# QuickSpecs
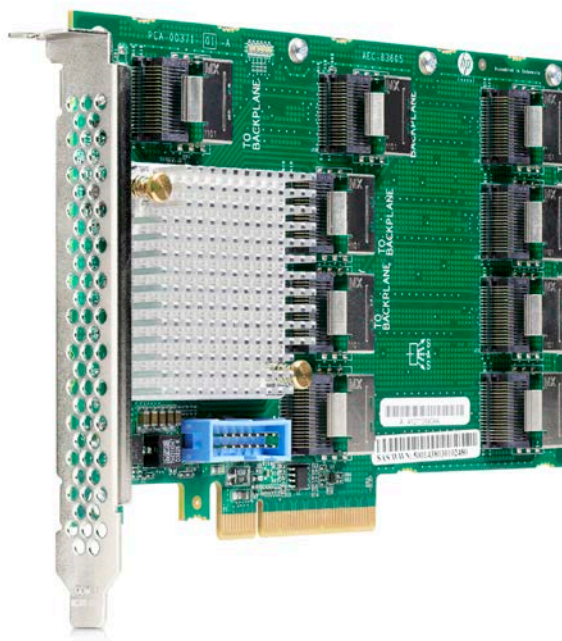
## Overview

### HPE Smart Array P430 Controller

The HPE Smart Array P430 Controller is a low profile, PCIe3 x8, 12Gb/s capable Serial Attached SCSI (SAS) RAID controller that provides enterprise class storage performance and data protection for select HPE ProLiant Gen8 rack and tower servers. It features eight internal physical links and delivers increased server uptime by providing advanced storage functionality, including online RAID level migration (between any RAID levels) with flash back write cache, global online spare, and pre-failure warning. Data compatibility between HPE Smart Array Controllers means customers can easily upgrade to future Smart Array Controllers.



### What's New
- HPE Smart Array P430 controller with 4GB Flash Backed Write Cache kit with battery
- HPE Secure Encryption is supported on P430 as an option
- 12Gb/s SAS performance when used on a DL580 Gen8 with 12Gb/s devices (SSDs or HDDs)

### Models

| | | |
|---|---|---|
| **HPE Smart Array P430 Controller** | HPE Smart Array P430/2GB FBWC 12Gb 1-port Int SAS Controller | 698529-B21 |

## Standard Features

**The Smart Array Advantage**

HPE's innovative design and integration work of the Smart Array family of products 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 most current shipping Smart Array controllers allows simple and easy upgrades any time as 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**. Most current shipping 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.

**SmartDrive Carrier** form factor is used across multiple Hewlett Packard Enterprise servers. 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.

**Key Features**

- The SA-P430 Controller supports up to 27 drives depending on the server implementation.
- Seamless upgrades from past generations and upgrades to next generation HPE high performance and high capacity Serial Attached SCSI Smart Array controllers.
- 12Gb/s SAS performance when used on a DL580 Gen8 with 12Gb/s devices (SSDs or HDDs)
- 6Gb/s SAS technology delivers high performance and data bandwidth and contains full compatibility with 6Gb/s SATA technology.
- PCI Express Gen3 x8 link width delivers high performance and data bandwidth up to 8 GT/s theoretical maximum bandwidth
- 2 or 4 GiBytes Flash Backed Write Cache (FBWC) provides read ahead caching and write back caching with indefinite write cache data retention in the case of unexpected power outage
- Standard on the P430 are RAID 6 ADG, RAID 60 ADG, RAID 1 ADM, Capacity Expansion, mirror split, recombine, and rollback in Online Mode, Drive Erase, Performance Optimization-Degraded Reads and Read Coalescing, Move/Delete any individual LUNS and Online Split Mirror.
- Capable of supporting both legacy and UEFI boot operation on a DL580 Gen8 server
- The HPE SSD Smart Path feature included in the Smart Array software stack improves SSD read for all RAID levels and RAID 0 write operations by optimizing the path to each SSD attached to the controller
- The HPE SmartCache feature (HPE Smart Cache license is required on P430) is a controller-based read caching solution in a DAS environment that caches the most frequently accessed data ("hot" data) onto lower latency SSDs to dynamically accelerate application workloads.
- The HPE Secure Encryption, available as an option, is a Smart Array controller-based data encryption solution for ProLiant Gen 8 servers that protect sensitive, mission critical data.
- Mix-and-match SAS and SATA hard drives lets you deploy drive technology as needed to fit your computing environment.
- Software consistency on most current shipping Smart Array products: HPE Smart Storage Administrator, HPE Systems Insight Manager (SIM), and HPE Intelligent Provisioning. The HPE Smart Storage Administrator configures and manages a host of Smart Array Controllers and other storage devices using a single interface. It replaces the HPE Array Configuration Utility (ACU) with an updated design and configuration enhancements.
- Low-profile PCI Express form factor - ships with a full size and a low profile bracket for deployment flexibility based on slot availability.

