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Overview

Description

HP StorageWorks 2500 Disk System (DS2500)

The HP StorageWorks 2500 Disk System (DS2500) delivers an industry leading, high-capacity 3U storage solution. This rack-optimized enclosure features system compatibility with HP-UX operating system s. Because it's built with HP's commitment to developing dependable products and service, the HP StorageWorks 2500 Disk System ensures data integrity and manageability. The DS2500 has 14 hot-pluggable slots, with individual disk capacities from 72 to 500 GB that can be mixed and matched in a single enclosure. The DS2500 capacity can reach 7 TB with 500 GB FATA drives. It provides 2 Gb/s transfer speed technology, all in a 3U package. The DS2500 supports spanning (combining drives into one logical disk drive) and can be daisy chained for up to a total of 4 enclosures.

The disks and enclosure can be optionally pre-installed in racks for ease of integration. For "set-it-and-forget-it" storage, your best choice is the DS2500.

Models

HP StorageWorks 2500 Disk System

The HP StorageWorks 2500 Disk System enclosure design provides two specific configurations tailored to meet the needs of all HP server and workstation customers.

Factory or Field rack-mountable fourteen drive enclosure with dual bus, dual power supply, must be ordered with at least one drive	AG572A

NOTE: For complete compatibility information, refer to the Specifications section of this document.

Feature List

- Fibre Channel 2Gb/sec transfer rates
- 3U rack height
- Fourteen hot pluggable disk slots
- Dual bus I/O
- Supports spanning (combining drives into one logical disk drive)
- Can be daisy chained for up to a total of 4 enclosures
- Choice of 73,146 or 300GB 10k RPM drives or 146 GB 15k RPM drives or 500GB FATA drives that can be mixed or matched in a single enclosure

Key Features

- Fibre channel reliability and speeds - Delivering data transfer rates up to 2 GB/s per channel
- Up to 7 TB of storage in a single enclosure with 14 500GB FATA drives
- Dual I/O modules and power supplies
- Hot-pluggable drives
- Customer self installable

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Product Highlights

Hot Pluggable	Hot-pluggable technology is designed into the drive mechanisms. Hot-pluggable components can be replaced without powering down the storage system or stopping I/O operations. This feature significantly enhances data availability.
Capacity	Up to 7 TB of storage can be provided in a 3U footprint using 14x 500GB FATA disks
Compatibility and Integration Testing	Intensive compatibility and performance testing with HP severs ensures the highest level of integration available in the industry.
High Availability/ Fault Tolerance/ Hot pluggable support	The DS2500 FC drive enclosure has dual redundant hot-plug FC I/O modules that allow distribution of I/Os between the two modules and provides redundant paths should either FC I/O module become unavailable. The enclosure also has dual redundant hot-plug power supplies and dual hot- plug blowers. The enclosure also has a hot-plug Environmental Monitoring Unit (EMU) to monitor and report the condition of the power supplies and fans. The EMU can be replaced without affecting I/O operations. The FC and FATA disk drives have dual FC ports which can be redundantly accessed. The drives are hot-pluggable. The DS2500 has dual redundant power distribution. Two independent power cords can be configured to distribute power through two Power Distribution Units (PDUs), if available. For maximum availability, a customer should provide redundant power from independent power circuit breakers, independent power lines from the power company and even independent power companies.
Servers Supported (if applicable)	The DS2500 is supported in multiple HP Integrity servers using the HP-UX operating system.
Warranty	2 year, 27x7, 4 hour remote response

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Configuration Information

		Product Number
Enclosure	HP StorageWorks 2500 Disk System, factory/field rack; must be ordered with at least one drive for factory racking	AG572A
Disk Mechanisms	Drives are orderable two ways - either with the purchase of an array, or as add-on drives for arrays already installed. There are different product numbers for Upgrade drives than Initial-installation drives.	

		Not for use in EMEA	EMEA Only
HP StorageWorks FC Drives - Factory installation	**NOTE:** A minimum of one (1) disk drive must be ordered with each factory installation for each enclosure ordered.		
	146 GB 10K rpm dual-port 2 Gb/s FC-AL 1-inch (2.54 cm) drive	293556-B23*	293556-B22*
	300 GB 10K rpm dual-port 2 Gb/s FC-AL 1-inch (2.54 cm) drive	364622-B23*	364622-B22*
	72 GB 15K rpm dual-port 2 Gb/s FC-AL 1-inch (2.54 cm) drive	293568-B23*	293568-B22*
	146 GB 15K rpm dual-port 2 Gb/s FC-AL 1-inch (2.54 cm) drive	364621-B23*	364621-B22*
HP StorageWorks FATA Drives - Factory installation	**NOTE:** A minimum of one (1) disk drive must be ordered with each factory installation for each enclosure ordered.		
	500 GB FATA disk dual-port 2Gb FC Hybrid disk drive factory integrated	370790-B23*	370790-B22*
	***NOTE:** 0D1 will appear after this part number on your sales order indicating factory integration		

