors and their corresponding breach level are listed below:

- Processor: 105°C
- North bridge: 100°C
- Ambient temperature: 40°C.

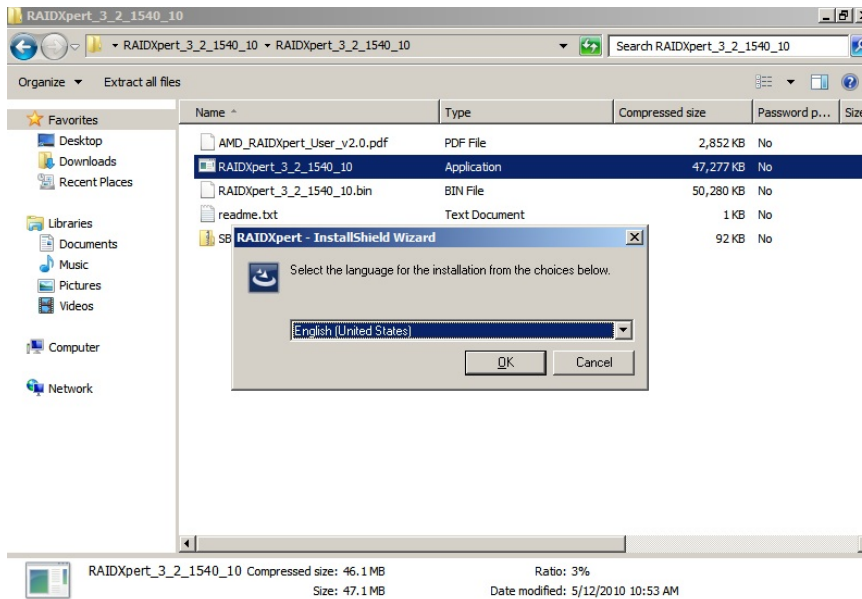
## AMD RAIDXpert Utility

This utility enables RAID array management in the Microsoft Windows environment. For the utility download link and operation instructions, go to the [AMD website](#).

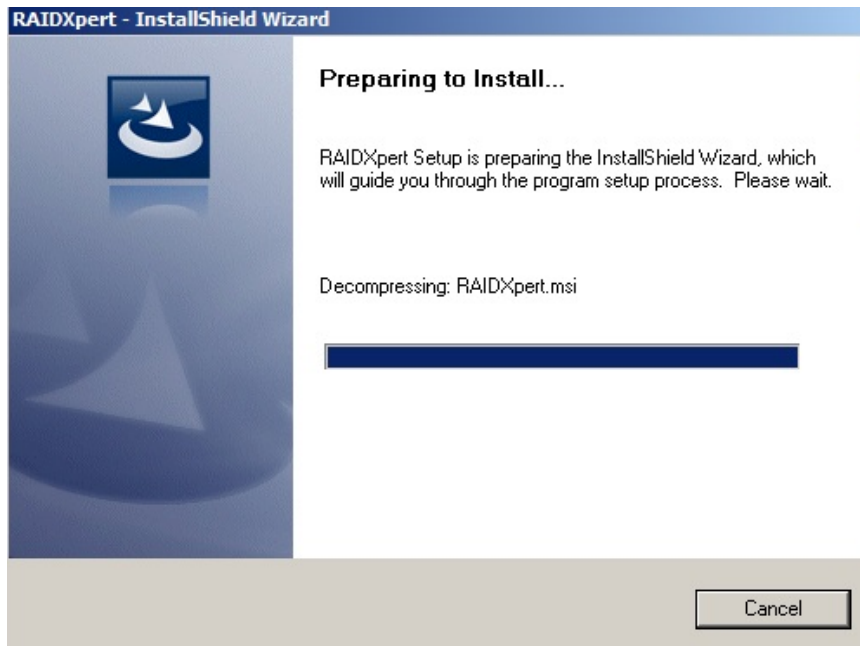
### To install the RAIDXpert:

1. Click the application file twice to install the RAIDXpert.

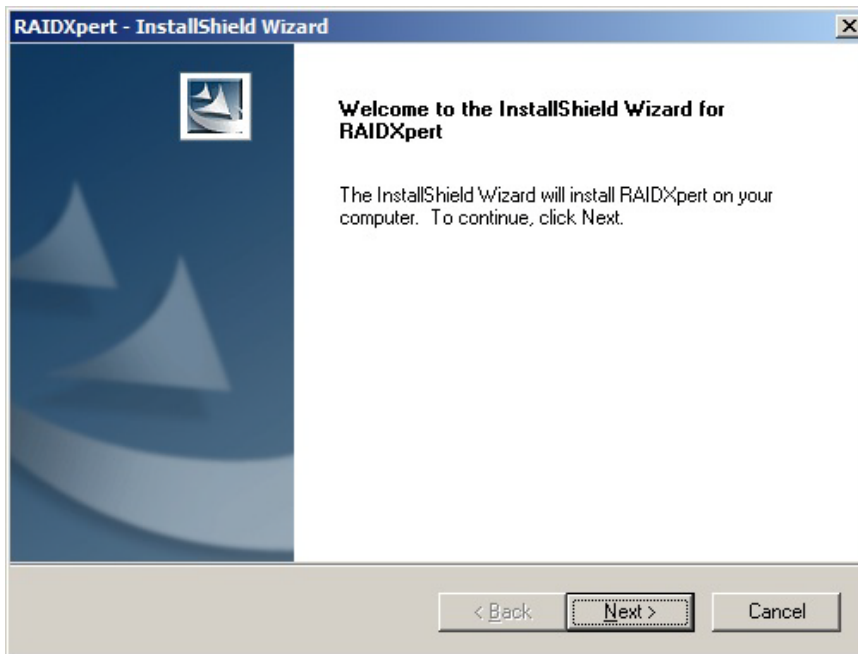




2. Select language and click **OK** to continue.



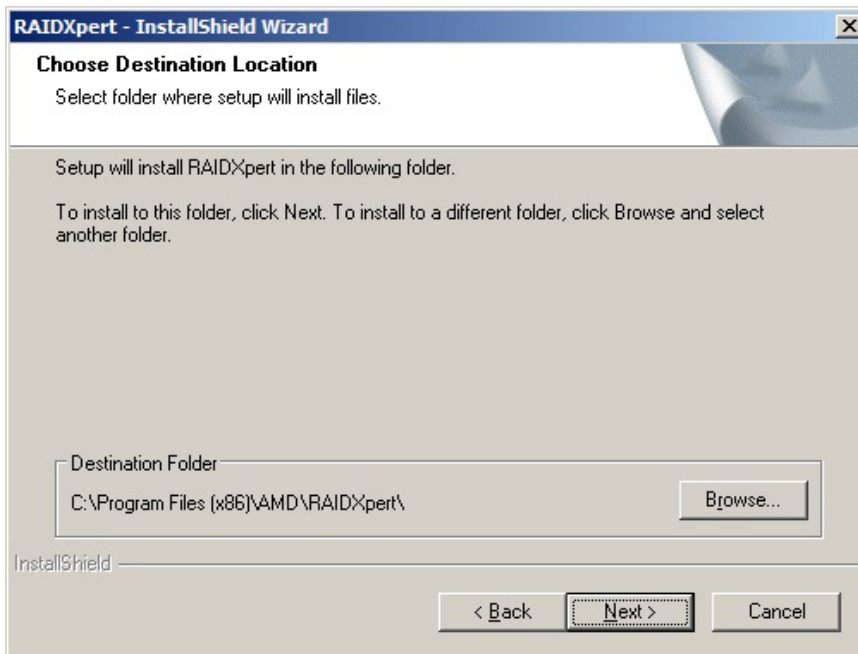
3. Click **Next**.