## Standard Features

| | |
|---|---|
| **Management Features** | • Online array expansion |
| | • Online capacity expansion |
| | • Online logical drive extension |
| | • Online RAID level migration |
| | • Online stripe size migration |
| | • Online mirror split, recombine and rollback |
| | • Online and high performance offline Rapid Parity Initialization (RPI) |
| | • Unlimited global online spare assignment |
| | • User selectable expand and rebuild priority |
| | • User selectable RAID level and stripe size |
| | • User selectable read and write cache sizes |
| | • Supports Predictive Spare Activation |

**Ports**
- Eight (8) SAS physical links on 1 internal x8 Mini-SAS double-wide connector

**Performance**
- 12Gb/s SAS (1200 MB/s theoretical bandwidth per physical lane) on a DL580 Gen8
- 6Gb/s SAS (600MB/s theoretical bandwidth per physical lane)
- x8 6Gb/s SAS physical lane (compatible with 6Gb/s SATA )
- 2 GiBytes 72-bit wide DDR3-1600MHz Flash Back Write Cache provides up to 12.8GB/s maximum cache bandwidth or 4 GiBytes 72-bit wide DDR3-1866 Flash Back Write Cache provides up to 14.9GB/s maximum cache bandwidth
- PCI Express Gen3 x8 link width
- Read ahead caching
- Write-back caching

**Availability**

Provides increased server uptime by providing advanced storage functionality:

- Online RAID level migration between any RAID levels
- Online stripe size migration
- Online capacity expansion
- Online logical drive extension
- Online active drive replacement
- Online drive firmware upgrade
- Unlimited global online spare
- Pre-Failure Warranty

**Fault Prevention**

The following features offer detection of possible failures before they occur, allowing preventive action to be taken:

- S.M.A.R.T.: Self Monitoring Analysis and Reporting Technology first developed at HPE detects possible hard disk failure before it occurs, allowing replacement of the hard drive before a real failure occurs.
- Drive Parameter Tracking monitors drive operational parameters, predicting failure and notifying the administrator.
- Dynamic Sector Repairing continually performs background surface scans on the hard disk drives during inactive periods and automatically remaps bad sectors, ensuring data integrity.
- Smart Array Cache Tracking monitors integrity of controller cache, allowing pre-failure preventative maintenance.

**Fault Tolerance**
Keeps data available and server running while a failed drive is being replaced; several fault tolerance

## Standard Features

configurations are supported including:

- **RAID 6** (Advanced Data Guarding): Supported with a minimum of 4 drives. This allocates two sets of parity data across drives. This level of fault tolerance can withstand a double drive failure without downtime or data loss.
- **RAID 60**: Supported with a minimum of 8 drives. This volume is composed of two or more RAID 6 sub-volumes (parity groups) where data is striped across each parity group as if it were a single physical drive. Each RAID 6 parity group can sustain up to two drive failures without incurring data loss.
- **RAID 5** (Distributed Data Guarding): Supported with a minimum of 3 drives. This allocates one set of parity data across drives. This level of fault tolerance can withstand a single drive failure without downtime or data loss.
- **RAID 50**: Supported with a minimum of 6 drives. This volume is composed of two or more RAID 5 sub-volumes (parity groups) where data is striped across each parity group as if it were a single physical drive. Each RAID 5 parity group can sustain a single drive failure without incurring data loss.
- **RAID 1 & 10** (Drive Mirroring): Supported with a minimum of 2 drives. This allocates half of the drive array to the data and the other half to the mirrored data, providing two copies of the data.
- **RAID 1 ADM & 10 ADM** (Advanced Data Mirroring): Supported with a minimum of 3 drives. RAID 1 ADM creates redundant copies of the data using 3 drives. RAID 10 ADM stripes data across two or more sets of RAID 1 ADM volumes. This level of fault tolerance can withstand a double drive failure within a RAID 1 ADM volume without downtime or data loss.

**Fault Recovery**   Minimizes downtime, reconstructs data, and facilitates a quick recovery from drive failure

- 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.
- On-Line Spares: There is no limit to the number of spare drives that can be installed prior to drive failure. If a failure occurs, recovery begins with an On-Line Spare and data is reconstructed automatically.
- DRAM ECC detects and corrects data bit errors

**Ease of Use**   Consistency and upgradeability on most current shipping Smart Array products make them unique in the industry:

- GUI based configuration, management and diagnostic software tools with the HPE Smart Storage Administrator
- Common data format between generations of products
- Data migration between servers and external Modular Smart Array enclosures and Disk Enclosures

**HPE SSD Smart Path**   The HPE SSD Smart Path feature included in the Smart Array software stack improves Solid State Disk (SSD) read performance. With up to 4x better SSD read performance, HPE SSD Smart Path chooses the optimum path to the SSD and accelerates reads for all RAID levels and RAID 0 writes. HPE SSD Smart Path requires updated firmware, drivers, and configuration utility available at: **http://www.hp.com/go/hpssa**. HPE SSD Smart Path is ideal for read intensive workloads and is included as a base feature on HPE Smart Array P-series controllers. The following operating systems are supported by the HPE SSD Smart Path feature:" Microsoft Windows Server 2008

- Microsoft Windows Server 2008 R2

## Standard Features

- Microsoft Windows Server 2012
- Red Hat Enterprise Linux 6.1, 6.2, 6.3, 6.4, and 6.5
- SUSE Linux Enterprise Server 11 (SP1, SP2, SPA)
- VMware ESXi 5.0 U3
- VMware vSphere 5.1 U2 and vSphere 5.5

**HPE SmartCache**

The HPE SmartCache feature is a controller-based read caching solution in a DAS environment that caches the most frequently accessed data ("hot" data) onto lower latency SSDs to dynamically accelerate application workloads. The HPE SmartCache architecture is flexible and supports any HPE ProLiant Gen8 supported HDD for bulk storage and any HPE ProLiant Gen8 supported SSD as an accelerator.

HPE SmartCache is deployed and managed using the HPE SmartStorage Administrator (HPE SSA).

The basic HPE SmartCache architecture is comprised of the following three elements:

- **Bulk storage**: The first element is the bulk storage device, which is any supported HDD attached to the HPE Smart Array controller.
- **Accelerator**: The second element, the accelerator, is a faster/lower latency SSD device that caches data.
- **Metadata**: The final element is metadata, information held in the FBWC that maps the location of information residing on the accelerator and bulk storage devices.

For more information please visit: **http://www.hp.com/go/smartcache**

**HPE Secure Encryption**

HPE Secure Encryption is a Smart Array controller-based data encryption solution for ProLiant Gen 8 servers that protects sensitive, mission critical data. This is an enterprise-class encryption solution for data at rest on any bulk storage attached (with the exception of tape or external arrays such as P2000 and MSA 2040) to the supported HPE Smart Array Px3x family of controllers including data on the cache memory of the controller.

