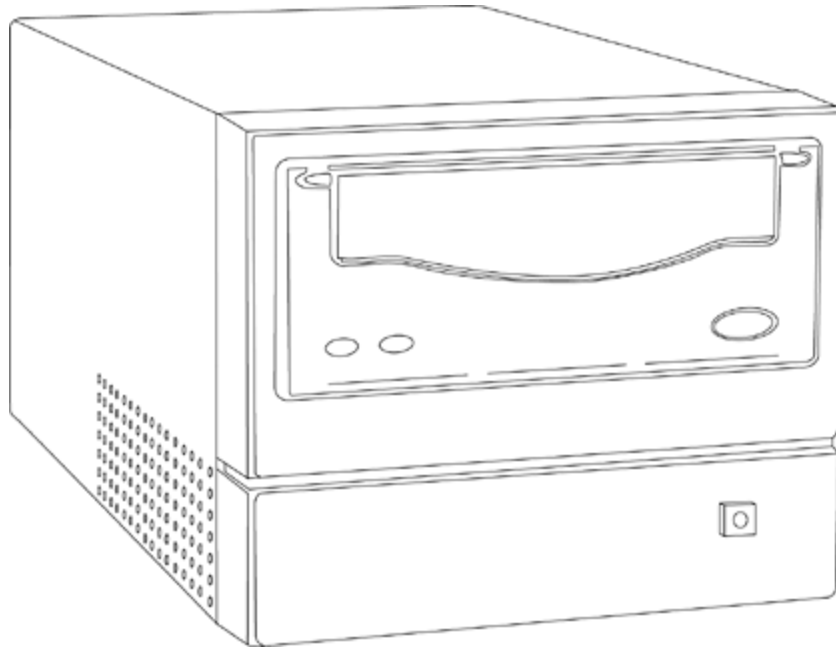


Overview



DAT 40

Introduction

The HP StorageWorks DAT 40 Tape Drive is an entry level, dependable solution for small to medium server storage backup needs as well as enterprise networks. With its economical price, the DAT 40 Tape Drive provides outstanding value to customers in a wide range of organizations and networks. It is part of a long line of DDS products, continuing offering excellent solutions for storing data. The DAT 40 can store up to 40 GB of compressed information at an improved rate of 6 MB/sec making it the ideal product for storage-aware companies by providing a low cost of ownership.

The DAT 40 Tape Drive has backwards compatibility with previous DDS technologies, making it a cost-effective solution to businesses protecting their previous investment. Additionally, the DAT 40 comes with HP's unique One Button Disaster Recovery (OBDR) providing customers the ability to restore their systems quickly and effortlessly with the simple touch of a single button, eliminating the need for backup disks and software. This drive also incorporates the ability and opportunity to rewrite the data repeatedly until the data has been read successfully just in case there is an error during the write process. Other features include the TapeAlert for monitoring the tape drive and media as well as the HP StorageWorks Library and Tape Tools (L&TT) for troubleshooting. It is compatible with other leading operating systems, servers, and backup software.

What's New

- New Brand: HP StorageWorks
- Model number (see below)

Overview

Models

HP StorageWorks DAT 40 Tape Drive for ProLiant and AlphaServer Systems	DAT 40i, Internal, Tape Drive for HP ProLiant and AlphaServer (Carbon)	Q1553A
	DAT 40e, External, US, Tape Drive for HP ProLiant and AlphaServer (Carbon)	Q1554A
	DAT 40e, External, Int'l, Tape Drive for HP ProLiant and AlphaServer (Carbon)	Q1555A
	DAT 40h, Hot-plug, Tape Drive for HP ProLiant and AlphaServer (Carbon)	Q1546A

HP StorageWorks DAT 40 Tape Drive for Open Connect	DAT 40i, Internal, Tape Drive for Open Connect (Carbon)	C5686B
	DAT 40e, External, Tape Drive for Open Connect (Carbon)	C5687C
	Array Module (DAT 40m) (Flint)	C7497A
	Trade Ready (DAT 40) (WW) (Flint)	C5685C

NOTE: No markings on front panel, no learning products, no software, no cables.

