Overview

## HPE H220 Host Bus Adapter

The HPE H220 Host Bus Adapter is a 2X4 internal ports HBA provides customers with the flexibility and speed they have come to expect from HPE. The H220 provides support for both 6 Gb SAS and SATA Hard Disk Drives. In addition, H220 HBA controller provides support for SAS tape drives. This SAS HBA is ideal for driving cost-effective and reliable scalability in today's data centers.



## Model

| | | |
|---|---|---|
| **Host Bus Adapter** | HP H220 Host Bus Adapter | 650933-B21 |

**Kit contents**
- HPE H220 Host Bus Adapter
- Low profile controller bracket

# Compatibility

**Servers**

**ProLiant DL (rack-optimized)**:

- HPE ProLiant DL160 Gen8
- HPE ProLiant DL320e Gen8
- HPE ProLiant DL360e Gen8
- HPE ProLiant DL380e Gen8
- HPE ProLiant DL380p Gen8
- HPE ProLiant DL385p Gen8
- HPE ProLiant DL560 Gen8

**ProLiant ML (expansion-optimized)**:

- HPE ProLiant ML310e Gen8
- HPE ProLiant ML310e Gen8 v2
- HPE ProLiant ML350e Gen8
- HPE ProLiant ML350p Gen8

**ProLiant SL (scalable system)**:

- HPE ProLiant SL210t Gen8
- HPE ProLiant SL250s Gen8
- HPE ProLiant SL270s Gen8

**NOTE:** This is a list of supported servers. Some may be discontinued.

## Standard Features

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| **Performance** | Designed to be as flexible as Hewlett Packard Enterprise servers, HPE H220 Host Bus Adapter provides support for the tape drives and both SAS and SATA HDDs. The HPE adapter delivers exceptional system performance, with eight 6Gb/s SAS ports providing up to 48Gb/s total storage bandwidth. |

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| **HPE Server Integration** | Fully integrated and tested with ProLiant servers and management software. |

**Key Features**

- SAS technology delivers high performance and data bandwidth up to 6Gb/s per physical link
- Mix-and-match SAS and SATA hard drives; deploy drive technology as needed
- PCIe x8 ( 8GB/s bandwidth)
- PCIe 3.0 x8 capable

**Ports**  Eight (8) SAS physical links distributed across 2 x4 internal Mini-SAS connectors

**Performance**  The Hewlett Packard Enterprise High Performance Architecture sets new boundaries for industry performance expectations!

- 6Gb/s SAS (bandwidth per physical link)
- 48Gbps total available bandwidth (8 physical links x 6Gbps)
- PCIe 3.0 host interface x8 (8GT/s bandwidth)

**Capacity**  Fulfilling the need for high performance and capacity expansion, the HPE H220 SAS HBA offers:

- Eight 6 Gbps SAS physical links supporting up to 2 simultaneous x4 Wide SAS Ports
- Capacity up to 42 TB of SAS or 42 TB SATA

**Form Factor**

- Either high-profile or low-profile PCIe 3.0 slots. (parts included with option)

## Standard Features

**Operating Systems**
Microsoft Windows Server 2012
Microsoft Windows Server 2008 SP2
Microsoft Windows Server 2008 R2 with SP1
Microsoft Windows Hyper-V, R2 with SP1
Red Hat Enterprise Linux 5
Red Hat Enterprise Linux 6
Red Hat Enterprise Linux 5.8
Red Hat Enterprise Linux 6.2
SUSE Linux Enterprise Server 10
SUSE Linux Enterprise Server 11
Solaris 10
VMware ESX 4.1 and ESXi 4.1 update U2
VMware ESXi 5.0
**NOTE:** For more Linux OS support & certification information, please visit our the ProLiant & BladeSystem Server Linux matrix:
**http://www8.hp.com/us/en/products/servers/management/operating-environments/os-support-matrix.html**

**Off Line**
HPE Smart Component for HPE H220 Host Bus Adapter

**Warranty**
The warranty for this device is 1 year parts only.
**Warranty Upgrade Options**

- Response - Upgrade on-site response from next business day to same day 4 hours
- Coverage - Extend hours of coverage from 9 hours x 5 days to 24 hours x 7 days
- Duration - Select duration of coverage for a period of 1, 3, or 5 years
- Warranty upgrade options can come in the form of Care Packs, which are sold at the HPE System level this product attaches too

## Service and Support

**Service and Support HPE Technology Services**

HPE Technology Services offers you technical consultants and support expertise to solve your most complex infrastructure problems. We help keep your business running, boost availability, and avoid downtime.

