

Overview

HPE D2000 Disk Enclosures

Manage your small and midrange business growing storage needs by deploying the next generation 6Gb 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 6Gb SAS enclosures - Large Form Factor (LFF) D2600 with 12 drive bays and Small Form Factor (SFF) D2700 with 25 drive bays - offer modular solutions to simplify capacity expansion of HPE 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 D2000 enclosures support direct attach storage to ProLiant Servers with the HPE Smart Array P411, P212, P812, P222, P421, P431, P441, P822 or the P841 Controllers. On HPE ProLiant and Integrity servers Dual Domain support is available for the HPE Smart Array P411, P421, P431, P441, P822 or the P841 Controllers attached to a D2600/D2700. (Single initiator environment only.) (For Dual Domain - HPE Smart Array Advanced Pack 2.0 No Media 1 Server 1yr 24x7 Support Software is required with the P421Controller). HPE UX 11iv3 and Windows 2008 R2 OS supported for HPE Integrity servers (single initiator environment only). Blade 6Gb SAS connectivity is enabled using a HPE Smart Array P711m, P721m, P731m, P741m Controllers, 6Gb SAS BL Switches and the D2000 disk enclosures. HPE H221, H222 and the H241 Host Bus Adapters are also supported with the D2600/D2700 Disk Enclosures.

NOTE: HPE Integrity servers that are supported
rx3600, rx6600, rx2600, rx2800i2, rx7640, rx8640, Superdome (only the versions that support PCI-e cards)

Total support can grow as needed to up to 96 LFF drives or 200 SFF drives.

The D2700 is also supported when attached to a HPE P2000 G3 Modular Smart Array System family.

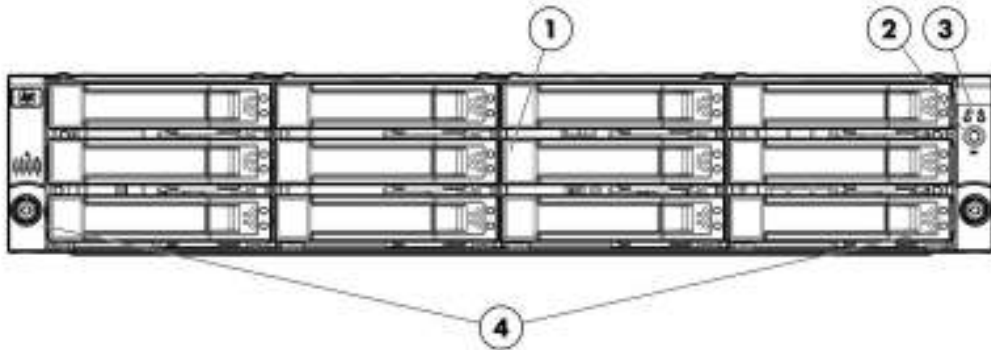
What's New

- Adding Support for:
 - HPE Smart Array P841/4GB FBWC 12Gb 4-ports Ext SAS Controller
 - HPE Smart Array P741m/2GB FBWC 12Gb 4-ports Ext Mezzanine SAS Controller

Models

HPE D2000 Disk Enclosures	HPE D2700 Disk Enclosure	AJ941A
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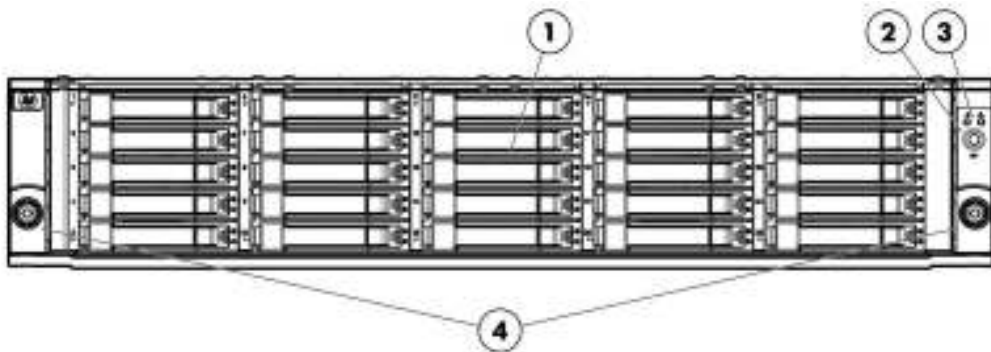
Product Highlights



HPE D2600 Disk Enclosure

Front panel LEDs and buttons

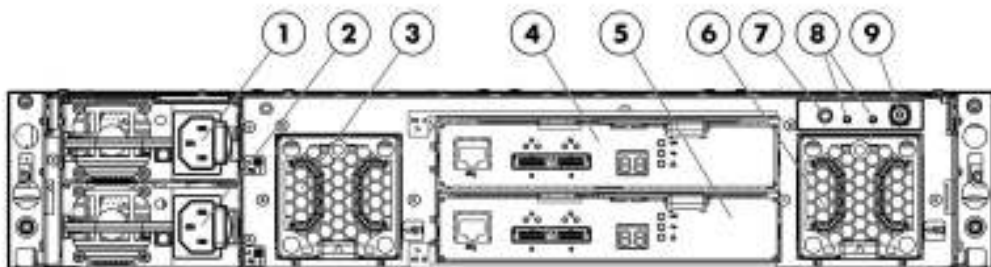
1. Disk drives
2. UID push button and LED
3. Enclosure LEDs
4. Rack-mounting thumb screw



