

Overview

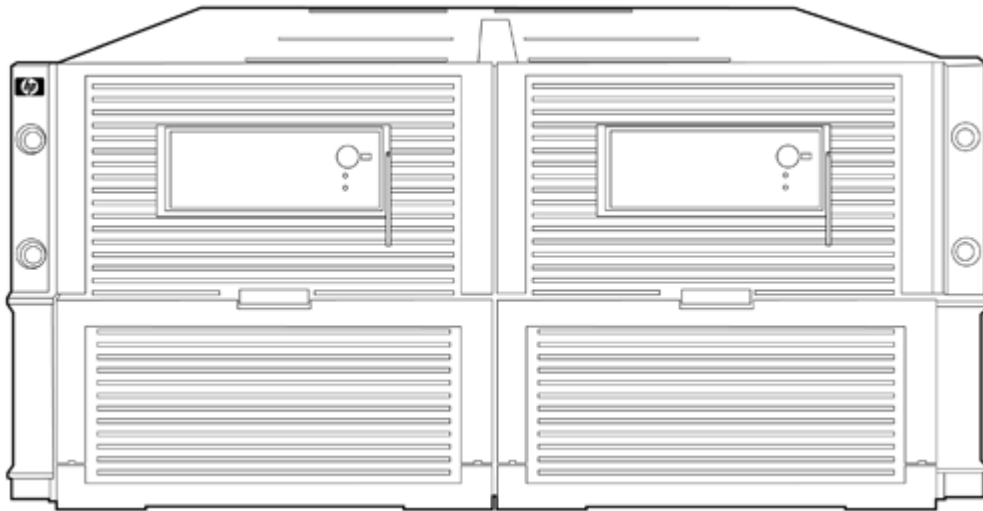
Finding it difficult to keep up with the growth in unstructured data? Looking for a cost-effective high capacity storage option?

With the HP StorageWorks 600 Modular Disk System, HP extends and redefines direct-attached storage for BladeSystem servers, combining the simplicity and cost effectiveness of direct-attached storage without sacrificing flexibility or performance.

Use the MDS600 as part of a straight-forward in-rack 3 Gb/s SAS implementation that delivers high-density, low-cost external zoned direct attach storage for HP BladeSystem servers. Easily configure storage on the fly with easy to use management software.

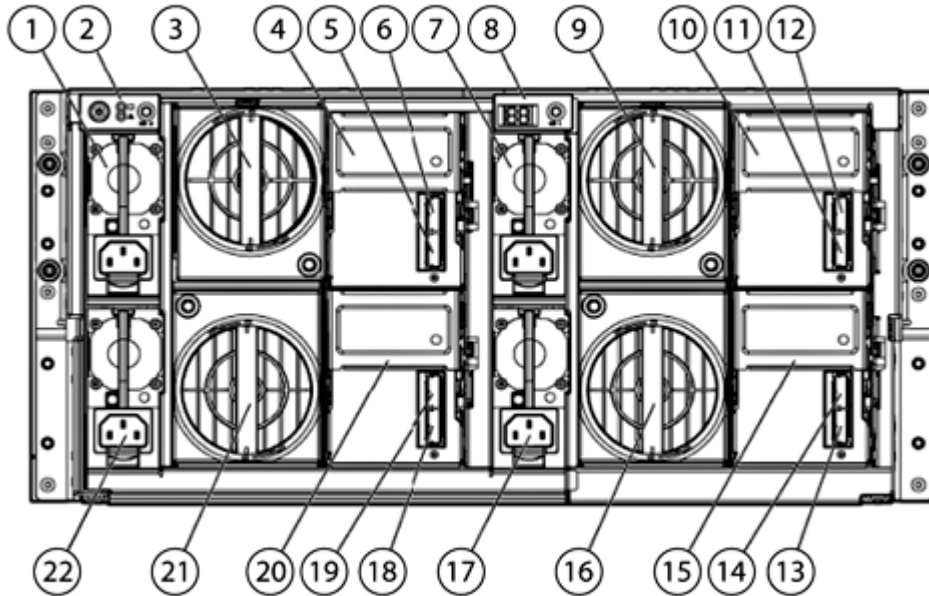
Up to six MDS600 storage devices can be supported off a single BladeSystem enclosure for up to 420 TB of capacity. End-to-end 3 Gb/s SAS connectivity enables a high performance storage solution using an HP Smart Array P700m controller, 3Gb SAS BL switches, and the MDS600.