The solution is available for both local and remote key management mode deployments. Local Key Management Mode is focused on single server deployment where there is one Master key per controller that is managed by the user. All volumes still have their own unique key(s) for data encryption. Remote Key Management Mode is for enterprise wide deployments and requires HPE Integrated Lights Out (iLO) Advanced or Scale Out editions v 1.40 or later and HPE Enterprise Secure Key Manager (ESKM) 3.1 or any later release. The HPE ESKM manages all the encryption deployments from just a few servers to thousands of servers and 2 million keys per HPE ESKM 3.1 cluster.

For more information please visit **http://www.hp.com/go/hpsecureencryption**

**Warranty**

The warranty for this device is 3-years parts only.

**Pre-Failure Warranty**: Drives attached to the Smart Array Controller and monitored under Insight Manager are supported by a Pre-Failure (replacement) Warranty. For complete details, consult the HPE Support Center or refer to your HPE Server Documentation.

**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 to which this product attaches.

## Compatibility

**Server Support**        For up to date compatibility, please see the following URL for complete Smart Array Controller compatibility and support information: **http://www.hp.com/go/smartarray**

**Operating Systems**     Microsoft Windows Server 2008 R2

Microsoft Windows Server 2012

Red Hat Enterprise Linux 5 (x64 & x86)

Red Hat Enterprise Linux 6 (x64 & x86)

SUSE Linux Enterprise Server 11 (x64 & x86)

VMware ESXi 5.0 U2

VMware ESXi 5.1 U1

VMware vSphere 5.5

**NOTE:** For more information on HPE's Certified and Supported ProLiant Servers for OS and Virtualization Software and the latest listing of software drivers available for your server and Smart Array RAID controller, please visit our Support Matrix at:

**http://www8.hp.com/us/en/products/servers/management/operating-environments/os-support-matrix.html**

**Software Suite**        Most current shipping Smart Array products share a common set of configuration, management and diagnostic tools, including HPE Smart Storage Administrator and HPE Systems Insight Manager. This software consistency of tools reduces the cost of training for each successive generation of product and takes much of the guesswork out of troubleshooting field problems. These tools lower the total cost of ownership by reducing training and technical expertise necessary to install and maintain HPE server storage.

**HPE Systems Insight Manager**

- Powerful server and server options/storage manager tool
- Monitors over 1200 system wide parameters
- Configuration/Diagnostic Utilities

**HPE Smart Storage Administrator**

- Comprehensive management for HPE Smart Storage products
- Simplified and intuitive interface and functionality
- Advanced scripting and diagnostic features

For more information please visit: **http://www.hp.com/go/hpssa**

# Service and Support

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| **Service and Support** | **HPE Technology Services**<br>Capitalizing on HPE ProLiant server and HPE BladeSystem capabilities requires a service partner who understands your increasingly complex business technology environment. That's why it makes sense to team up with the people who know Hewlett Packard Enterprise infrastructure hardware and software best - the experienced professionals at HPE Services.<br><br>**Protect your business beyond warranty with HPE Pointnext operational services**<br>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.<br><br>HPE Foundation Care services offer scalable reactive support-packages for Hewlett Packard Enterprise servers and software. You can choose the type and level of service that is most suitable for your IT and business needs. HPE Proactive Care delivers high levels of system availability through proactive service management and advanced technical response. |

## Recommended HPE Pointnext operational services for your HPE product

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| **Optimized Care** | **3-Year HPE 6 hour Call to Repair Response, Proactive Care**<br>Combined reactive and proactive support for hardware and software helping optimize your systems and delivering high levels of availability through proactive service management and advanced technical response. Hardware problem resolution to return the hardware in operating condition within 6 hours of the initial service request. A Technical Account Manager, as your single point of contact, will own your call or issue end to end until resolved.<br>**https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855EEE.pdf**<br><br>**HPE Installation of ProLiant Add On Options Service**<br>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. |
| **Standard Care** | **3-Year HPE 24x7 4 hour response, Proactive Care Service**<br>This service gives you combined reactive and proactive support including rapid access to our Advanced Solution Center to manage and prevent problems and a Technical Support Specialist with a broad level of technical knowledge that will engage with additional technical expertise as needed from HPE's vast global resources.<br>**https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855EEE.pdf**<br><br>**HPE Installation of ProLiant Add On Options Service**<br>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 Services** | **HPE Proactive Care Personalized Support - Environmental Option**<br>The Personalized Support option provides an assigned Account Support Manager who can bring best practices from across the industry plus extra technical skills to your IT team. This option is only available as an add-on to HPE Proactive Care Support<br><br>**HPE Proactive Select Service**<br>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** |

