

### Overview

The 20/40 GB DAT tape drive is available in internal, external, hot-plug and rackmount configurations. As the tape drive for entry-level and workgroup servers, this device offers 20 GB native capacity on a HP DDS-4 cassette with a transfer rate of 2.3 MB/sec.

<b>20/40GB DAT Drive Models</b>	
<b>20/40GB DAT Drive, Internal</b>	
20/40GB DAT Drive, Internal (Carbon)	157769-B22
20/40GB DAT Drive, Internal (Carbon)	3R-A3752-AA
20/40GB DAT Drive, Internal (AlphaServer systems only, Top Gun Blue)	3X-SD20X-LB
<b>20/40GB DAT Drive, External</b>	
20/40GB DAT Drive, External (Carbon), North America	157770-002
20/40GB DAT Drive, External (Carbon), International	157770-B32
20/40GB DAT Drive, External (Carbon), Japan	157770-292
<b>20/40GB DAT Drive, Hot Plug</b>	
20/40GB DAT Drive, Hot Plug (Carbon)	215488-B21
20/40GB DAT Drive, Hot Plug (Carbon)	3R-A2780-AA
<b>3U Rackmount Kit</b>	
3U Rackmount Kit (No drives included. Accommodates up to 4 internal AIT DAT drives), Worldwide	274338-B21

### Models Feature List

- Automatic Head Cleaning
- Transfer rate up to 1.2 MB/sec or 4.2GB/hr (native)
- Industry Standard DDS-3 Technology

### Customer Benefits

The 20/40 GB DAT tape drive is available in internal, external, hot-plug and rackmount configurations. As the tape drive for entry-level and workgroup servers, this device offers 20 GB native capacity on a HP DDS-4 cassette with a transfer rate of 2.3 MB/sec.

HP 20/40 GB DAT Tape drive Customer benefits include:

- Backup rate 8.6 GB/hour native
- 20/40 GB DAT offers investment protection with backward compatibility with previously written DDS-1, DDS-2, and DDS-3 media.
- Reduced spares inventory with a 24 hour exchange
- Easy installation and service
- High availability data protection – increases server up-time

### Key Features

- 20-GB native capacity, 40 GB with 2:1 compression
- 2.4 MB/sec native data transfer speed
- Internal, external and hot plug configurations
- Small form factor, half-height built out to 5¼ inches
- Hot plug configuration fits into a 1.6-inch hot plug bay or two 1-inch hot plug bays in ProLiant and AlphaServer systems and StorageWorks Enclosures
- Supported with VERITAS Backup Exec, Computer Associates and Dantz Retrospect software
- Innovative SCA direct connect tape carrier
- Easy removal of parts provides better serviceability. No tools are required! (Hot Plug and External configurations only)
- Qualified behind Windows® NT® 4.0, Windows 2000, Novell NetWare, Tru64 UNIX®, OpenVMS, Linux, SCO Unix, and Sun Solaris

### Product Highlights

#### Disaster Recovery - DRTape

The 20/40-GB DAT tape drive has been improved with the added feature of DRTape\*\*. DRTape insures that in case of a system failure, you will be able to restore your system from a single tape.

What is Disaster Recovery: A 20/40-GB DAT Tape Drive that can:

- Under Disaster Recovery (DR) situations, ID itself as a boot device
- Hold enough information to bring the system up for a DR restore from tape
- Is completely self contained in that it needs no other software or CD's to restore the system.

**\*\*NOTE:** DRTape does not support Smart Array Controllers. Please see "DRTape Compatibility Matrix" at: <http://h18000.www1.hp.com/products/storageworks/drtape/compatibility.html> for further information regarding the minimum requirements for operating DRTape.

**NOTE:** This Web site is available in English only.

#### Hot Plug

- Able to mix tape drives and hard drives on the same SCSI Bus without slowing down the performance of the system.
- Supported on the Smart Array 5300 controller and Integrated Smart Array controller and selected AlphaServer host bus adapters.
- Hot plug components can be replaced without powering down the system. This feature 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 250,000 hours at a 30% duty cycle.

**Automated Head Cleaning** Reduces head-cleaning cycles by two times over DDS-3.

#### Industry-Standard DDS-4

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 hot plug tape configuration, the server does not need to be taken off-line to install the tape drive. Simply plug the tape drive into a 1.6" hot plug bay or add the top hat for 2 1-inch bay configurations and install the backup software.