HPE D2700 Disk Enclosure

Front panel LEDs and buttons

1. Disk drives
2. UID push button and LED
3. Enclosure LEDs
4. Rack-mounting thumb screw



Product Highlights

1. Power Supply 1
2. Power Supply 2
3. Fan 1
4. I/O Module A
5. I/O Module B

Rear Panel components

6. Fan 2
7. Rear UID push button
8. Enclosure LEDs
9. Power on/standby button

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.
- D2700: 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). D2700 also supports SAS SLC and MLC Solid State Drives (SSD). Number of Solid State drives is limited to twenty five (25) SSDs per controller.
- D2600: Maximum storage capacity of 7.2 TB SAS (600GB SAS) or 72 TB SAS MDL or SATA MDL (4TB SAS or SATA HDD) per enclosure scalable to 57.6 TB SAS, or 576 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 four D2600 enclosures from a single Controller port, for expansion of up to 8 enclosures or 96 drives, allowing for room to grow as storage demands increase.
- Grow storage capacity easily by attaching up to two D2700 enclosures from a single Controller port, for expansion of up to 4 enclosures or 100 drives, allowing for room to grow as storage demands increase. (Smart Array Controllers P411 & P812).
- With the new Smart Array P421, P431, P441, P822, P841 Controllers grow your storage capacity easily by attaching up to four (4) D2700 enclosures from a single Controller port, for expansion of up to eight (8) enclosures or 200 drives, allowing for room to grow as storage demands increase.
- Smart Array Controllers P421, P431, P441, P822, P841 support the mixing of the D2600 and the D2700 for expansion, Supports four (4) D2600 and four (4) D2700 (4xLFF and 4xSFF) allowing for expansion up to 148 drives. Flexibility to mix and match SAS and SATA drives in the same enclosure.

Easy to Manage

- Hassle free expansion - little IT expertise required.
- Compatible with the latest HPE Smart Array SAS controllers (P812, P411, P212, P222, P421, P431, P441, P822, P841, P711m, P721m, P731m, P741m).
- Compatible with HPE H221, H222 and H241 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

- 6Gb SAS host connectivity enables a higher data transfer rate.
- End-to-end 6 Gb SAS connectivity ensures a high performance storage solution using a P212, P411, P812, P222, P421, P431, P431, P822, P841, P711m, P721m, P731m or the P741m Smart Array controller and the D2000 enclosures. D2600/D2700 is also supported with the HPE H221, H222 or the H241 Host Bus adapters (HBA).
- SAS disk enclosure support for c-Class BladeSystem utilizing the recently introduced HPE 6Gb SAS BL Switch with the P711m, P721m, P731m, P741m Smart Array Controllers.
- Since storage is contained within the rack, latency is reduced as data does not travel over large distances.

HPE reliability

- Deploy with confidence. Hewlett Packard Enterprise offers a complete end-to-end storage solution including the D2000 storage enclosures, Smart Array P212, P411, P812, P222, P421, P431, P441, P822, P841, P711m, P721m, P731m, P741m Controllers and HPE ProLiant Servers.

At a Glance

- Familiar Smart Array technology of the P212, P411, P812, P222, P421, P431, P441, P822, P841, P711m, P721m, P731m or the P741m 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.
- Receive pre-failure alerts with HPE SIM. When drives installed in D2000 disk enclosures are used in conjunction with the P212, P411, P812, P222, P421, P431, P441, P822, P841, P711m, P721m, P731m or the P741m Smart Array Controller and Systems Insight Manager, the Smart Array firmware in HPE 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.

D2000 Enclosure Components

HPE D2000 Disk Enclosures

The HPE D2000 Disk Enclosures (hereafter referred to as "D2000") is a family of disk drive storage enclosure with 6 Gb SAS host connectivity. The D2000 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 D2000 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 D2700 disk 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 3G SATA MDL drives. D2700 also supports SAS SLC and MLC Solid State Drives. Number of Solid State drives is limited to twenty five (25) per controller. The LFF D2600 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 72 TB with 6G 6 TB SAS MDL or 3G 4TB SATA MDL drives.
- **Data Protection** - D2000 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 D2000 features familiar configuration and management tools such as Array Configuration Utility (ACU) and HPE 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 D2000 is designed and qualified for HPE 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 D2000 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** - The D2700 has the unique capability of cascading up to two (2) enclosures behind a single SAS port (depends on the Smart Array Controller). The D2600 has the capability of cascading up to four (4) enclosures behind a single SAS port (depends on the Smart Array Controller).
- **Pre-Failure Warranty** - Drives installed in either the D2600 or the D2700 and monitored under HPE 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 D2600 or the D2700 before they actually fail when using HPE Systems Insight Manager on HPE ProLiant servers.
NOTE: Some operating systems may not support all of these features.
- **Integrated Configuration and Management Tools** - The D2000 family utilizes the standard, integrated set of Smart Array management and utility software for HPE ProLiant Servers. These tools consistently lower the cost of ownership by reducing training and technical expertise necessary to install and maintain HPE server storage.

D2000 Enclosure Components

D2000 Disk Enclosures D2600 Disk Enclosure The 2U array houses up to twelve (12) 3.5 inch Universal hot pluggable SAS drives.

Each D2600 includes the following standard components:

- D2600 base enclosure with redundant power supplies and fan modules
- Two (2) integrated 6Gb SAS IO Modules
- Rack mounting hardware kit
- Two (2) 0.5m mini-SAS cables
- Two (2) PDU interconnect cords

D2700 Disk Enclosure The 2U array houses up to twenty five (25) 2.5 inch Universal hot pluggable SAS drives.

Each D2700 includes the following standard components:

- D2700 base enclosure with redundant power supplies and fan modules
- Two (2) integrated 6Gb SAS IO Modules
- Rack mounting hardware kit
- Two (2) 0.5m mini-SAS cables
- Two (2) PDU interconnect cords

Smart Array P411 Features

- The HPE Smart Array P411 is HPE's PCI Express (PCIe) Serial Attached SCSI (SAS) RAID controller
- Low profile, half height card has 8 ports and utilizes DDR2-800 memory
- The P411 is ideal for RAID 0/1, 5, 1+0 & 5+0 and can be upgraded with the 512MB battery-backed write cache (BBWC) module and Smart Array Advanced via license key for RAID 6 & 6+0, 50 and 60
- For more information see: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111712>

Smart Array P212 Features

- The HPE Smart Array P212 is HPE'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: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111625>

Smart Array P812 Features

- The HPE Smart Array P812 provides superior RAID performance, while delivering high levels of connectivity, reliability, and many advanced features
- Increased connectivity with 8 internal ports and 16 external ports.
- 1 G 72-bit wide DDR2-800 flash-backed write cache (FBWC).
- Smart Array Advanced Pack (SAAP) license key included standard
- For more information see: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111607>

Smart Array P222 Features

- Second Generation 6Gb/s SAS Controllers
- Eight (8) SAS physical links distributed across 1 internal x4/1 external x4 wide port connectors
- Read ahead caching