For more information on 3 Gb/s SAS storage solutions for HP BladeSystem, see: www.hp.com/go/directconnect.



HP StorageWorks 600 Modular Disk System

Overview



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|----------------------------------|-------------------------------------|-------------------------------------|
| 1. Power supply 1 | 9. Fan module 1 (Drawer 1) | 17. Power supply 4 |
| 2. Power On/UID 2 status panel | 10. Primary I/O module (Drawer 1) | 18. SAS in connector |
| 3. Fan module 1 (Drawer 2) | 11. SAS in connector | 19. SAS out connector |
| 4. Primary I/O module (Drawer 2) | 12. SAS out connector | 20. Secondary I/O module (Drawer 2) |
| 5. SAS in connector | 13. SAS in connector | 21. Fan module 2 (Drawer 2) |
| 6. SAS out connector | 14. SAS out connector | 22. Power supply 2 |
| 7. Power supply 3 | 15. Secondary I/O module (Drawer 1) | |
| 8. UID 1 status pane | 16. Fan module 2 (Drawer 1) | |

At A Glance

- 5U rackmount form factor
- Supports seventy 3.5" LFF Universal hot pluggable SAS or SATA drives
- Two pull-out drive drawers support hot plug large form factor dual-ported SAS or archival-class SATA drives in just 5U of rack space (35 hot plug drives per drawer)
- 3 Gb/s SAS connectivity using HP StorageWorks 3Gb SAS BL switches in the interconnect bays, and HP Smart Array P700m Controllers in each BladeSystem server
- Using the Virtual SAS Manager (VSM) in the HP StorageWorks 3Gb SAS BL switch, assign or 'zone' drives of the MDS600 directly to BladeSystem servers; supports up to 100 drives per BladeSystem server
- Includes redundant hot plug fans and redundant 1200W 12V hot plug power supplies standard
- Two dual port I/O module system recommended for SATA customers in single domain environments
- Additional option kit with two dual port I/O modules is added for SAS drives, creating a dual domain environment
- A single BladeSystem enclosure supports up to six MDS600's externally. When using SATA drives, a single redundant pair of 3Gb SAS BL switches can be used for this maximum configuration. When using SAS drives, a pair of redundant 3Gb SAS BL switches are required.
- 3-0-0 warranty

Overview

For detailed deployment information, see the HP direct connect external SAS storage for HP BladeSystem deployment guide:
<http://h20000.www2.hp.com/bizsupport/TechSupport/DocumentIndex.jsp?contentType=SupportManual&lang=en&cc=us&docIndexId=64180&taskId=101&prodTypeId=3709945&prodSeriesId=3832737>

Models

HP StorageWorks 600 Modular Disk System	HP MDS600 with two Dual Port I/O Module System	AJ866A
	NOTE: Base model for SAS and SATA drives. Add AP763A when using dual ported SAS drives to create a dual domain environment.	
	NOTE: Includes redundant hot plug power supplies and redundant hot plug fans.	
	NOTE: Includes two right angle and two left angle power cords.	
	HP StorageWorks MDS600 Dual I/O Module Option Kit	AP763A
	NOTE: Add AP763A option kit to AJ866A when using dual-ported SAS drives to create a dual domain environment.	
	NOTE: Configuring the MDS600 with four I/O modules and dual port SAS hard drives creates a dual domain environment for data path redundancy.	
	Configurations using single port SATA hard drives and only two dual port I/O modules will not have data path redundancy, and a warning message will occur stating that the storage shelf is not redundant.	
	HP StorageWorks MDS600 with (35) 1TB LFF SATA Hard Disk Drive Bundle	AP764A
	NOTE: Includes thirty-five 1TB LFF SATA drives, two dual port I/O modules, redundant hot plug power supplies and redundant hot plug fans.	
HP StorageWorks MDS 600 with (35) 450GB LFF SAS Hard Disk Drive Bundle	AP765A	
NOTE: Includes thirty-five 450GB LFF SAS drives, four dual port I/O modules, redundant hot plug power supplies and redundant hot plug fans.		
HP MDS600 Rack Crossbrace Option Kit	501879-B21	
NOTE: Must order one rack support bracket option kit per rack if the MDS600 is mounted at the bottom most location within an HP rack		
NOTE: An MDS600 fully loaded with drives weighs 300lbs.		
HP MDS6001U Support Tray Option Kit	501037-B21	
NOTE: Must be ordered to support the MDS600 in an HP or 3rd party rack if no other equipment is loaded directly beneath it. Order one kit per MDS600.		
NOTE: This kit takes up 1U.		
HP 2 Stk 4X Fixed C-13 Offset Power Cord Option Kit	AF502B	
NOTE: This power cord option kit connects four MDS600 power supplies to a single power plug, reducing the number of PDUs needed in a rack. Can be used in several configurations, including all four power supplies on a single MDS600 or with two power supplies on each of two adjacent MDS600.		

