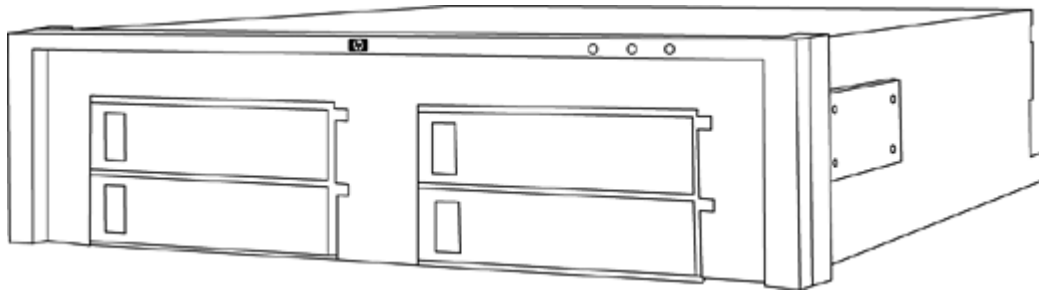# QuickSpecs

Overview

The HP Tape Array 5300 is a 3U rack enclosure that will hold two full-height array modules, four half-height modules, or one full-height and two half-height modules. The offline hot-swap array modules allow you to replace drives without taking down the server, and the optional upgrade kit provides a redundant hot-swap fan and power supply for even greater system availability (factory-racked versions include the redundant hot-swap fan and power supply). The Tape Array 5300 can be configured with four independent SCSI buses connected to four different servers or multiple drives can be daisy chained together through the same host bus adapter. The Tape Array 5300 supports DAT and Ultrium tape drives, plus a DVD+RW. The variety and interchangeability of array modules make the Tape Array 5300 a truly flexible solution for use in rack servers, especially in high-availability environments.

Models

HP Tape Array 5300	C7508B

NOTE: Enclosure for HP 9000, HP Integrity, HP ProLiant and other standard 19" racks (field-racked).

What's New

- The Tape Array 5300 now supports LTO-4 Ultrium 1840, storing up to 3.2 TB of compressed data in only 3U of rack space

Key Features

- Offline hot-swap drives
- Optional high-availability upgrade kit provides redundant hot-swap power supply and fan
- Holds up to four half-height or two full-height drives or a combination of half-height and full height drives in 3U of rack space
- Choice of tape technologies, including Ultrium, and DAT, plus a DVD
- Up to four independent SCSI buses
- Fits industry-standard 19" racks by HP, Rittal, and Apex

Customer Benefits

- Powerful - Holds up to four offline hot-swappable array modules on up to four independent SCSI buses
- Expandable - Allows you to expand from one to four tape drives as your capacity requirements grow
- Flexible - Supports HP array modules: Ultrium, DAT and DVD+RW drives
- Compact - Stores up to 3.2 TB of compressed data in only 3U of rack space with two Ultrium 1840 drives
- Available - Maximizes system uptime and performance with offline hot-swap drives and optional redundant components

QuickSpecs

Family Comparison

	3U Rack-Mount Kit	Tape Array 5300
Maximum Capacity (compressed)	3.2 TB	3.2 TB
Maximum Number of Drives	4 half-height or 2 full-height	4 half-height or 2 full-height
Drives Supported	DAT 40, DAT 72, DAT 160 DLT VS160, SDLT 600, Ultrium 232, Ultrium 448, Ultrium 920, Ultrium 960, Ultrium 1840	DAT 40, DAT 72, DAT 160 Ultrium 448, Ultrium 960, Ultrium 1840, DVD+RW
Maximum Number of SCSI Buses	4	4
SCSI Interface	LVD/SE	LVD/SE
High-Availability Features	None	Offline hot-swap drives Redundant hot-swap PSU and fan (optional)

QuickSpecs

HP Tape Array 5300

Product Highlights

Offline Hot-Swap Technology	The Tape Array 5300 supports offline hot-swap (sometimes referred to as "warm-swap") tape drive modules. This means the drives can be removed and replaced with the power on and the SCSI cables attached to the server. Because the array's SCSI buses are not buffered, however, drive replacement should only take place while the SCSI bus is quiescent (no SCSI activity from the tape drive or any other device on the same bus). This is similar to HP hot-plug tape drives, though the hot-plug drives are not affected by other devices on the bus. With both hot-plug and offline hot-swap drives, however, the operating system or application may not recognize that a drive has been replaced until the system is rebooted and/or other configuration steps are taken.