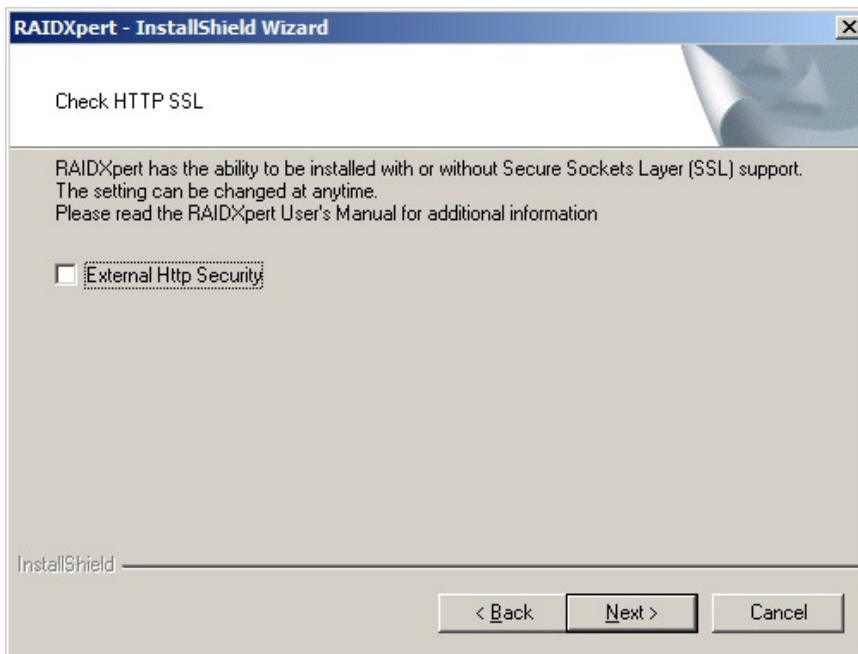
4. Select **I accept the terms of the license agreement** and click **Next**.



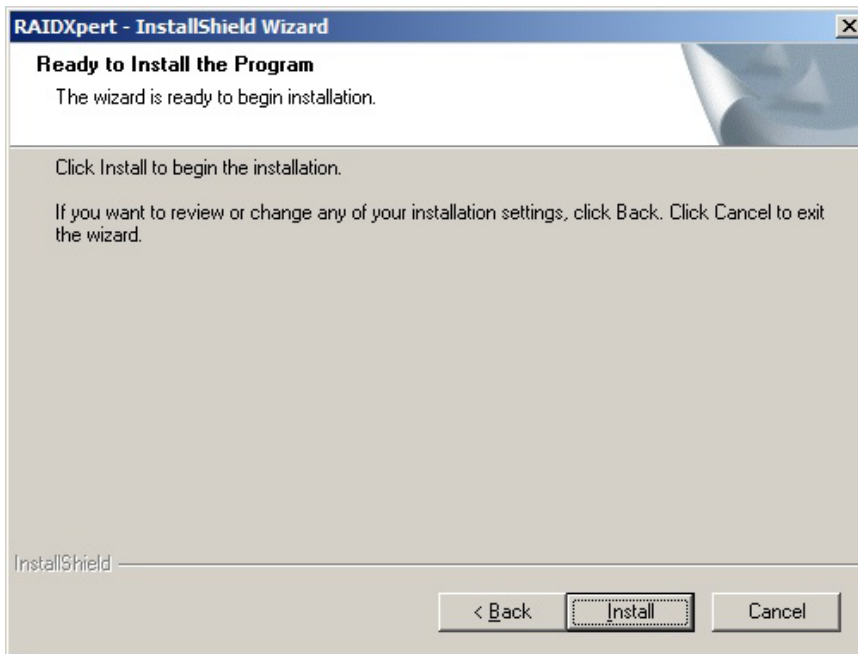
5. Click **Browse** to select folder and then click **Next**.



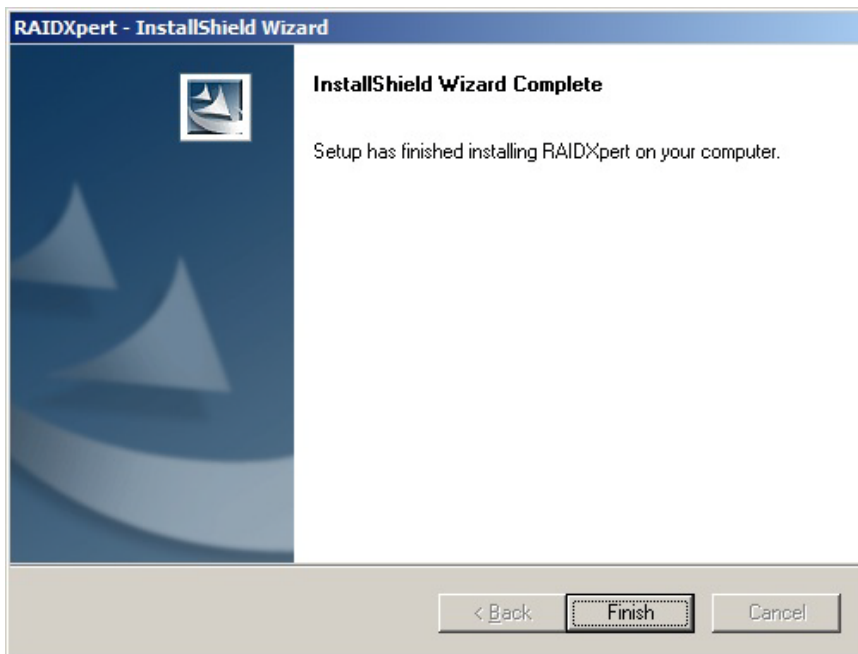
6. Click **Next**.



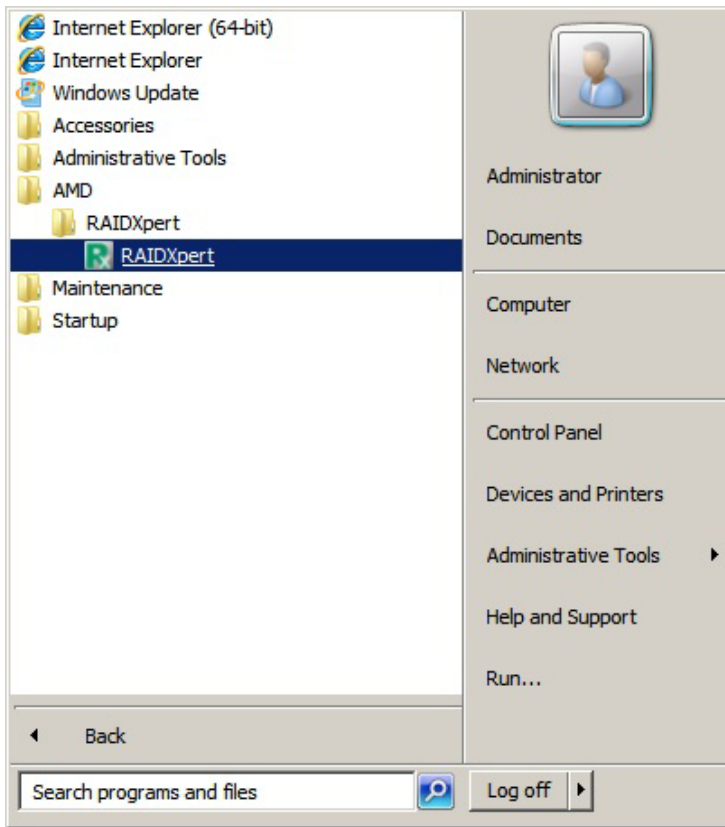
7. Click **Install**.