Models

Related Items

HP StorageWorks 3Gb SAS BL Switch	HP StorageWorks 3Gb SAS BL Switch - Single Pack	AJ864A
	HP StorageWorks 3Gb SAS BL Switch - Dual Pack	AJ865A

Configuration Rules:

1. The SAS Switch is supported only in the HP c-Class Enclosures (c7000 & c3000)
2. Support installation of the 3Gb SAS BL Switch in up to 4 interconnect bays in the c7000 and up to 2 interconnect bays in the c3000.
3. (2) SAS Switches are required in the same c-Class enclosure interconnect bay row for redundancy. Single switch configurations are supported as non-redundant.
4. For the c3000 enclosure, the SAS Switch can only be placed into interconnect bays (3 and 4)
5. For the c7000 enclosure, the SAS Switch can only be placed into interconnect bays (3 and 4), or (5 and 6) or (7 and 8).
6. For the c3000 enclosure using a server's mezzanine slot 1 along with enclosure interconnect bay 2 is not supported.

P700m Smart Array Controller	HP Smart Array P700m Controller/512	508226-B21
	NOTE: P700m Smart Array Controller/512 recommended for optimum performance with the MDS600.	
	Battery Kit for P700m Controller/512	452348-B21
	HP Smart Array P700m Controller/256	507925-B21
	NOTE: Does not support RAID 5 or 6. Does not support battery-backup.	

Configuration Rules:

1. A half height blade server must have a P700m (508226-B21 or 507925-B21) installed in server mezzanine slot 1 or mezzanine slot 2.
2. A full height blade server must have a P700m (508226-B21 or 507925-B21) installed in server mezzanine slot 1, mezzanine slot 2 or mezzanine slot 3.
3. A double density blade server must have a P700m (508226-B21 or 507925-B21) installed in server mezzanine slot 2 of each server. 4 SAS Switches in interconnect bays 5, 6, 7 and 8 must also be included in this configuration.

For more information on the P700m, see: www.hp.com/go/p700m.

Tape Backup	HP StorageWorks 1/8 G2 SAS Tape Autoloaders (LTO-3 and LTO-4)
	HP StorageWorks MSL2024 SAS Tape Libraries (LTO-3 and LTO-4)
	HP StorageWorks MSL4048 SAS Tape Libraries (LTO-3 and LTO-4)
	HP StorageWorks MSL8096 SAS Tape Libraries (LTO-3 and LTO-4)

D2D Backup System	HP StorageWorks D2D2500 Backup System
	HP StorageWorks D2D4000 Backup System

Features and Benefits

Key Features

High density, low cost SAS storage for BladeSystem servers

- 70 LFF Universal SAS or SATA drives in 5U
- Two pull-out drive drawers support hot plug large form factor dual-ported SAS or archival-class SATA drives in just 5U of rack space
- Each pull-out drive drawer accesses a redundant set of hot plug power supplies and redundant hot plug fans.
- Straight forward SAS architecture provides zoned direct attach storage for BladeSystem servers; just a Smart Array P700m controller in the blade server, a redundant pair of 3Gb SAS BL switches in the chassis connected to an MDS600.
- The same 3Gb SAS BL switch can be used to support the MSA2000sa in a shared SAS storage environment. Use of both the MSA2000sa and the MDS600 off the same 3Gb SAS BL switch(es) is not supported.

Build BladeSystem server storage on the fly

- MDS600 drives are assigned or 'zoned' to individual blade servers using SAS 2.0 zoning capabilities. Use the Virtual SAS Manager (VSM) in the 3Gb SAS BL switch to dynamically assign up to 100 drives specific BladeSystem servers, without complex configuration or re-cabling. Drives zoned to each server appear as local storage to that server. This allows complete flexibility to reconfigure quickly and easily without moving cables
- With zoned direct attach capabilities; server administrators can build local storage on the fly according to their configuration requirements.
- Quickly deploy and expand capacity by configuring additional drives to a servers' drive zone without moving a single cable.

