QuickSpecs

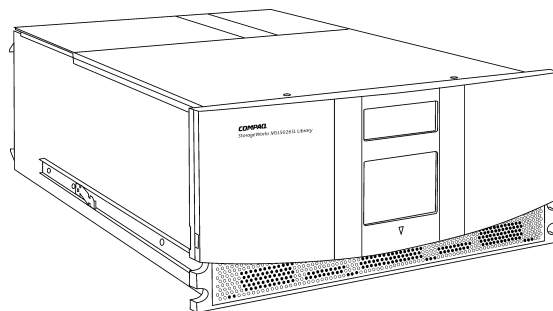hp StorageWorks MSL5026SL tape library (Opal)

MODELS

The HP StorageWorks MSL5026SL Tape Library comes with 26 media slots (including one mail slot) and one or two SDLT 110/220 tape drives (number of drives determined by SKU chosen).

231979-B21	*MSL5026, 0 DR, LVD, RM*
231822-B21	*MSL5026SL, 1 SDLT 110/220 DR, LVD, TT*
231822-B22	*MSL5026SL, 2 SDLT 110/220, LVD, TT*
231892-B21	*MSL5026SL, 1 SDLT 110/220 DR, LVD, RM*
231892-B22	*MSL5026SL, 2 SDLT 110/220, LVD, RM*
231823-B22	*MSL5KField Upg S DLT 110/220 DR, LVD*

Each library installation will require, (1) library system, (1) geographically specific power cord, (1) I SCSI cable for each SDLT drive pair, and up to 26 pieces of SDLT media with bar code labels for each MSL5026SL. Multiple configurations will require additional pass-through kits.

The minimum orderable configuration consists of a single library system (for instances where customer already has the necessary SCSI cables, power cord, and media). Installation services may also be ordered for customers who want to have a certified HP Engineer perform an on-site library installation.

OVERVIEW

- The HP StorageWorks MSL5026SL Tape Library is the latest addition to HP's tape automation products for the mainstream automation segment. It is the first to offer high availability features in this segment with Hot Plug drivess.
- It offers 5.72 TB (2:1 compression) of storage, providing the highest capacity in its class in a compact 5U form factor, in table top or rackmount configuration.
- It is scalable to up to 7 units is a rackmount configuration to provide a maximum of 40.04 TB (2:1 compression) of data backup capacity*.
- It is qualified with Microsoft® Windows® NT® & Windows 2000, NetWare®, Tru64 UNIX and OpenVMS, on HP's ProLiant and AlphaServer product lines.

MSL5026SL Tape Library Customer benefits include:

- High availability features for minimum downtime
- Reliable, cost effective backup, restoration and archival solution that fits a growing companies storage needs
- High storage capacity to backup large amounts of data in a small backup window·
- Easy to operate which equates to lower cost of ownership
- Compressed form factor only taking 5U of rack space with a single module
- Removable magazines for off-site backup storage
- Multi-unit scalability for future growth and investment protection
- Compatible with a wide variety of operating systems, software applications, and server platforms

KEY FEATURES

- Hot Plug drives for on line repair and capacity expansion, without interrupting library operations for minimum downtime
- 1 or 2 SDLT 110/220 drives, with a throughput of 11 MB/s (native) per drive for a backup performance of up to 79.2 GB/hr for a single unit
- Ultra II LVD SCSI Interface,
- 26 data slots for a native capacity of 2.86 TB, giving the highest density in a 5U form factor in the mainstream segment (including one mail slot for quick load/unload and removable magazine)
- 2 cPCI slots for added functionality through add-on cards in future
- GUI based touch screen panel for easy library operation
- Available as either a rack mount or tabletop configuration.
- Qualified behind Windows NT, NetWare, Tru64 Unix, and OpenVMS Operating Systems using industry standard application software, and as a direct attached SCSI Configurations or under SAN with HP EBS
- Multi-unit modular scalability, up to 7 units, for future growth and investment protection

QuickSpecs

hp StorageWorks MSL5026SL tape library (Opal)

PRODUCT HIGHLIGHTS

High Availability and Hot Pluggable Drives

As data becomes more mission critical, and downtime becomes more costly, customers are requiring high availability features on tape automation devices. The MSL5026SL uses hot pluggable SDLT drive carriers, allowing drive replacement without interrupting backup and restore functions. These hot pluggable drive trays allow for easy scalability of performance, as well as provide an easy upgrade path towards future SDLT drive technologies.