Precautions should be taken when a drive is replaced to ensure it comes back online properly and can be recognized by the operating system:

- When using a backup application, ensure that all services are stopped before removing the tape drive.
- When an array module is replaced while idle, Windows, HP-UX, and Solaris operating systems should have no problems recognizing and using the tape drive. Linux kernel 2.4, however, may generate parity errors and the "remove/add drive" command must be run to reestablish the drive.
- Replacing a drive that is in use is not recommended. If it does happen, the read-write operation will be aborted and must be cancelled. With Windows systems, the server would also have to be rebooted before the drive can be used again.

SCSI Configuration	The Tape Array 5300 provides the flexibility to configure the SCSI connections in a variety of ways. A few rules apply:

- The number of SCSI connections can equal the number of drives. Using independent SCSI buses for each drive provides the best performance.
- Tape drives can be daisy chained within a single Tape Array 5300 (two is the recommended maximum per bus).
- All drive modules require termination with the HD LVD/SE multimode terminator (C2364A). If drives are daisy chained, the last device in the chain must be terminated.
- Tape drives should not be daisy chained between two Tape Array 5300 enclosures.

Because the Tape Array 5300 can be configured in a number of different ways, cables and terminators are not included with the array or the drives and must be ordered separately.

Scalability	The Tape Array 5300 supports up to two full-height or four half-height tape drives or a combination. Tape drives can be added at any time, allowing flexibility to add capacity or change tape technologies at any time.

HP Library and Tape Tools (L& TT)	The Tape Array 5300's tape drives are supported on HP's industry-leading diagnostic tool -- HP Library and Tape Tools (L&TT). L&TT is a single, convenient program that's a snap to install and simple to operate. L&TT's intuitive user interface eliminates the need for training and deploys in less than five minutes. This robust diagnostic tool is designed for both the experienced professional and the untrained administrator. It ensures product integrity through self-diagnostics and fast resolution to device concerns. Additional information on L&TT plus download information can be found at http://www.hp.com/support/tapetools

QuickSpecs

Compatibility

HP's extensive compatibility testing program assures that your HP Tape Drive works with leading servers, operating systems, and backup applications. The Tape Array 5300 works seamlessly in many environments. For the latest list of servers, operating systems, and backup software that support HP tape drives, check the tape backup compatibility pages at: http://www.hp.com/go/connect

HP Server Compatibility   The HP Tape Array 5300 is supported on the following classes of HP systems:

- HP ProLiant Servers
- HP Integrity servers
- HP 9000 servers

The Tape Array 5300 fits in industry-standard 19-inch racks (rack depth between 28 and 30 inches), including those used for HP 9000, HP Integrity, and HP ProLiant servers, plus Apex and Rittal racks. For details of which tape drive models work with which systems, including third-party systems, visit http://www.hp.com/go/connect for the latest hardware compatibility information.

OS Support   Operating system compatibility will depend on the drives used in the Tape Array 5300. For the latest list of servers, operating systems, and backup software that support HP tape drives, check the tape backup compatibility pages at: http://www.hp.com/go/connect.

Software Support   Backup application compatibility also depends on the drives used in the Tape Array 5300. For the latest list of servers, operating systems, and backup software that support HP tape drives, check the tape backup compatibility pages at: http://www.hp.com/go/connect.

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

Hewlett-Packard provides a 3-year, on-site, next day, limited warranty, for the Tape Array 5300 (RoHS Compliant) Rack, plus 9x5 phone support for the duration of the warranty.