High performance 3 Gb/s SAS connectivity to external storage

- End-to-end 3 Gb/s SAS connectivity ensures a high performance storage solution using a P700m Smart Array controller, 3Gb BL SAS switches, and the MDS600.
- Since storage is contained within the rack, latency is reduced as data does not travel over large distances.
- To enhance performance even further, the Smart Array P700m controller installed in the blade server provides 512 MB battery-backed write cache (BBWC).

HP reliability

- Deploy with confidence. HP offers a complete end-to-end storage solution including the MDS600 storage enclosure, HP 3Gb SAS BL Switch, Smart Array P700m controller and HP ProLiant and Integrity Blade Servers and c-Class Enclosures.
- Familiar Smart Array technology of the Smart Array P700m Controller/512 MB enables support for RAID levels 0, 1, 1+0, 5 and RAID 6 with ADG. 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. It is recommended for up to 14 hard drives.
- Receive pre-failure alerts with HP SIM. When drives installed in an MDS600 are used in conjunction with the Smart Array P700m 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 will send a pre-failure alert so you can have the drive replaced, before it fails, under warranty.

Family Information

Product Technology	SAS	3Gb/s SAS
	Modular Chassis	5U, 70 Large Form Factor Universal SAS or SATA drive bays for SAS and SATA hard
	Drives available	Serial Attached SCSI (SAS) enterprise-class drives designed for high volume 24x7 usage. Serial-ATA (SATA) are usually reserved for archival of data as they are both relatively inexpensive and are available in very large capacities. The MDS600 can accommodate both SAS and SATA drives within the same enclosure. SAS drive performance can be approximately 30% greater than SATA performance on sequential host IO. SAS performance excels in sequential lower latency response time and random IO per second transaction performance due to higher rpm disk speeds yielding lower seek times.
	Scalability	Up to 70 SAS or SATA 3.5" hot plug hard drives per MDS600 A single BladeSystem enclosure supports up to six MDS600's externally. When using SATA drives, a single redundant pair of 3Gb SAS BL switches can be used for this maximum configuration. When using SAS drives, a pair of redundant 3Gb SAS BL switches are required.
	RAID	RAID is provided by the Smart Array P700m Controller installed in each BladeSystem server. For optimum performance, the Smart Array P700m Controller/512 with BBWC is recommended. http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/smarraysp700m/index.html
	Power supplies	Includes four redundant hot plug 1200W 12V hot plug power supplies <ul style="list-style-type: none">• Two right angle and two left angle power cords shipped standard.• Each pull-out drive drawer accesses a redundant set of power supplies.
	Fans	<ul style="list-style-type: none">• Includes four redundant hot plug fans.• Each pull-out drive drawer accesses a redundant set of redundant fans.
	Configuration and Management Tools	3Gb SAS BL switch: Use the Virtual SAS Manager (VSM) to dynamically assign drives in the MDS600 to each BladeSystem server, without complex configuration or re-cabling. This allows complete flexibility to reconfigure quickly and easily without moving cables. Smart Array P700mcontroller: Array Configuration Utility (ACU) provides configuration and management of hard drives, and supports online array capacity expansion, logical drive extension, assignment of online spares and RAID or stripe size migration.
	Management/Health Utilities	Active hardware management using HP SIM: Manage the array with the highly refined HP Systems Insight Manager. Smart Components are available to easily update firmware. A convenient Integrated Management Log records hundreds of events and stores them in an easy-to-view format.

Family Information

Server Compatibility	BL2x220 G5 BL260G5 BL280c G6 BL460c G1/G5/G6 BL465c G5 BL480c G1 BL490c G6 BL495c G5 BL680c G1/G5 BL685c G5/G6 BL860c (MDS600 supports SAS drives only for this server) BL870c (MDS600 supports SAS drives only for this server)
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OS Support	Windows Server 2003 Windows Server 2008 Red Hat Enterprise Linux <ul style="list-style-type: none">● RHEL4 U6● RHEL5 U2 SLES (x86) (AMD64/EM64T) <ul style="list-style-type: none">● SLES9 SP4● SLES10 SP2 VMware ESX 3.5 u4 and ESX 4.0 HP-UX 11iv2 HP-UX 11iv3 Open VMS V8.3-1H1 Integrity Windows Release 6.2 for 2003 Integrity Windows Release 6.2 for 2008
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Service and Support, HP Care Pack and Warranty Information