Key Features

- 20 GB native capacity, 40 GB with 2:1 compression
- 3 MB/sec native data transfer speed, 6 MB/sec with 2:1 compression
- Internal, external and hot plug configurations
- Small form factor, half-height built out to 5¼ or 3½ inches
- HP One Button Disaster Recovery (OBDR) supported
- Hot plug configuration fits into a 1.6-inch hot plug bay or two 1-inch hot plug bays in HP ProLiant and AlphaServer systems and HP StorageWorks Enclosures
- Easy removal of parts provides better serviceability. No tools are required! (Hot Plug and External configurations only)

Customer Benefits

- **Backup rate:** 10.8 GB/hour native
- **Investment protection:** backwards compatibility with previously written DDS-1, DDS-2, and DDS-3 media
- **Reduced spares inventory:** with a 24 hour exchange
- **High availability data protection:** increases server up-time

Family Comparison

	DAT 72	DAT 40	DAT 24	DAT 8
Announce Date	April 2003	Oct 1999	June 1998	April 1996
Capacity (native)	36 GB	20 GB	12 GB	4 GB
SCSI Interface	Wide Ultra SCSI LVD	Ultra-Wide LVD/ SE SCSI-2 device	Fast Narrow SE SCSI-2 device	Single ended
Connector Type	Wide 68-pin	Wide 68-pin	Narrow 50-pin	Narrow 50-pin
Buffer	8 MB with full error protection	4 MB non-parity	2 MB non-parity	1 MB non-parity
Firmware Upgradeable	Yes with L&TT	Yes with L&TT	Yes with L&TT	Yes with L&TT
Maximum Drives per bus	6	6	5	5
MTBF	>400,000 @ 12%	>400,000 @ 12%	>300,000 @ 12%	>200,000 @ 20%
Transfer Rate (native)	3 MB/s	3 MB/s	1.5 MB/s	750 KB/s

Product Highlights

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- HP One Button Disaster Recovery (OBDR)** The HP StorageWorks DAT 40 Tape Drive has been improved with the added feature of OBDR. HP's OBDR ensures that in case of a system failure, you will be able to restore your system with a single button. This feature puts the tape drive into a special disaster recovery mode that enables it to act as a bootable CD to restore the operating system and reboot the server or workstation.
-
- Hot Plug** Ability to mix tape drives and hard drives on the same SCSI Bus without slowing down the performance of the system. Supported on the HP ProLiant Smart Array 5300 Controller family and Integrated Smart Array Controller and selected HP AlphaServer Host Bus Adapters. Hot plug components can be replaced without powering down the system significantly enhances system availability.
-
- Reliability** Advancements in tape technology have produced a tape drive that requires less cleaning and provides improved backup/restore operation. Some of these new advancements include an automatic, rotating, head-cleaning sweeper that is used during the write or read recovery procedure to dislodge debris in the recording heads and drum. This DDS-4 drive has a MTBF rating of 400,000 hours at a 12% duty cycle.
-
- Automated Head Cleaning** Reduces head-cleaning cycles by two times over DDS-3
-
- Industry-Standard DDS-4** The DDS-4 format has a drum rotation speed of 8503 rpm while the tape moves at 11.6 mm/s. Features of the format and implementation of it allow an increased linear bit density compared with DDS-3 drives, achieving a greater transfer rate and capacity.
-
- Easy Installation and Serviceability** With the HP StorageWorks DAT 24 Hot Plug Tape Configuration, the server does not need to be taken offline to install the tape drive. Simply plug the tape drive into a 1.6" hot plug bay or add the top hat for two 1-inch bay configurations and install the backup software.
-
- Mix and Match Capabilities** With the hot plug tape configuration, customers are now able to mix 1 inch hot plug hard drives and tape drives on the same SCSI bus even if they are using the HP ProLiant Integrated Smart Array Controller or the HP ProLiant Smart Array 5300 series controller. Customers will no longer need a separate controller for their tape configurations. Similar support is available on selected HP AlphaServer Host Bus Adapters.
-
- Compatibility and Integration Testing** The HP StorageWorks DAT 40 Tape Drives are fully supported and compatible with HP ProLiant and AlphaServer systems and controllers. 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.
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- Self Diagnosis** HP StorageWorks Library and Tape Tools (L&TT) provides functionality for firmware downloads verification of device operation, maintenance procedures, failure analysis, corrective service actions and some utility functions. It also provides seamless integration with HP's hardware support organization by generating and emailing support tickets.
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- High Availability** With hot plug configurations you never have to take down your system to replace a failed or non-responding tape device. This increases your uptime for customer accessibility to your systems.
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- Compression** Built-in hardware compression
-
- Software Supported** For the latest version of compatibility information for this product please refer to the following Web site: <http://www.hp.com/go/connect>.

Compatibility

HP Server Compatibility The HP StorageWorks DAT Tape Drives are supported on the following classes of HP systems:

- HP ProLiant DL servers
- HP ProLiant ML servers
- HP AlphaServers
- HP 9000 servers

NOTE: 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.

Service and Support, HP Care Pack and Warranty Information

Warranty

Hewlett-Packard provides a three year, limited warranty, together with phone support for the duration of the warranty.