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

Service and Support, HP Care Pack, and Warranty Information

Recommended Services

In order to maximize ROI and product uptime, and minimize the cost of ownership, Hewlett Packard recommends:

3 years 24 x 7 Hardware Support

- Guards against downtime, which reduces productivity and profitability
- Eases budget planning with fixed-cost support that includes parts and labor
- Direct access to proven technical and problem-solving expertise

3 years 24 x 7 Software Support

- Improve the productivity of system managers and operators
- Improve system performance and reduce downtime due to software defects
- Expedite problem resolution through expert-level technical resources
- Enjoy consistent service coverage across geographically dispersed sites
- Update HP and selected third-party software at a predictable cost
- Take advantage of subscription savings on software updates
- Keep your license compliancy up-to-date

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	E/C
HP Installation & Startup	N/A
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 Next Day Hardware Support	E/C	E/C	C	C
HP 4 Hr, 9x5 HW Support	E/C	E/C	C	C
HP 4 Hr, 13x5 Hardware Support	E/C	E/C	C	C
HP 4 Hr, 24x7 Hardware Support	E/C	E/C	C	C
HP 6 HR Call-to-Repair HW Support	E/C	E/C	C	C
HP Software Support	E/C	E/C	C	C
HP Software Support 24x7	E/C	E/C	C	C
HP Support Plus	E/C	E/C	C	C

Service and Support, HP Care Pack, and Warranty Information

HP Support Plus 24	E/C	E/C	C	C
HP Proactive Essentials 9x5, 10 SW Incidents	N/A	N/A	N/A	N/A
HP Proactive Essentials 9x5, 25 SW Incidents	N/A	N/A	N/A	N/A
HP Proactive Essentials 9x5 Unlimited	N/A	N/A	N/A	N/A
HP Proactive Essentials 24x7, 25 SW Incidents	N/A	N/A	N/A	N/A
HP Proactive Essentials 24x7, 50 SW Incidents	N/A	N/A	N/A	N/A
HP Proactive Essentials 24x7 Unlimited	N/A	N/A	N/A	N/A
HP Proactive 24 Service*	E/C	E/C	N/A	N/A
HP Critical Service*	E/C	E/C	N/A	N/A

*NOTE: Both Proactive 24 & Critical Service only relate to 'reactive elements'. 'Proactive elements' are available on time & materials basis. (SW is supported separately per package).

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

Important Notice for Tape Drive Modules Installed in an HP Tape Array

NOTE: These Care Packs do not apply to Tape Drives mounted in an HP Tape Array because they do not have Care Packs associated with them. Hence the Care Packs for the HP Tape Array covers all encumberant drives.
Please follow the following url for the correct Care Pack Services and descriptions.
http://h18000.www1.hp.com/products/quickspecs/11878_div/11878_div.pdf

Deployment and Per Event Service Descriptions

Installation is part of a suite of HP deployment services that are designed to provide a quick response to your need for additions to your organization's IT infrastructure, while giving you the peace of mind that comes from good knowing your hardware and software products from HP and selected third parties have been installed in a professional manner by a highly skilled HP service delivery specialist.

HP Installation Service

- Expedited installation, with all service prerequisites met before the installation is performed
- Installation in accordance with manufacturer's specifications, enhancing the supportability of your HP-installed hardware and software
- Service delivery at a mutually scheduled time Allows your IT resources to stay focused on their core tasks and priorities
- Availability of an HP service specialist to answer questions during the onsite delivery of this service
- Service planning
- Service deployment
- Installation verification tests

Service and Support, HP Care Pack, and Warranty Information

HP Care Pack Service
Product Numbers

Enterprise & Commercial Purchased Care Packs ('A' stands for physical Care Pack, 'E' for electronic Care Pack)
NOTE: With the Tape Array 5300 the Care Packs for the rack cover all encumberant drives.