NOTE: The MSL5026SL accepts only library ready drives specifically modified for use in the MSL5026SL library.

Proven Reliability

Using SDLT tape drives, and proven library robotics with a rating of 2,000,000 robot load/unload cycles, the MSL5026SL provides the necessary high reliability for today's demanding environment.

SDLT Technology

Digital Linear Tape uses a proven linear recording technology, a highly accurate tape guide system, and a read after write correction system to provide high-capacity, high reliability data backup and restoration. DLT has fast become the industry-standard secondary storage tape format for departmental and enterprise backup. The new generation SDLT tape drive, in addition to enhanced capacity and backup performance provides advantages several new features such as Laser Guided Magnetic Recording (LGMR™) technology, Pivoting Optical Servo (POS), Magneto-Resistive Cluster Heads (MRC), Partial Response Maximum Likelihood (PRML) channel technology and Backward Read Compatible with earlier generation of DLT drives, to be able to read media written in DLT IV format.

Manageability

The MSL5026SL Tape Library configurations are fully supported through HP Insight Manager 5.0, providing information to administrators for robotic status, tape status changes and fault status. HP TSMC (tape storage management console) software provides diagnostics and easy firmware upgrade capabilities.

Multi-unit modular Scalability

The MSL 5026SL has the capability for multi-unit scalability; up to 7 libraries can be scaled together in a virtual library. The first two modules are linked using passthrough mechanism, which has the elevator mechanism for tape movement. Addition of subsequent modules requires the passthrough extender (one for each additional module).

O/S Support

(Under direct SCSI attach and EBS for SANs):

Windows NTv4.0 and Windows 2000

Novell® NetWare v 5.1

Tru64 UNIX v4.0G and 5.1

OpenVMS v 7.2-1

(Under EBS for SANs):

Sun™ Solaris™ 2.6, 7, 8

IBM AIX 4.3.3

HP UX 11

Linux® Red Hat® 7.1

Linux SuSE® 7.0

QuickSpecs

hp StorageWorks MSL5026SL tape library (Opal)

PRODUCT HIGHLIGHTS *(continued)*

Server Support

Enterprise ProLiant Servers

ProLiant DL760

ProLiant ML750

Departmental ProLiant Servers

ProLiant DL580 G2

ProLiant ML570 G2

ProLiant ML530 G2

Workgroup ProLiant Servers

ProLiant DL380 G2

ProLiant ML370

ProLiant ML350

ProLiant DL360

ProLiant DL320

AlphaServer Systems

AlphaServer GS320, GS160, GS 80

AlphaServer ES40,

AlphaServer 4X00

AlphaServer DS20E

Alpha Server 1200

AlphaServer DS10/DS10L

SCSI Controllers Supported

HP ProLiant servers

64-bit/66-MHz dual channel dual channel Wide Ultra III SCSI Adapter 129803-B21

HP AlphaServers

StorageWorks Ultra LVD single channel 3X-KZPCA-AA

Application Support

HP supports the following backup/restoration applications software packages:

(Under direct SCSI attach and HP EBS for SANs):

VERITAS Backup Exec v8.6 for Windows NT/2000

VERITAS Backup Exec v9.0for Netware

Computer Associates Brightstor ARCserve2000 Windows NT/2000

Computer Associates Brightstor ARCserve v7.0 for NetWare

Computer Associates Brightstor Enterprise Backup V10.1 for Windows NT/2000

Legato NetWorker v6.1.1 for Tru64 UNIX

Legato NetWorker v6.1.1 for Windows NT/2000

VERITAS NetBackup v4.5 for Windows NT/2000

VERITAS NetBackup v4.5 for Tru64 UNIX

Legato Smart Media v1.5 for Tru64Unix

QuickSpecs

hp StorageWorks MSL5026SL tape library (Opal)

