

Overview

HPE SAS Expander Card

The HPE Smart SAS Expander Card enhances the Smart Array controller family by allowing support for more than 8 internal hard disk drives on select ProLiant servers when connected to a Smart Array P410 Controller (SA-P410) or Smart Array P410i Controller (SA-P410i). The full height, Serial Attached SCSI (SAS) expander card supports up to 24 internal drive bays plus an external connection for tape. The HPE SAS Expander Card is ideal for ProLiant server customers that want to RAID more than 8 internal hard disk drives or for ProLiant server customers who purchase an additional internal drive cage and want to be able to RAID across all internal drives.

NOTE: The use of the HPE SAS Expander Card requires a minimum of 256MB cache on the SA-P410 or SA-P410i Controller.



What's New

- Updating supported hard drives.

Models

HPE SAS Expander Card HP 24 Bay SAS Expander Card

468406-B21

Standard Features

The Smart Array Advantage

The innovative design of Hewlett Packard Enterprise and integration work of the Smart Array family of products, including the HPE SAS Expander Card connected to a SA-P410 or SA-P410i Controller creates customer value that is unmatched in the industry. Use of Smart Array products across multiple applications results in a much lower Total

Cost of Ownership (TCO) than any other server storage RAID product. The HPE Smart Array family brings an unparalleled return on investment through:

Data Compatibility among all models of Smart Array controllers allows simple and easy upgrades any time needs for higher performance, capacity, and availability increase. Even successive generations of Smart Array controllers understand the data format of other Smart Array Controllers.

Consistent Configuration and Management Tools. All Smart Array products utilize a standard set of management and utility software. These tools minimize Total Cost of Ownership (TCO) by reducing training requirements and technical expertise necessary to install and maintain the HPE server storage.

Universal Hard Drive form factor is for use across multiple Hewlett Packard Enterprise servers, disk enclosures and storage systems. With compatibility across many enterprise platforms, you are free to deploy and re-deploy these drives to quickly deliver increased storage capacity, migrate data between systems, and easily manage spare drives.

Pre-Failure Warranty means HPE Insight Manager not only reports when a drive is going to fail but allows replacement of failing drives prior to actual failure. For complete details, consult the HPE Support Center or refer to your HPE Server documentation. Smart Array Advanced Pack (SAAP) delivers value added software features with the Smart Array Controller, which will further enhance performance, reliability, and availability of customer data. **NOTE: For more information on features and benefits of Smart Array Controllers please visit: <http://www.hp.com/products/smartarray>.**

Key Features

- 6Gb/s SAS technology delivers high performance and data bandwidth up to 600 MB/s per physical link and contains full compatibility with 3.0Gb/s SAS technology and 1.5 and 3.0Gb/s SATA technology. Mix-and-match SAS and SATA hard drives, lets you deploy drive technology as needed to fit your computing environment.
- Supports up to 24 internal drive bays plus an external connection for tape (supports 3 drive backplanes with each holding 8 drive bays)

Management Features

- Upgradeable firmware via HPE firmware CD or <http://www.hp.com/cgi-bin/hpsupport/index.pl>

Ports

- 24 internal drive bays plus external port for tape
- 8 Mini SAS 4i ports
- 2 Mini SAS 4i ports intended for attachment to the Smart Array controller (e.g. P410 or P410i)
 - 6Gb/s Gbps SAS bandwidth = 4800 MB/s
- 6 Mini SAS 4i ports intended for attachment to server drive backplanes
 - Supports up to 24 drive bays (3 drive backplanes with each holding 8 drive bays)
- 1 Mini SAS 4x port
 - Intended for attachment to a SAS tape drive, autoloader, or library
 - 6Gb/s SAS bandwidth = 2400 MB/s

Performance

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

- 6Gb/s SAS (600MB/s bandwidth per physical link) 3.0Gb/s SATA (300MB/s bandwidth per physical link)

Capacity

Given the increasing need for high performance and rapid capacity expansion, the SAS Expander Card and the SA-P410 or SAP410i Controller offers:

- Up to 14TB of total storage with 14 x 1TB 3.5" SATA MDL HDD
 - Up to of 7.2 TB total storage with 24 x 300GB 6Gb/s SAS 10K SFF DP ENT HDD
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Fault Recovery	The HPE SAS Expander Card helps to minimize downtime. • Recovery ROM: This feature protects the user from a firmware image corruption by storing a redundant copy of the firmware image. If the active firmware image becomes corrupt, the controller will use the redundant firmware image and continue operating.
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Warranty	The warranty for this device is 3-years 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
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Compatibility

Servers	ProLiant DL (rack-optimized): • HPE ProLiant DL170e G6 • HPE ProLiant DL370 G6 • HPE ProLiant DL380 G6 • HPE ProLiant DL380 G7 • HPE ProLiant DL385 G5p • HPE ProLiant DL385 G6 • HPE ProLiant DL385 G7 • HPE ProLiant DL580 G5 • HPE ProLiant DL785 G5 • HPE ProLiant DL785 G6 ProLiant ML (expansion-optimized): • HPE ProLiant ML350 G6 • HPE ProLiant ML370 G6
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NOTE: Customer needs to order 8" Mini SAS to Mini SAS cables (496012-B21) when connecting the Smart Array P410 Controller to a SAS Expander Card in a G6 server or ProLiant DL385 G5p. The 8" Mini SAS To Mini SAS cables are not needed when connected the Smart Array P410i Controller to a SAS Expander Card in a G6 server or ProLiant DL385 G5p.

Operating Systems	Microsoft Windows 2003 x64 Edition Microsoft Windows 2003 x86 Edition Microsoft Windows 2008 Server x64 Microsoft Windows 2008 Server x86 Microsoft Window Vista Enterprise Novell Open Enterprise Server, NetWare 6.5 Oracle Enterprise Linux (OEL) Red Hat Enterprise Linux 4, 5 (x64 & x86) SUSE Linux Enterprise Server 9 (x64 & x86) SUSE Linux Enterprise Server 10 (x64 & x86) SUSE Linux Enterprise Server 11 (x64 & x86) VMWare
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UnixWare

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>

Service and Support

Service and Support HPE Pointnext operational services: Packaged server and storage services for increased uptime, productivity and ROI

When you buy HPE server and storage products and solutions, it's also a good time to think about what levels of support you may need. Our portfolio of service options reduce deployment and management worries while helping you get the most out of your server and storage investments. We take a holistic approach to your environment, bridging servers, blades, storage, software and network infrastructures with our packaged HPE Pointnext operational services for servers and storage.

Protect your business beyond warranty

When it comes to robustness and reliability, standard computing equipment warranties have matured along with technology. Good news that can also create problems stemming from depending on standard warranties designed to only protect against product defects and some downtime causes. Using a standard approach to warranty uplifts, such as HPE Pointnext operational services, helps reduce downtime risks and provides operational consistency for mission-critical and standard business computing.

HPE Pointnext operational services: Upgrading or extending standard server and storage warranties cost effectively

HPE Pointnext operational services offer a standard reactive hardware and software support services suite sold separately, or combined with our Support Plus and Support Plus 24 services. The portfolio also provides a combination of integrated proactive and reactive services, such as Proactive 24 Service and Critical Service. In addition with HPE Proactive Select, you can acquire the specific proactive constancy and technical services. HPE Proactive Select menu offers a broad set of service options that you can mix and match depending on your specific requirements. Proactive service options include offers for server, storage, network, SAN device, software, environment and education services.

HPE server and storage lifecycle support services offers a full spectrum of customer care-from technology support to complex migrations to complete managed services. HPE Factory Express provides customization, integration and deployment services for turnkey solutions. HPE Education Services offer flexible, comprehensive training on to help your IT staff get the most out of your server and storage investments. HPE Financial solutions extend innovative financing and cost-effective asset management programs-from purchase to equipment retirement.

Learn more: <http://www.hp.com/services/servers> and www.hp.com/services/storage

NOTE: Care Pack Services availability may vary by product and country.