D2000 Enclosure Components

- Flash Backed Write-back Cache
- For more information
see: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111474>

Smart Array P421 Features

- Second Generation 6Gb/s SAS Controllers
- The SA-P421 Controller supports up to 200 drives
- Eight (8) SAS physical links distributed across 2 external x4 miniSAS connectors.
- Write-back caching (with FBWC)
- For more information
see: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111533>

Smart Array P431 Features

- The SA-P431 Controller supports up to 200 physical drives
- The SA-P431 Controller supports the HPE D2600/D3600 and the HPE D2700/D3700 Disk Enclosure (up to 8 daisy chained). Seamless upgrades to current or next generation HPE 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 HPE 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 HPE SmartCache feature (HPE 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 computing environment
- For more information
see: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111365>

HPE Smart Array P441 Features

- The SA-P441 Controller supports up to 200 physical drives
- The SA-P441 Controller supports the MSA2040 (Shared storage), HPE D3600 Disk Enclosure and HPE D3700 Disk Enclosure (up to 8 daisy chained in dual domain configuration). Seamless upgrades to current or next generation HPE high performance and high capacity Serial Attached SCSI Smart Array controllers.
- 12Gb/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 8GT/s theoretical maximum bandwidth
- 4 GiBytes Flash Backed Write Cache kit (FBWC) provides read ahead caching and write back caching with indefinite write cache data retention in the case of unexpected power outage
- Supports legacy and UEFI boot operation on Gen9 servers
- Standard on the P441 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 HPE 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

D2000 Enclosure Components

- The HPE SmartCache feature (HPE Smart Cache license is required on P441) is a controller-based read and write caching solution in a DAS environment that caches the most frequently accessed data ("hot" data) onto lower latency SSDs to dynamically accelerate application workloads
- HPE Secure Encryption is a Smart Array controller-based data encryption solution for ProLiant Gen9 servers that protects 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 SSA), HPE Systems Insight Manager, 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 (attached) and a low profile bracket for deployment flexibility based on slot availability
- Rapid rebuild
- HBA or RAID mode
- Power efficiency
- For more information see: [HPE Smart Array P441 Controller](#)

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: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111513>

Smart Array P711m Features

- Storage interface (SAS/SATA)
- Recovery ROM protects against ROM corruption.
- Smart Array PCIe mezzanine card that connects to a HPE 6Gb/s SAS BL Switch through the c-Class enclosure high-speed mid-plane supporting shared SAS storage.
- Eight (8) 6Gb/s SAS physical links distributed across 4 external 2x ports to support up to 4 6Gb/s SAS Switches
- For more information see: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111558>

Smart Array P721m Features

- 6 Gb/s SAS technology delivers up to 600 MB/s per physical link
- Smart Array PCIe mezzanine card that connects to a HPE 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: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111449>

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

D2000 Enclosure Components

- HPE Smart Cache (HPE Smart Cache license is not required on P731m with 2 GiBytes FBWC)
- HPE SSD Smart Path
- PCI Express Gen3 x8 link
- 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.
- For more information see: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111381>

HPE 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
- For more information see: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111475>

HPE 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: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111475>

HPE 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: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111514>

HPE H241 Host Bus Adapter

- SAS technology delivers high performance and data bandwidth up to 12Gb/s per physical link
- Mix-and-match SAS and SATA hard drives; deploy drive technology as needed
- PCIe 3.0 x8 (8GB/s bandwidth)
- For more information see: [HPE H241 Smart Host Bus Adapter](#)

6Gb SAS BL Switch

- Hot Pluggable 6Gb/s SAS Switch for HPE 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: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04123176>

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

D2000 Enclosure Components

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.

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 D2000 Disk enclosures use the 460W Common Slot Power supply.

HPE'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.

D2000 Disk Enclosure - Software Components

Utilities

The D2000 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 HPE 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	HPE Systems Insight Manager
Array Configuration Utility (ACU)	<ul style="list-style-type: none"> • Provides a graphical view of HPE 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.
HPE Systems Insight Manager (SIM)	<ul style="list-style-type: none"> • 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

HPE ProLiant Servers

NOTE: For information on supported Operating Systems, see the following Smart Array QuickSpecs:

P212: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111625>

P411: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111712>

P812: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111607>

P222: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111474>

P421: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111533>

P431: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111365>

P441: [HPE Smart Array P441 Controller \(QuickSpecs/c04346300.pdf\)](#)

P822: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111513>

P841: <https://h20195.www2.hpe.com/v2/gethtml.aspx?docname=c04545470>

H221: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111475>

H222: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111514>

H241: [HPE H241 Smart Host Bus Adapter](#)

HPE P2000 G3 FC Modular Smart Array System

NOTE: For up to date compatibility, see the following URL for complete Smart Array Controller compatibility and support information:

<https://www.hpe.com/us/en/product-catalog/servers/smart-array-controllers-and-smart-host-bus-adapters.hits-12.html>

HPE Integrity Servers

HP-UX 11iv3

Microsoft Windows 2008 R2

NOTE: HPE Integrity Servers supported: rx3600, rx6600, rx2600, rx2800i2, rx7640, rx8640, Superdome (only the versions that support PCI-e cards).

D2000 Disk Enclosure - Software Components

HPE BladeSystem Servers

NOTE: For Information on Supported Operating Systems, see the following Smart Array QuickSpecs:

P711m: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111558>

P721m: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111449>

P731m: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111381>

P741m: <https://www.hpe.com/us/en/product-catalog/servers/smart-array-controllers-and-smart-host-bus-adapters.hits-12.html>

Service and Support, HPE Pointnext operational Service, 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 HPE 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 HPE Pointnext operational services.

NOTE: The D2000 family has a limited 3 year parts only warranty. SAS and Solid State drives have 3 year warranty. SAS MDL and SATA MDL, Drives have 1 year warranty.

The D2600/D2700 has been designed with customer self-repairable parts to minimize repair time and provide greater flexibility in performing defective parts replacement. Refer to The Hewlett Packard Enterprise Limited warranty Statement and parts replacement instructions for further details.