#### Qualified with SANworks Data Protection Suite for Tape Utilities

Complete set of Data Protection Tools focused on simplifying the process of configuring, implementing, and maintaining a data protection strategy. Includes software applications such as Tape Storage Management Console and Insight Manager, as well as product information tools including technology White Papers, Service Advisories, and the Storage Products CD. For information on the Data Protection Software Suite, please check the "Related Options" section of this QuickSpec or visit the Web site at: <http://h18000.www1.hp.com/storage/software.html>

**NOTE:** This Web site is available in English only.

#### Mix and Match Capabilities

With the hot plug tape configuration, customers are now able to mix 1" hot plug hard drives and tape drives on the same SCSI bus even if they are using the Integrated Smart Array Controller or the Smart Array 5300 series controller. Customers will no longer need a separate controller for their tape configurations. Similar support is available on selected AlphaServer host bus adapters.

#### Compatibility and Integration Testing

The HP 20/40 GB DAT tape drives are fully supported and compatible with ProLiant and AlphaServer systems and controllers. HP thoroughly tests products with leading software and operating systems, including VERITAS Backup Exec, CA ARCserve and Dantz Retrospect.

### Product Highlights

**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.

---

**Compression** Built-in hardware compression

---

**Software Supported**

- VERITAS Backup Exec v8.0 for Windows NT/2000
- VERITAS Backup Exec v8.5 for NetWare
- Computer Associates ARCserve v6.61 for Windows NT
- Computer Associates ARCserve v6.6 for NetWare
- Computer Associates ARCserve 2000 for Windows 2000
- Dantz Retrospect Backup v5.6 (Server and Workgroup versions) for Windows NT/2000
- OpenVMS – native
- Tru64 UNIX – native
- Linux for Intel®/Alpha – native
- SCO Unix v5.x OpenServer – native
- SCO UnixWare v7.1x – native
- Sun Solaris v7.0, v8.0 – native

---

**SmartStart** The server configuration and software integration tool from HP

---

**CS Support** HP Services provides a three-year, limited warranty, fully supported by a worldwide network of resellers and service providers and toll-free 7 x 24 hardware technical phone support during the warranty period. In addition, available service offerings include a full range of HP Care Pack packaged hardware and software services:

- Installation and start up
- Extended coverage hours and enhanced response times
- System management and performance services
- Availability and recovery services

---

**Warranty** The warranty for this product consists of 3 years parts, 0 year labor, 0 year on-site.

### Service and Support, HP Care Pack and Warranty Information

#### Software Product Services

- Stand-alone telephone support
- Rights to a new license
- Media and documentation updates

#### Hardware Product Services

- Installation services
- On-site Maintenance (includes warranty support)
- Response time upgrades during the warranty period
- Post-warranty coverage
- RAID setup and performance consulting via statement of work

For additional hardware installation and maintenance information please refer to the URLs listed below:

[http://h18005.www1.hp.com/services/carepaq/us/install/cp\\_storage.html](http://h18005.www1.hp.com/services/carepaq/us/install/cp_storage.html)

[http://h18005.www1.hp.com/services/carepaq/us/hardware/cp\\_storage.html](http://h18005.www1.hp.com/services/carepaq/us/hardware/cp_storage.html)

#### Warranty Upgrade Options

- Response – Upgrade on-site response from next business day to same day 4-hours
- Coverage – Extend hours of coverage from 5 days x 9 hours to 7 days x 24 hours
- Duration – Select duration of coverage for a minimum period of 1 year or multiple years

#### HP Care Pack Information

Sample part numbers:

3 year, uplift to 5 x 9, Next Day Response

FM-\*\*XHW-36

3 year, uplift to 5 x 9, 4-hour Response

FM-\*\*4HR-36

3 year, uplift to 7 x 24, 4-hour Response

FM-\*\*724-36

\*\* Represents a two-digit, product-specific code

HP Care Pack is defined as an upgrade to the product warranty attribute, available for a specific duration and hours of coverage.

HP Care Pack is not available for less than the product's warranty duration.