**Protect your business beyond warranty with HPE Pointnext operational services**

When you buy HPE Options, it's also a good time to think about what level of service you may need. HPE Pointnext operational services provide total care and support expertise with committed response choices designed to meet your IT and business need.

HPE Foundation Care services deliver scalable support-packages for Hewlett Packard Enterprise industry-standard servers and software. You can choose the type and level of service that is most suitable for your business needs. New to this portfolio is HPE Collaborative Support. If you are running business critical environments, Hewlett Packard Enterprise offers Proactive Care or Critical Advantage. These services help you deliver high levels of application availability through proactive service management and advanced technical response.

Here is the support service recommendation from the Foundation Care and Proactive Care portfolio. For customized support service solution, Hewlett Packard Enterprise can work with you to tailor a service solution for your unique support requirements using broader services portfolio of Foundation Care and Proactive Care.

## Recommended HPE Pointnext operational services for optimal satisfaction with your HPE product

**Recommended Services**

**3-Year HPE 24x7 4 hour Response, Proactive Care**

Helps optimize your systems and delivers high levels of application availability through proactive service management and advanced technical response. A skilled Technical Manager will own your query or issue end to end until resolved, delivering a single point of contact for you

**OR**

**3-Year HPE 24x7 4 hour Response, HPE Collaborative Support**

Provides problem resolution support across the stack of HW, firmware, and Hewlett Packard Enterprise and 3rd party SW. In case the issue is with 3rd party SW, Hewlett Packard Enterprise does known issue resolution. If Hewlett Packard Enterprise cannot solve the issue, it will contact the third-party vendor and create a problem incident on your behalf
**https://www.hpe.com/h20195/V2/GetPDF.aspx/4AA3-8232ENW.pdf**

**HPE Installation of ProLiant Add On Options Service**

This easy-to-buy, easy-to-use HPE Care Pack service helps ensure that your new Hewlett Packard Enterprise hardware or software is installed smoothly, efficiently, and with minimal disruption of your IT and business operations

Service and Support

## Related HPE Pointnext operational services to enhance your HPE product experience

**Related Services**

**3-Year HPE 24x7 4 hour Response, Proactive Care**
Helps optimize your systems and delivers high levels of application availability through proactive service management and advanced technical response. A skilled Technical Manager will own your query or issue end to end until resolved, delivering a single point of contact for you

**OR**

**3-Year HPE 24x7 4 hour Response, Hardware Support Onsite Service**
Provides you with rapid remote support and if required an Hewlett Packard Enterprise Authorized representative who will arrive on site any time and day of the year to begin hardware maintenance service within 4 hours of the service request being logged
**https://www.hpe.com/h20195/V2/GetPDF.aspx/5982-6547EEE.pdf**

**3-Year HPE 6-hour Onsite Call-to-Repair, HPE Collaborative Support**
Offers customers a single point of contact for server problem diagnosis, hardware problem resolution to return the hardware in operating condition within 6 hours of the initial service request to the HPE Global Solution Center, and basic software problem diagnosis, fault isolation, and resolution if available to HPE.
**https://www.hpe.com/h20195/V2/GetPDF.aspx/4AA3-8232ENW.pdf**

**HPE Proactive Select Service**
Provides a flexible way to purchase HPE best-in-class consultancy and technical services. You can buy Proactive Select Service Credits when you purchase your hardware and then use the credits over the next 12 months.
**https://www.hpe.com/h20195/V2/GetPDF.aspx/4AA2-3842ENN.pdf**

**Insight Remote Support**

Provides 24 X 7 remote monitoring, proactive notifications, and problem resolution. Learn more **http://www.hp.com/go/insightremotesupport**

**HPE Support Center**
Personalized online support portal with access to information, tools and experts to support Hewlett Packard Enterprise business products. Submit support cases online, chat with HPE experts, access support resources or collaborate with peers. Learn more **http://www.hp.com/go/hpsc**

The HPE Support Center Mobile App* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime.
HPE Insight Remote Support and HPE Support Center are available at no additional cost with a HPE warranty, HPE Care Pack or Hewlett Packard Enterprise contractual support agreement.