## Service and Support

**NOTE:** Additional HPE Pointnext operational services can be found at: **http://hp.com/go/cpc**

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| **Insight Online/Insight Remote Support** | HPE Insight Remote Support provides 24 X 7 remote monitoring, proactive notifications, and problem resolution. This comes at no additional cost with your HPE solution. Learn more about Insight Remote Support **http://www.hp.com/go/insightremotesupport** and Insight Online **http://h18013.www1.hp.com/products/servers/management/insight-online/index.html**. |
| **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 HPE 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. |
| **For more information** | To learn more on services for HPE ProLiant Servers, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Or visit: **http://www.hp.com/services/proliant**. |

## Related Options

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

| HPE Hard Drives | | |
|---|---|---|
| | **SAS Hot Plug with SmartDrive SFF (2.5-inch) Enterprise Drives** | |
| | HP 900GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive | 652589-B21 |
| | HP 600GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive | 652583-B21 |
| | HP 450GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive | 652572-B21 |
| | HP 300GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive | 652564-B21 |
| | HP 300GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive | 652611-B21 |
| | HP 146GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive | 652605-B21 |
| | **SAS Hot Plug SmartDrive SFF (2.5-inch) Midline Drives** | |
| | HPE 1TB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive | 652749-B21 |
| | HPE 500GB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive | 652745-B21 |
| | **SAS Hot Plug SmartDrive LFF (3.5-inch) Enterprise Drives** | |
| | HP 600GB 6G SAS 15K rpm LFF (3.5-inch) SC Enterprise 3yr Warranty Hard Drive | 652620-B21 |
| | HP 450GB 6G SAS 15K rpm LFF (3.5-inch) SC Enterprise 3yr Warranty Hard Drive | 652615-B21 |
| | **SAS Hot Plug SmartDrive LFF (3.5-inch) Midline Drives** | |
| | HP 4TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive | 695510-B21 |
| | HP 3TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive | 652766-B21 |
| | HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive | 652757-B21 |
| | HP 1TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive | 652753-B21 |
| | **HPE SAS Hot Plug Drives** | |
| | 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 |
| | **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 4TB 6G SAS 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive | 693689-B21 |
| | HP 3TB 6G SAS 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive | 625031-B21 |

# Related Options

| | |
|---|---|
| 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 |

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:
**https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111744**

### 6G SATA Hot Plug with SmartDrive SFF (2.5-inch) Midline (MDL) Drives

| | |
|---|---|
| HPE 1TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty Digitally Signed Firmware HDD | 655710-B21 |
| HPE 500GB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive | 655708-B21 |

### 6G SATA Hot Plug with SmartDrive LFF (3.5-inch) Midline (MDL) Drives

| | |
|---|---|
| HPE 4TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty HDD | 693687-B21 |
| HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive | 628061-B21 |
| HPE 2TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty HDD | 658079-B21 |
| HPE 1TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty HDD | 657750-B21 |
| HPE 500GB SATA 6G Midline 7.2k LFF (3.5in) SC 1yr Wty HDD | 658071-B21 |

### 6G SATA Non-hot Plug LFF (3.5-inch) Midline (MDL) Drives

| | |
|---|---|
| HPE 3TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive | 628065-B21 |
| HPE 2TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive | 659339-B21 |
| HPE 1TB SATA 6G Midline 7.2K LFF (3.5in) RW 1yr Wty HDD | 659337-B21 |
| HPE 500GB SATA 6G Midline 7.2K LFF (3.5in) RW 1yr Wty HDD | 659341-B21 |