HPE Pointnext operational services are sold by HPE and Hewlett Packard Enterprise Authorized Service Partners:

- Services for customers purchasing from HPE or an enterprise reseller are quoted using HPE order configuration tools.
 - Customers purchasing from a commercial reseller can find HPE Pointnext operational services at <http://www.hp.com/go/lookuptool>
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Recommended HPE Pointnext operational services for optimal satisfaction with your HPE product

Recommended Services

Hardware Options Support

HPE Care Packs provide support for all HPE-branded hardware options qualified for inclusion in your server or storage solution. Any additional HPE-qualified options installed within the server are covered at the same service level and for the same period as the server and no additional cost.

- Help improve or maintain system uptime
- Convenient onsite support
- Committed response time

<https://www.hpe.com/h20195/V2/GetPDF.aspx/5982-6547EEE>

3-Year Hewlett Packard Enterprise hardware Support Onsite Service, 4-hour response, 24x7

Provides you with rapid remote support and if required a 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.

This service provides a trained HPE service specialist to perform an installation that meets Hewlett Packard Enterprise quality standards, for:

- Help improve or maintain system uptime
- Convenient onsite support
- Committed response time

<https://www.hpe.com/h20195/V2/GetPDF.aspx/5982-6547EEE>

HPE Installation and Startup of HPE ProLiant Servers

Provides for the installation of your new HPE ProLiant server and operating system to assist you in bringing your new HPE ProLiant server and operating system into operation in a timely and professional manner.

This service provides a trained HPE service specialist to perform an installation that meets Hewlett Packard Enterprise quality standards, for:

- Delivery of the service at a mutually scheduled time convenient to your organization
- Availability of an HPE service specialist to answer basic questions during the onsite delivery of this service
- Custom installation as detailed in "Delivery specifications" or in a Statement of Work (SOW)
- Verification prior to installation that all service prerequisites are met

<https://www.hpe.com/h20195/V2/GetPDF.aspx/5982?7572ENN>

Optional HPE Pointnext operational services that will enhance your HPE product experience

Optional Services

3-Year Hewlett Packard Enterprise hardware Support Onsite Call-to-Repair (CTR) Service, 6- or 24-hour

As an alternative to our recommended support level, for customers who need committed call-to-repair for server hardware.

Provides your IT manager with a team of support specialists who will quickly begin troubleshooting the system to help return the hardware to operating condition within 6 or 24 hours of the initial service request to the HPE Global Solution Center.

<https://www.hpe.com/h20195/V2/GetPDF.aspx/5982-6547EN.pdf>

3-Year HPE Support Plus 24

As an alternative to our recommended support level, for customers who need access to responsive 24x7 hardware and software support plus software updates on HPE and selected third party products:

For a higher return on your server and storage technology, our 3-year combined reactive support service delivers integrated onsite hardware/software support services available 24x7x365, including access to Hewlett Packard Enterprise technical resources, 4-hour response onsite hardware support and software updates.

<https://www.hpe.com/h20195/V2/GetPDF.aspx/5981-6638EEE>

HPE Proactive Select Service

Customer needs on demand access to consulting, technical proactive services and education courses

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>

HPE eSupport

HPE eSupport is a portfolio of technology-based services that assist you with managing your business environment - from the desktop to the data center.

Support Portal

The HPE support portal provides one-stop access to the information, tools and services you need to manage the daily operations of your IT environment.

Features include:

- Access to self-solve tools (including search technical knowledge base)
- Efficient logging and tracking of support cases
- Collaboration with other business and IT professionals
- Download of patches and drivers
- Access to diagnostic tools
- Proactive notification of relevant information

Access to certain features of the support portal requires an HPE service agreement. To access the support portal, visit: <http://www.hp.com/support>

HPE Insight Remote Support software delivers secure remote support for your Hewlett Packard Enterprise servers and Storage, 24 X 7, so you can spend less time solving problems and more time focused on your business. You can have your systems remotely monitored for hardware failure using secure technology that's been proven at thousands of companies around the world. In many cases, you can avoid problems before they occur.

Customer Technical Training

In today's cost-conscious business environment, IT professionals, developers, consultants and users face an interesting challenge: how to keep up with the latest technologies and expand important skills while delivering profitable results on current projects. To help address this challenge, Hewlett Packard Enterprise offers innovative training solutions that help keep you up-to-date on virtualization, server, storage, Insight Control, Citrix, Microsoft® and open source/Linux-related topics-while spending less time away from business-critical activities.

