Overview

HPE H221 PCIe 3.0 SAS Host Bus Adapter

The HPE H221 Host Bus Adapter (HBA) is compatible with select HPE ProLiant Gen8 and Gen9 servers, and provides customers with the flexibility and speed they have come to expect from Hewlett Packard Enterprise. It features eight external SAS ports (two x4 external connectors) that now support HP SAS tape drives as well as 6Gb/s SAS and SATA hard drives.

The H221 HBA has been optimized for connection to the HPE P2000 G3 SAS Modular Smart Array, D2000 and D6000 Disk Enclosures (only with Gen8 servers), and MSA2040 SAS storage and is designed to drive cost-effective and reliable scalability in today's data centers.

Model

Host Bus Adapter	HPE H221 PCIe 3.0 SAS Host Bus Adapter	729552-B21

Kit contents	• HPE H221 Host Bus Adapter • Low profile controller bracket

Standard Features

Performance	Designed to be as flexible as HPE servers, HPE H221 Host Bus Adapter provides support for the HPE P2000 G3 MSA Array Systems. The HPE adapter delivers exceptional system performance, with eight 6Gb/s SAS ports providing up to 48Gb/s total storage bandwidth.

HPE's 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 (8 GT/s theoretical bandwidth) on H221 PCIe 3.0 model or PCIe 2.0 host interface x8 (5 GT/s theoretical bandwidth) on the H221 model

HP 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 8GB/s bandwidth for HPE H221 PCIe 3.0 SAS HBA and 4GB/s bandwidth for HPE H221 Host Bus Adapter
- PCIe 3.0 x 8 capable on H221 PCIe 3.0 model or PCIe 2.0 x8 capable on H221 model

Ports **External:** 8 SAS/SATA physical links across 2 x4 external ports (SFF8088 Mini-SAS connectors)

Form Factor Either high-profile or low-profile. (parts included with option)

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

Compatibility

Server Support	HPE ProLiant DL360 Gen9
	HPE ProLiant DL380 Gen9
	HPE ProLiant DL560 Gen9
	HPE ProLiant ML350 Gen9
	NOTE: HPE H221 Host Bus Adapter does not support connection to D2600, D2700, and D6000 Disk Enclosures with Gen9 servers.
	HPE ProLiant DL160 Gen8
	HPE ProLiant DL320e Gen8
	HPE ProLiant DL320e Gen8 v2
	HPE ProLiant DL360e Gen8
	HPE ProLiant DL360p Gen8
	HPE ProLiant DL380e Gen8
	HPE ProLiant DL380p Gen8
	HPE ProLiant DL385p Gen8
	HPE ProLiant DL560 Gen8
	HPE ProLiant ML310e Gen8
	HPE ProLiant ML310e Gen8 v2
	HPE ProLiant ML350e Gen8
	HPE ProLiant ML350p Gen8
	HPE ProLiant SL210t Gen8
	HPE ProLiant SL270s Gen8
	HPE ProLiant SL4540 Gen8 Server
	HPE ProLiant SL4545 G7 Server
Disk Enclosure Support	HPE MSA 2040 SAN Storage
	HPE P2000 G3 MSA Array Systems
	HPE D2600 Disk Enclosure
	HPE D2700 Disk Enclosure
	HPE D6000 Disk Enclosure
	NOTE: HPE H221 Host Bus Adapter supports connection to D2600, D2700, and D6000 Disk Enclosures with Gen8 servers only. H221 does not support connection to D2600, D2700, and D6000 Disk Enclosures with Gen9 servers.
Operating Systems	Microsoft Windows Server
	Microsoft Windows Hyper-V Server
	VMware vSphere ESXi
	Red Hat Enterprise Linux (RHEL)
	SUSE Linux Enterprise Server (SLES)
	NOTE: For a complete and up-to-date list of certified and supported OS versions for HPE Smart Array controllers, please refer to the HPE Smart Array Operating System Support Matrix at: **http://www.hpe.com/h20195/v2/GetPDF.aspx/4AA6-6550ENW.pdf**
	NOTE: For more information on HPE's Certified and Supported ProLiant Servers for OS and Virtualization Software, please visit our Support Matrix at: **http://www.hpe.com/info/ossupport**

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

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

Service and Support

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
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**

Technical Specifications

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 Architecture	6 Gbps SAS (Serial Attached SCSI)
	6 Gbps SATA (Serial Advanced Technology Attachment)
	Serial Attached SCSI (SAS)
	Serial Advanced Technology Attachment (SATA)
SAS Connectors	2x4 external SFF-8088 (Mini-SAS)
Data Transfer Method	600 MB/s bandwidth (1200 MB/s, full duplex) per port for combined throughput of up to 48Gb/s
PCIe Bus Speed	PCIe 3.0 x8 (8 GT/s maximum theoretical bandwidth) or PCIe 2.0 x8 (5 GT/s maximum theoretical bandwidth) depending on the model
Port Transfer Rate	24Gb/s per x4 Wide SAS Port (4 x 6Gb/s)
Memory Addressing	64-bit, supporting servers memory greater than 4GB
Upgradeable Firmware	4-MB flashable ROM online/offline

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.
		http://www8.hp.com/us/en/hpe/hp-information/livingprogress/environmentalprogress/product-recycling.html#.V-lPA_krKiM
		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 Hewlett Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment.
		http://www8.hp.com/us/en/hpe/hp-information/livingprogress/environmentalprogress/product-recycling.html#.V-lPA_krKiM

Summary of Changes

Date	Version History	Action	Description of Change
23-Oct-2017	From Version 12 to 13	Changed	Care Pack naming and Service and Support- Parts and Materials updated.
7-Oct-2016	From Version 11 to 12	Added	Added Support for 4 Gen9 servers.
2-Sep-2016	From Version 10 to 11	Changed	Overview and Standard Features were revised.
9-Dec-2013	From Version 9 to 10	Changed	Compatibility, HPE Disk Enclosures, and HPE Tape Drives were revised.
10-Sep-2013	From Version 8 to 9	Changed	Compatibility, HPE Disk Enclosures, and HPE Tape Drives were revised.
1-Feb-2013	From Version 7 to 8	Added	Added HPE Disk Enclosures to Related Options.
		Changed	Updated Operating Systems.
4-Dec-2012	From Version 6 to 7	Changed	Changes made in Compatibility and Related Options sections.
9-Oct-2012	From Version 5 to 6	Changed	Changes made in Compatibility section.
24-Sep-2012	From Version 4 to 5	Changed	Changes made in the Overview section.
20-Aug-2012	From Version 3 to 4	Changed	Changes made in the Overview section.
8-Jun-2012	From Version 2 to 3	Changed	Changes made to the Compatibility section and Related Options.
17-May-2012	From Version 1 to 2	Changed	Changes made in the Options section.

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