In order to provide ease of installation, maximize uptime and ROI, Hewlett Packard provides a range of upgradeable service options.

Tape Installation	U2090A/E
HW, "3-year", "next-day", "9 x 5", "on-site"	H3155A/E
HW, "3-year", "4-hour", "13 x 5", "on-site"	H4616A/E
HW, "3-year", "4-hour", "24 x 7", "on-site"	U2068A/E

'A' signifies a physical HP Care Pack, 'E' signifies an electronic HP Care Pack

Hewlett Packard recommends that customers take advantage of the Installation service (U2090A/E) when incorporating this product into their system. This service will ensure that the product is configured, and usable for backup, in the minimum possible time.

In order to maximize ROI and product uptime, and minimize the cost of ownership, Hewlett-Packard recommends the 3-year, 24 x 7 service options. These offerings will ensure that any product issue can be tackled when they occur (most backup issues will occur outside standard business hours) and that the service coverage regarding period, covers the minimum expected life of the host system.

Warranty Upgrade Options See section titled Warranty

Software Product Services See section titled Warranty

Hardware Product Services See section titled Warranty

Support Services See section titled Warranty

Options

Related Options

NOTE: This is a list of related options. Some may be discontinued.

Host Bus Adapters and Controllers for ProLiant Servers	64-Bit/133-MHz Dual Channel Ultra320 SCSI Adapter	268351-B21
	64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS	284688-B21
	Smart Array 5i Controller	226593-B21
	NOTE: Supports hot plug tape drives only.	
	Smart Array 5i Controller (Japan)	226593-291
	NOTE: Supports hot plug tape drives only.	
	Smart Array 532 Controller	225338-B21
	NOTE: Supports hot plug tape drives only.	
	Smart Array 532 Controller (Japan)	225338-291
	NOTE: Supports hot plug tape drives only.	
	Smart Array 5304/128 Controller	158939-B21
	NOTE: Supports hot plug tape drives only.	
	Smart Array 5304/128 Controller (Japan)	158939-291
	NOTE: Supports hot plug tape drives only.	
Smart Array 5302/64 Controller	124992-B21	
NOTE: Supports hot plug tape drives only.		
Smart Array 5302/64 Controller (Japan)	124992-291	
NOTE: Supports hot plug tape drives only.		
Smart Array 5302/32 Controller	166207-B21	
NOTE: Supports hot plug tape drives only.		
Smart Array 5302/32 Controller (Japan)	166207-291	
NOTE: Supports hot plug tape drives only.		

Host Bus Adapters and Controllers for AlphaServers	32-bit Single Channel UltraWide HBA	KZPBA-CA
	NOTE: Not supported with hot plug.	
	32-bit Single Channel LVD LSI SYM 8952Uia HBA	SN-KZPCA-AA
	32-bit Single Channel LVD SCSI LSI SYM 8952Uia HBA	3X-KZPCA-AA
	32-bit Single Channel LSI SYM 8951Uia	30-56041-01
	Combo SCSI/Ethernet Dual Channel	KZPCM-DA
	NOTE: Not supported with hot plug.	
	64-bit Dual Channel Ultra 3 LVD HBA	3X-KZPEA-DB
Combo Ultra2 SCSI/2D Video/10-100 Ethernet	3X-DEPVZ-AA	

Media	HP DDS-2 Data Cartridge, 8 GB	C5707A
	HP DDS-3 Data Cartridge, 24 GB	C5708A
	HP DDS-4 Data Cartridge, 40 GB	C5718A
	HP DDS Cleaning Cartridge	C5709A

Rackmount Options	HP StorageWorks 3U Rackmount Kit, Worldwide	274338-B21
	NOTE: Please refer to web page for further information: http://h18006.www1.hp.com/products/storageworks/3urackmount/index.html	

Options

Cable Kits	LVD Cable Kit, 68-Pin HD/VHDCI NOTE: Internal & external cables.	168048-B21
	LVD Cable Kit, 68-Pin HD/68-Pin HD NOTE: Internal & external cables.	242381-B21
	68-pin HD/VHDCI, 12 ft/3.66 m NOTE: External cables only.	341177-B21
	68-pin HD/68-Pin HD, 16.40 ft/ 5 m NOTE: External cables only.	328215-001
	68-pin HD/68-Pin HD, 32.81 ft/10 m NOTE: External cables only.	328215-002