HPE Services Awards

HPE Technology Services continues to be recognized for service and support excellence by customers, partners, industry organizations and publications around the world. Recent honors and award reflect our services team's dedications, technical expertise, professionalism and uncompromising commitment to customer satisfaction.

Additional Services Information

To learn more on HPE ProLiant servers, HPE BladeSystem servers and HPE storage products, 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>
or <http://www.hp.com/services/storage>

Related Options

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

HPE Hard Drives

HPE SAS Hot Plug Drives

SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives

HP 1.2TB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	693648-B21
HP 900GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	619291-B21
HP 600GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	581286-B21
HP 450GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	581284-B21
HPE 300GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507127-B21
HP 300GB 6G SAS 15K rpm SFF (2.5-inch) Hot Plug Enterprise 3yr Warranty Hard Drive	627117-B21
HPE 146GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512547-B21
HP 72GB 6G SAS 15K 2.5in DP ENT HDD	512545-B21

SAS Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives

HP 600GB 6G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516828-B21
HP 450GB 6G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516816-B21
HP 300GB 6G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516814-B21

SAS Hot Plug SFF (2.5-inch) Midline (MDL) Drives

HPE 1TB 6G SAS 7.2K rpm SFF (2.5-inch) Dual Port Midline 1yr Warranty Hard Drive	605835-B21
HPE 500GB 6G SAS 7.2K rpm SFF (2.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507610-B21

SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives

HP 3TB 6G SAS 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	625031-B21
HPE 2TB 6G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507616-B21
HPE 1TB 6G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507614-B21

HPE SAS Non-Hot Plug Drives

SAS Non-Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives

HP 600GB 6G SAS 10K rpm SFF (2.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	590698-B21
HPE 300GB 6G SAS 10K rpm SFF (2.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	537809-B21
HP 72GB 6G SAS 15K rpm SFF (2.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	537805-B21
SAS Non-Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives	
HP 600GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516830-B21
HP 450GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516826-B21
HP 300GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516824-B21
NOTE: Please see the QuickSpecs for Technical Specifications and additional information:	
https://www.hpe.com/h20195/v2/gethtml.aspx?docname=c04111744	
HPE SATA Hot Plug Hard Drives	
SATA Hot Plug LFF (3.5-inch) Entry (ETY) Drives	
HP 250GB 3G SATA 7.2K 3.5in ETY HDD	571230-B21
HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Entry 1yr Warranty Hard Drive	458945-B21
SATA Hot Plug SFF (2.5-inch) Midline (MDL) Drives	
HP 1TB 3G SATA 7.2K rpm SFF (2.5-inch) Hot Plug Midline 1yr Warranty Hard Drive	625609-B21
HP 500GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive	507750-B21
SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives	
HP 4TB 3G SATA 7.2k rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	694374-B21
HP 3TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	628059-B21
HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	507632-B21
HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	454146-B21
HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	458928-B21
HPE SATA Non-Hot Plug Hard Drives	
SATA Non-Hot Plug SFF (2.5-inch) Entry (ETY) Drives	
HP 500GB 3G SATA 7.2K rpm SFF (2.5-inch) Non-hot plug Entry 1yr Warranty Hard Drive	628033-B21
SATA Non-Hot Plug LFF (3.5-inch) Entry (ETY) Drives	
HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1yr Warranty Hard Drive	571232-B21
SATA Non-Hot Plug SFF (2.5-inch) Midline (MDL) Drives	
HP 500GB 3G SATA 7.2K rpm SFF (2.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507753-B21
SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives	
HP 3TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	628063-B21
HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507774-B21

HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507772-B21
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HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	458941-B21
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NOTE: SATA hard drives have a 1-year warranty. Please see the
QuickSpecs for Technical Specifications and additional information:

**[https://www.hpe.com/h20195/v2/gethtml.aspx?
docname=c04111725](https://www.hpe.com/h20195/v2/gethtml.aspx?docname=c04111725)**

HPE Solid State Drives (SSD)

HPE SSD SATA Drives

6G SATA Value Endurance Hot Plug SFF (2.5-inch) Enterprise Boot Solid State Drives