PRODUCT HIGHLIGHTS *(continued)*

Application Support *(continued)*

HP supports the following backup/restoration applications software packages:

(Under HP EBS for SANs only):

Tivoli TSM v.4.2.1

Commvault Galaxy v3.7.1

Backbone Netvault v6.5.1

Atempo Time Navigator v3.6

(Under direct SCSI attach only):

Storage Library System (SLS) v2.9d for OpenVMS

Archive/Backup System (ABS) v3.0 for OpenVMS

Dantz Retrospect v5.5. (Server Version) for Windows NT/2000 - supports only single drive configurations

Automation and Network Utilities

Media Robot Utility (MRU)

StorageWorks Tape Storage Management Console

HP Insight Manager

For the latest updated compatibility matrix for ISV backup software supported go to
http://www.compaq.com/products/storageworks/ebs/EBScompatmatrix.html

Media Partitioning Support:

Media partitioning is the capability to create logical pools or partitions in a tape library. The MSL5026SL tape library supports media partitioning capability to support multiple drives types within a single library or in a multi-unit stack. Currently this capability supports HP 40/80GB DLT, SDLT 110/220GB, and SDLT 160/320 drives. Media partitioning capability is available via the ISV backup application software being used to perform backup and restores. The following applications support media partitioning capability:

- Computer Associates Arcserve 2000 Build 15 for Windows NT/2000
- VERITAS Backup Exec 8.6 for Windows NT/2000 Build 8.6.3808 and later
- VERITAS NetBackup 3.4 or 3.4.1 with patch NB_3.4.1_1 for Windows NT/2000 and patch NB_3.4_1 for UNIX
- Legato NetWorker 6.1.1 with Legato Smart Media 1.5

Software Components

SmartStart: Server Configuration and software integration tool from HP.

SPECIFICATIONS

Control Panel	Library and Drive Status
	Move tape cartridges
	Load/Unload tape drives
	Maintenance (diagnostics)
	Library Configuration
	Statistics
	Inventory Check
	Security level set: operator, user, service
	Mail slot access
	Offline/Online Status
	Magazine removal/replacement
SCSI Interface	Ultra II LVD SCSI, VHDCI interconnect

QuickSpecs

hp StorageWorks MSL5026SL tape library (Opal)

SPECIFICATIONS *(continued)*

Form Factor	Rackmount 5U		
	Table Top		
Dimensions (H x W x D)	Height	Rack Mount	8.75 in/22.3 cm
		Table Top	10.00 in/25.4 cm
	Width	Rack Mount	17.00 in/43.2 cm
		Table Top	19.00 in/48.3 cm
	Depth	Overall	31.25 in/79.4 cm
	Behind panel	30.25 in/76.8 cm	
Unit Weight	MSL5026SL	Single Drive	70 lb/32 kg
		Dual Drive	75 lb/34 kg
Capacity (native)	MSL5026SL Base Unit	2.86 TB	
Performance (native)	11 MB/s per drive		
	MSL5026SL Base Unit	Supports 1 or 2 SDLT 110/220 drives for native transfer rates up to 79.2 GB/hr	
	Maximum Configuration (7 modules with multi-unit scalability)	Supports up to 14 SDLT 110/220 drives for native transfer rates up to 554.4 GB/hr	
Storage Capacity (compressed @ 2:1)	220 GB per cartridge		
	MSL5026SL Base Unit	26 slots (including one mail slot) , for native capacity up to 2.86TB	
	Maximum Configuration (7 modules with multi-unit scalability)	7 * 26 slots, for native capacity up to 20.02 TB	
Power Consumption	MSL5026SL Base Unit	90 to 140V AC @47 to 63 Hz	
		176 to 259V AC @47 to 63 Hz	
	Power Requirement	1360 BTU's/hour (Typical) (400 Watts) 1530 BTU's/hour (Maximum) (450 Watts)	
Acoustic Noise	Noise Power Emission Level	8 bels, maximum	
	Avg. Sound Pressure Level	52 dBA	
Robotics Performance	Initialization time	100 sec	
	Inventory time	60 sec	
	Cartridge swap (drive to slot)	15 sec average	
Reliability	MTBF	250, 000 hours (100% duty cycle)	
	MSBF	2,000,000 robot load/unload cycles	
Product Safety Requirements and Approvals	EN60950 (IEC 950), UL1950, CSA C22.2 950, VDE 0805/11.92 (TUV), EMKO-TSE 207/94 (NEMKO, FIMKO, DEMKO, SEMKO), SCFI-1993, KONKAR, MEEI, EVPU, SIQ, VCCI Class 1, C-Tick (Class A) SMA AZ/NZS 3548 Class A, BCIQ, CE Marking Directive (93/68/EEC) (Class A), EMC Directive [89/336/EEC], Low Voltage Directive [73/23/EEC] (some in process)		