Warranty

3-0-0 warranty

Three-year limited warranty, no parts exchange, no next business day delivery

NOTE: The warranties of the hard drive options purchased for the MDS600 are different for SAS hard drives versus SATA hard drives. SAS hard drive options have a three year warranty and SATA hard drives options have a one year warranty. Reference HP's communication for further details: <http://www.hp.com> go to search, enter CN0089W

Warranty Upgrade Options

- Response - Upgrade on-site response from next business day to same day 4-hour response or 6 Hour Call To Repair
 - Coverage - Extend hours of coverage from next business day to 9 hours x 5 days to 24 hours x 7 days
 - Duration Select duration of coverage for a period of 1, 3, 4 or 5 years
-

HP Care Pack Services. Scalable, Flexible, Dependable. Like your storage.

Your storage is evolving. Get scalable support that evolves with it. HP Care Pack Services is an easy-to-buy, easy-to-use portfolio of packaged services covering your lifecycle needs. You can rely on our highly skilled, HP certified professionals to offer a breadth of expertise across leading storage technologies, and work side by side with you for optimal results. Partner with HP Technology Services to boost availability and avoid costly downtime by mitigating technology-related business risks. To help take the worry out of deploying, supporting and managing your storage technologies, we've designed a portfolio of service options that are as flexible, scalable and affordable as our storage.

Protect your business beyond the warranty

Standard warranty protects against product defects and some causes of downtime. HP Care Pack Services helps you proactively guard against unplanned downtime which can reduce your productivity and profitability. By using a standard approach to warranty uplifts, such as HP Care Pack Services, customers can be certain of consistency of operations for both mission-critical and standard business computing.

Extending warranties with HP Care Pack Services

The key to normalizing the warranty of combined solutions-is making service uplift simple: HP Care Pack Services. This portfolio of predefined packages, extending across the entire IT lifecycle, offering consulting, education, technical support, optimization, risk assessment, and more. It's entirely flexible allowing customers to extend the cover to the precise level of support required. Customer's standard hardware warranty, for example, can be upgraded to next-business-day response, to same-day coverage, or even to a committed six-hour call-to-repair service available 24 hours every day of the week.

Provide consistent, predictable levels of support across your entire department or business

Give you direct access to proven technical and problem-solving expertise

Offer a choice of response-time and repair-time commitments

Are available whenever and wherever you do business

For many products, post-warranty HP Care Pack Services are available when your original warranty has expired. Choose the support levels that meet your business requirements, from basic to mission-critical. In the new world of business technology, when your technology has to work for your business to work, who can you trust to make your technology work? HP Technology Services, the trusted business technology experts who manage your technology in action, because when technology works, business works.

<http://www.hp.com/hps/storage>

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

Service and Support, HP Care Pack and Warranty Information

- Recommended Services** **HP Care Pack Services recommended for optimal satisfaction of all deployments of your product.**
- 3-Year HP Support Plus 24 3-Year HP Support Plus 24 provides integrated hardware and software support services designed specifically for your technology. HP Services engineers deliver reactive onsite hardware support and over-the-phone software support around-the-clock.
- HP Installation Service HP Hardware Installation provides initial hardware installation of your product into your technology environment (System configuration is not included)

Product Number	Product Name	Service Name	Care Pack Services Product # and Band	Alternate Care Pack Services Product #
AJ866A	HP MDS600	3-Year HP Support Plus 24	HA110A3-4ZZ	
		HP 3y 4h 24x7 MDS600 HW Supp		UQ292E
		HP Installation Service	HA113A1-5BT	UQ307E
AP764A	HP MDS600 Bundle w/HD	3-Year HP Support Plus 24	HA110A3-4ZZ	
		HP 3y 4h 24x7 MDS600 HW Supp		UQ292E
		HP Installation Service	HA113A1-5BT	UQ307E
AP765A	HP MDS600 Bundle w/HD	3-Year HP Support Plus 24	HA110A3-4ZZ	
		HP 3y 4h 24x7 MDS600 HW Supp		UQ292E
		HP Installation Service	HA113A1-5BT	UQ307E

Related Services

Services that will enhance the user experience in many product deployments.

