QuickSpecs

Product Highlights

Manage your small and midrange business growing storage needs by deploying the next generation 12Gb SAS low cost, flexible tiered external storage system. Ideal for small application environments in SMBs, remote offices and departmental locations as well as tier 2 or 3 storage for enterprise customers. The new 12Gb SAS enclosures - Large Form Factor (LFF) D3600 with 12 drive bays and Small Form Factor (SFF) D3700 with 25 drive bays - offer modular solutions to simplify capacity expansion of HP ProLiant server environments to external storage without having to make the full move to SAN or NAS. This allows you to buy what is needed today and purchase additional capacity as data storage needs grow.

The D3000 enclosures support direct attach storage to ProLiant Servers with the HP Smart Array P421, P431or the P822 Controllers. Blade 6Gb SAS connectivity is enabled using a HP Smart Array P721m and P731m Controllers, 6Gb SAS BL Switches and the D3000 enclosures. HP H221 and the H222 Host Bus Adapters are also supported with the D3600/D3700 Enclosures.

The HP D3000 Enclosures support HP SmartDrive Carrier (Gen8 HP ProLiant drives). Total support can grow as needed to up to 96 LFF drives or 200 SFF drives.
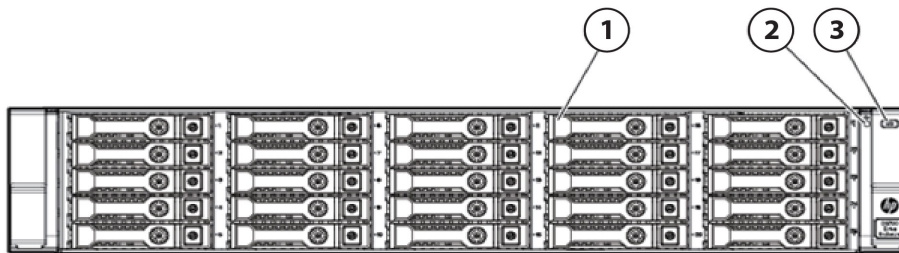
What's New

- 2U, 12Gb SAS D3600 (LFF) and D3700 (SFF) Enclosures
- D3600/D3700 + HDD Bundles
- HP SmartDrive Carrier (Gen8 HP ProLiant drives) support
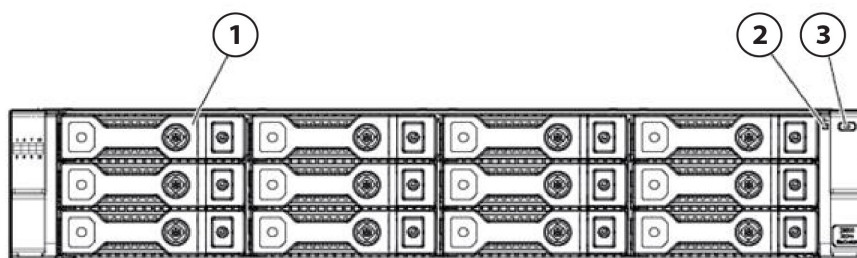- 12Gb Solid State Drive Support for 6G SATA (Hard drives and Solid State Drives)

Models

HP D3000 Enclosures	HP D3600 Enclosure	QW968A
	HP D3700 Enclosure	QW967A

HP D3600 Enclosure + Hard Drive Bundles	HP D3600 w/12 2TB 6G SAS 7.2K LFF(3.5in) Midline Smart Carrier HDD 24TB Bundle	B7E36A
	HP D3600 w/12 3TB 6G SAS 7.2K LFF(3.5in) Midline Smart Carrier HDD 36TB Bundle	B7E37A
	HP D3600 w/12 4TB 6G SAS 7.2K LFF(3.5in) Midline Smart Carrier HDD 48TB Bundle	B7E38A

HP D3700 Enclosure + Hard Drive Bundles	HP D3700 w/25 300GB 6G SAS 10K SFF(2.5in) ENT Smart Carrier HDD 7.5TB Bundle	B7E39A
	HP D3700 w/25 600GB 6G SAS 10K SFF(2.5in) ENT Smart Carrier HDD 15TB Bundle	B7E40A
	HP D3700 w/25 1.2TB 6G SAS 10K SFF(2.5in) ENT Smart Carrier HDD 30TB Bundle	B7E41A
	HP D3700 w/25 1TB 6G SAS 7.2K SFF(2.5in) Midline Smart Carrier HDD 25TB Bundle	B7E42A
	HP D3700 w/25 300GB 6G SAS 15K SFF(2.5in) ENT Smart Carrier HDD 7.5TB Bundle	C8S05A

Product Highlights
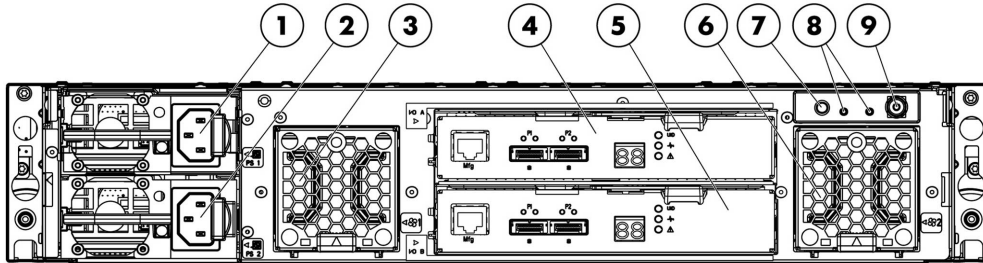

HP D3700 Enclosure (SFF)

HP D3600 Enclosure (LFF)