### HPE SATA Hot Plug Hard Drives

### 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 |

**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**

# Related Options

**HPE Solid State Drives**

**12G SAS Enterprise Performance Solid State Drives**

| | |
|---|---|
| HP 800GB 12G SAS High Endurance SFF 2.5-in SC Enterprise Performance 3yr Wty Solid State Drive | 741159-B21 |
| HP 400GB 12G SAS High Endurance SFF 2.5-in SC Enterprise Performance 3yr Wty Solid State Drive | 741155-B21 |
| HP 200GB 12G SAS High Endurance SFF 2.5-in SC Enterprise Performance 3yr Wty Solid State Drive | 741151-B21 |

**12G SAS Enterprise Mainstream Solid State Drives**

| | |
|---|---|
| HP 800GB 12G SAS Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 741146-B21 |
| HP 400GB 12G SAS Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 741142-B21 |
| HP 200GB 12G SAS Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 741138-B21 |

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

| | |
|---|---|
| HP 800GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 691868-B21 |
| HP 400GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 691866-B21 |
| HP 200GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 691864-B21 |
| HP 100GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 691862-B21 |

**6G SATA ME Hot Plug SFF (3.5-inch) Enterprise Mainstream Solid State Drives**

| | |
|---|---|
| HP 800GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 691860-B21 |
| HP 400GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 691856-B21 |
| HP 200GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 691854-B21 |
| HP 100GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 691852-B21 |

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

| | |
|---|---|
| HP 400GB 6G SAS Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 690827-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:** 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.

## Related Options

| HPE Cable Options | **Internal SAS Cables for P430** | |
|---|---|---|
| | HP Internal SAS 68-pin SFF-8087 2x36-pin SFF-8087 Left Exit Cable<br>**NOTE:** This cable is for DL360p Gen8 and DL360p Gen8 SE SFF models. HPE Smart Array P430 is supported in the x16 PCIe slot. See server QuickSpecs for details. | 730603-B21 |
| | HP Internal SAS 68-pin SFF-8087 1x36-pin SFF-8087 Left Exit Cable<br>**NOTE:** This cable is for DL360p Gen8 LFF model. See server QuickSpecs for details. | 730612-B21 |
| | HP P430 Enablement Cable Kit<br>**NOTE:** This cable is for SL270s Gen8 server. See server QuickSpecs for details. | 740024-B21 |
| | HP SL210t Gen8 P430 Cable Kit<br>**NOTE:** This cable is for SL210t Gen8 server. See server QuickSpecs for details. | 718409-B21 |
| | HP ML350p Gen8 Smart Array Cable Kit<br>**NOTE:** This cable is for ML350p Gen8 server. See server QuickSpecs for details. | 725675-B21 |
| | HP 6G SAS P430/830 Primary Cable Kit<br>**NOTE:** This cable is for DL380p and DL385p Gen8 8SFF model. See server QuickSpecs for details. | 729278-B21 |
| | HP 6G SAS P430/830 Secondary Cable Kit<br>**NOTE:** This cable is for DL380p and DL385p Gen8 8SFF model. See server QuickSpecs for details. | 729276-B21 |
| | HP DL38Xp Gen8 12 Large Form Factor (LFF) P430/830 Cable Kit<br>**NOTE:** This cable is for DL380p and DL385p Gen8 12LFF model. See server QuickSpecs for details. | 729272-B21 |
| | HP DL38Xp Gen8 25 Small Form Factor (SFF) P430/830 Cable Kit<br>**NOTE:** This cable is for DL380p, DL385p Gen8 25SFF model, and DL560 Gen8. See server QuickSpecs for details. | 729274-B21 |
| HPE SmartCache | HPE Smart Array SR SmartCache (Single Key/Single Server) LTU<br>NOTE:NOTE: This part number can be used to purchase a single license or to order multiple licenses with a unique activation key per server. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Include one year of 24x7 HPE Software Technical Support Services. | D7S26A |
| | HPE Smart Array SR SmartCache (Single Key/Multiple Servers) LTU<br>NOTE:NOTE: This part number can be used to purchase a single license or to order multiple licenses with a single activation key. Customers will receive a license entitlement certificate via e-mail. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Include one year of 24x7 HPE Software Technical Support Services. | D7S27A |
| | HPE Smart Array SR SmartCache (Single Key/Multiple Servers) E-LTU<br>NOTE:NOTE: This part number can be used to purchase multiple licenses with a single activation key. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24x7 HPE Software Technical Support Services. | D7S27AAE |
| | **NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:<br>**https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04123148**<br>(Worldwide) | |