HP Care Pack is available for sale anytime during the warranty period for most products, but the commencement date will be the same as the Warranty Start Date (delivery date to end user customer). Proof of purchase may be required.

HP Care Pack services are prepaid.

For additional HP Care Pack (hardware & software) information, as well as orderable part numbers, please refer to the URL:

<http://h18005.www1.hp.com/services/carepaq/index.html>

#### EMEA HP Care Pack Information

Information on EMEA HP Care Pack Services

Sample part numbers:

Provides 4 hour hardware response 9 x 5

206957-022/021

Provides 4 hour hardware response 24 x 7

206958-022/021

### *Service and Support, HP Care Pack and Warranty Information*

#### **HP Care Pack PS Information for EMEA**

- HP Care Pack Priority Services brings a totally new approach that removes the complexity from evaluating, planning and purchasing services on Hewlett-Packard Alpha and Storage platforms.
- HP Care Pack Priority Services are easy to purchase and easy to use and cover all external storage products not covered under server-based HP Care Pack services.

#### **Standard Offerings:**

- HP Care Pack Priority Services provide an integrated hardware and software support that ensure consistent coverage across storage configurations.
- HP Care Pack Priority Service offers a rapid four-hour response with guaranteed work-through to completion for three years.
- HP Care Pack Priority Services have a standard call window of Monday to Friday 08:00 - 17:00 with uplifts to full 24x7 over three years with four-hour response time and work through to completion.
- HP Care Pack Priority Services also provide software support, with a two-hour response time for telephone access to highly trained support personnel

For more information on how to order HP Care Pack Priority Services in EMEA please contact you local Certified Integration Partner or Authorized Reseller.

### Compatibility

#### Server and Tape Compatibility

ProLiant Servers	Internal	External	Hot Plug
DL360G2		X	
DL380	X	X	X
DL380G2		X	X
DL580		X	X
PL8500		X	X
ML330G2	X	X	
ML350G2	X	X	X*
ML370G2	X	X	X
ML530G2	X	X	X
ML570	X	X	X
PL8000	X	X	X
CL380	X	X	X
CL1850	X	X	X
Deskpro AP250, 300	X	X	
Professional WS AP550, SP750	X	X	

**NOTE:** When upgrading a Non-Hot Plug Model to Hot Plug, the purchase of the Hot Plug Cage Upgrade Option Kit (161275-B21) is required.

<b>Host Bus Adapters and Controllers for Intel Based Servers</b>	64-bit/66 MHz Single Channel Wide Ultra3 SCSI Adapter	154457-B21, -291
	64-bit/66 MHz Dual Channel Wide Ultra3 SCSI Adapter	129803-B21, -291
	Smart Array 5i Controller <i>*supports hot plug tape drives only</i>	226593-B21, -291
	Smart Array 532 Controller <i>*supports hot plug tape drives only</i>	225338-B21, -291
	Smart Array 5304/128 <i>*supports hot plug tape drives only</i>	158939-B21, -291
	Smart Array 5302/64 <i>*supports hot plug tape drives only</i>	124992-B21, -291
	Smart Array 5302/32 <i>*supports hot plug tape drives only</i>	166207-B21, -291

### Compatibility

#### AlphaServer and Tape Compatibility

AlphaServers	Internal	External	Hot Plug
Alpha Server 4100	X	X	
AlphaServer DS10	X	X	X
AlphaStation DS10	X	X	X
XP900	X	X	X
XP1000	X	X	X
PWS 500a/au	X	X	X
DS10L		X	X
AlphaServer DS20E	X	X	X*
AlphaStation DS20E	X	X	X*
AlphaServer ES40	X	X	X*
AlphaStation ES40	X	X	X*
GS60E			
GS80/160/320			

\* **NOTE:** These platforms also have internal disk enclosures support of the hot plug option, in addition to support in external LVD enclosures.