HP D3000 Enclosure (Large and Small Form factor Features)
1. Disk drive in bay 1

Product Highlights

2. System health LED
3. UID push button and LED

HP D3000 Enclosure (Large and Small Form factor Features)
Rear Panel components
NOTE: The I/O modules for both the HP D3600 LFF and HP D3700 SFF enclosures share the same layout

1. Metal cover with fan module ID
   NOTE: A pull tab is provided for label placement.
2. Fan
3. I/O Module A
4. I/O Module B
5. Fan

6. Rear UID push button
7. Rear system health ID
8. Power Supply
9. Power Supply

At a Glance

Affordable, low cost Storage	• Purchase only what you need today and avoid up-front costs. Modular platform provides investment protection and by purchasing only what is needed today, allows for growth as storage requirements evolve. Buying storage only when needed simplifies planning and relieves budget pressures.
	• HP D3700: Maximum storage capacity of 30 TB SAS (1.2 TB SAS), 25 TB SAS MDL (1TB SAS MDL) or SATA (1TB SATA MDL) per enclosure scalable to 240 TB SAS, 200 TB SAS MDL or SATA (dependent on the Smart Array Controller). The D3700 also supports SAS and SATA Solid State Drives (SSD) . Number of Solid State drives is limited to twenty five (25) SSDs per controller.
	• HP D3600: Maximum storage capacity of 7.2 TB SAS (600GB SAS) or 48 TB SAS MDL or SATA MDL (4TB SAS or SATA HDD) per enclosure scalable to 57.6 TB SAS, or 384 TB SAS MDL or SATA MDL.
	• Enterprise-class dual port SAS or archival-class SATA drives as the need and budget dictates

Flexible/Scalable	• Grow storage capacity easily by attaching up to eight D3600 or D3700 enclosures from a single Controller port, for expansion of up to 8 enclosures or 96 drives with the D3600 or 200 drives with the D3700, allowing for room to grow as storage demands increase behind a single controller/SAS HBA.
	• Smart Array Controllers P421, P431 and P822 support the mixing of the D3600 and the D3700 for expansion, Supports four (4) D3600 and four (4) D3700 (4xLFF and 4xSFF) allowing for expansion up to 148 drives. (total of 8 enclosures in any combination). Flexibility to mix and match SAS and SATA drives in the same enclosure.

Easy to Manage	• Support for HP SmartDrive Carrier (Gen8 HP ProLiant drives)
	• Hassle free expansion - little IT expertise required.
	• Compatible with the latest HP Smart Array SAS controllers (P421, P431, P822, P721m, P731m).
	• Compatible with HP H221 and H222 Host Bus Adapters (HBAs) Familiar ProLiant management tools provided via the Smart Controller - SIM, ACU, ORCA.
	• Easy removal of parts provides better serviceability.

High performance 6Gb SAS host connectivity	• 12Gb SAS host connectivity enables a higher data transfer rate.
	• End-to-end 12Gb SAS connectivity ensures a high performance storage solution using a P421, P431, P822, P721m or the P731m Smart Array controller and the D3000 enclosures. D3600/D3700 is also supported with the HP H221 and the H222 Host Bus adapters (HBA).
	• SAS disk enclosure support for c-Class BladeSystem utilizing the recently introduced HP 6Gb SAS BL Switch with the P721m and the P731m Smart Array Controllers.
	• Since storage is contained within the rack, latency is reduced as data does not travel over large distances.

HP reliability	• Deploy with confidence. HP offers a complete end-to-end storage solution including the D3000 storage enclosures, Smart Array P421, P431, P822, P721m or the P731m Controllers and HP ProLiant Servers
	• Familiar Smart Array technology of the P421, P431, P822, P721m and the P731m Controllers enable support for RAID levels 0, 1, 1+0, 5 and RAID 6 with ADG, 50 and 60. Optional battery-backed write cache.
	• Advanced Data Guarding (RAID 6): This is the highest level of fault tolerance. It allocates two sets of parity data across drives and allows simultaneous write operations. This level of fault tolerance can withstand two simultaneous drive failures without downtime or data loss.
	• Distributed Data Guarding (RAID 5): This allocates parity data across multiple drives and allows simultaneous write operations.

At a Glance

- Receive pre-failure alerts with HP SIM. When drives installed in D3000 disk enclosures are used in conjunction with the P421, P431, P822, P721m and the P731m Smart Array Controller and Systems Insight Manager, the Smart Array firmware in HP hard drives enables extensive fault prediction capabilities. If potential problems develop in one of the drives, the Smart Array Controller, Systems Insight Manager and/or Smart hard disk drive lets you know in advance so you can have the drive replaced, before it fails, under warranty.
- Remove / replace/ add components when system is running without service disruption with hot Plug drives, power and cooling
- Redundant power and cooling provides increased reliability as failure of a power supply or fans does not interrupt system functioning
- Dual domain SAS creates redundant pathways from servers to storage devices. The redundant paths created by these configurations reduce or eliminate single points of failure within the storage network. This provides increased levels of high availability with redundant paths from the controller to the drives. Dual domain SAS implementations make it possible to tolerate host bus adapter (HBA) failure, external cable failure, expander failure, failure in a spanned disk (JBOD) environments.

D3000 Enclosure Components

HP D3000 Enclosures	The HP D3000 Enclosures (hereafter referred to as "D3000") is a family of disk drive storage enclosure with 12Gb SAS host connectivity. The D3000 is a 2U direct attach, external storage solution designed for small to medium size deployments or remote locations. These enclosures deliver industry-leading availability, storage density, and upgradeability to meet customers' demanding and growing storage needs. The D3000 delivers the ideal mix of low-cost and high capacity, for minimum I/O workloads such as reference data, archival, and disk-to-disk backup.