- HP Proactive Select Service** HP Proactive Select Service improves IT performance and manageability through the use of cost effective flexible proactive services. This proactive service allows you to accelerate the ROI of your technology environment, by tailoring specific services to more quickly take advantage of your investment.
- HP Entry Storage Data Migration Service for Windows** HP Entry Storage Data Migration Service for Windows offers you a cost competitive and convenient way to accommodate data migration triggered by a need to refresh or consolidate storage, or to create different storage tiers. This service offers a migration cost in line with the costs of storage products in small and medium-sized storage environments. The service is delivered via a skilled HP service specialist with special consideration for data availability, integrity, and ongoing operational performance during the transfer process

Service and Support, HP Care Pack and Warranty Information

Service Name	Care Pack Services Product # and Band	Alternate Care Pack Service Product #
HP Proactive Select Service	Contact your HP sales rep or Channel Partner for assistance	Contact your HP sales rep or Channel Partner for assistance
HP Entry Storage Data Migration Service for Windows	Contact your HP sales rep or Channel Partner for assistance	Contact your HP sales rep or Channel Partner for assistance

eSupport

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

Support Portal

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

Features include:

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

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

Remote Support Technology (RST)-HP Remote Support Pack

Taking a more proactive approach to IT support, the HP Remote Support pack plug-in module easily integrates with HP Systems Insight Manager to provide a powerful, unified "single pane of glass" solution for onsite and remote management.

HP Remote Support Pack enhances HP Systems Insight Manager with intelligent event diagnosis plus the automatic submission of hardware event notifications securely to HP support, including acknowledgment and status returns. It adds remote configuration collections to allow the delivery of assessment and proactive services for your SAN storage and HP-UX environments.

Customer Technical Training

Consider education as an integral part of your strategy to get the best return on investment for your HP storage solution. HP offers a variety of training courses on storage software, networking, archiving and disk storage systems. Our classes are available in many delivery modalities from traditional instructor-led courses at one of our 80 training centers worldwide to on-site training customized to your needs or online. www.hp.com/learn/storage

HP Services Awards

HP Services continues to be recognized for service and support excellence by customers, partners, industry organizations and publications around the world. Recent honors and award reflect our services team's dedications, technical expertise, professionalism and uncompromising commitment to customer satisfaction. For a list of all our awards, please visit: <http://h20129.www2.hp.com/services/cache/77318-0-0-225-121.html>.

Service and Support, HP Care Pack and Warranty Information

Additional Services Information

For more information about HP Care Pack Services for Storage, please visit:

<http://www.hp.com/hps/storage>

If you have specific questions, contact your local HP representative. Contact information for a representative in your area can be found at "Contact HP" <http://www.hp.com>

Configuration Information

Step 1 - MDS600 - Choose SAS or SATA configurations

Select one:

Model Name	Model Description:	Part Number
MDS600	HP MDS600 with two Dual Port I/O Module System NOTE: Base model for SAS and SATA drives. Add AP763A when using dual-ported SAS drives to create a dual domain environment. NOTE: Includes four hot plug power supplies and four hot plug fans for n+2 redundancy. NOTE: Includes two right angle and two left angle power cords.	AJ866A
	HP StorageWorks MDS 600 Dual I/O Module Option Kit NOTE: Add AP763A option kit to AJ866A when using dual-ported SAS drives to create a dual domain environment.	AP763A
	HP StorageWorks MDS 600 with (35) 1TB LFF SATA Hard Disk Drive Bundle NOTE: Includes thirty-five 1TB LFF SATA drives, two dual port I/O modules, redundant hot plug power supplies and redundant hot plug fans.	AP764A
	HP StorageWorks MDS 600 with (35) 450GB LFF SAS Hard Disk Drive Bundle NOTE: Includes thirty-five 450GB LFF SAS drives, four dual port I/O modules, redundant hot plug power supplies and redundant hot plug fans.	AP765A

Step 2 - Choose Supported Options For Smart Array P700m Controller

Select each required option with quantities specified.