Rack Options

HP 10000 Series G2 Racks	**NOTE:** The number of subsystems varies and is determined by the interior U-space of the cab.	
	HP Rack 10642 G2 Shock (42U)	AF002A
	HP Rack 10642 G2 w/Extn Shock (42U)	AF004A
	HP Rack 10642 G2 (no door) Shock (42U)	AF005A
	HP Rack 10642 G2 w/Extn (no door) Shock (42U)	AF006A
	HP Rack 10636 G2 Shock (36U)	AF012A
	HP Rack 10636 G2 w/Extn Shock (36U)	AF014A
	HP Rack 10636 G2 (no door) Shock (36U)	AF015A
	HP Rack 10636 G2 w/Extn (no door) Shock (36U)	AF016A
	For PDUs and cabinet accessories see: http://h18004.www1.hp.com/products/servers/proliantstorage/racks/10000series.html	
HP Rack 5642 System for Field Installation only	5642 (42U) Rack Cabinet System	358254-B21
	For additional cabinet accessories see: http://h18000.www1.hp.com/products/quickspecs/12074	

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Configuration Information

Rack System/E Cabinets for Field Installation only	HP Rack System/E41 Quartz (41U)	A4902A
	HP Rack System/E41 Graphite (41U)	A4902D
	HP Rack System/E33 Quartz (33U)	A4901A
	HP Rack System/E33 graphiote (33U)	A4901D
	HP Rack System/E25 (25U)	A4900A
	For PDUs and cabinet accessories see: http://www.hp.com/go/enclosures	
Field Installation	Please refer to the Expansion options (Step 8) - listed in the Configuration Information and Configuration Rules - for details on components available for field installation.	
	These components are useful for adding EVA4000/6000/8000 components to existing EVA4000/6000/8000 storage configurations or into on-site customer-supplied racks. **NOTE:** EVA4000 Starter Kit - Field installation is only available for Asia Pacific.	
Non-HP Rack installation	For racks other than those specifically stated please visit the EVA web page for details on rack and power specifications: http://www.hp.com/go/eva	

Optional Hardware Accessories

StorageWorks FC Drives - Upgrade installation	**NOTE:** These drives are for on-site install only.	
	300 GB 10K rpm dual-port 2 Gb FC-AL 1-inch (2.54 cm) drive	364622-B22
	146 GB 10K rpm dual-port 2 Gb FC-AL 1-inch (2.54 cm) drive	293556-B22
	146 GB 15K rpm dual-port 2 Gb FC-AL 1-inch (2.54 cm) drive	364621-B22
	72 GB 15K rpm dual-port 2 Gb FC-AL 1-inch (2.54 cm) drive	293568-B22
HP StorageWorks FATA Drives - Upgrade installation	500 GB FATA disk dual-port 2Gb FC Hybrid disk drive upgrade	370790-B22

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HP StorageWorks 2500 Disk System (DS2500)

Service and Support, HP Care Pack, and Warranty Information

HP Care Pack Services   HP Care Pack Services offer upgraded service levels to extend and expand your standard product warranty with easy to buy, easy to use support packages that help you make the most of your hardware and software investments. They let you choose the support levels that meet your business requirements, from basic to mission-critical. They help you contain total cost of ownership.

HP Care Pack warranty extensions can be purchased along with HP products to cost-effectively upgrade or extend your warranty. For many products, post-warranty HP Care Pack Services are available when your original warranty has expired.

Why purchase an HP Care Pack service?

Your standard warranty protects against product defects. HP Care Pack Services help you guard against unplanned downtime, which can reduce your productivity and profitability. These convenient service packages:

- Protect your investment in HP products
- Provide consistent, predictable levels of support across your entire department or business
- Ease budget planning with fixed-cost support that includes parts and labor
- Give you direct access to proven technical and problem-solving expertise
- Offer a choice of response-time and repair-time commitments
- Deliver prompt, measurable results
- Are available whenever and wherever you do business

HP Care Pack availability may vary by country and product.
Supporting your Adaptive Enterprise journey

HP Services helps you make the Adaptive Enterprise real for your organization. The breadth, depth, and quality of HP hardware and software support services can help you **improve the performance** of your IT support processes and resolve the complex software and hardware problems that tax user productivity. HP Care Pack services help you **increase IT environment stability**, efficiency, and agility from the desktop to the data center, and improve the productivity of your employees.

Warranty and Services Included with the Product   The DS2500 Service Support factory warranty includes Installation and Startup Service, 2-year hardware support, with 4-hour response on a 24x7 basis.
In countries where available, your HP Warranty includes support for Customer Self Repair and Customer Self Upgrade.