High Levels of Storage Density, Data Protection, and Functionality

- **Storage Capacity** - The SFF D3700 enclosure supports up to 25 (twenty five) 6Gb SFF SAS drives for a maximum capacity of 30 TB with 6G 1.2 TB SAS drives or 25 TB with 1 TB 6G SAS MDL or 1 TB 6G SATA MDL drives. D3700 also supports 6/12G SAS and 6G SATA Solid State Drives. Number of Solid State drives is limited to twenty five (25) per controller.
- The LFF D3600 disk enclosure supports up to 12 (twelve) 6G LFF SAS drives for a maximum capacity of 7.2 TB with 6G 600GB SAS drives or 48 TB with 6G 4 TB SAS MDL or 6G 4TB SATA MDL drives.
- **Data Protection** - D3000 is designed for a high level of data protection. It includes redundant fans and power supplies (standard), and supports various RAID levels including RAID6 with ADG, 50 & 60 (depending upon the Smart Array Controller used)
- **Storage Manageability** - The D3000 features familiar configuration and management tools such as Array Configuration Utility (ACU) and HP Systems Insight Manager (SIM). Online Management Features include: Online Capacity Expansion, Online RAID Level Migration, Online Stripe Size Migration, Online Spares (Global)
- **Choice of Computing Platform** - The D3000 is designed and qualified for HP ProLiant servers
- **Advanced Data Guarding** (RAID 6 with ADG)
- **Fault Tolerance** - It allocates two sets of parity data across drives and allows simultaneous write operations. This level of fault tolerance can withstand two simultaneous drive failures without downtime or data loss.

Low Total Cost of Ownership

The modular, scalable design of the D3000 disk enclosure family provides an extremely flexible platform. You can buy what you need today and purchase additional capacity as your data storage needs grow, instead of making a large up-front investment. Additional drives and enclosures can be easily added as your needs dictate.

- **Cascading** -Both the D3700 and the D3600 have the unique capability of cascading up toeight (8) enclosures behind a single SAS port (depends on the Smart Array Controller).
- **Pre-Failure Warranty -** Drives installed in either the D3600 or the D3700 and monitored under HP Systems Insight Manager are supported by a Pre-Failure (replacement) Warranty (3 years for SAS drives). Pre-Failure Warranty allows for the replacement of designated drives in the D3600 or the D3700 before they actually fail when using HP Systems Insight Manager on HP ProLiant servers. **NOTE:** Some operating systems may not support all of these features.
- **Integrated Configuration and Management Tools** - The D3000 family utilizes the standard, integrated set of Smart Array management and utility software for HP ProLiant Servers. These tools consistently lower the cost of ownership by reducing training and technical expertise necessary to install and maintain HP server storage.

D3000 Enclosure Components

D3000 Disk Enclosures	HP D3600 Disk Enclosure	The 2U array houses up to twelve (12) 3.5 inch HP SmartDrive Carrier (Gen8 HP ProLiant) hot pluggable SAS and SATA drives.

Each D3600 includes the following standard components:

- D3600 base enclosure with redundant power supplies and fan modules
- Two (2) integrated 12Gb SAS IO Modules
- Rack mounting hardware kit
- Two (2) 0.5m HD Mini-SAS cables
- Two (2) PDU interconnect cords

HP D3700 Disk Enclosure — The 2U array houses up to twenty five (25) 2.5 inch HP SmartDrive Carrier (Gen8 HP ProLiant) hot pluggable SAS, SATA and Solid State drives.

Each D3700 includes the following standard components:

- D3700 base enclosure with redundant power supplies and fan modules
- Two (2) integrated 12Gb SAS IO Modules
- Rack mounting hardware kit
- Two (2) 0.5m HD Mini-SAS cables
- Two (2) PDU interconnect cords

HP Smart Array P421 Features

- The HP Smart Array P212 is HP's entry level PCI Express (PCIe) Serial Attached SCSI (SAS) RAID controller
- The Low Profile, Half height card has 8 ports and utilizes DDR2-266 memory
  The P212 is ideal for RAID 0/1, 1+0 and can be upgraded with the 256MB battery-backed write cache (BBWC) module for RAID 5, 5+0
- For more information see:
  http://h18004.www1.hp.com/products/quickspecs/13203_div/13203_div.html

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HP Smart Array P431 Features

- The SA-P431 Controller supports up to 200 physical drives
- The SA-P431 Controller supports the HP D3600 and the HP D3700 Disk Enclosure (up to 8 daisy chained). Seamless upgrades to current or next generation HP high performance and high capacity Serial Attached SCSI Smart Array controllers.
- 12 Gb/s SAS technology delivers high performance and data bandwidth and contains full compatibility with 6 Gb/s SATA technology
- PCI Express Gen3 x8 link width delivers high performance and data bandwidth up to 8GT/s theoretical maximum bandwidth
- 2 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 P431 are RAID 6, RAID 60, 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
- The HP SSD Smart Path feature included in the Smart Array software stack improves SSD reads for all RAID levels and RAID 0 write operations by optimizing the path to each SSD attached to the controller
- The HP SmartCache feature (HP Smart Cache license is required on P431) 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
- Mix-and-match SAS and SATA hard drives lets you deploy drive technology as needed to fit your

D3000 Enclosure Components

computing environment
- For more information see:
  http://h18000.www1.hp.com/products/quickspecs/14625_div/14625_div.pdf