HP 120GB 6G SATA Value Endurance SFF 2.5-in Enterprise Boot 3yr Wty Solid State Drive	728726-B21
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HP 80GB 6G SATA Value Endurance SFF 2.5-in Enterprise Boot 3yr Wty Solid State Drive	734366-B21
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6G SATA Value Endurance Hot Plug LFF (3.5-inch) Enterprise Boot Solid State Drives

HP 120GB 6G SATA Value Endurance LFF 3.5-in Enterprise Boot 3yr Wty Solid State Drive	728732-B21
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HP 80GB 6G SATA Value Endurance LFF 3.5-in Enterprise Boot 3yr Wty Solid State Drive	734368-B21
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6G SATA Value Endurance Hot Plug SFF (2.5-inch) Enterprise Value Solid State Drives

HP 800GB 6G SATA Value Endurance SFF 2.5-in Enterprise Value 3yr Wty Solid State Drive	728743-B21
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HP 480GB 6G SATA Value Endurance SFF 2.5-in Enterprise Value 3yr Wty Solid State Drive	728739-B21
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HP 240GB 6G SATA Value Endurance SFF 2.5-in Enterprise Value 3yr Wty Solid State Drive	728735-B21
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6G SATA Value Endurance Hot Plug LFF (3.5-inch) Enterprise Value Solid State Drives

HP 800GB 6G SATA Value Endurance LFF 3.5-in Enterprise Value 3yr Wty Solid State Drive	728745-B21
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HP 480GB 6G SATA Value Endurance LFF 3.5-in Enterprise Value 3yr Wty Solid State Drive	728741-B21
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HP 240GB 6G SATA Value Endurance LFF 3.5-in Enterprise Value 3yr Wty Solid State Drive	728737-B21
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6G SATA ME Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives

HP 800GB 6G SATA Mainstream Endurance SFF 2.5-in Enterprise Mainstream 3yr Wty Solid State Drive	730065-B21
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HP 400GB 6G SATA Mainstream Endurance SFF 2.5-in Enterprise Mainstream 3yr Wty Solid State Drive	730063-B21
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HP 200GB 6G SATA Mainstream Endurance SFF 2.5-in Enterprise Mainstream 3yr Wty Solid State Drive	730061-B21
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HP 100GB 6G SATA Mainstream Endurance SFF 2.5-in Enterprise Mainstream 3yr Wty Solid State Drive	730059-B21
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HPE SSD SAS Drives

6G SAS ME Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives

HP 800GB 6G SAS Mainstream Endurance SFF 2.5-in Enterprise Mainstream 3yr Warranty Solid State Drive	690823-B21
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HP 400GB 6G SAS Mainstream Endurance SFF 2.5-in ENT Mainstream 3yr Warranty Solid State Drive	690821-B21
HP 200GB 6G SAS Mainstream Endurance SFF 2.5-in Enterprise Mainstream 3yr Warranty Solid State Drive	690819-B21
6G SAS MLC Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives	
HP 800GB 6G SAS MLC SFF (2.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653109-B21
HP 400GB 6G SAS MLC SFF (2.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653105-B21
HP 200GB 6G SAS MLC SFF (2.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	658478-B21
3G SATA MLC Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives	
HP 400GB 3G SATA MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636597-B21
HP 200GB 3G SATA MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636595-B21
HP 100GB 3G SATA MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636593-B21
3G SATA MLC Non-hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives	
HP 400GB 3G SATA MLC SFF (2.5-inch) Non-hot plug Enterprise Mainstream 3yr Wty Solid State Drive	636605-B21
HP 200GB 3G SATA MLC SFF (2.5-inch) Non-hot plug Enterprise Mainstream 3yr Wty Solid State Drive	636601-B21
HP 100GB 3G SATA MLC SFF (2.5-inch) Non-hot plug Enterprise Mainstream 3yr Wty Solid State Drive	636599-B21
3G SATA MLC Hot Plug LFF (3.5-inch) Enterprise Mainstream Solid State Drives	
HP 400GB 3G SATA MLC LFF (3.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636611-B21
HP 200GB 3G SATA MLC LFF (3.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636609-B21
HP 100GB 3G SATA MLC LFF (3.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636607-B21
6G SAS SLC Hot Plug Enterprise Performance Solid State Drives	
HP 400GB 6G SAS SLC SFF (2.5-inch) Enterprise Performance 3yr Warranty Solid State Drive	632494-B21
HP 200GB 6G SAS SLC SFF (2.5-inch) Enterprise Performance 3yr Warranty Solid State Drive	632492-B21
6G SAS MLC Hot Plug Enterprise Performance Solid State Drives	
HP 800GB 6G SAS MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	632506-B21
HP 400GB 6G SAS MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	632504-B21
HP 200GB 6G SAS MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	632502-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