Kit Contents

Model Number	Kit Contents Description	Part Number
DAT 40, Internal	Contains one DAT 40 Tape Drive, US English hard copy manual and translation CD, warranty card, 1 DDS-4 data cassette, 1 DAT cleaning cassette, 3.5 in conversion kit, HP server rails, screws.	Q1553A C5686B
DAT 40, External	Contains one DAT 40 Tape Drive enclosed in an external housing, US English documentation with translations CD, warranty card, 1 DDS-4 data cassette, 1 DAT cleaning cassette, SCSI cable (68-pin to 68-pin, LVD/SE Ultra2, 0.9 meter); LVD/SE SCSI multi-mode terminator; power cable.	Q1554A Q1555A C5687C
DAT 40, Hot Plug	Contains one DAT 40 Tape Drive enclosed in a hot plug carrier, US English documentation with translations CD, warranty card, 1 DDS-4 data cassette, 1 DAT cleaning cassette.	Q1546A
DAT 40, Array Module	Contains one DAT 40 Tape Drive enclosed in an external housing, US English documentation with translations CD, warranty card, 1 DDS-4 data cassette, 1 DAT cleaning cassette.	C7497A
DAT 40, Trade Ready	Contains one DAT 40 Tape Drive enclosed in an external housing.	C7497A

Technical Specifications

Form Factor	5 ¼ in, half-height or 3 ½ in, half-height			
Protocol Support	Ultra2 SCSI, LVD interface			
Dimensions (H x W x D)	Physical	Internal	1.6 x 5.8 x 6.4 in (4.1 x 14.7 x 16.2 cm)	
		External	3.7 x 4.6 x 8.7 in (9.5 x 11.6 x 22.0 cm)	
		Hot Plug	8.5 x 4.63 x 1.75 in (21.59 x 11.76 x 4.45 cm)	
	Shipping	Array Module	1.6 x 6.5 x 11.2 in (4.1 x 16.5 x 28.4 cm)	
		Trade Ready	3.7 x 4.6 x 8.7 in (9.5 x 11.6 x 22.0 cm)	
		Internal	5.9 x 9.0 x 9.5 in (15.0 x 22.9 x 24.1 cm)	
		External	11.4 x 10.2 x 14.2 in (29.0 x 25.9 x 36.1 cm)	
		Hot Plug	5.5 x 9.0 x 9.1 in (14 x 22.5 x 23.1 cm)	
		Array Module	10.6 x 13.4 x 18.1 in (26.9 x 34.0 x 45.9 cm)	
	Weight	Out of box	Trade Ready	5.5 x 9.0 x 9.1 in (14 x 22.5 x 23.1 cm)
			Internal	2.2 lb (1.0 kg)
			External	4.6 lb (2.1 kg)
		Shipping	Hot Plug	1.9 lb (0.86 kg)
Array Module			3.3 lb (1.5 kg)	
Trade Ready			4.6 lb (2.1 kg)	
Internal			5.9 lb (2.7 kg)	
External			8.8 lb (4 kg)	
Hot Plug			2.9 lb (1.3 kg)	
UPC/JAN Code	Array Module	8.8 lb (4 kg)		
	Trade Ready	2.9 lb (1.3 kg)		
	Internal, carbon	808736709408	4948382315168	
	External, carbon (US)	808736709415	4948382315182	
	External, carbon (WW)	808736709422	4948382315205	
	Hot Plug, carbon	808736709330	4948382315229	
Internal Cables	Internal Options contain a 2-Device ribbon cable with switchable LVD/SE terminator			
External Cables	Internal Options contain a 2-Device ribbon cable with switchable LVD/SE terminator External Options contain (1) 3ft/0.91 m Wide to VHDCI External Cable			
Drive LED Indicators	Tape	Flashes when physical media is in motion		
	Caution	On when tape is write protected. Flashes to request cleaning		
Buffer	4 MB (SDRAM)			
Input Requirements	Range Line Voltage	AC 100 to 200/220 to 240V		
	Line Frequency	20 Hz		
	Typical Input Current	0.4A (12V) .5A (5V)		
Interface	Ultra2 SCSI, LVD			
Maximum Number of Drives	6 drives per SCSI bus			
	Maximum Transfer Rate	21.6 GB/hr (2:1 compression)		
	Typical Transfer Rate	12 GB/hr		
	Average load/unload swap	< 15 seconds		
	Search speed	50 seconds to any point on a 150m cassette		
Media	HP Branded DDS-4 (150m)			
Power Requirement	+5V±5%/+12V±5%			
Power Consumption	7.3 Watts (average)			

Technical Specifications

Tape Format	Recording Method	Helical Scan
	Recording Format	ECMA-288, DDS-4
	Data Compression	Lempel-Ziv (DCLZ)
	Error detection/ correction	Reed Solomon
Relative Humidity (non- condensing)	Operating	20% to 80%
	Shipping	5% to 95%
Temperature Range	Operating	41° to 104° F (5° to 40° C)
	Shipping	-22° to 158° F (-40° to 70° C)

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