HP Smart Array P822 Features	- Second Generation 6Gb/s SAS Controllers - The SA-P822 Controller supports up to 200 drives - PCIe 3.0 with DDR3-1333 cache. - Write-back caching (with FBWC) - For more information: http://h18000.www1.hp.com/products/quickspecs/14341_div/14341_div.html
Smart Array P721m Features	6Gb/s SAS technology delivers up to 600 MB/s per physical link - Smart Array PCIe mezzanine card that connects to a HP 6Gb/s SAS BL Switch through the c-Class enclosure high-speed mid-plane supporting shared SAS storage. - Four (4) 6Gb/s SAS physical links distributed across 2 external 2x ports to supports up to 2 6Gb/s SAS Switches - Two (2) 6Gb/s SAS physical links distributed across 2 internal 1x ports to support up to 2 6Gb/s SAS HDDs - Software consistency among all Smart Array family products: Array Configuration Utility, Systems Insight Manager, Array Diagnostic Utility (ADU) and SmartStart - For more information see: http://h18000.www1.hp.com/products/quickspecs/14404_div/14404_div.html
Smart Array P731m Features	- Eight (8) 6 Gb/s SAS physical links distributed equally across 4 external 2x ports to support up - to four 6 Gb/s SAS Switches 6 Gb/s SAS technology delivers up to 600 MB/s theoretical bandwidth per physical lane - RAID 0, 1, 10, 5, 50, 6, 60, 1 ADM, 10 ADM - Recovery ROM protects against ROM corruption - HP Smart Cache (HP Smart Cache license is not required on P731m with 2 GiBytes FBWC) - HP SSD Smart Path - PCI Express Gen3 x8 link 2 GiBytes Flash Backed Write Cache (FBWC) provides read ahead caching and write back caching withindefinite write cache data retention in the case of unexpected power outage. - For more information see: http://h18000.www1.hp.com/products/quickspecs/14626_div/14626_div.pdf
HP H221 Host Bus Adapter	- SAS technology delivers high performance and data bandwidth up to 6 Gb/s per physical link - Mix-and-match SAS and SATA hard drives; deploy drive technology as needed - PCIe x8 (4 GB/s bandwidth) - PCIe 2.0 x8 capable on H221 model, PCIe 3.0 x 8 capable on H221 PCIe 3.0 model - For more information see: http://h18004.www1.hp.com/products/quickspecs/14222_div/14222_div.html

D3000 Enclosure Components

HP H222 Host Bus Adapter	• SAS technology delivers high performance and data bandwidth up to 6 Gb/s per physical link • Mix-and-match SAS and SATA hard drives; deploy drive technology as needed • PCIe x8 (8 GB/s bandwidth) • PCIe 3.0 x8 capable • For more information see: http://h18004.www1.hp.com/products/quickspecs/14337_div/14337_div.pdf
6Gb SAS BL Switch	• Hot Pluggable 6Gb/s SAS Switch for HP c-Class BladeSystem • Sixteen internal blade bay ports containing 2x 6Gb/s SAS links • Eight external Mini-SAS ports containing 4x 6Gb/s SAS links • Use the embedded Virtual SAS Manager GUI or CLI interface to zone switch ports or drive bays to server bays. • Supported by c3000 and c7000 c-Class BladeSystem enclosures • For more information see: http://h18000.www1.hp.com/products/quickspecs/13960_div/13960_div.html
HP SmartDrive Carrier (Gen8)	HP SmartDrive Carrier features: • New drive mechanical design • Enhanced display of self-describing icons with intuitive and improved LED function • Hard drive status indicator • Animated drive activity spinner • "Do not remove" indicator reduces logical drive failures due to accidental removal of a drive • Smart carrier authentication to verify that both drive and carrier are HP-qualified options • Drive error log NVRAM with black-box recorder, for better failure analysis and resolution
RAID	Several fault tolerant configurations keep data available and servers running while drives are being replaced - RAID levels that offer fault tolerance include: • **RAID 50 (RAID 5+0)** protects against failure of one drive (and failure of particular multiple drives). RAID 50 is a nested RAID method that uses RAID 0 striping across RAID 5 arrays. RAID 50 tolerates one drive failure in each spanned array without loss of data. RAID 50 requires less rebuild time than single RAID 5 arrays RAID 50 requires a minimum of six drives. • **RAID 60 (RAID 6+0)** allows administrators to split the RAID 6 storage across multiple external boxes. RAID 60 requires a minimum of eight drives. RAID 60 is a nested RAID method that uses RAID 0 block-level striping across multiple RAID 6 arrays with dual distributed parity. With the inclusion of dual parity, RAID 60 will tolerate the failure of two disks in each spanned array without loss of data. • **RAID 6 with ADG**: Allocates the equivalent of two parity drives across multiple drives and allows simultaneous write operations Distributed Data Guarding (RAID 5): Allocates parity data across multiple drives and allows simultaneous write operations. Drive Mirroring (RAID 1 and 1+0 Striped Mirroring): Allocates half of the drive array to data and the other half to mirrored data, providing two copies of every file.

D3000 Enclosure Components

Dual Domain	● Dual domain SAS creates redundant pathways from servers to storage devices. The redundant paths created by these configurations reduce or eliminate single points of failure within the storage network. This provides increased levels of high availability with redundant paths from the controller to the drives. Dual domain SAS implementations make it possible to tolerate external cable failure, expander failure, failure in a spanned disk (JBOD) environments. Requires FW v 3.x

Common Slot Power Supply

The D3000 Disk enclosures use the 460W Common Slot Power supply.

HP's Common Slot Power supplies meet multiple Energy Efficiency Initiatives:

● 460W, 92%: Climate Savers Computing Initiative GOLD and ECOS Consulting 80PLUS GOLD

NOTE: The 80 PLUS program is a unique forum that unites electric utilities, the computer industry, and consumers in an effort to bring energy efficient technology solutions to the marketplace. 80 Plus independently tests power supply efficiency and publicly posts the results on 80Plus.org.