*The Hewlett Packard Enterprise  Support Center Mobile App is subject to local availability

## Service and Support

**Parts and materials**

Hewlett Packard Enterprise will provide HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction.

**Warranty / Service Coverage**

For ProLiant servers and storage systems, this service covers HPE-branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, as well as external monitors up to 22" and tower UPS products; these items will be covered at the same service level and for the same coverage period as the server unless the maximum supported lifetime and/or the maximum usage limitation has been exceeded. Coverage of the UPS battery is not included; standard warranty terms and conditions apply.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction. It does not apply to any exchange of Disk or SSD/Flash Drives that have not failed. SSD/Flash Drives that are specified by HPE as consumable parts and/or that have exceeded maximum supported lifetime and/or the maximum usage limit as set forth in the manufacturer's operating manual or the technical data sheet are not eligible for the defective media retention service feature option.

**For more information**

To learn more on services for HPE ESSN Options, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Or visit: **http://www.hp.com/services/proliant** or **http://www.hp.com/services/bladesystem**

## Related Options

**NOTE:** This is a list of supported options. Some may be discontinued.

| | | |
|---|---|---|
| **HPE Tape Drives** | **DAT Tape Drives** | |
| | HP StoreEver DAT 160 SAS Internal Tape Drive | Q1587A |
| | **LTO Ultrium Tape Drives** | |
| | HP StoreEver LTO-2 Ultrium 448 SAS Internal Tape Drive | DW085A |
| | HP Ultrium 920 SAS Internal Tape Drive | EH847A |
| | HP StoreEver LTO-4 Ultrium 1760 SAS Internal WW Tape Drive | EH919A |
| | HP LTO-4 Ultrium 1760 SAS (1) in 1U Rack-mount Kit | EH946A |
| | HP StoreEver LTO-4 Ultrium 1840 SAS Internal Tape Drive | EH860A |
| | HP StoreEver LTO-5 Ultrium 3000 SAS Internal Tape Drive | EH957A |
| | HP StoreEver LTO-5 Ultrium 3280 SAS Internal Tape Drive | EH899A |
| | **Rack-mount Tape Drive Enclosures** | |
| | HP 1U SAS Rack-mount Kit | AE459A |
| | **NOTE:** The 1U SAS Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with the DAT 160 SAS, LTO-2 Ultrium 448 SAS, LTO-3 Ultrium 920 SAS and LTO-4 Ultrium 1760 SAS tape drives. | |
| | HP 3U SAS Rack-mount Kit | AG576A |
| | **NOTE:** The 3U Rack-mount Kit can support up to (2) full-height or (4) half-height tape drives and compatible with multiple SAS tape drives including DAT 160 SAS, LTO-2 Ultrium 448 SAS, LTO-3 Ultrium 920 SAS, LTO-4 Ultrium 1760 SAS and LTO-4 Ultrium 1840 SAS tape drives. | |
| | **SAS Cables for Tape Drives and Automation** | |
| | HPE Mini-SAS Cable for LTO Internal Tape Drive<br>NOTE:NOTE: Use this cable to connect HPE Ultrium 448, 920, 960, 1760 and1840 SAS internal tape drives to Mini-SAS (SFF8087) ports. This replaces the existing cable connecting the HBA/controller to the disk backplane. This replacement cable has three channels for disks and 1 channel for the tape drive (SFF8482 port). | AP746A |
| | HPE SAS Min-Min 1x-2M Cable Assembly Kit<br>NOTE:NOTE: Use this cable to connect HPE SAS external tape devices to HPE SAS controllers with external Mini-SAS (SFF8088) connectors. | AE470A |
| | HPE SAS MIN-MIN 1X-4M Cable Assembly Kit<br>NOTE:NOTE: Use this cable to connect HPE SAS external tape devices to HPE SAS controllers with external Mini-SAS (SFF8088) connectors. | AE465A |
| | HPE SAS MIN-MIN 3X1X-5M Cable Assembly Kit<br>NOTE:NOTE: This split cable connects internally to SAS Hard Drive Cage (3 channels) and externally to the tape drive (1channel) with other connector attaching to the controller. The external cable, for the drive, requires a PCI slot to exit the server. | AG452A |
| | HPE StoreEver 2m External Mini-SAS to 4x1 Mini-SAS Cable<br>**NOTE:** One cable is required for every four drives. Use this cable to connect HPE MSL SAS Tape Libraries to Mini-SAS (SFF8088) ports. | AN975A |
| | HPE StoreEver 4m External Mini-SAS to 4x1 Mini-SAS Cable<br>**NOTE:** One cable is required for every four drives. Use this cable to connect HPE MSL SAS Tape Libraries to Mini-SAS (SFF8088) ports. | AN976A |