<https://www.hpe.com/h20195/v2/gethtml.aspx?docname=c04154378>

NOTE: Go to the HPE Hard Drive Compatibility table for complete drive compatibility information

(**<http://www.hp.com/products/harddiskdrives>**). Using hard drives in

unsupported configurations will result in voiding the warranty and could result in damage to the drive and/or loss of data.

NOTE: There is a known compatibility issue with some early 3.5" SATA HDD that will make them unable to be used with the SA-P400 controller. Customers should verify that they are not using hard drive part number 332649-002/003 (spare 353042-001), 332650-002/003 (spare 353043-001), or 356536-002/003 (spare 353044-001).

NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

NOTE: Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

HPE Tape Storage

SAS Tape Drives

HP StoreEver LTO-2 Ultrium 448 SAS External Drive DW086A

HP StoreEver LTO-3 Ultrium 920 SAS External Tape Drive EH848A

HP LTO-4 Ultrium 1760 SAS (1) in 1U Rack-mount Kit EH946A

HP StoreEver LTO-4 Ultrium 1840 SAS External Tape Drive EH861A

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.

Tape Autoloaders

HP 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader AK377A

HP 1/8 G2 Ultrium 920 SAS Autoloader AH558A

Tape Libraries

HP MSL2024 1 LTO-4 Ultrium 1760 SAS Tape Library AK378A

HP MSL2024 Ultrium 920 SAS Tape Library AH559A

HP MSL4048 2 LTO-4 Ultrium 1760 SAS Tape Library AK380A

HP StorageWorks MSL4048 Ultrium 920 SAS Tape Library AH560A

HP MSL8096 2 LTO-4 Ultrium 1760 SAS Tape Library AK382A

HP StorageWorks MSL8096 2 Ultrium 920 SAS Tape Library AH561A

SAS Cables for Tape Drives and Automation

HPE SAS Min-Min 1x-2M Cable Assembly Kit AE470A

NOTE:NOTE: Use this cable to connect HPE StorageWorks SAS external tape devices to HPE SAS controllers with external Mini-SAS (SFF8088) connectors.

HPE SAS MIN-MIN 1X-4M Cable Assembly Kit AE465A

NOTE:NOTE: Use this cable to connect HPE StorageWorks SAS external tape devices to HPE SAS controllers with external Mini-SAS (SFF8088) connectors.

HPE StoreEver 2m External Mini-SAS to 4x1 Mini-SAS Cable AN975A

NOTE: One cable is required for every four drives. Use this cable to connect HPE StorageWorks MSL SAS Tape Libraries to Mini-SAS (SFF8088) ports.

NOTE: One cable is required for every four drives. Use this cable to connect HPE StorageWorks MSL SAS Tape Libraries to Mini-SAS (SFF8088) ports.

HPE Cable Options	SAS to Mini SAS Cables	
	HP Mini SAS to Mini SAS 8in Cable Assembly	496012-B21
	HP Mini SAS to Mini SAS 28in Cable Assembly	496013-B21
	HP Mini SAS to Mini SAS 33in Cable Assembly	496014-B21