HP D3000 Enclosure Components

Utilities	The D3000 disk enclosure family utilizes a single, consistent set of utility software for storage and RAID management, setup, configuration and troubleshooting. This consistency reduces the cost of ownership by reducing the training and technical expertise necessary to install and maintain your HP server storage solution.

Configuration Utilities	Array Configuration Utility (ACU) [On-line for Microsoft and Linux, Remote Web-Based & Off-line] Option ROM Configuration for Arrays (ORCA), NetWare ACU CPQONLIN (only online support no Web based support)
Management/Health Utilities	HP Systems Insight Manager
Array Configuration Utility (ACU)	• Provides a graphical view of HP drive array configurations. • Easy to use Wizards for configuration. • Web Based ACU supports On-Line, Remote Web Based and Off-line configuration. • Supports on-line configuration for Microsoft, NetWare and Linux.
HP Systems Insight Manager (SIM)	• Powerful storage, server and server option management tool. • Monitor storage from a remote central location. • Browser based Insight Manager 7 provides full access from anywhere on the Intranet, eliminating the need for a dedicated Insight Manager console.

Supported Operating Systems	HP ProLiant Servers **NOTE:** For information on supported Operating Systems, see the following Smart Array Quickspecs: P421: http://h18000.www1.hp.com/products/quickspecs/14229_div/14229_div.html P431: http://h18000.www1.hp.com/products/quickspecs/14625_div/14625_div.pdf P822: http://h18004.www1.hp.com/products/quickspecs/14341_div/14341_div.html H221: http://h18004.www1.hp.com/products/quickspecs/14222_div/14222_div.html H222: http://h18004.www1.hp.com/products/quickspecs/14337_div/14337_div.pdf HP BladeSystem Servers **NOTE:** For Information on Supported Operating Systems, see the following Smart Array Quickspecs: P721m: http://h18000.www1.hp.com/products/quickspecs/14404_div/14404_div.html P731m: http://h18000.www1.hp.com/products/quickspecs/14626_div/14626_div.pdf

Service and Support, HP Care Pack, and Warranty Information

Warranty

Three-year limited parts only warranty, including hardware diagnostic support, pre-failure warranty (coverage of hard drives, memory and processors). The warranty is fully supported by HP Services and a worldwide network of resellers and service providers. In addition 90-day's getting started software telephone support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services.
NOTE: The D3000 family has a limited 3 year parts only warranty. SAS and Solid State drives have 3 year warranty. SAS MDL and SATA MDL and SATA Solid State Drives have 1 year warranty.

The D3600/D3700 has been designed with customer self repairable parts to minimize repair time and provide greater flexibility in performing defective parts replacement. Refer to HP's limited warranty Statement and parts replacement instructions for further details.
http://h18006.www1.hp.com/products/storageworks/warranty.html

Service and Support

Services to accelerate time to results

HP Storage Services bring you a rich portfolio of consulting and support services designed to add value to our core storage products and solutions. We have the know-how and experience to put storage technology to work for you. We work closely with you as your strategic partner, leveraging our full services portfolio to make sure that everything works to optimize your enterprise.
Choose from services aligned to our storage product offerings and lifecycle. From mission-critical onsite services to innovative web-based remote support, you choose the precise level of attention and support your business demands.

Discover, plan, and design Choose from a rich portfolio of services to make the most of HP D3000 Disk Enclosures so you can efficiently and affordably consolidate, manage, and extract value from unstructured data.

HP Services can help you discover needs and create a plan for simplifying the environment, reducing risk, and maximizing your storage investments

HP Storage Efficiency Analysis - The HP Storage Efficiency Analysis provides customers with a view of their storage infrastructure and operating environment; highlighting recommendations for improvements. The report provides extensive insight about the existing storage environment, opportunities for efficiency gains, asset aging and replacement through interaction with key decision makers
http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-6727ENW.pdf

HP Storage Impact Analysis (SIA): The HP Storage Impact Analysis service provides a 2-4 week discovery engagement with executive summary presentation. The goal of this service is to help provide customers guidance on storage related issues and develop remediation plans.
http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA4-1174ENW.pdf

HP Storage Modernization Service: The HP Storage Modernization service is a 4-6 week service that defines the customers envisioned target storage environment based on a proven solution design methodology. HP architects will quickly perform tool-assisted automatic discovery and facilitate a two-day strategy workshop with all key stakeholders involved in the storage infrastructure initiative
http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-4620ENW.pdf

Deploy and integrate

We can help you configure, set up, and efficiently use your HP D3000 Enclosures as well as help migrate

Service and Support, HP Care Pack, and Warranty Information

data, improve capacity utilization, and establish information management standards used across backup, replication, and archiving needs.