Product Description	Product Number
Tape Installation HW Installation Only	U2090A/E
HW, "3-year", "4-hour", "13x5", "on-site"	H4618A/E
HW, "3-year", "4-hour", "24x7", "on-site"	H4623A/E
HW, "3-year", "6hr CTR", "24x7", "on-site"	U6368A/E
HW, "4-year", "4-hour", "13x5", "on-site"	U9346A/E
HW, "4-year", "4-hour", "24x7", "on-site"	U9347A/E
HW, "5-year", "4-hour", "13x5", "on-site"	U9348A/E
HW, "5-year", "4-hour", "24x7", "on-site"	U9349A/E
HW, "1-year", "NBD", "9x5", "on-site", "Post Wty"	UA458PE
HW, "1-year", "4-hour", "13x5", "on-site", "Post Wty"	UA459PE
HW, "1-year", "4-hour", "24x7", "on-site", "Post Wty"	UA460PE
HW, "1-year", "6hr CTR", "24x7", "on-site", Post Wty"	UA461PE

Enterprise Purchased Care Packs

Product Description	TA5300 Band	TA5300	Product Number
Tape Installation HW Installation Only	N/A	594	HA113A1
HW, "3-year", "next-day", "13x5", "on-site"	6EC	N/A	HA101A3
HW, "3-year", "4-hour", "13x5", "on-site"	6EC	N/A	HA103A3
HW, "3-year", "4-hour", "24x7", "on-site"	6EC	N/A	HA104A3
HW, "3-year", "6hr CTR", "24x7", "on-site"*	6EC	N/A	HA105A3
SW, "3-year", "Phone-in", "9x5"	6EC	N/A	HA106A3
SW, "3-year", "Phone-in", "24x7"	6EC	N/A	HA107A3
HW Only, Support Plus, "3-year", "13x5"	6EC	N/A	HA109A3
HW Only, Support Plus 24, "3-year", "24x7"	6EC	N/A	HA110A3
HW Only, Proactive 24, "3-year", "24x7"*	6EC	N/A	HA111A3

*NOTE: Both Proactive 24 & Critical Service only relate to 'reactive elements', 'proactive elements' are available on time & materials basis. (SW is supported separately per package).
NOTE: The Care Pack information quoted above relates to 3 year offerings only, 1yr / 4yr & 5yr packs are available for each offering (replace A3 with A1, A4 or A5).

Service and Support, HP Care Pack, and Warranty Information

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.

HP Education Services	For more information about HP Education Services for Storage and SAN, visit http://education.hp.com/curr-storsan.html

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

For more information about HP Care Pack services for storage products, visit: http://www.hp.com/hps/carepack/storage/cp_networked.html

For more information about HP storage software, services and updates, visit: http://h18006.www1.hp.com/storage/software.html

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/

QuickSpecs

Kit Contents

Model Name	Kit Contents Description	Part Number
HP Tape Array 5300	RoHS compliant enclosure; mounting rails; rack-mounting kit; rack-mounting template; front bezel ; documentation; power cord; one hot-swap power supply unit (PSU); one hot-swap fan; PSU/fan bay filler panel; Torx® tool; drive bay filler panels; (terminators and cables must be ordered separately).	C7508B
HP Tape Array 5300, Factory-racked	RoHS compliant enclosure - Factory-racked Model; mounting rails; rack-mounting kit; rack-mounting template; front bezel ; documentation; power cords; two hot-swap power supply units (PSU); two hot-swap fans; Torx® tool; drive bay filler panels; (terminators and cables must be ordered separately).	C7508BZ

Related Options

Array Modules		
	High-availability upgrade kit (hot-swap power supply and fan)	C7496B
	DAT 40 array module -- half-height	C7497C
	DAT 72 array module -- half-height	Q1524C
	DAT 160 array module - half height	Q1575A
	Ultrium 448 array module - half-height	DW019A
	Ultrium 960 array module -- full-height	Q1540A
	Ultrium 1840 array module - full height	EH856A
	DVD+RW array module -- half-height	Q1592B

NOTE: 0D1 will appear after the part number on the sales order if factory integration is indicated.