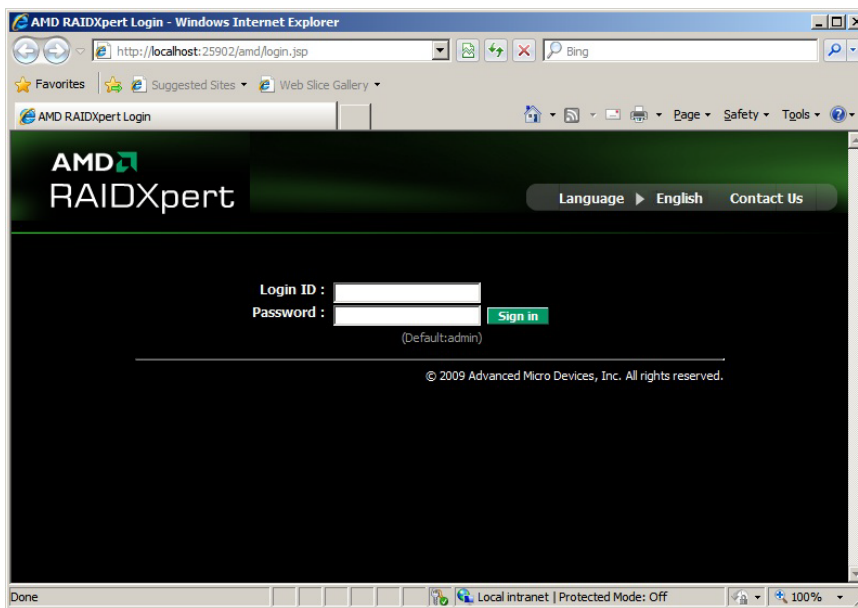
8. Click **Finish**.



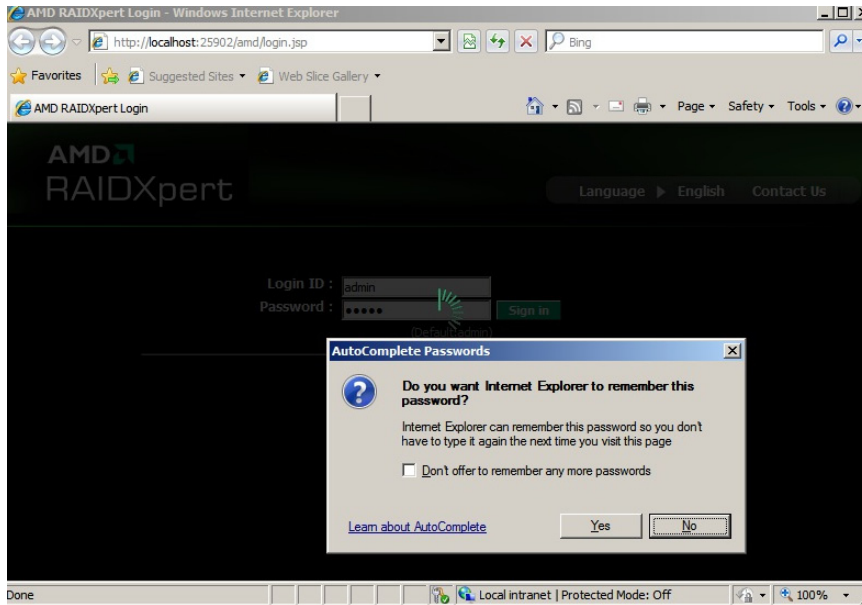
9. Click the program under **Start** menu twice -> AMD folder.



10. Key in default Login ID: admin, and the password:admin.



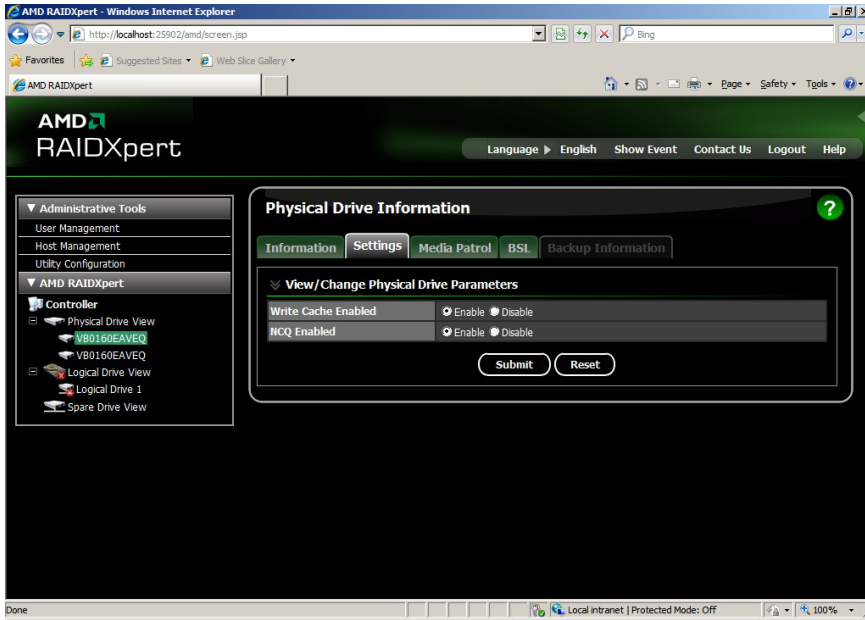
11. Select whether to remember the password.



12. Click + in front of **Physical Drive View**.



13. Click options **Enable** or **Disable** to change **Write cache** and **NCQ** status.



# AMI BIOS software

Your ProLiant MicroServer uses BIOS to boot up the system. AMI BIOS software is a ROM BIOS-based firmware that allows reliability, manageability, and connectivity for server platforms. This software contains a set of programs permanently stored in an EEPROM chipset located on the system board. These programs assist in managing, initializing, and testing the hardware devices installed on the computer.

The AMI BIOS software serves three functions:

- Configure the system from the AMI BIOS Setup Utility  
Using the Setup program, you can install, configure, and optimize the hardware devices on your system (clock, memory, disk drives, etc.). In addition, you can enable various features such as serial console redirection, PXE boot, and much more.
- Initialize hardware at boot using POST routines  
During power-on or warm reset, the software performs Power-On Self-Test (POST) routines to test components, to allocate resource for various hardware devices, and to prepare the system to boot to various operating systems.
- Perform run-time routines  
Using the software, perform basic hardware routines that can be called from DOS and Windows applications.

## Configuring the system BIOS

---

**NOTE:** For ease of reading, AMI BIOS Setup Utility will be simply referred to as “Setup” or “Setup Utility” in this guide. Also, the screenshots used in this guide display various Setup menu screens with the default values identified. These values may not be the same as those in your server.

---

AMI BIOS Setup Utility is a hardware configuration program built into your system's Basic Input/Output System (BIOS). Since most systems are already properly configured and optimized, there is normally no need to run this utility.

You will need to run this utility under the following conditions:

- When changing the system configuration including:
  - Setting the system time and date
  - Configuring the hard drives
  - Specifying the boot device sequence
  - Installing PCI expansion boards
  - Upgrading the system BIOS
  - Configuring the power management modes
  - Setting up system passwords or making other changes to the security setup
- When a configuration error is detected by the system and you are prompted (Run Setup message) to make changes to the BIOS settings.

---

**NOTE:** If you repeatedly receive Run Setup messages, the system battery may be defective. In this case, the system cannot retain configuration values in CMOS. Replace the system battery with a new one.

---



The Setup Utility loads the configuration values in a battery-backed nonvolatile memory called CMOS RAM. This memory area is not part of the system RAM, which allows configuration data to be retained when power is turned off. The values take effect when the system is booted. POST uses these values to configure the hardware. If the values and the actual hardware do not agree, POST generates an error message. You must run this utility to change the BIOS settings from the default or current configuration.