HP Storage Data Migration Services - End-to-end data migration service providing seamless discovery, assessment, planning, and design, completely customizable to your organization's storage area network or network attached storage environment and using innovative software to help you migrate to HP storage quickly and efficiently. http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-0774ENW.pdf

HP Storage and Data Residency Service - Strategic augmentation of your current environment with HP resources who become your trusted advisor to provide answers that are right for your storage and backup environment. http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-9481ENW.pdf

HP Proactive Select - A flexible way to purchase services to fit your environment with an extensive menu of HP Proactive Select event and technical services, such as onsite firmware upgrades, health checks, assessments, and education. http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-3842ENW.pdf

Operate and support	**Choose the right support to maximize uptime, free up your resources, and achieve improved value-as you get the most out of the existing IT assets while accelerating time-to-revenue.** **HP Proactive Care 24x7** - Hardware and software support services designed specifically for your technology with rapid access to Advanced Solution Center Specialists plus firmware and software management and best practice advice http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA3-8855ENW.pdf **HP Proactive Care Personalized Support** - An option-if you have HP Proactive Care- to bring increased personalization of the Proactive Care support experience through the assignment of an Account Service Manager (ASM) who provides IT best practice advice to help address IT issues and projects. http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA4-3446ENW.pdf **HP Support Plus 24** - Support for environments where proactive help from HP is not required, with 24x7 hardware and software support onsite that includes third-party support with a maximum four-hour onsite response. http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6638EN.pdf **HP Education Services** - Comprehensive training for new, as well as experienced, storage administrators designed to expand your skills and keep you up to speed with the latest storage and virtualization technology from HP Storage. http://education.hp.com/curr-storsan.htm
Optimized Care - Delivers the highest levels of performance and stability through deployment and proactive management practices	**Choose from three levels of operate and support care** **HP Proactive Care 24x7-Plus, 20 credits per year** **Additional options -HP Proactive Care Personalized Support (once per Proactive Care support new environment), an additional day of HP Personalized Support, and 10 additional HP Proactive Select credits per year**
Standard Care - maintains high level of uptime, along with expert help to cut the cost and complexity of implementation and	**HP Proactive Care 24x7-Plus, 10 credits per year** **Additional options -HP Proactive Care Personalized Support (once per Proactive Care support new environment), an additional day of HP Personalized Support, and 10 additional HP Proactive Select**

Service and Support, HP Care Pack, and Warranty Information

support

Basic Care - Minimum recommended support	**HP Support Plus 24- Plus, 10 credits per year**
	Additional options - 10 HP Proactive Select credits per year
Remote Support Automation	HP Automation provides 24x7 coverage, proactive problem prevention, accurate problem diagnosis and faster problem resolution, as well as interactive support portals and tools. This is an integral, and cost-free, part of your HP support relationship and we are continually investing in additional cutting-edge capabilities to make it better.
For more information	www.hp.com/services/storage To learn more on HP Storage Services, please contact your HP sales representative or HP Authorized Channel Partner HP Care Pack Services are sold by HP and HP Authorized Service Partners:

- Services for customers purchasing from HP or an enterprise reseller are quoted using HP order configuration tools.
- Customers purchasing from a commercial reseller can find HP Care Pack Services at: www.hp.com/go/lookuptool

QuickSpecs

Configuration Information

Step 1: Base Configuration

Model	Model Description	Part Number
HP D3600 Enclosure	HP D3600 Enclosure	QW968A
HP D3600 6G SAS Dual Port MDL drives bundle	HP D3600 w/12 4TB 6G SAS 7.2K LFF(3.5in) Midline Smart Carrier HDD 48TB Bundle	B7E38A
	HP D3600 w/12 3TB 6G SAS 7.2K LFF(3.5in) Midline Smart Carrier HDD 36TB Bundle	B7E37A
	HP D3600 w/12 2TB 6G SAS 7.2K LFF(3.5in) Midline Smart Carrier HDD 24TB Bundle	B7E36A
HP D3700 Enclosure	HP D3700 Enclosure	QW967A
HP D3700 6G SAS Dual Port drives bundle	HP D3700 w/25 300GB 6G SAS 10K SFF(2.5in) ENT Smart Carrier HDD 7.5TB Bundle	B7E39A
	HP D3700 w/25 300GB 6G SAS 15K SFF(2.5in) ENT Smart Carrier HDD 7.5TB Bundle	C8S05A
	HP D3700 w/25 600GB 6G SAS 10K SFF(2.5in) ENT Smart Carrier HDD 15TB Bundle	B7E40A
	HP D3700 w/25 1.2TB 6G SAS 10K SFF(2.5in) ENT Smart Carrier HDD 30TB Bundle	B7E41A
HP D3700 6G SAS Dual Port MDL drives bundle	HP D3700 w/25 1TB 6G SAS 7.2K SFF(2.5in) Midline Smart Carrier HDD 25TB Bundle	B7E42A

Configure to Order Program Information

The HP D3600/D3700 models and options may or may not be factory installed in a rack with add-on controllers, and hard drives. The D3600/D3700 enclosures may be integrated with ProLiant servers or as standalone storage.

Model	Model Description	Part Number
HP D3600	HP D3600 Enclosure	QW968A-#0D1
HP D3700	HP D3700 Enclosure	QW967A-#0D1

Step 2: Array Controllers

	Description	Part Number
	HP ProLiant Servers	
Smart Array Controllers Supported	HP Smart Array P421/1GB FBWC 6Gb 2-ports Ext SAS Controller	631673-B21
	HP Smart Array P421/2GB FBWC 6Gb 2-ports Ext SAS Controller	631674-B21
	HP Smart Array P431/2GB FBWC 6Gb 2-ports Ext SAS Controller	698531- B21
	HP Smart Array P431/4GB FBWC 6Gb 2-ports Ext SAS Controller	698532-B21
	HP Smart Array P822/2GB FBWC 6Gb 2-ports-Int/4-ports Ext SAS Controller	615418-B21

NOTE: Firmware version 2.0 or higher required on the listed Smart Array Controllers

NOTE:

- Up to eight (8) D3600 can be cascaded for a total of 96 drives
- Up to eight (8) D3700 can be cascaded for a total of 200 drives

- Smart Array Controllers P421, P431 and P822 support the mixing of the D3600 and the D3700 for expansion
  - Supports eight (8) D3600 and/or D3700 allowing for expansion up to 148 drives (total of 8 enclosures in any combination).