<b>Host Bus Adapters and Controllers Compatibility for AlphaServer</b>	32-bit Single Channel UltraWide HBA	KZPBA-CA
	*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
	Comb SCSI/Ether Dual Channel	KZPCM-DA
	*not supported with hot plug	
	64-bit Dual ChannelUltra 3 LVD HBA	3X/-KZPEA-DB
Combo Ultra2 SCSI/2D Video/10-100 Ethernet	3X/-DEPVZ-AA	

### Configuration Information

#### Base Configuration

Select one:

	Model Description	Opal Part Number	Carbon Part Number
<b>20/40 GB DAT, Internal</b>	Contains one 20/40 GB DAT tape drive, US English hard copy manual and translation CD, Warranty card, 1 DDS-2 data cassette, 1 DAT cleaning cassette, 2-interncal cables.	157769-B21 3X-SD20X-LB 3X-SD20X-AA	157769-B22 3R-A3752-AA
<b>20/40 GB DAT, External</b>	Contains one 20/40 GB DAT tape drive enclosed in an external housing, power cord, SCSI terminator, 1 DDS-4 data cassette, 1 DAT cleaning cassette, external 3 ft cable, warranty card, US English documentation with translations CD.	157770-001 157770-B31 157770-291	157770-002 157770-B32 157770-292
<b>20/40 GB DAT, Hot Plug</b>	Contains one 20/40 GB DAT tape drive enclosed in a hot plug carrier, 1 DAT data cassette, 1 DAT cleaning cassette, warranty card, US English documentation with translations CD.	— —	215487-B21 3R-A2780-AA

#### Related Options

<b>Media</b>	HP DDS-2 8GB 120m Data Cartridge, 1 pack	C5707A
	HP DDS-2 8GB 120m Data Cartridge, 1 pack	C5708A
	HP DDS-3 24GB 125m Data Cartridge, 1 pack	C5718A
	<b>NOTE: The HP DDS-3 Data Cartridge is recommended.</b>	
	HP DDS Cleaning Cartridge, 1 pack	C5709A

<b>Tape Storage Software</b>	Data Protection Software Suite	259596-B21
------------------------------	--------------------------------	------------

<b>Rackmount Tape Options &amp; Cable Kits</b>	3U Rackmount Kit, All (Please refer to "Rackmount Tape Drive Kits" QuickSpec for further information)	274338-B21
	LVD Cable Kit, 68-pin HD/VHDCI (Internal & External Cables)	168048-B21
	LVD Cable Kit, 68-pin HD/68-pin HD (Internal & External Cables)	242381-B21
	68-pin HD/VHDCI, 12 ft/3.66 m (External Cable only)	341177-B21
	68-pin HD/68-Pin HD, 16.40 ft/ 5 m (External Cable only)	328215-001
	68-pin HD/68-Pin HD, 32.81 ft/10 m (External Cable only)	328215-002

### Technical Specifications

	20/40-GB DAT	12/24-GB DAT	4/8-GB DAT
<b>Announce Date</b>	Oct 1999	June 1998	April 1996
<b>Capacity (native)</b>	20 GB	12 GB	4 GB
<b>SCSI Interface</b>	Ultra2, LVD	Fast-Wide/ SE	Single ended
<b>Buffer</b>	2 MB non-parity	1 MB non-parity	1 MB non-parity
<b>Firmware Upgradable</b>	Yes with TSMC	Yes with TSMC	Yes with TSMC
<b>Maximum Drives per bus</b>	5	5	5
<b>MTBF</b>	>250,000 @ 30%	>200,000 @ 20%	>200,000 @ 20%
<b>Transfer Rate (native)</b>	2.4 MB/s	1.2 MB/s	750 KB/s