## Related Options

For more information visit: **http://www.hp.com/go/smartcache**

**HPE Secure Encryption**

**NOTE:** HPE Secure Encryption licensing is based on the number of physical drives requiring encryption.

| | |
|---|---|
| HP Secure Encryption No Media E-LTU per Drive | D8S85AAE |
| HP Secure Encryption No Media Flexible License per Drive | D8S84A |

**NOTE:** Electronic licenses are the recommended license delivery mechanism for HPE Secure Encryption

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:
**https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04318075**
For more information visit: **http://www.hp.com/go/hpsecureencryption**

# Technical Specifications

| | |
|---|---|
| **Dimensions**<br>(not including bracket) | Low Profile PCIe Form Factor<br>7.5 in x 9.5 in x 2.25 in (19.05 cm x 24.13 cm x 5.72 cm) |
| **Disk Drive and Enclosure Interface - Transfer rate** | 12Gb/s SAS (Serial Attached SCSI) capable<br>6Gb/s SAS (Serial Attached SCSI)<br>6Gb/s SATA (Serial ATA) |
| **SAS Connectors** | 1 internal x8 Mini-SAS double-wide connector |
| **SAS Port Link Rate** | 6Gb/s per physical link supported; 12Gb/s per physical link capable |
| **PCIe Link Rate** | PCIe3 x8 |
| **Cache Memory Speed** | DDR3-1600MHz, 72-bit wide bus at 12.8GB/s (2 GiBytes cache module)<br>DDR3-1866MHz, 72-bit wide bus at 14.9GB/s (4 GiBytes cache module) |
| **Physical Drives Supported** | Up to 27 physical drives |
| **Logical Drives Supported** | Up to 64 logical volumes |
| **Host Memory Addressing** | 64-bit, supporting greater than 4GiB (or 4.4 GB) server memory space |
| **RAID Support** | RAID 6, 60 (Advanced Data Guarding)<br>RAID 5, 50 (Distributed Data Guarding)<br>RAID 1, 10 (Drive Mirroring)<br>RAID 1 ADM, 10 ADM (Advanced Data Mirroring)<br>RAID 0 (Striping) |
| **Upgradeable Firmware** | Upgradeable Firmware with recovery ROM feature |

| | | |
|---|---|---|
| **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-lPA_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 Hewlett Packard Enterprise 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-lPA_krKiM** |

## Summary of Changes

| Date | Version History | Action | Description of Change |
|---|---|---|---|
| 23-Oct-2017 | From Version 5 to 6 | Changed | Care Pack naming and Service and Support- Parts and Materials updated. |
| 23-Oct-2017 | From Version 4 to 5 | Changed | QuickSpecs updated. |
| 10-Jun-2014 | From Version 3 to 4 | Changed | Updates made to HPE Hard Drives section. |
| | | Removed | HPE Smart Array P430/4GB FBWC 6Gb 1-port Int SAS Controller was removed from Models overview. |
| 31-Mar-2014 | From Version 2 to 3 | Changed | Hard Drives were revised. |
| 18-Feb-2014 | From Version 1 to 2 | Changed | Changes made to the What's New section: HPE Smart Array P430 controller with 4GB Flash Backed Write Cache kit with battery. HPE Secure Encryption is supported on P430 as an option. Added the HPE Secure Encryption section. |

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