Please refer to HP's Limited Warranty Statement for further details:
http://h18006.www1.hp.com/products/storageworks/warranty.html

For more information about HP's Global Limited Warranty and Technical Support, visit
ftp://ftp.compaq.com/pub/products/storageworks/warranty/EN_321708-008.pdf

HP warrants the HP 10000 G2 Series Rack according to the standard rack product warranty.
Please refer to product specification for further details:
http://h18004.www1.hp.com/products/servers/proliantstorage/racks/index.html

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Service and Support, HP Care Pack, and Warranty Information

Recommended Services	**HP SAN Solution Service**	• Quickly realize the benefit of your SAN investment while reducing overall cost of ownership • Fast, expert implementation that guards against unexpected compatibility issues, minimizes disruption to your business and optimizes performance • Provides a fully installed, configured and documented SAN with scalability that allows for additional capacity as your business grows
	HP Critical Services	• Boost business productivity through increased server, storage, networking, and applications availability • Minimize business losses caused by IT downtime • Reduce risk and improve efficiency by proactively managing changes across your IT environment • Resolve complex problems quickly through direct access to HP Services expertise and hands-on assistance • Rapidly access single-source support from a team familiar with your business and technology infrastructure • Free your IT staff to focus on strategic business issues
	HP Proactive 24	• Enhanced operational effectiveness and availability with proactive problem identification and solutions recommendations • Partner with technical experts who help coordinate support, provide hands-on assistance, and share industry best practices and HP know-how with your staff • Rapidly access single-source support spanning your environment from servers to storage to networking • Obtain personalized services tailored to your business environment and objectives • Anticipate necessary change - and execute it correctly the first time • Efficiently manage infrastructure resources to meet your performance objectives
	HP Support Plus 24	• 24x7 4-hr. onsite hardware support • Material and parts included • Work to completion for hardware support • 24x7 2-hr response XCS phone-in assistance • Remote problem diagnosis & support • Escalation management • Software product and documentation updates • License to use and copy software product updates • Software electronic support

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Service and Support, HP Care Pack, and Warranty Information

Available HP Care Pack Services

Extend your product warranty with a wide choice of cost-saving support packages.

HP Care Pack Services are sold by HP and HP authorized enterprise and commercial resellers. Services for customers purchasing via direct and enterprise resellers are quoted using HP order configuration tools. Additional information about HP Care Pack Service features and benefits is available at http://www.hp.com/hps/carepack/services/.

Key for HP Care Pack Service availability in the table below:
E = Service available for customers purchasing direct and via enterprise resellers
C = Service available for customers purchasing via commercial resellers
N/A = Service not applicable

HP Care Pack Services Deployment and Per Event Services	Service Available
HP Installation	N/A
HP Installation & Startup	Included with: Hard disk drives
HP Implementation	N/A

For more information about Deployment and Per Event Services for HP Storage, visit http://www.hp.com/hps/storage/.

HP Care Pack Services Availability Services	1 yr	3 yr	4 yr	5 yr
HP 4 Hr, 24x7 Hardware Support	N/A	E/C	E/C	E/C
HP Support Plus	N/A	E/C	E/C	E/C
HP Support Plus 24	N/A	E/C	E/C	E/C
HP Proactive Essentials 24x7 Unlimited	N/A	E/C	E/C	E/C
HP Proactive 24 Service	N/A	E	E	E
HP Critical Service	E	E	E	E

To find HP Care Pack Services available via HP authorized commercial resellers, visit http://h30125.www3.hp.com/csn/salesmktg/elfpack/elf_nonlkup_ctrylang.asp?code=ELNL

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Technical Specifications

	DS2500
Protocols Supported	Fibre Channel
Maximum Channel Transfer Rate (GB/s)	2
Channels	1
Maximum Drives	14 per enclosure 4 enclosures can be daisy-chained to a single HBA

Physical Dimensions

DS2500	Height	5.25 in (13.34 cm)
	Width	19.0 in (42.26 cm)
	Depth	20 in (50.8 cm)
	Max Weight lb/kg	71 lb (32.21 kg)
	Req. Front\Clearance	N/A

Operating Temperature	50° to 95° F (10° to 35° C) - Reduce rating by 1° F for each 1000 ft altitude (1.8° C/1,000 m)
Shipping Temperature	-40° to 150° F (-40° to 66° C)
Humidity	10% to 90% non-condensing
Shipping Humidity	5% to 90% non-condensing
Altitude	Up to 8,000 ft (2,400 m)
Air Quality	Not to exceed 500,000 particles per cubic foot of air at a size of 0.5 micron or larger

Power Data (North America/Europe/Japan) maximum configuration

AC plug type (quantity 2)	North America - 3 wire NEMA No. L6-30R, 30 amp (208 to 240V 60Hz 30A)
	Europe - 3 wire, 2 pole IEC 309, 30 amp, (220 to 240V 50Hz 32A)
Number of phases	Single
Rated current	17A @ 200V-240V AC, 60Hz total, 4.25 A per power cord
Nominal Line Voltage	North America - 208 or 230V Europe - 230V Japan - 206V
Range Line Voltage	187 to 256V
Line Frequency	North America 60Hz, Europe 50Hz, Japan 50 or 60 Hz