<http://h20564.www2.hpe.com/hpsc/wc/public/home>

Service and Support

Services to accelerate time to results

HPE 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 HPE D2000 Disk Enclosures (Rockford - PL LL)), so you can efficiently and affordably consolidate, manage, and extract value from unstructured data.

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

HPE Storage Efficiency Analysis - The HPE 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

<https://www.hpe.com/h20195/v2/getpdf.aspx/4aa3-6727enw.pdf>

HPE Storage Impact Analysis (SIA): The HPE 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.

<https://www.hpe.com/h20195/v2/getpdf.aspx/4aa4-1174enw.pdf>

HPE Storage Modernization Service: The HPE Storage Modernization service is a 4-6 week service that defines the customers envisioned target storage environment based on a proven solution design methodology. Hewlett Packard Enterprise 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

<https://www.hpe.com/h20195/v2/getpdf.aspx/4aa3-4620enw.pdf>

Deploy and integrate

We can help you configure, set up, and efficiently use your HPE D2000 Disk Enclosures (Rockford - PL LL)), as well as help migrate data, improve capacity utilization, and establish information management standards used across backup, replication, and archiving needs.

Service and Support, HPE Pointnext operational Service, and Warranty Information

HPE MSA/P2000 Family Disk Array Installation and Startup Service - Implement right from the start, as HPE experts install, test, and configure your hardware and software onsite. We deliver a tailored storage deployment properly integrated into your environment.

HPE 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 HPE storage quickly and efficiently. <http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-0774ENW.pdf>

HPE Storage and Data Residency Service - Strategic augmentation of your current environment with HPE 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>

HPE Proactive Select - A flexible way to purchase services to fit your environment with an extensive menu of HPE 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.

HPE 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 <https://www.hpe.com/h20195/v2/getpdf.aspx/4aa3-8855enw.pdf>

HPE Proactive Care Personalized Support - An option-if you have HPE 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. <https://www.hpe.com/h20195/v2/getpdf.aspx/4aa4-3446enw.pdf>

HPE Foundation Care 24x7 Service - HPE Foundation Care 24x7 connects you to Hewlett Packard Enterprise 24 hours a day, seven days a week for assistance on resolving issues - hardware onsite response within four hours and software call back within two hours after opening your case. Three years' coverage recommended with HPE Pointnext operational Service.

HPE 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 HPE Storage.

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

HPE Proactive Care 24x7-Plus, 20 credits per year
Additional options -HPE Proactive Care Personalized Support (once per Proactive Care support new environment), an additional day of HPE Personalized Support, and 10 additional HPE Proactive Select credits per year

Standard Care - maintains high level of uptime, along with expert help to cut the cost and complexity of

HPE Proactive Care 24x7-Plus, 10 credits per year

Additional options -HPE Proactive Care Personalized Support (once per Proactive Care support new environment), an additional day of HPE Personalized Support, and 10 additional HPE Proactive Select credits per year

Service and Support, HPE Pointnext operational Service, and Warranty Information

implementation and support

Basic Care - Minimum recommended support

HPE Support Plus 24- Plus, 10 credits per year

Additional options - 10 HPE Proactive Select credits per year

Remote Support Automation

HPE 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 HPE support relationship and we are continually investing in additional cutting-edge capabilities to make it better.

For more information

<https://www.hpe.com/us/en/support.html>

To learn more on HPE Storage Services, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner

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.hpe.com/support/warranty-lookuptool>**

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 QuickSpecs, 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.

Configuration Information

Recommended

Offering the best combination of performance, value and availability, Recommended Options have been selected by HPE experts to provide the right technology for a range of workloads and market segments. Fully integrated into the ProLiant management and security experience, Recommended Options provide the best fit with timely availability.

Extended

Extended Options provide an extended catalog of products tailored for customers in specific markets or with specific workloads, requiring the utmost in performance or value. Fully integrated into the ProLiant management and security experience, Extended Options represent great value and performance but typically have a longer lead-time.

Step 1: Base Configuration

Model	Model Description	Part Number
D2700	HPE D2700 Disk Enclosure	AJ941A

Configure to Order Program Information

The D2600/D2700 models and options may or may not be factory installed in a rack with add-on controllers, and hard drives. The D2600/D2700 enclosures may be integrated with ProLiant servers or as standalone storage.

Model	Model Description	Part Number
D2600	HPE D2600 Disk Enclosure	AJ940A-#0D1
D2700	HPE D2700 Disk Enclosure	AJ941A-#0D1

Step 2: Array Controllers

	Description	Part Number
Smart Array Controllers Supported (Single Domain)	HPE ProLiant Servers HPE Smart Array P841/4GB FBWC 12Gb 4-ports Ext SAS Controller NOTE: Firmware version 2.0 or higher required on the listed Smart Array Controllers	762903-B21

NOTE:

- Smart Array Controller P421 supports up to 200 drives for D2700 only
 - Up to eight (8) D2600 can be cascaded for the P421 with a depth of 4 on each chain, for a total of 96 drives
 - Up to eight (8) D2700 can be cascaded for the P421 with a depth of 4 on each chain, for a total of 200 drives
- Smart Array Controller P421 supports the mixing of the D2600 and the D2700 for expansion
 - Supports eight (8) D2600 and/or D2700 allowing for expansion up to 148 drives.

Smart Array Controllers Supported (Single Domain)	HPE Integrity Servers - Recommended	
	HPE Integrity Smart Array P411/256 2-port External PCIe 6Gb SAS Controller (Recommended)	AM311A
	HPE Integrity Smart Array P812/1GB PCIe SAS Controller (Recommended)	AM312A

Configuration Information

NOTE: Supported for rx2660, rx2800i2, rx3600, rx6600 rx7640, rx8640 and Superdome on HP-UX11iv3, Microsoft Windows Server 2008 SP2 for Integrity and Microsoft Windows Server R2 for Integrity.