The Setup Utility has five primary menu selections, including:

- Main
- Advanced
- Boot
- Security
- Exit

### To run the Setup Utility:

1. Turn on the monitor and the server.  
If the server is already turned on, save your data and exit all open applications, and then restart the server.
2. During POST, press **F10**.  
If you fail to press **F10** before POST is completed, you will need to restart the server.  
The first page to be displayed will be the Main menu showing the Setup Utility's menu bar. Use the left (←) and right (→) arrow keys to move between selections on the menu bar.

## Setup Utility navigation keys

Use the following keyboard keys to work your way through the various menu and submenu screens of the Setup Utility.

Key	Functions
← and →	To move between selections on the menu bar.
↑ and ↓	To move the cursor to the field you want. The currently selected field will be highlighted. The right side of each menu screen displays the <u>Item Specific Help</u> panel. This panel displays the help text for the currently selected field. It updates as you move the cursor to each field.
PgUp and PgDn	To move the cursor to the previous and next page of a multiple page menu.
Home	To move the cursor to the first page of a multiple page menu.
End	To move the cursor to the last page of a multiple page menu.
(+) , (-),	To select a value for the currently selected field (only if it is user-configurable). Press the (+), (-), or <Space> keys repeatedly to display each possible entry, or the <b>Enter</b> key to choose from a pop-up menu. A parameter that is enclosed in square brackets [ ] is user-configurable. Grayed-out parameters are not user-configurable for one of the following reasons: The field value is auto-configured or auto-detected. The field value is informational only. The field is password-protected.

<b>Key</b>	<b>Functions</b>
Enter	To select a field value or display more options for menu marked with ▶.
Ctrl+Enter	To expand all device lists.
F1	To open the General Help window. The General Help window describes other Setup navigation keys that are not displayed on the legend bar.
Esc	If you press this key: On one of the primary menu screens, the <u>E</u> xit menu appears. On a submenu screen, the previous screen appears. When you are making selections from a pop-up menu, closes the pop-up without making a selection.
F9	Loads the default system values.
F10	Saves changes and closes the Setup Utility.

## Setup Utility menus

The Setup Utility provides a menu bar with the menu selections. The menu bar choices are described in the following sections.

## Main menu

**ROM-BASED SETUP UTILITY**

Main    Advanced    Boot    Security    Exit

---

**System Overview**

HP ProLiant Micro Server

BIOS ID :041  
BIOS Version :07/28/2010

System Time [16:03:05]  
System Date [Tue 08/03/2010]

**Processor**  
AMD Turion(tm) II Neo N54L Dual-Core Processor  
Speed :2200MHz  
Core Count :2

**System Memory**  
Size :1024MB

System Serial Number :  
Asset Tag [                    ]

Use [ENTER], [TAB] or [SHIFT-TAB] to select a field.  
Use [+] or [-] to configure System Time.

↔ Select Screen  
↑↓ Select Item  
+- Change Field  
Tab Select Field  
F1 General Help  
F10 Save and Exit  
ESC Exit

---

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**ROM-BASED SETUP UTILITY**

Main    Advanced    Boot    Security    Exit

---

BIOS ID :041  
BIOS Version :06/07/2010

System Time [23:39:25]  
System Date [Sat 06/05/2010]

**Processor**  
AMD Turion(tm) II Neo N54L Dual-Core Processor  
Speed :2200MHz  
Core Count :2

**System Memory**  
Size :1024MB

System Serial Number : 12345678  
Asset Tag [www.hp.com        ]

NIC#1 MAC Address : 78-E7-D1-B1-04-EF

▶ Boot Settings Configuration

Configure Settings during System Boot.

← Select Screen  
↑↓ Select Item  
Enter Go to Sub Screen  
F1 General Help  
F10 Save and Exit  
ESC Exit

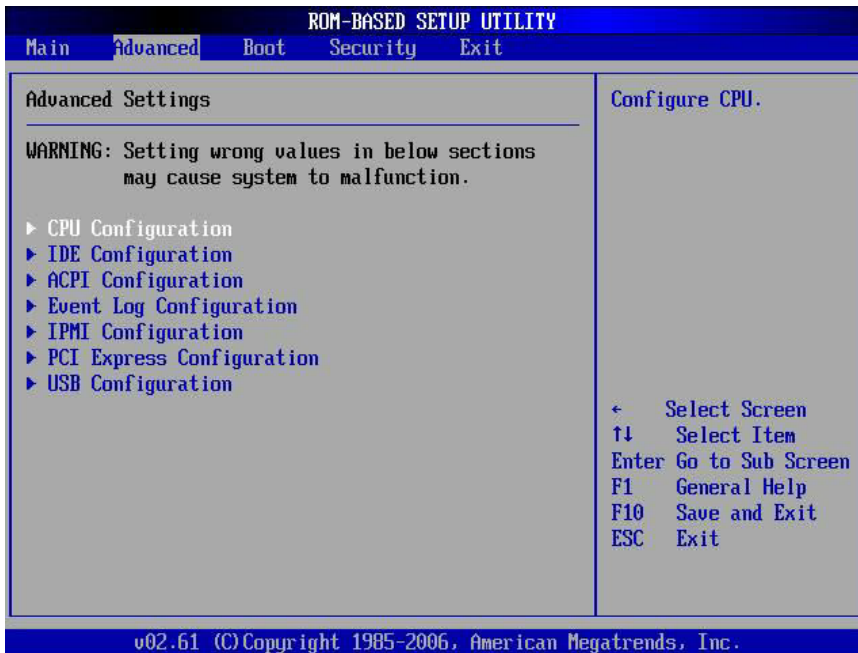
---

v02.61 (C) Copyright 1985-2006, American Megatrends, Inc.

Field	Description
BIOS ID	System BIOS ID
BIOS Version	System BIOS version
System Time	Adjust the system time.
System Date	Adjust the system date.
Speed	Processor speed
Core Count	Number of core in the processor
Size	System memory size

Field	Description
Set Server Asset Text	Enter the server asset tag. This information is printed on the serial label tab located on the front panel.
Set Serial Number Text	Show server serial number. This information is printed on the serial label tab located on the front panel.
Embedded NIC1 MAC Address	MAC address of the embedded NIC
Boot Settings Configuration	Configure settings during system boot

## Advanced menu



Field	Description
CPU Configuration	Configure and view the current CPU Configuration and settings. Press <b>Enter</b> to access the related submenu.
IDE Configuration	Use this screen to select options for IDE configuration settings. Press <b>Enter</b> to access the related submenu.
ACPI Configuration	Use this screen to select options for the ACPI Configuration. Press <b>Enter</b> to access the related submenu.
Event Log Configuration	Displays the information related to the Event Log. Press <b>Enter</b> to access the related submenu.
IPMI	Configure the Intelligent Platform Management Interface (IPMI) settings. Press <b>Enter</b> to access the related submenu.
PCI Express Configuration	Use this screen to select options for PCI Express Devices. Press <b>Enter</b> to access the related submenu.
USB Configuration	Displays the settings related to the USB function. Press <b>Enter</b> to access the related submenu.

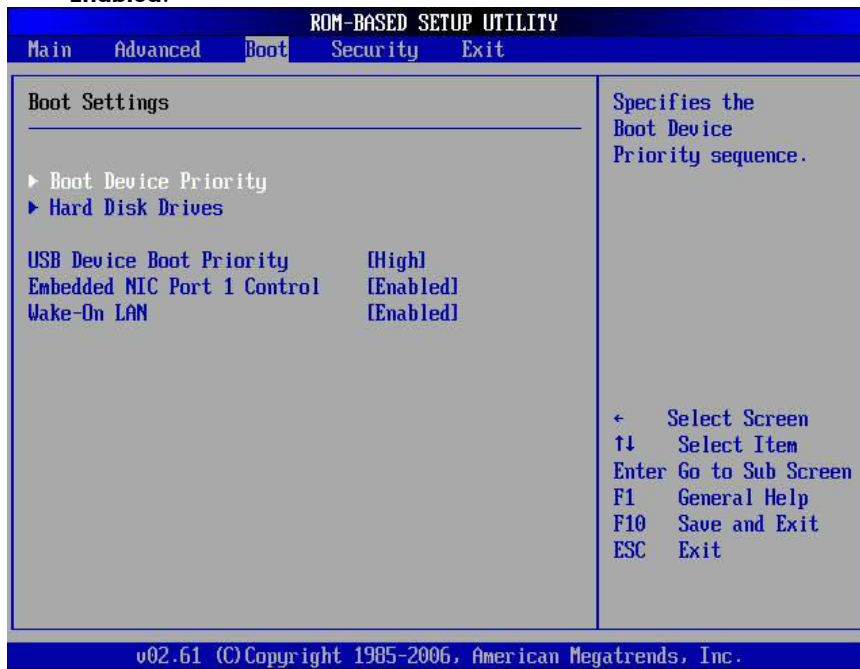
## Boot menu

Use this menu to set the preferred drive sequence in which the Setup Utility attempts to boot the operating system.