Configuration Information

HP Host Bus Adapters (HBAs)	HP H221 PCIe 3.0 SAS Host Bus Adapter	729552-B21
	HP H222 Host Bus Adapter	650926-B21

Smart Array Controllers /Switches	**BladeSystem Servers**	
	HP Smart Array P721m/2GB FBWC 6Gb 4-ports Ext Mezzanine SAS Controller	650072-B21
	HP Smart Array P731m/2GB FBWC 6Gb 4-ports Ext Mezzanine SAS Controller	698535-B21
	HP 6Gb SAS Switch Single Pack for HP BladeSystem c-Class	BK763A
	HP 6Gb SAS Switch Dual Pack for HP BladeSystem c-Class	BK764A
	NOTE: D3600/D3700 6Gb SAS BL Switch support requires Firmware version 1.34.	

Step 3: Choose HP ProLiant Servers/MSA Arrays/HP Integrity Servers

HP ProLiant Server Compatibility

HP ProLiant Servers: For up to date compatibility, see the following URL for complete Smart Array P421, p431, P822, P721m, P731m Controller and HBA H221, H222compatibility and support information: http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/index.html

HP BladeSystem Server Compatibility - P721m Controller

HP Blade Systems supported (P721m Controller) - Gen8 BladeSystems servers only

HP ProLiant BL420c Gen8

HP ProLiant BL460c Gen8

HP ProLiant BL465c Gen8

HP ProLiant BL685c Gen8

NOTE: For updated list of BladeSystem servers supported, see: http://h18000.www1.hp.com/products/quickspecs/14404_div/14404_div.html

NOTE: Some servers listed above may be discontinued.

NOTE: For more information on internal vs external connections, refer to proper blade QuickSpecs visit: http://h18000.www1.hp.com/products/quickspecs/division/12534.html

HP BladeSystem Server Compatibility - P731m Controller

HP ProLiant BL420c Gen8
HP ProLiant BL460c Gen8
HP ProLiant BL465c Gen8
HP ProLiant BL660cGen8
NOTE:
For BL420c Gen8 & BL460c Gen8 - P731m is a Type B mezzanine .It can only be installed on mezzanine slot 2 which requires a second processor for functionality. The BL420c, BL465c, and BL460c Gen8 can only support one Type B mezzanine.
For BL465 Gen8 - P731m is a Type B mezzanine and can only be installed on mezzanine slot 2
For BL660c Gen8 - P731m is a Type B mezzanine. It can only be supported on mezzanine slot 2 and mezzanine slot 3. The BL660c Gen8 can support up to two Type B mezzanines.
NOTE: For more information on internal vs external connections, please refer to proper blade QuickSpecs visit: http://h18000.www1.hp.com/products/quickspecs/division/12534.html

Step 4: Choose Hard Drives

Configuration Information

SAS SmartDrive Carriers - LFF	**HP D3600 - Large Form Factor (LFF)**	
	HP 450GB 6G SAS 15K rpm LFF (3.5-inch) SC Enterprise 3yr Warranty Hard Drive	652615-B21
	HP 600GB 6G SAS 15K rpm LFF (3.5-inch) SC Enterprise 3yr Warranty Hard Drive	652620-B21
SAS SmartDrives Carrier - SFF	**HP D3700 - Small Form Factor (SFF)**	
	HP 300GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652654-B21
	HP 450GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652572-B21
	HP 600GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652583-B21
	HP 900GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652589-B21
	HP 1.2TB 6G SAS 10K rpm SFF (2.5-inch) SC Dual Port Enterprise 3yr Warranty Hard Drive	718162-B21
	HP 146GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652605-B21
	HP 300GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652611-B21
SAS Midline (MDL) SmartDrive Carrier - LFF	HP 1TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652753-B21
	HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652757-B21
	HP 3TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652766-B21
	HP 4TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	695510-B21
SAS Midline (MDL) SmartDrive Carrier - SFF	HP D3700 - Small Form Factor (SFF)	
	HP 500GB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	652745-B21
	HP 1TB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	652749-B21
SATA SmartDrive Carrier - LFF	HP D3600 - Large Form Factor (LFF)	
	HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	657750-B21
	HP 2TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	658079-B21
	HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	628061-B21
	HP 4TB 6G SATA 7.2k rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	693687-B21
SATA SmartDrives Carrier - SFF	HP D3700 - Small Form Factor (SFF)	

Configuration Information

	HP 500GB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	655708-B21
	HP 1TB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	655710-B21
	NOTE: SATA drives are single ported and therefore do not have a fail-over path intrinsic to their design. Only Dual Port (DP) SAS drives will work in the Dual Domain environment.	
Solid State SmartDrive Carrier (Enterprise Performance- SFF)	**12G SAS Solid State Drives**	
	HP 200GB 12G SAS High Endurance SFF 2.5-in SC Enterprise Performance 3yr Wty Solid State Drive	741151-B21
	HP 400GB 12G SAS High Endurance SFF 2.5-in SC Enterprise Performance 3yr Wty Solid State Drive	741155-B21
	HP 800GB 12G SAS High Endurance SFF 2.5-in SC Enterprise Performance 3yr Wty Solid State Drive	741159-B21
Solid State SmartDrive Carrier Mainstream Endurance- SFF	6G SAS Solid State Drives	
	HP 200GB 6G SAS Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	690825-B21
	HP 400GB 6G SAS Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	690827-B21
	HP 800GB 6G SAS Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	690829-B21
	12G SAS Solid State Drives	
	HP 200GB 12G SAS Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	741138-B21
	HP 400GB 12G SAS Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	741142-B21
	HP 800GB 12G SAS Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	741146-B21
	SATA	
	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

Configuration Information

HP 200GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691864-B21

Number of drives is limited to twenty five (25) per controller.