## Technical Specifications

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| **Dimensions** (excluding bracket) | 6.6 x 2.7 x 0.6 in (16.8 x 6.86 x 1.6 cm) |
| **Disk Drive and Enclosure Protocol Support** | 6 Gbps SAS (Serial Attached SCSI) <br><br> 3 Gbps SATA (Serial Advanced Technology Attachment) |
| **Architecture** | Serial Attached SCSI (SAS) <br> Serial Advanced Technology Attachment (SATA) <br> PCIe 3.0 x8 |
| **SAS Connectors** | 2x4 internal |
| **Data Transfer Method** | 2.4GB/s per port for combined throughput of up to 48Gb/s |
| **PCIe Bus Speed** | PCIe 3.0 x 8 (8GT/s maximum bandwidth) |
| **Simultaneous Connection Transfer Ports** | 2 x 4 Wide SAS Connectors |
| **Port Transfer Rate** | 48Gb/s per x8 Wide SAS Port (8 x 6Gb/s) |
| **Software upgradeable Firmware** | Yes |
| **Maximum Capacity** | 42 TB SAS, 42 TB SATA |
| **Memory Addressing** | 64-bit, supporting servers memory greater than 4 GB |
| **Upgradeable Firmware** | 4-MB flashable ROM |
| **Disk Drive and Enclosure Protocol Support** | 6Gb/s SAS / SATA |

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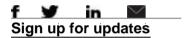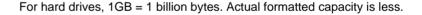| | | |
|---|---|---|
| **Environment-friendly Products and Approach** | **End-of-life Management and Recycling** | Hewlett Packard Enterprise offers end-of-life product return, trade-in, and recycling programs, in many geographic areas, for our products. Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner. <br><br> **http://www8.hp.com/us/en/hpe/hp-information/livingprogress/environmentalprogress/product-recycling.html#.V-IPA_krKiM** <br><br> The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard Enterprise web site. These instructions may be used by recyclers and other WEEE treatment facilities as well as HPE OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment. <br><br> **http://www8.hp.com/us/en/hpe/hp-information/livingprogress/environmentalprogress/product-recycling.html#.V-IPA_krKiM** |

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## Technical Specifications

## Summary of Changes

| Date | Version History | Action | Description of Change |
|------|-----------------|--------|-----------------------|
| 23-Oct-2017 | Version 8 | Changed | Care Pack naming and Service and Support- Parts and Materials updated. |
| 07-Oct-2016 | From Version 6 to 7 | Changed | QuickSpecs was rebranded. |
| 10-Sep-2013 | From Version 5 to 6 | Changed | Compatibility and HPE Tape Drives were revised. |
| 01-Feb-2013 | From Version 4 to 5 | Changed | Changes were made in the Operating Systems Section |
| 04-Dec-2012 | From Version 3 to 4 | Changed | Changes were made in the Compatibility section. |
| 20-Aug-2012 | From Version 2 to 3 | Changed | Changes were made in the Compatibility section. |
| 27-Jul-2012 | From Version 1 to 2 | Changed | Changes were made in the Standard Features and Technical Specifications sections. |

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