By default, the server searches for boot devices in the following order:

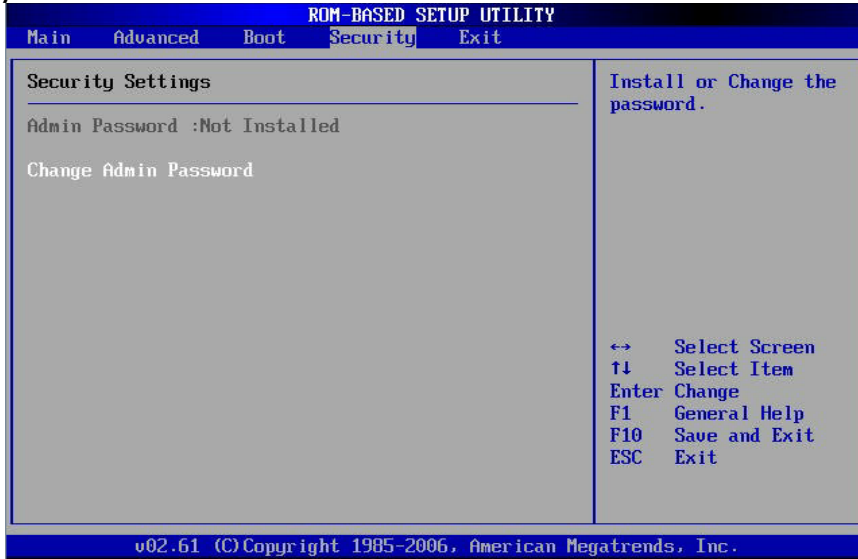
- CD-ROM/DVD-ROM drive
- Removable device
- Hard drive
- Embedded NIC

To implement the PXE boot option, you need to first set the **Embedded NIC Port1 Control** field to **Enabled**.



Field	Description
Boot Device Priority	Specifies the Boot Device Priority sequence
Hard Disk Drives	Specifies the Boot Device Priority sequence from available
USB Device Boot Priority	Control the listed USB functions by setting the item to the desired value.
Embedded NIC Port 1 Control	Disable and enable embedded NIC1
Wake-On LAN	Disabled and Enable the WOL function

## Security menu



Field	Description
Admin Password	Current admin password status (Clear or Enabled)
Change Admin Password	Select the field, and then press <b>Enter</b> to set, change, or remove a admin password.

### Admin password

The Security menu allows users to set an admin password. When entered, this password will allow the user to access and change all settings in the Setup Utility.

#### To set an admin password:

1. In the Security menu screen, select the **Admin Password** field then press **Enter**.
2. Type a new password in the password box.  
The password may consist of up to eight alphanumeric characters (A-Z, a-z, 0-9).
3. Retype the password to verify the first entry, and then press **Enter**.
4. Press **F10** to save the password and close the Setup Utility.  
After setting the password, the **Admin Password** field value is set to **Enabled**.

#### To change the admin password:

1. In the Security menu screen, select the **Admin Password** field, and then press **Enter**.
2. Type the original password in the password box.
3. Type a new password, and then press **Enter**.
4. Retype the new password to verify the first entry, and then press **Enter** again.
5. Press **F10** to save the password and close the Setup Utility.

#### To remove the admin password:

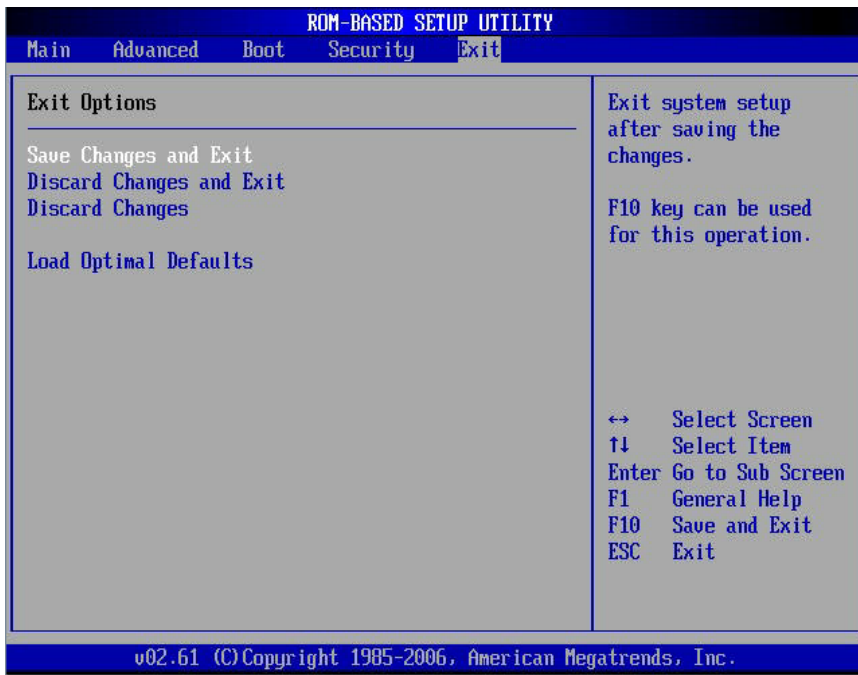
1. In the Security menu screen, select the **Admin Password Is** field, and then press **Enter**.
2. Type the original password then press **Enter**.

3. Press **Enter** twice without entering anything in the new and confirm password fields.
4. Press **F10** to save the changes you made and close the Setup Utility.  
The **Admin Password** field value is set to **Clear**.

**To reset the admin password:**

If you forget the admin password, you need to clear the CMOS and reset the BIOS settings to regain access the Setup Utility. For instructions, see “[Clearing CMOS](#)” section on page 97.

## Exit menu



Field	Description
Save Changes and Exit	Saves changes made and closes the Setup Utility. Keyboard shortcut: <b>F10</b>
Discard Changes and Exit	Discards changes made and closes the Setup Utility.
Discard Changes	Discards all changes made to the Setup Utility and loads the previous configuration settings.
Load Optimal Defaults	Loads the factory-default settings for all Setup fields. Keyboard shortcut: <b>F9</b>

## Summary screen

The Summary screen displays basic and important information about the current server configuration and is necessary for troubleshooting and may be required when asking for technical support. It is recommended that you check this screen during the initial system setup and each time you install, remove, or upgrade accessories.

**To view the Summary screen:**

You first need to enable the display of the Summary screen during bootup. Follow the steps below.

1. In the Main menu screen, select **Boot Settings Configuration**, and then press **Enter**.
2. Select the **Quick Boot** field.
3. Press the plus (+) or minus (-) key to set the field to **Enabled**.
4. Press **F10** to save the changes you made and close the Setup Utility.
5. Reboot the server.