SAS Controller:		Part Number
Smart Array P700m controller	HP Smart Array P700m Controller/512	508226-B21
	Battery Kit for P700m Smart Array Controller/512	452348-B21
	HP Smart Array P700m Controller/256	507925-B21
SAS Switch:		
	3Gb SAS BL Switch	
	HP StorageWorks 3Gb SAS BL Switch - Single Pack	AJ864A
	HP StorageWorks 3Gb SAS BL Switch - Dual Pack	AJ865A

Step 2b - SAS Cables (as needed for connecting MDS600 to 3Gb/s SAS BL Switch)

Model Description	
mini-SAS 4x 2M Cable All	407339-B21

Configuration Information

Step 3 - MDS600 SAS and SATA Drive Options

NOTE: an MDS600 fully loaded with drives weighs 300lbs.

Hot Plug 3.5" SAS Drives

HP 146GB SAS 3.5" 15K DP HDD	384854-B21
HP 300GB SAS 3.5" 15K DP HDD	416127-B21
HP 400GB SAS 3.5" 10K DP HDD	459508-B21
HP 450GB SAS 3.5" 15K DP HDD	454232-B21
HP 750 GB 7.2k 3.5" DP SAS MDL HDD	461135-B21
HP 1 TB 7.2k 3.5" DP SAS MDL HDD	461137-B21

Hot Plug 3.5" SATA Drives

HP 500GB 3G SATA 7.2K 3.5" HDD	458928-B21
HP 750GB 3G SATA 7.2K 3.5" HDD	458930-B21
HP 1TB 3G SATA 7.2K 3.5" MDL HDD	454146-B21

Step 4 - Choose Rack Options

Choose HP Rack 10000 series Cabinets for the MDS600

The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors.

<http://h18004.www1.hp.com/products/servers/proliantstorage/racks/10000series/index.html>

NOTE: An MDS600 fully loaded with drives weighs 300lbs.

Technical Specifications

MDS600	INPUT POWER (per power supply)	Rated Line Voltage	90 to 132 VAC 180 to 264 VAC
		Rated Input Frequency	47 to 63 Hz
		Rated Input Current	10A (at 100 VAC), 7.8A (at 200VAC)
	TEMPERATURE AND HUMIDITY RANGES	Rates Input Power	964 W (at 100 VAC), 1412 W (at 240 VAC)
		Operating Temperature	50° to 95° F (10° to 35° C) NOTE: Maximum Rated 10°C per/hr (50°F/hr)
		Storage Temperature	-22° to 140° F (-30° to 60° C) NOTE: Maximum Rated 20°C/hr (68°F/hr)
		Operating Humidity	10% to 90% relative humidity (Rh), 28° C (82.4° F) maximum wet bulb temperature, non-condensing
		Non-Operating Humidity	5% to 95% relative humidity (Rh), 38.7° C (101.66° F) maximum wet bulb temperature, non-condensing
	PHYSICAL	Length	89.12 cm
		Width	44.7 cm (17.6 in)
Height		22.1 cm (8.7 in)	
Chassis Weight		72.58 kg (160 lb) with no hard drives installed	
Weight		136 kg (300 lb) with hard drives installed	

BTU Rating (maximum) 3535 Btu/hr

Power consumption at 208V

Drive Type	Typical	Service Position Maximum
7200 RPM SATA	800W	1140W
10K 400G SAS	940W	1340W
15K SAS	1280W	1710W

Power consumption at 120V

Drive Type	Typical	Service Position Maximum
7200 RPM SATA	1000W	1500W
10K 400G SAS	1100W	1600W
15K SAS	1320W	1770W

NOTE: Input Power and Heat Dissipation specifications are maximum values and apply to worst-case conditions at full rated power supply load. The power/heat dissipation for your installation will vary depending on the equipment configuration.

NOTE: Temperature ratings shown are for sea level. An altitude derating of 1°C per 300 m (1.8°F per 1,000 ft) to 3048 m (10,000 ft) is applicable. No direct sunlight allowed. The upper limit may be limited by the type and number of options installed.

NOTE: Storage maximum humidity of 95% is based on a maximum temperature of 45°C (113°F).

Altitude maximum for storage corresponds to a pressure minimum of 70 KPa.

RAID Support RAID 6 with ADG (Advanced Data Guarding) available on the P700m/512
RAID 5 (Distributed Data Guarding) available on the P700m/512
RAID 1 + 0 (Mirroring and Stripping)
RAID 1 (Mirroring)
RAID 0 (Stripping)

Upgradeable Firmware Yes - Online and Offline

Disk Drives and Enclosure HP 3.5" SAS 3 Gb/s

Protocol Support



Technical Specifications

I/O Module	Connector Type	External mini-SAS 4x (SFF8088)
	Number of Ports	Two

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