Technical Specifications

Dimensions	PCIe full-height card Not including bracket 6.6 in x 4.376 in (167.65 mm x 111.15 mm) Including bracket 12.283 in x 4.376 in (312 mm x 111.15 mm)
Disk Drive Transfer rate	6Gb/s SAS (Serial Attached SCSI) 3.0Gb/s SATA (Serial ATA)
SAS Connectors	8 Mini SAS 4i connectors (2 connecting to controller and up to 6 connectors to attach 3 drive cages) 1 Mini SAS 4x connector (for tape attach)
SAS Speed	If attached via 2 cables to a Smart Array P410 Controller or Smart Array P410i Controller the total available bandwidth is 4.8GB/s. If attached via 1 cable to a Smart Array P410 Controller or Smart Array P410i Controller the total available bandwidth is 2.4GB/s.
Logical Drives Supported	Up to 64 logical drives when connected to a Smart Array P410 Controller or Smart Array P410i Controller.
Maximum Logical Drive Capacity	14 TB using 14, 1TB SATA drives in RAID 0
Upgradeable Firmware	NOTE: Via Smart Array P410 Controller or Smart Array P410i Controller. Upgradeable Firmware via HPE Firmware CD or http://www.hp.com/cgi-bin/hpsupport/index.pl

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 HPE 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
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Summary of Changes

Date	Version History	Action	Description of Change
23-Oct-2017	Version 21	Changed	Care Pack naming and Service and Support-Parts and Materials updated.
07-Oct-2016	From Version 19 to 20	Changed	QuickSpecs was rebranded.
10-Sep-2013	From Version 18 to 19	Changed	Hard Drives and Tape Storage were revised.
19-Feb-2013	From Version 17 to 18	Changed	Changes made to the Overview Section and Related Options section.
26-Nov-2012	From Version 16 to 17	Added	Added missing sub-header in Related Options section.
12-Oct-2012	From Version 15 to 16	Changed	Change made to URL in Service and Support section.
14-May-2012	From Version 14 to 15	Changed	Changes were made in the Related Options section.
19-Oct-2011	From Version 13 to 14	Changed	Changes were made in the Related Options section.
26-Sep-2011	From Version 12 to 13	Changed	Changes were made throughout Related Options.
05-Ago-2011	From Version 11 to 12	Changed	Description changes made in the Hard Drives section.
05-Jul-2011	From Version 10 to 11	Changed	Changes made throughout the QuickSpecs.
23-Jun-2011	From Version 9 to 10	Changed	Link was corrected in Service and Support.
06-May-2011	From Version 8 to 9	Changed	Corrected a typo in the first sentence.
05-Oct-2010	From Version 7 to 8	Changed	Warranty was moved into Standard Features and Warranty Upgrade Options was added HPE 450GB and 600GB 6G SAS 10K rpm SFF Dual Port Enterprise Hard Drives were added and various hard drive descriptions were revised in HPE Hard Drives Service and Support was added
27-Apr-2010	From Version 6 to 7	Changed	HPE ProLiant DL380 G7 and DL385 G7 were added to Server Compatibility.
05-Apr-2010	From Version 5 to 6	Changed	SAS Cables for Tape Drives and Automation was completely revised in Related Options SAS to Mini SAS Cables was changed to HPE Cable Options HPE ProLiant DL370 G6 and DL785 G6 were added to Server Compatibility HPE 1TB and 2TB 6G SAS 7.2K rpm LFF Hard Drives were added to SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives
16-Feb-2010	From Version 4 to 5	Changed	Hard Drive descriptions were revised to reflect warranty information.
14-Sep-2009	From Version 3 to 4	Changed	Updated Hard Drives and SAS to Mini SAS Cables in the Related Options section.
13-Jul-2009	From Version 2 to 3	Changed	Revised Key Features, Port, Performance and Capacity in the Standard Features section, added HPE ProLiant DL580 G5 and HPE ProLiant DL785 G5 to Server Compatibility in the Compatibility section, completely revised Hard Drives in the Related Options section, removed HPE StorageWorks 2m and 4m

			External Mini-SAS 3x/1x Split SAS Cables from Tape Storage in the Related Options section and updated Disk Drive Transfer rate in the Technical Specifications section.
15-May-2009	From Version 1 to 2	Removed	HPE StorageWorks DAT160 SAS internal and External Tape Drives, HPE StorageWorks LTO-2 Ultrium 448 SAS Internal Tape Drive, HPE StorageWorks LTO-3 Ultrium 920 SAS Internal Tape Drive, HPE StorageWorks LTO-4 Ultrium 1760 SAS Internal and External Tape Drives and HPE StorageWorks LTO-4 Ultrium 1840 SAS Internal Tape Drive from Tape Solutions in the Related Options section.






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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.

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