Smart Array Controllers Supported (Dual Domain)	HPE ProLiant & Integrity Servers	
	HPE Smart Array P841/4GB FBWC 12Gb 4-ports Ext SAS Controller	762903-B21
	HPE Smart Array P431/2GB FBWC 6Gb 2-ports Ext SAS Controller	698531- B21
	HPE Smart Array P431/4GB FBWC 6Gb 2-ports Ext SAS Controller	698532- B21
	Recommended	
	HPE Integrity Smart Array P812/1GB PCIe SAS Controller (Recommended)	AM312A
	Extended	
	HPE Smart Array P441/4GB FBWC 12Gb 2-ports Ext SAS Controller (Extended)	726825-B21

NOTE:

- Requires DP SAS or SAS DP MDL drives
- Up to eight (8) D2600 or four (4) D2700 enclosures can be cascaded in a dual domain configuration behind a P411 or P812 Smart Array Controllers
- Dual Domain configuration with:
 - P411 - Requires HPE Smart Array Advanced Pack including 1yr 24x7 Technical Support and Updates Single Server License (516471-B21)
- Even though the P812 has two additional ports the number of drives supported by the Smart array controller is limited to 108. Drive count is per controller, so behind the P812 even though there are 4 ports the maximum enclosure supported in a Dual Domain configurations is (8) D2600 - 96 drives or (4) D2700 - 100 drives.
- Up to eight (8) D2600 or eight (8) D2700 enclosures can be cascaded in a dual domain configuration behind a P421, P822 or P841 Smart Array Controllers
- Drive count is per controller, so behind the P421, P431, P822 or the P841 Smart Array Controllers the maximum enclosure supported in a Dual Domain configuration is (8) D2600 - 96 drives or (8) D2700 - 200 drives
- Smart Smart Array Controllers P421, P431, P441, P822 and the P841 support the mixing of the D2600 and the D2700 for expansion
 - Supports four (4) D2600 and four (4) D2700 (4xLFF and 4xSFF) allowing for expansion up to 148 drives.
- Integrity Servers - Supported for rx2660, rx2800i2, rx3600, rx6600 rx7640, rx8640 and Superdome on HP-UX11iv3, Microsoft Windows Server 2008 SP2 for Integrity and Microsoft Windows Server R2 for Integrity

HPE Host Bus Adapters (HBAs)	Recommended	
	HPE H241 12Gb 2-ports Ext Smart Host Bus Adapter (Recommended)	726911-B21

Smart Array Controllers /Switches	BladeSystem Servers	
	HPE Smart Array P741m/2GB FBWC 12Gb 4-ports Ext Mezzanine SAS Controller	762782-B21
	HPE 6Gb SAS Switch Single Pack for HPE BladeSystem c-Class	BK763A
	HPE 6Gb SAS Switch Dual Pack for HPE BladeSystem c-Class	BK764A

NOTE: D2600/D2700 6Gb SAS BL Switch support requires Firmware version 1.34.

Configuration Information

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

HPE ProLiant Server Compatibility	<p>HPE ProLiant Servers: For up to date compatibility, see the following URL for complete Smart Array P411, P421, P431, P441, P212, P812, P221, P221, P822, P841, P711m, P721m, P731m, P741m Controller and HBA H221, H222, H241 compatibility and support information: https://www.hpe.com/us/en/product-catalog/servers/smart-array-controllers-and-smart-host-bus-adapters.hits-12.html</p>
Array Compatibility	<p>HPE P2000 G3 FC Modular Smart Array System</p> <p>NOTE: For up to date compatibility, see the following URL for complete Smart Array Controller compatibility and support information: https://www.hpe.com/us/en/product-catalog/servers/smart-array-controllers-and-smart-host-bus-adapters.hits-12.html</p>
HPE Integrity Server Compatibility	<p>HPE Integrity Servers supported:</p> <p>HPE Integrity Server rx2660 with combination PCIx/PCIe riser only HPE Integrity Server rx3600 with combination PCIx/PCIe backplane only HPE Integrity Server rx6600 with combination PCIx/PCIe backplane only HPE integrity Server rx7640 with combination PCIx/PCIe only HPE integrity Server rx8640 with combination PCIx/PCIe only HPE integrity Server sx2000 with combination PCIx/PCIe only</p> <p>NOTE: HPE Integrity Server home: https://www.hpe.com/us/en/product-catalog/servers/integrity-servers.hits-12.html</p>
HPE BladeSystem Server Compatibility - P711m Controller	<p>HPE Blade Systems supported</p> <p>BL280c/BL420c BL460c BL465c BL490c BL620c BL680c BL685c c3000 c7000 BL860 BL870 BL890</p>
HPE BladeSystem Server Compatibility - P721m Controller	<p>HPE Blade Systems supported (P721m Controller) - Gen8 BladeSystems servers only</p> <p>HPE ProLiant BL420c Gen8 HPE ProLiant BL460c Gen8 HPE ProLiant BL465c Gen8 HPE ProLiant BL685c Gen8</p> <p>NOTE: For updated list of BladeSystem servers supported, see: https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111449</p> <p>NOTE: Some servers listed above may be discontinued.</p>
HPE BladeSystem Server Compatibility - P731m Controller	<p>HPE ProLiant BL420c Gen8 HPE ProLiant BL460c Gen8 HPE ProLiant BL465c Gen8 HPE ProLiant BL660cGen8</p> <p>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.</p> <p>NOTE: For BL465 Gen8 - P731m is a Type B mezzanine and can only be installed on mezzanine slot</p>

Configuration Information

2.

NOTE: 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.