SAS Solid State drives are dual path and dual domain.
Cascading is supported in both single and dual domain environments

Step 5: Choose Rack Option

Refer to the HP Infrastructure products page for more information on HP racks and rack options:
http://h18004.www1.hp.com/products/servers/platforms/rackandpower.html

Step 6: Choose Cables

Cable Options

Cables to be used for connecting the HP D3600/D3700 with the HP Smart Array P421 and P822 Controllers

HP 0.5m External Mini SAS High Density to Mini SAS Cable	691971-B21
HP 1.0m External Mini SAS High Density to Mini SAS Cable	716189-B21
HP 2.0m External Mini SAS High Density to Mini SAS Cable	716191-B21
HP 4.0m External Mini SAS High Density to Mini SAS Cable	716193-B21

Cables to be used for connecting D2600/D2700 with the Smart Array P431 (HD connector)

HP External 1.0m (3ft) Mini-SAS HD 4x to Mini-SAS HD 4x Cable	716195-B21
HP External 2.0m (6ft) Mini-SAS HD 4x to Mini-SAS HD 4x Cable	716197-B21
HP External 4.0m (13ft) Mini-SAS HD 4x to Mini-SAS HD 4x Cable	716199-B21

* #0D1 will appear after this part number on your sales order if factory integration is indicated.

Power Cord Options

If customers require a power cord other than the included PDU style cords, they can check the power cord matrix for the appropriate SKU. See the following power cord matrix for details www.hp.com/products/powercords.

NOTE: An optional longer 2meter PDU power cable (C14 to C13 style connector) for customers who would like additional length for connections to existing power distribution modules located on the right side of the rack. This is purely optional as the included .7meter power cables will also reach the right sides of the rack. (D3700 power supplies are on the left side of the enclosures). If desired, the quantity to order is 1 AF573A HP RDNT 2m,10A, C13-C14 JMPR CORD

Technical Specifications

LED Indicators for HDDs	HP SmartDrive Carrier Drives	
LED Indicators on Front Panel	Bi-color green/amber for health/fault	
	Blue for UID	
	Heartbeat LED	
	Fault LED	
	UID button/LED	
LED Indicators on Rear Panel	I/O Module LED (2) identify/On/Fault; Port (2) Link good/ link fault	
	UID button/LED	
	Heartbeat LED	
	Fault LED	
	Fan LED	
	Power supply LED	
Host Interface	8 x wide SAS 12Gb/s ports	
Maximum Number of Drives	Up to 12 3.5 inch (D3600) or 25 2.5 inch (D3700) SAS or SATA drives	
	Up to 25 2.5 inch (2700) Solid State Drives per controller	
Acoustics Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.	
	Idle Acoustic Noise (sound power)	LWAd= 7.0 B
	Idle Acoustic Noise (sound pressure)	LpAm - 53 dBA
	Operating Acoustic Noise (sound power)	LWAd= 7.0 B
	Operating Acoustic Noise (sound pressure)	LpAm - 53 dBA
Temperature Range	**Operating**	50° to 104° F (10° to 40° C)
	Shipping	-22° to 149° F (-30° to 65° C)
		NOTE: Rated 1°C per 1000 feet of elevation to 10,000 ft.
Relative Humidity	**Operating**	10% to 90%
	Non-operating	0% to 95%
Maximum wet bulb temperature	**Long-term storage (operating)**	82.4° F (28° C)
	Short-term storage (non-operating)	101.6° F (38.7° C)
Input Power Requirements	**Rated Input Voltage**	100 to 240 VAC (Common- slot Power Supply)
	Rated Input Frequency	50 to 60 Hz (Common-slot Power Supply)
	Rated Input Current	6A/3A
	Input Power max	403W

Technical Specifications

Heat Dissipation (maximum)	1331/Btu/hr.1160.Btu/hr [**NOTE:** standard conversion from Watts to Btu/hr = 3.413 Btu/hr per Watt]	
RAID Support	See Quickspecs for Smart Array Controllers P421, P431, P822, P721m, P731m http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/index.html **NOTE:** For up to date compatibility, see the following URL for complete Smart Array Controller compatibility and support information: http://h18006.www1.hp.com/products/servers/proliantstorage/arraycontrollers/index.html	
Upgradeable Firmware	Yes, Offline only. Firmware updates available through hp.com	
Disk Drives and Enclosure Protocol Support	HP 3.5 inch (D3600) or 2.5 inch (D3700) SAS 6/12Gb/s	
I/O Module	**Connector Type**	IPass (mini-SAS)
	Number of Ports	Two (one IN, other is OUT)
	Bandwidth	SAS-3 (12Gb/s)
	Protocols supported	SAS 3.0
HP D3600/ Enclosure	**2U Rack Form Factor**	Large Form Factor
	Dimensions (HxWxD)	3.44" x 17.64" x 23.54" in (8.7 x 44.8 x 59.8 cm)
	Weight (base unit)	38 lb (17.2 kg)
	Weight (with all LFF drives)	60 lb (27.2 kg)
HP D3700 Enclosure	**2U Rack Form Factor**	Small Form Factor
	Dimensions (HxWxD)	3.44" x 17.64" x 21.48" in (8.7 x 44.8 x 54.6 cm)
	Weight (base unit)	38 lb (17.2 kg)
	Weight (with all SFF drives)	54.90 lb (24.9 kg)
D3600/D3700	**Shipping package dimensions**	D3600 - 11.13" x 23.75" x 38.12" (LFF) D3700 - 11.13" x 23.75" x 36.12" (SFF)
	Shipping weight (Gross)	78lbs (35.38kg)