The Summary screen is displayed briefly at the end of POST.

```

System Configuration, AMIBIOS Version 08.00.15
-----
Main Processor(s) : AMD Turion(tm) II Neo N54L Dual-Core Processor
-----
Math Processor   : Built-In           Base Memory Size : 640KB
Ext'd Memory Size : 1023MB          Serial Port(s)   : None
Display Type     : VGA/EGA           Parallel Port(s) : None
BIOS Build Date  : 06/07/2010        PS/2 Mouse       : Present
ACPI v2.0        : Enabled           BMC Interface     : KCS
-----
PCI Devices:
PCI Onboard PCI Bridge,IRQ10          PCIE Onboard PCI Bridge,IRQ11
PCI Onboard Mass Storage Device,IRQ7  PCI Onboard USB Controller,IRQ4
PCI Onboard USB Controller,IRQ11      PCI Onboard USB Controller,IRQ4
PCI Onboard USB Controller,IRQ11      PCI Onboard PCI Bridge
PCI Onboard Multimedia Device,IRQ10   PCI Onboard IDE
PCI Onboard SMBus                     PCI Onboard USB Controller,IRQ4
PCI Onboard USB Controller,IRQ11      PCIE Slot- 2 PCI Bridge,IRQ10
PCI Bridge VGA,IRQ10                  PCIE Bridge Ethernet,IRQ11
-----
Press <ESC> to boot...9
00A9

```

6. Press the **Pause/Break** key to continue displaying the screen until another key is pressed.
7. Press any key to continue with the system bootup.

## Power-On-Self-Test

Before you can use a server, all devices must be tested and initialized, and the operating system must be bootstrapped to the memory. This is referred to as Power-On-Self-Test or POST. POST is a series of diagnostic tests that checks firmware and hardware components to ensure that the server is properly functioning. This diagnostic function automatically runs each time the server is powered on.

These diagnostics, which reside in the BIOS ROM, isolate server-related logic failures and indicate the board or component that needs to be replaced, as indicated by the error messages. Most server hardware failures will be accurately isolated during POST. The number of tests displayed depends on the configuration of the server.

During POST you can press:

- **F10** to access the Setup Utility.
- **F12** to request a network boot (PXE).

## POST error messages

Whenever a non-critical error occurs during POST, an error message describing the problem appears onscreen. These text messages are displayed in normal video (white text on black background). It shows the details of the error. The following is an example of a POST error message:

```
ERROR
```



0251: System CMOS checksum bad - Default configuration used

In some cases an error message may include recommendations for troubleshooting or require that you press the **Enter** key to display recommendations. Follow the instructions on the screen.

The next table lists the most common POST error messages with their corresponding troubleshooting recommendation. It is recommended that you correct the error before proceeding, even if the server appears to boot successfully.

If your system displays one of the messages marked below with an asterisk (\*), write down the code and message and contact your HP Customer Support provider.

<b>Error code</b>	<b>Error message</b>	<b>Corrective action/description</b>
000	Timer Error	Indicates an error while programming the count register of channel 2 of the 8254 timer. This might indicate an issue with system hardware and requires repairing the system board.
003	CMOS Battery Low	CMOS Battery is low. This message usually indicates that the CMOS battery needs to be replaced. It might also appear when the users intentionally discharge the CMOS battery
004	CMOS Settings Wrong	CMOS settings are invalid. This error can be resolved by using F9 to load optimal default in the Setup Utility
008	Unlock Keyboard	PS2 keyboard is locked. User must unlock the keyboard to continue the BIOS POST.
010	KBC BAT Test failed	The bat test on keyboard controller failed
011	CMOS Memory Size Wrong	The base memory (memory below 1MB) size that is reported in the CMOS (offset 15h) mismatches with the actual size detected. This condition may occur when the hole is set at 512K base memory or when CMOS is corrupted.
00C	RAM R/W test failed	This message appears by the AMI BIOS8 when the RAM read/write test fails.
00D	Uncorrectable Memory ECC Error!	If DIMM occur Uncorrectable Memory ECC Error!, this message will appear on POST.
012	CMOS Date/Time Not Set	The CMOS date and/or time are invalid. This error can be resolved by readjusting the system time in the Setup Utility.
015	Fan Missing!	If system fan is not installed or failed, the system will display this message and shutdown in minutes.
016	System board temperature out of range	If system detects system board temperature sensor over heat, this message will appear.

<b>Error code</b>	<b>Error message</b>	<b>Corrective action/description</b>
017	Processor temperature out of range	If the system detects that the processor temperature sensor over heated, then this message will appear.
018	NB temperature out of range	If system detects NB temperature sensor over heat, this message will appear.
040	Refresh timer test failed	BIOS POST found that the refresh timer hardware failed to pass the Refresh Retrace Test.
041	Display memory test failed	Memory test failed because the memory has an issue
043	~<INS> Pressed	If you press Insert key during POST, this message will appear
044	DMA Controller Error	The system found some issues of the DMA controller when performing diagnostic tests for DMAC-1 & DMAC-2.
045	DMA-1 Error	The system found some issues of the DMA controller when do diagnostic tests for DMAC-1
046	DMA-2 Error	The system find some issues of the DMA controller when do diagnostic tests for DMAC-2
048	Password check failed	If the user inputs an incorrect password more than three times, then this error displays information and the system continues to boot.
05D	S.M.A.R.T. Command Failed	Hard Disk S.M.A.R.T feature test failed, indicating an issue with the hard disk.

## POST related troubleshooting

Perform the following procedures when POST fails to run or displays error messages.

If the POST failure is during a routine boot up, check the following:

- All external cables and power cables should be firmly plugged in.
- The power outlet to which the server is connected and is working.
- The server and monitor are both turned on. The power status LED indicator on the front panel must be lit up green.
- The monitor's contrast and brightness settings are correct.
- All internal cables are properly connected and all boards are firmly seated.
- The processor is fully seated in its socket.
- The heatsink is properly installed on top of the processor.
- All memory modules are properly installed.

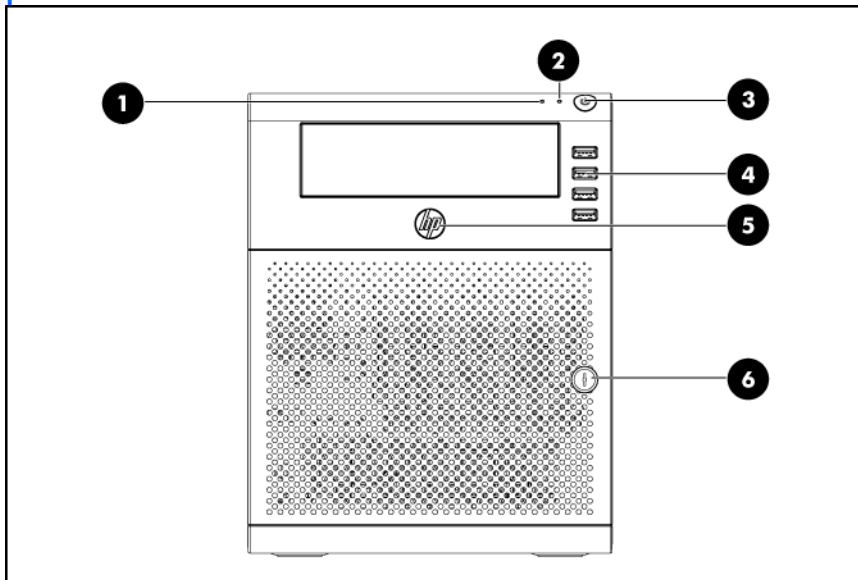
- If you have installed a PCI expansion board, verify that the board is firmly seated and any switches or jumpers on the board are properly set. See the documentation that came with the expansion board.
- All system cables are securely connected and are in their proper order.
- If you have changed any switches on the system board, verify that each is properly set.