Step 4: Choose Hard Drives

SAS Drives - SFF for D2700 behind MSA Arrays	<p>D2700 - Small Form Factor (SFF) for expansion behind MSA Arrays - MSA 2040/P2000</p> <p>NOTE: When ordering a D2700 as an expansion behind an existing P2000/MSA 2040 then order the following MSA hard drive SKUs</p> <p>HP MSA 300GB 6G SAS 10K SFF(2.5-inch) Dual Port Ent 3yr Warranty Hard Drive E2D55A</p> <p>HP MSA 450GB 6G SAS 10K SFF(2.5-inch) Dual Port Ent 3yr Warranty Hard Drive E2D56A</p> <p>HP MSA 600GB 6G SAS 10K SFF(2.5-inch) Dual Port Ent 3yr Warranty Hard Drive C8S58A</p> <p>HP MSA 900GB 6G SAS 10K SFF(2.5-inch) Dual Port Ent 3yr Warranty Hard Drive C8S59A</p> <p>HP MSA 1.2TB 6G SAS 10K SFF(2.5-inch) Dual Port Ent 3yr Warranty Hard Drive E7W47A</p> <p>HP MSA 146GB 6G SAS 15K SFF(2.5-inch) Dual Port Ent 3yr Warranty Hard Drive E2D54A</p> <p>HP MSA 300GB 6G SAS 15K SFF(2.5-inch) Dual Port Ent 3yr Warranty Hard Drive C8S61A</p> <p>HPE MSA 450GB 12G SAS 15K SFF(2.5in) Dual Port Enterprise 3yr Warranty Hard Drive J9F41A</p> <p>Recommended</p> <p>HPE MSA 600GB 12G SAS 15K SFF(2.5in) Dual Port Enterprise 3yr Warranty Hard Drive (Recommended) J9F42A</p> <p>Extended</p> <p>HPE MSA 300GB 12G SAS 15K SFF(2.5in) Dual Port Enterprise 3yr Warranty Hard Drive (Extended) J9F40A</p> <p>NOTE: When ordering a D2700 as an expansion behind an existing P2000/MSA 2040 then order the above MSA hard drive SKUs.</p>	
SAS Midline (MDL) - LFF	HP 6TB 6G SAS 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	782669-B21
SAS Midline (MDL) - SFF D2700 behind MSA Arrays	<p>D2700 - Small Form Factor (SFF) for expansion behind MSA Arrays - MSA 2040/P2000</p> <p>HP MSA 1TB 6G SAS 7.2K SFF (2.5-inch) Dual Port Midline 3yr Warranty Hard Drive C8S62A</p> <p>NOTE: When ordering a D2700 as an expansion behind an existing P2000/MSA 2040 then order the above MSA Hard Drive SKUs</p>	
Solid State Drives (SAS ME- SFF) D2700 behind MSA 2040	<p>D2700 - Small Form Factor (SFF) for expansion behind MSA Array - MSA 2040</p> <p>NOTE: When ordering a D2700 as an expansion behind an existing MSA 2040 then order the following MSA Hard Drive SKUs</p> <p>HPE MSA 200GB 12G ME SAS SFF (2.5in) Enterprise Mainstream 3yr Warranty Solid State Drive K2Q45A</p> <p>HPE MSA 400GB 12G ME SAS 2.5in Enterprise Mainstream 3yr Wty Solid State Drive J9F37A</p> <p>HPE MSA 800GB 6G ME SAS 2.5in Enterprise Mainstream 3yr Wty Solid State Drive J9F38A</p> <p>HPE MSA 1.6TB 6G ME SAS 2.5in Enterprise Mainstream 3yr Wty Solid State Drive J9F39A</p> <p>HP MSA 800GB 6G SAS Main End SFF(2.5in) Ent Mainstream 3yr Wty Solid State Drive C8R21A</p> <p>HP MSA 400GB 6G SAS Main End SFF(2.5in) Ent Mainstream 3yr Wty Solid State Drive C8R20A</p>	

Configuration Information

HP MSA 200GB 6G SAS Main End SFF(2.5in) Ent Mainstream 3yr Wty Solid State Drive C8R19A

NOTE: When ordering a D2700 as an expansion behind an existing MSA 2040 then order the above MSA Hard Drive SKUs

Step 5: Choose Rack Option

Refer to the Hewlett Packard Enterprise infrastructure products page for more information on HPE racks and rack options:
<https://www.hpe.com/us/en/integrated-systems/rack-power-cooling.html>

Step 6: Choose Cables

Cable Options

Cables to be used for connecting the D2600/D2700 with the HPE Smart Array P212, P411, P812, P222 & P421 Controllers and the D2700 to the P2000 G3 and MSA 2040 Modular Smart Array System

Recommended

HPE External Mini SAS 2m Cable (Recommended)	407339-B21
HPE 1.0m External Mini SAS High Density to Mini SAS Cable (Recommended)	716189-B21
HPE 2.0m External Mini SAS High Density to Mini SAS Cable (Recommended)	716191-B21

Cables to be used for connecting D2600/D2700 with the Smart Arrays P431 & P441, P841 (HD connector)

Extended

HPE 0.5m External Mini SAS High Density to Mini SAS Cable (Extended)	691971-B21
HPE 4.0m External Mini SAS High Density to Mini SAS Cable (Extended)	716193-B21

NOTE: #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.

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. (D2700 power supplies are on the left side of the enclosures). If desired, the quantity to order is 1 AF573A HPE RDNT 2m, 10A, C13-C14 JMPR CORD.

Technical Specifications

LED Indicators for HDDs	Online (bottom) Drive Failure/ID (top)
LED Indicators on Front Panel	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 Power On/Standby button/system power LED Fan LED Power supply LED
Host Interface	4 x wide SAS 6 Gb/s ports
Maximum Number of Drives	Up to 12 3.5 inch (D2600) or 25 2.5 inch (D2700) SAS or SATA drives Up to 25 2.5 inch (2700) Solid State Drives
Temperature Range	Operating 50° to 95° F (10° to 35° C) Shipping -40° to 150° F (-40° to 66° C) NOTE: Rated 1°C per 1000 feet of elevation to 10,000 ft.
Relative Humidity	Operating 10% to 90% Non-operating Up to 95%
Input Power Requirements	Rated Input Voltage 100 to 240 VAC Rated Input Frequency 50 to 60 Hz Rated Input Current 2.68A at 115 VAC typical, 4A Maximum Input Power (max @ 280VAC) 390W (D2600)/340W (D2700)
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 P212, P411, P812, P222 & P421 https://www.hpe.com/us/en/product-catalog/servers/smart-array-controllers-and-smart-host-bus-adapters.hits-12.html P2000 G3 FC Modular Smart Array System NOTE: For up to date compatibility, see the following URL for complete Smart Array Controller compatibility and support information: https://www.hpe.com/us/en/product-catalog/servers/smart-array-controllers-and-smart-host-bus-adapters.hits-12.html
Upgradeable Firmware	Yes, Offline only. Firmware updates available through hp.com
Disk Drives and Enclosure Protocol Support	HPE 3.5 inch (D2600) or 2.5 inch (D2700) SAS 6 Gb/s
I/O Module	Connector Type IPass (mini-SAS) Number of Ports Two (one IN, other is OUT)
D2600/D2700 Disk Enclosure	2U Rack Form Factor Dimensions (HxWxD) 3.47 x 17.99 x 22.3 in (8.8 x 45.0 x 56.7 cm) Weight (base unit) 38 lb (17.2 kg) Weight (with all LFF drives) 59.97 lb (27.2 kg)