<b>Protocol Support</b>	Ultra2 SCSI, LVD interface		
<b>O/S Support</b>	Windows NT v4.0, Windows 2000 Netware v4.12 & 5.0 OpenVMS (native) Tru64 UNIX (native) Linux for Intel/Alpha (native) <i>*not supported with hot plug configuration</i> SCO Unix v5.x OpenServer (native) <i>*not supported with hot plug configuration</i> SCO UnixWare v7.1x (native) <i>not supported with hot plug configuration</i> Sun Solaris v7.0, v8.0 (native) <i>not supported with hot plug configuration</i>		
<b>Dimensions (H x W x D)</b>	<b>Physical</b>	20/40 GB DAT Drive, Internal	1.6 x 5.9 x 5.9 in (4.06 x 14.98 x 14.98 cm)
		20/40 GB DAT Drive, External	10 x 7.9 x 2.6 in (25.4 x 20.07 x 6.6 cm)
		20/40 GB DAT Drive, Hot Plug	8.5 x 4.63 x 1.75 in (21.59 x 11.76 x 4.45 cm)
	<b>Shipping</b>	20/40 GB DAT Drive, Internal	13.88 x 11.38 x 9.25 in (35.25 x 28.90 x 23.49 cm)
		20/40 GB DAT Drive, External	15.75 x 12.95 x 11.25 in (40 x 32.83 x 28.57 cm)
		20/40 GB DAT Drive, Hot Plug	14.13 x 10 x 11.13 in (35.89 x 25.4 x 28.27 cm)
<b>Weight</b>	<b>Out of box</b>	20/40 GB DAT Drive, Internal	1.4 lb (0.63 kg)
		20/40 GB DAT Drive, External	18.4 lb (8.35 kg)
		20/40 GB DAT Drive, Hot Plug	1.9 lb (0.86 kg)
	<b>Shipping</b>	20/40 GB DAT Drive, Internal	7.7 lb (3.5 kg)
		20/40 GB DAT Drive, External	25 lb (11.34 kg)
		20/40 GB DAT Drive, Hot Plug	7.75 lb (3.52 kg)
<b>UPC Code</b>	<b>20/40 GB DAT, Internal</b>	-B21 (Opal)	UPC 720591222666 JAN code 4948382133151
		-B22 (Carbon)	UPC 613326389447 JAN code 4948382248633
	<b>20/40 GB DAT, External</b>	-001 (Opal)	UPC 720591222680
		-002 (Carbon)	UPC 613326433270
		-B31 (Opal)	UPC 720591222703 JAN code 4948382133182
		-B32 (Carbon)	UPC 613326433256 JAN code 4948382254337
		-291 (Opal)	UPC 720591222697 JAN code 4948382133175
		-292 (Carbon)	UPC 613326433232 JAN code 613326433232
		20/40 GB DAT, Hot Plug (Carbon)	UPC 720591546694 JAN code 4948382179326

### Technical Specifications

<b>Cables Supported</b>	<b>Cables</b>	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 VHDCI to Wide 6 ft/1.83 m - 295644-B21 VHDCI to Narrow 6 ft/1.83 m - 295646-B21 VHDCI to VHDCI 6 ft/1.83 m - 341174-B21
<b>Drive LED Indicators</b>	<b>Busy</b> <b>Tape</b> <b>Caution</b>	Flashes when the drive is processing a command Flashes when physical media is in motion Flashes when there is an error status on the drive
<b>Buffer</b>		2 MB non-parity buffer embedded within the tape drive
<b>Input Requirements</b>	<b>Range Line Voltage</b> <b>Line Frequency</b> <b>Typical Input Current</b>	AC 100 to 200/220 to 240V 20 MHz 2.3A at 120 VAC
<b>Interface</b>		Ultra2 SCSI, LVD
<b>Maximum Number of Drives</b>	<b>5 drives per SCSI bus</b> <b>Maximum Transfer Rate</b> <b>Typical Transfer Rate</b> <b>Average load/unload swap</b>	16.8 GB/hr (2:1 compression) 6 GB/hr < 15 seconds
<b>Media</b>	<b>Search speed</b>	45 seconds to any point on a 150m cassette
<b>Power Requirement</b>		HP Branded DDS-4 (150m) +5V±5%/+12V±10%
<b>Power Consumption</b>		12 Watts (average internal) 21 Watts (average external)
<b>Tape Format</b>	<b>Recording Method</b> <b>Recording Format</b> <b>Data Compression</b> <b>Error detection/correction</b>	Helical Scan ECMA-288, DDS-4 Lempel-Ziv (DCLZ) Reed Solomon
<b>Relative Humidity (non-condensing)</b>	<b>Operating</b>	20% to 80%
<b>Temperature Range</b>	<b>Shipping</b> <b>Operating</b> <b>Shipping</b>	5% to 95% 41° to 104° F (5° to 40° C) -22° to 140° F (-30° to 60° C)

© Copyright 2003 Hewlett-Packard Development Company, L.P.  
The information contained herein is subject to change without notice.

Windows NT is a US registered trademark of Microsoft Corporation. Intel is a US registered trademark of Intel Corporation. Unix is a registered trademark of The Open Group.

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.