---

# Connectors, switches, and LEDs

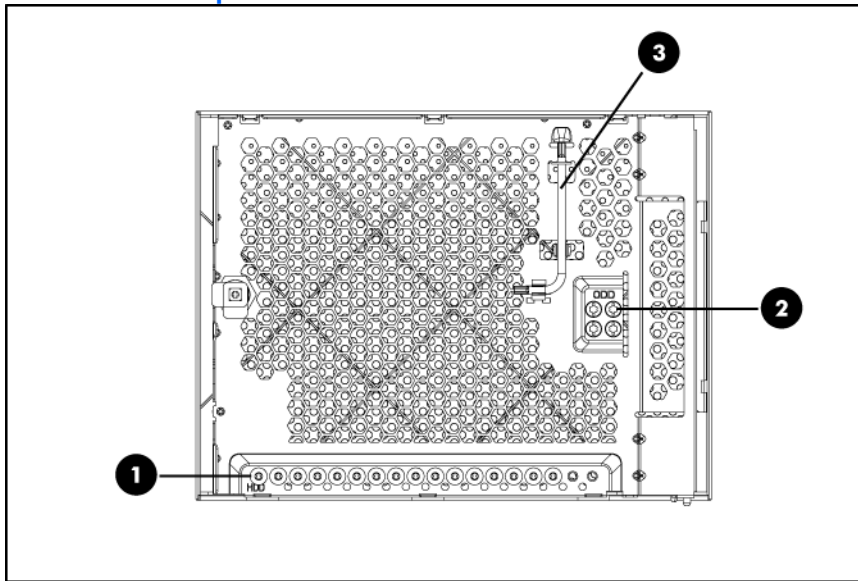
## Connectors and components

### Front panel



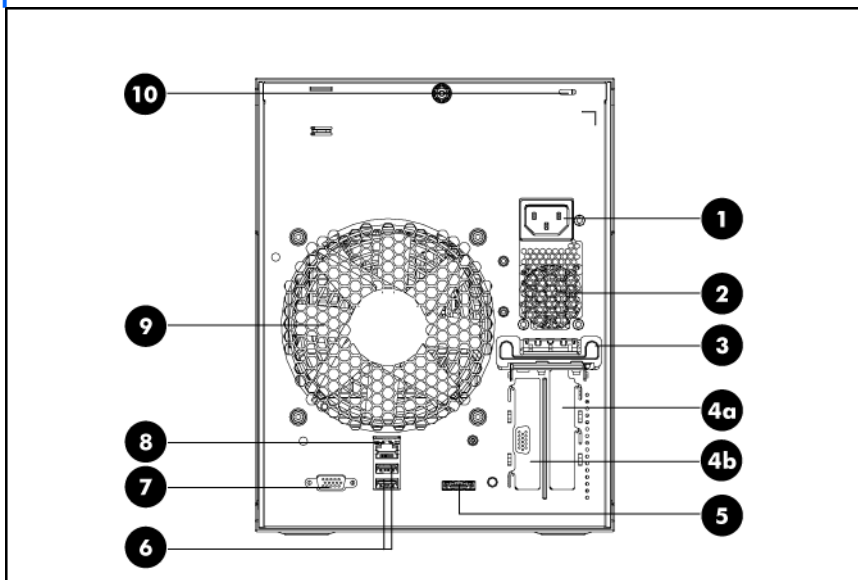
Item	Description
1	NIC LED
2	HDD LED
3	Power button
4	USB ports
5	Health LED
6	Panel door lock

## Panel door components



Item	Description
1	Spare screws for HDD installation
2	Spare screws for ODD installation
3	Torx screwdriver

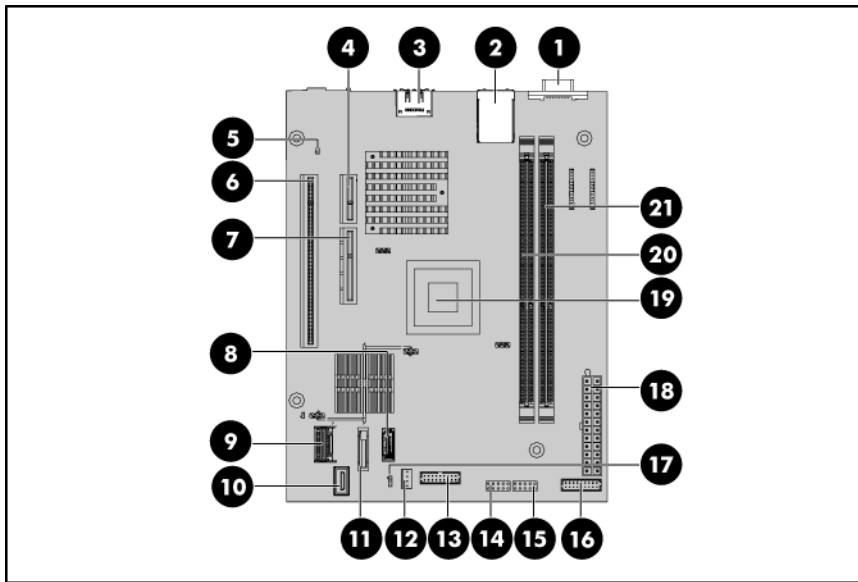
## Rear panel



Item	Description
1	Power cord connector
2	PSU fan

<b>Item</b>	<b>Description</b>
3	PCIe holder
4a	PCIe bracket 1
4b	PCIe bracket 2
5	eSATA connector
6	Rear USB 2.0 ports
7	VGA port
8	Embedded NIC Port
9	Rear system fan
10	Kensington lock slot

## System board

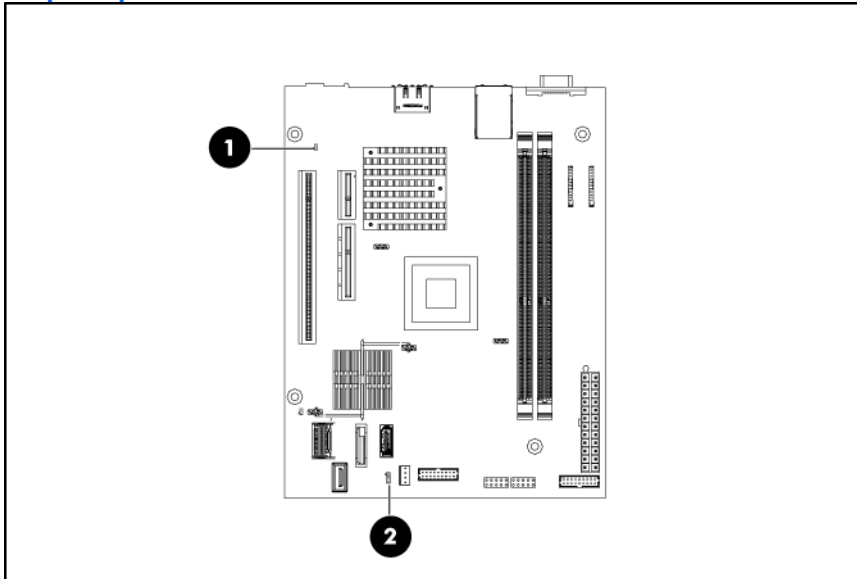


Item	Designator	Description
1	J16	VGA connector
2	J15	NIC1/USBx2 connector
3	J23	eSATA
4	J6	PCIe x1 slot
5	J21	NMI jumper. Enables a user to generate a nonmaskable interrupt event.
6	J5	PCIe x16 slot
7	J7	IPMI slot
8	J24	Internal SATA for ODD option
9	J8	Mini-SAS connector
10	J33	Internal USB connector for tape drive option
11	B1	Battery
12	J22	Fan connector
13	J20	TPM connector
14	J13	Front USB header 1
15	J14	Front USB header 2
16	J50	Front LED cable connector
17	J19	Clear CMOS jumper; 1-2, Normal
17	J19	Clear CMOS jumper; 2-3, Clear CMOS
18	J12	24-pin power connector (ATXPWRCN)
19	U1	Processor