Technical Specifications

Weight (with all SFF drives) 54.90 lb (24.9 kg)

Summary of Changes

Date	Version History	Action	Description of Change
04-Sep-2018	Version 51	Changed	Updated Recommended and Extended options.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
23-Oct-2017	Version 50	Changed	Care Pack naming and Service and Support- Parts and Materials updated.
14-Oct-2016	From Version 48 to 49	Changed	Rebranding Edition
20-Aug-2015	From Version 47 to 48	Changed	Changes were made throughout the QuickSpecs
29-Mar-2015	From Version 46 to 47	Changed	Added Support for: HPE Smart Array P841/4GB FBWC 12Gb 4-ports Ext SAS Controller HPE Smart Array P741m/2GB FBWC 12Gb 4-ports Ext Mezzanine SAS Controller
12-Feb-2015	From Version 45 to 46	Changed	Added the new HDDs, Obsolete SKUs removed and SKUs descriptions updated
31-Dec-2014	From Version 44 to 45	Changed	Changes were made throughout the QuickSpecs
21-Aug-2014	From Version 43 to 44	Changed	What's new; At a Glance " Affordable, low cost Storage " D2600 maximum storage changed from 48TB to 72TB and 384TB to 576TB; D2000 enclosure components " High Levels of Storage Density, Data Protection and Functionality " changed 48TB to 72TB and 4TB to 6TB; Configuration Information " Step 4 Choose Hard Drives " added 737390-B21, 737392-B21, 737396-B21, 785099-B21, 785101-B21, 785103-B21, 782669-B21. Removed 632492-B21, 632494-B21, 690823-B21, 690821-B21, 690819-B21;
		Removed	Obsolete SKUs: 650931-B21 and 693648-B21
09-May-2014	From Version 42 to 43	Changed	Operate and Support was revised.
24-Apr-2014	From Version 41 to 42	Changed	Smart Array P431 controller was revised.
17-Apr-2014	From Version 40 to 41	Changed	Product descriptions were revised.
27-Feb-2014	From Version 39 to 40	Changed	Updated the following: What's new - added support for 12G SSDs; added Smart Array P431 features; added link to P431 QuickSpecs in the Supported Operating Systems section; Smart Array Controllers Supported - added 698531-B21 - Smart Array P431; Configuration Information - Step 3 added P421 and P431 to the HPE ProLiant Server Compatibility area; Added 741148-B21, 741153-B21 and 741157-B21 to the Solid State Drives (SAS Performance - SFF) area; added 741144-B21, 741140-B21 and 741136-B21 and NOTE to the Solid State Drives (SAS ME - SFF) D2700 behind ProLiant servers;
08-Dec-2013	From Version 38 to 39	Changed	Product descriptions were revised in Configuration Information.
19-Sept-2013	From Version 37 to 38	Changed	Updated the following: Overview; What's new - added support for new Smart Array P731m controller; Easy to Manage; High Performance 6Gb SAS Host Connectivity; HPE Reliability; D2000 Enclosure Components - added Smart Array P731m Features; added - H222 Host Bus Adapter; Supported Operating Systems - added link to H222 and P731m QuickSpecs; Configuration Information - Smart Array Controllers Supported (Dual Domain) -

Summary of Changes

25-Aug-2013 25-Apr-2013	From Version 36 to 37 From Version 35 to 36		removed Dual Domain note) and removed P421 note; added H222 HBA to the HBA section; added P731m to the Smart Array Controllers/Switches section ; Step 3 updated HPE ProLiant Server Compatibility; added HPE BladeSystem Server Compatibility - P731m Controller section
		Changed	Revised Configuration Information Step 4
		Changed	Changes made to the following sections: Overview - What's New, At A Glance D2000 Enclosure Components - High Levels of Storage Density, Data Protection, and Functionality Configuration Information - Step 4
11-Apr-2013	From Version 34 to 35	Changed	Configuration Information: Updated Solid State Drive (SAS MLC-SFF) section in Step 4.
21-Feb-2013	From Version 33 to 34	Changed	Changes were made to the Product Highlights Section, Configuration Information and Supported Operating Systems Sections.
07-Feb-2013	From Version 32 to 33	Changed	Changes made to the What's New Section, At a Glance Section and Step 4, Choose Hard Drives Section.
06-Dec-2012	From Version 31 to 32	Changed	Changes made to Add the support for the HPE H221 Host Bus Adapter.
		Removed	Removed a note from the Configuration Information section.
11-Oct-2012	From Version 30 to 31	Changed	Change made to URL in Service and Support, HPE Pointnext operational, and Warranty Information section.
16-Aug-2012	From Version 29 to 30	Changed	Changes made throughout the QuickSpecs.
14-May-2012	From Version 28 to 29	Changed	Updated the following: Overview; What's New; At A Glance - added references to the Smart Array P822 Controller throughout this section; D2000 Enclosure Components - added Smart Array P822 features; Configuration Information - Step 2 - Array Controllers - added Smart Array Advanced Pack and Smart Array Advanced Pack 2.0 and Smart Array P822/2GB and NOTES.
14-May-2012	From Version 27 to 28	Changed	Changes made throughout the Product Features and Configuration sections.
05-Mar-2012	From Version 26 to 27	Changed	Updated the following: Product Overview; What's New; At A Glance - affordable, low cost Storage; Flexible/Scalable; Easy to Manage; High performance 6Gb SAS host connectivity; HPE reliability; Enclosure Components - added Smart Array P222 and P421 sections; Supported Operating Systems; Configuration Information - Step 2 - Array Controllers
10-Nov-2011	From Version 25 to 26	Changed	Changes made to the What's New and Configuration Information sections.
22-Sept-2011	From Version 24 to 25	Changed	Updated the following: Overview; What's New; High performance 6 Gb SAS host connectivity; D2000 Enclosure components - Smart Array P711m features and 6Gb SAS BL Switch features; Supported Operating Systems; Smart Array Controllers supported; Configuration Information - HPE BladeSystem Server compatibility list added; Solid State Drives - SATA SFF (572071-B21 and 572073-B21) removed.