Terminators, Cables, and HBAs		
	68-Pin HDCI Terminator SE or LVD	C2364A
	0.5m 68-pin HDCI to 68 pin HDCI cable LVD/SE	C2978B
	1.0m 68-pin HDCI to 68 pin HDCI cable LVD/SE	C2911C
	2.5m 68-pin HDCI to 68 pin HDCI cable LVD/SE	C2924C
	1.0m 68-pin VHDCI to 68 pin HDCI cable LVD/SE	C2361B
	2.5m 68-pin VHDCI to 68-pin HDCI cable LVD/SE	C2362B
	5.0m 68-pin VHDCI to 68-pin HDCI cable LVD/SE	C2365B
	10.0m 68-pin VHDCI to 68-pin HDCI cable LVD/SE	C2363B
	Single channel U320 SCSI Host Bus Adapter	374654-B21
	HP SC11Xe Host Bus Adapter	412911-B21

NOTE: Recommended SCSI HBA for connecting Ultrium tape drives to ProLiant DL servers.

Media	
	Media requirements depend on drives selected. See QuickSpecs for individual drives for media product numbers.

Technical Specifications

Dimensions	Form Factor	3U - fits industry-standard 19" racks (between 28" and 30" in depth)		
	Physical (HxWxD)	5.1 x 17.52 x 27.36 in (13 x 44.5 x 69.5 cm)		
	Shipping (HxWxD)	23.62 x 47.24 x 23.62 in (60.0 x 120.0 x 60.0 cm)		
Weight	Out of box	31.4 lb (14.25 kg)		
	Shipping	74.96 lb (34.0Kg)		
Interface	SCSI Interface	LVD SCSI for each individual drive		
	SCSI Connector	Tape Array: 68-pin HD LVD/SE Drive Modules: 80-pin SCA		
	Ports	Eight SCSI ports		
Power Specifications	Power Requirements	100-127 VAC (+/-10%) or 200-240 VAC (+/-10%) 50/60 HZ (standard plug)		
	Power Consumption	Depends on configuration. The highest system power supply should be able to provide 130W/138VAC/444 BTU		
Environmental Specifications	Temperature	Operating	41° to 104° F (5° to 40° C)	
		Storage	-40° to 158° F (-40° to 70° C)	
	Non-Condensing Humidity	Operating	20% to 80%	
		Storage	5% to 95%	
Max Capacity	Native	1.6 TB with two Ultrium 1840 drives		
	Compressed (assumes 2:1 data compression)	3.2 TB with two Ultrium 1840 drives		

Drives Supported	Array Module	Capacity (native)	Transfer Rate (native)	Form Factor
	DAT 40	20 GB	3 MB/s	Half-height
	DAT 72	36 GB	3 MB/s	Half-height
	DAT 160	80 GB	6.9mb/s	Half-height
	Ultrium 448	200 GB	24 MB/s	Half-height
	Ultrium 960	400 GB	80 MB/s	Full-height
	Ultrium 1840	800 GB	120 MB/s	Full-height
	DVD+RW	4.5 GB	N/A	Half-height

Max Number of drives	Two Full-Height array modules or Four Half-Height array modules or One Full-Height and two Half-Height array modules		
Drive LED Indicators	Temperature LED (left)	Green, on steady	Enclosure temperature is within safe limits.
		Red, flashing	Enclosure temperature is above safe operating limits.
	Fan LED (middle)	Green, on steady	Fan(s) operating correctly and blanking panel in place for empty fan bay Or Both fans are operating correctly.

Technical Specifications

		Red, flashing	Blanking panel not fitted for empty drive bay Or One or both fans have failed.
	Power LED (right)	Green, on steady	PSU powered up and operating correctly.
		Red, flashing	One or both PSUs not providing proper output Or One of two PSUs is present but not connected.
		Off	PSU failed or not powered up.

For tape drives and media, 1 GB = 1 billion bytes. Actual formatted capacity is less.