Item	Designator	Description
20	J3	DDR 3 DIMM slot 1
21	J4	DDR 3 DIMM slot 2

## System buttons and jumpers

### System jumpers



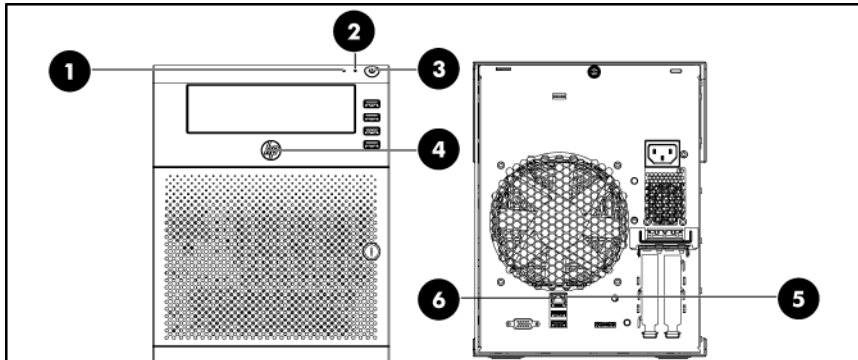
Item	Function	Status	Status description
1	NMI jumper	Open	Normal
		Short	Enables a user to generate a nonmaskable interrupt event.
2	Clear CMOS jumper	1-2	Normal
		2-3	Clear CMOS



# Status LED indicators

The status LED indicators aid in problem diagnosis by indicating the status of system components and operations of the server.

## External LED indicators



The diagram shows two views of a server: a front view on the left and a rear view on the right. Numbered callouts (1-6) identify specific components:

- 1: NIC LED on the front panel.
- 2: HDD LED on the front panel.
- 3: Power button on the front panel.
- 4: Health LED on the front panel.
- 5: Network port on the rear panel.
- 6: Network port on the rear panel.

Item	Indicators	Status	Description
1	NIC LED	Blinking green	On going activity
2	HDD LED	Blinking green	On going activity
3	Power button	Amber/Green	Standby mode/Power on mode
4	Health LED	Amber/Blue/Red	Non-critical issue/Ongoing activity/ Critical issue
5	Network port	Blinking green	On going network activity
6	Network port	Green	10/100/1000M connection

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# System specifications

## Hardware specifications

### System unit

Item	Description
Processor	1.3-GHz AMD Athlon II Neo N36L processor, 2C 1.5-GHz AMD Turion II Neo N40L processor, 2C 2.2-GHz AMD Turion II Neo N54L processor, 2C
Core logic chipsets	<ul style="list-style-type: none"><li>• AMD RS785E – north bridge, core logic controller</li><li>• AMD SB820M– south bridge</li><li>• AST2150 (option) – BMC controller</li></ul>
Hardware monitoring chipset	Winbond W83795ADG hard monitor chip
LAN controller	Broadcom BCM5723 single-port Gigabit Ethernet controller
Memory controller	Integrated in the processor
SATA storage controller	Embedded AMD SB820M chipset
VGA controller	Integrated in the AMD RS785E chipset
I/O subsystem	<ul style="list-style-type: none"><li>• One PCIe x16 slot, which supports one PCIe x16 card (25 W, max)</li><li>• One PCIe x1 slot, which supports one PCIe x1 card</li><li>• One PCIe x4 slot, which supports one IPMI card</li></ul>
Memory	<ul style="list-style-type: none"><li>• ECC UDIMM</li><li>• Two DDR 3 slots</li><li>• 8 GB maximum system memory (4 GB in each of the two DIMM slots)</li></ul>
Media storage	<ul style="list-style-type: none"><li>• Four LFF HDD bays support non-hot-plug SATA drives</li><li>• Removable media drive bay supports installation of an optical drive, tape drive, or RDX drive options</li></ul>
I/O ports	<ul style="list-style-type: none"><li>• Front panel – Four USB 2.0 Ports</li><li>• Rear panel – Two USB 2.0 Ports, one rear VGA port (RS785E embedded, D-SUB15), one Gigabit Ethernet RJ-45 port, one eSATA port</li><li>• Internal – One SATA port, one internal USB port</li></ul>
Status LED indicators	<ul style="list-style-type: none"><li>• Front panel – Power LED, HDD LED, LAN LED, Health LED</li></ul>
Server management	<ul style="list-style-type: none"><li>• Dedicated system health indicator</li><li>• Onboard hardware failure indicators</li><li>• Management NIC function via the HP MicroServer Remote Access Card (optional)</li></ul>

Item	Description
Thermal solution	<ul style="list-style-type: none"> <li>• One system fan</li> <li>• Processor heatsink</li> <li>• North bridge heatsink</li> <li>• South bridge heatsink</li> </ul>

## Memory

Item	Description
Number of DIMM slots	Two
Maximum memory capacity	8 GB (4 GB in each of the two DIMM slots)
Memory modes	Single DIMM, and two DIMMs (full configuration)
Memory controller	Integrated in the processor
DIMM specifications	
Size	1 GB, 2 GB, and 4 GB
Speed	800 MHz
Type	DDR3, UDIMM, 1333 MHz ECC RoHS

## Power supply unit

### 150 W power supply

Item	Description
Model	DPS -150TB A
Type	150 W
Dimensions	
Height	40.5 mm (1.59 in)
Depth	150.0 mm (5.9 in)
Width	81.5 mm (3.21 in)
Weight (approximate)	0.7kg (1.54lb)
Input requirements	
Rated input voltage	90 to 264 VAC
Normal line voltage	100 VAC to 127 VAC/200 VAC to 240 VAC
Line frequency	47 to 63 Hz
Rated input current	3.5 A rms max @ 100 VAC full load; 2 A rms max @ 200 VAC full load
Ready steady state power	150 W

<b>Item</b>	<b>Description</b>
Operating conditions	
Temperature	0 to 50°C (0 to 122°F)
Humidity (noncondensing)	20 to 90%

## 200 W power supply

<b>Item</b>	<b>Description</b>
Model	DPS-200PB-177A
Type	200 W
Dimensions	
Height	40.5 mm (1.59 in)
Depth	150.0 mm (5.9 in)
Width	81.5 mm (3.21 in)
Weight (approximate)	0.7 kg (1.54 lb)
Input requirements	
Rated input voltage	90 to 264 VAC
Normal line voltage	100 to 240 VAC
Line frequency	47to 63 Hz
Rated input current	200 W @ 3.5A max
Rated steady state power	200 W
Operating conditions	
Temperature	0 to 50°C
Humidity (noncondensing)	20 to 85%

# Physical specifications

<b>Item</b>	<b>Description</b>
System board dimensions	
Length	211.0 mm (8.3 in)
Width	165.1 mm (6.5 in)
Server dimensions	
Height	267 mm (10.51 in)
Width	245 mm (9.65 in)
Depth	210 mm (8.27 in)
Server weight (maximum configuration, approximate)	
Basic configuration (one hard drive installed)	8.6 kg (18.96 lb)
Fully loaded configuration	10 kg (22.04 lb)

# Environmental specifications

<b>Item</b>	<b>Attribute</b>
Temperature range	
Operating	10 to 35°C (50 to 95°F)
Nonoperating	-30 to 60°C (-22 to 140°F)
Humidity (noncondensing)	
Operating	10 to 90% RH
Nonoperating	10 to 95% RH
Altitude	
Operating	3048 m (10,000 ft)
Nonoperating	9144 m (30,000 ft)
Acoustic noise	
Idle, minimum (fixed disk drives spinning)	L Wad (BELS) – 3.8 L pA (dBA) – 21.4
Operating, minimum (random seeks to fixed disk drives)	L Wad (BELS) – 3.9 L pA (dBA) – 22.7

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