Summary of Changes

29-Aug-2011	From Version 23 to 24	Changed	Changes made throughout the QuickSpecs.
16-Jun-2011	From Version 22 to 23	Changed	Updated the following sections: What's New - added new 3TB SAS & SATA drives and new 200GB, 400GB and 800GB SSDs; At A Glance - affordable, low cost storage and high levels of storage density, data protection and functionality; configuration information - step 4 - choose hard drives - added new hard drive descriptions and part numbers.
07-Jun-2011	From Version 21 to 22	Removed	Mentions of StorageWorks were removed.
27-May-2011	From Version 20 to 21	Changed	Affordable, low cost Storage and High Levels of Storage Density, Data Protection and Functionality were revised HPE 900GB 6G SAS 10K rpm SFF Dual Port Enterprise Drive, HPE 1TB 6G SAS 7.2K rpm SFF Dual Port Midline Drive and HPE 1TB 3G SATA 7.2K rpm SFF Midline Drive were added to Step 4
24-Apr-2011	From Version 19 to 20	Changed	Change made to the North America and Canada versions only.
17-Mar-2011	From Version 17 to 19	Changed	Part number for HPE StorageWorks D2700 w/10 600GB 6G SAS 10K SFF Dual Port HDD 6TB Bundle in D2700 6G SAS Dual Port drives bundle.
24-Feb-2011	From Version 16 to 17	Changed	D2000 Disk Enclosures was revised in D2000 Enclosure Components.
01-Feb-2011	From Version 15 to 16	Added	Solid State Drives were added throughout the QuickSpecs and Integrity Servers was added to Smart Array Controllers Supported in Step 2.
09-Jan-2011	From Version 14 to 15	Changed	Array Controllers and Hard Drive product descriptions were revised HPE StorageWorks D2600 w/12 1TB 6G SAS 7.2K LFF Dual Port MDL HDD 12TB Bundles and HPE StorageWorks D2600 w/6 450GB 6G SAS 15K LFF Dual Port HDD 2.7TB Bundles were added
15-Nov-2010	From Version 13 to 14	Changed	Changes made throughout the QuickSpecs.
14-Nov-2010	From Version 12 to 13	Changed	Service and Support, HPE Pointnext operational and Warranty Information, HPE Integrity Servers in Step 2 and Step 5 were completely revised HPE StorageWorks D2700 w/25 450GB 6G SAS 10K SFF Dual Port HDD 11.2TB Bundle, HPE StorageWorks D2700 w/25 600GB 6G SAS 10K SFF Dual Port HDD 15TB Bundle and HPE StorageWorks D2700 w/10 600GB 6G SAS 10K SFF Dual Port HDD 6TB Bundle were added HPE 250GB 3G SATA 5.4K SFF (2.5 inch) ETY HDD was removed from SATA Drives - SFF
10-Nov-2010	From Version 10 to 12	Changed	Made a change to a Smart Buy SKU description in the North America and Canada versions only.
04-Oct-2010	From Version 9 to 10	Changed	Updated the following sections: What's new; configuration information-step 4: choose hard drives - added support for the 450 GB and 600 GB SAS 10K SFF drives
29-Jul-2010	From Version 8 to 9	Changed	Note was added to Smart Array Controllers Supported (Dual Domain) and Dual Domain in supported was removed from the Smart Array Controllers Supported (Single Domain) note in Step 2.

Summary of Changes

22-Jul-2010	From Version 7 to 8	Added	Added new Smart Buys to the Models section in the North America and Canada versions.
20-Jun-2010	From Version 6 to 7	Added	<p>Three (3) new D2600 + HDD fully populated (2) and one partially populated bundles</p> <p>HPE StorageWorks D2600 w/12 2 TB 3G SATA 7.2K LFF HDD 24 TB Bundle</p> <p>HPE StorageWorks D2600 w/12 2 TB 6G SAS 7.2K LFF HDD 24 TB Bundle</p> <p>HPE StorageWorks D2600 w/6 2 TB 6G SAS 7.2K LFF HDD 12 TB Bundle</p> <p>Dual Domain support for HPE Smart Array P411 & P812 Controllers for higher levels of redundancy and reliability</p>
25-Mar-2010	From Version 5 to 6	Changed	<p>Supported Operating Systems was completely revised</p> <p>Technical Specifications were updated</p> <p>All mentions of HPE Smart Array P812 Controller and RAID 50 and 60 were added</p> <p>HPE 1TB and 2TB 6G SAS 7.2K LFF Hard Drive were added to SAS Midline-LFF</p>
04-Mar-2010	From Version 4 to 5	Changed	SATA per enclosure was increased to 24TB throughout the QuickSpecs, Hard Drive descriptions were revised and HPE 2TB 3G SATA 7.2K LFF (3.5-inch) MDL Hard Drive was added.
14-Jan-2010	From Version 3 to 4	Added	D2600 - Large Form Factor (LFF) and D2700 - Small Form Factor (SFF) SATA hard drives were added throughout the QuickSpecs.
15-Nov-2009	From Version 2 to 3	Added	<p>What's New to the Overview section</p> <p>HPE StorageWorks D2600 w/12 450GB 6G SAS 15K LFF Dual Port HDD 5.4TB Bundle, HPE StorageWorks D2600 w/12 600GB 6G SAS 15K LFF Dual Port HDD 7.2TB Bundle, HPE StorageWorks D2700 w/25 146GB 6G SAS 15K SFF Dual Port HDD 3.6TB Bundle, HPE StorageWorks D2700 w/25 300GB 6G SAS 10K SFF Dual Port HDD 7.5TB Bundle and HPE StorageWorks D2700 w/25 500GB 6G SAS 7.2K SFF Dual Port MDL HDD 12.5TB Bundle to Models</p>
01-Oct-2009	From Version 1 to 2	Changed	Updated the following sections: D2000 Disk Enclosure Software Components - Supported Operating Systems; Configuration Information - Step 2 Array Controllers - added note for required firmware version.

Summary of Changes



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

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