Warranty

One-year warranty, on-site next day response.

Additional Warranty protection can be purchased for all MSL5000 series of tape libraries.

NOTE: Certain restrictions and exclusions apply. Consult the HP Customer Support Center for details.

QuickSpecs

HP INSTALLATION AND CAREPAQ INFORMATION

HP Services provides warranty support for the MSL5026SL via HP Services and a worldwide network of authorized service providers.   Toll-free 7 x 24 hardware technical phone support is provided for the duration of the product warranty. In addition, available service offerings include a full range of CarePaqs packaged hardware and software services:

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

HP Service & Warranty Support

Additional Warranty protection and/or HP Installation packages can be purchased for the MSL5026SL Tape Library products:

Software Product Services

- Standalone 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 URL's listed below:
http://www.compaq.com/services/carepaq/us/install/cp_storage.html
http://www.compaq.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 9 hours x 5 days to 24 hours x 7 days
- Duration - Select duration of coverage for a period of 1, 3, or 5 years

CarePaq Information

Sample part numbers:

- CarePaq is defined as an upgrade to the product warranty attribute, available for a specific duration and hours of coverage.
- CarePaq is not available for less than the products warranty duration.
- CarePaq 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.
- CarePaq services are prepaid.

For additional CarePaq (hardware & software) information, as well as, orderable part numbers please refer to the URL listed below:
http://www.compaq.com/services/carepaq/index.html

QuickSpecs

hp StorageWorks MSL5026SL tape library (Opal)

RELATED OPTIONS

MSL5026SL Library System

Part Number	Part Description	UPC Code
231979-B21	MSL5026, 0 DR, LVD, RM	720591739829
231822-B21	MSL5026SL, 1 SDLT 110/220,LVD, TT	720591390273
231822-B22	MSL5026SL, 2 SDLT 110/220,LVD, TT	720591390587
231892-B21	MSL5026SL, 1 SDLT 110/220,LVD, RM	720591433208
231892-B22	MSL5026SL, 2 SDLT 110/220,LVD, RM	720591244507

Supplied with each Library Unit:
- Library Unit (pre-configured with drives)
- Documentation Kit
  - EFIJS Translation CD
  - Users Guide
  - Diagnostic diskette/Software Guide
  - Warranty Card
  - Safety Card
  - Driver CD
- (1) SDLT 110/220 data Cartridge
- Bar Code Labels
- SCSI Terminators (1 per drive)
- SCSI Jumper Cable VHDCI
- Diagnostic Cable (for PC attach)
- Software: Tape Storage Management Console Media Robot Utility

Power Cord (Pair Required)

227099-001	Power Cord, US/Canada/Mexico (shipped with all units)	720591673581
227098-011	Power Cord, (Australia/China/New Zealand)	720591673567
157220-AR1	Power Cord, (South East Asia/India)	
157215-021	Power Cord, (Central Europe)	
157216-031	Power Cord, (United Kingdom/Hong Kong)	720591547288
157219-111	Power Cord, (Switzerland)	743172633156
157217-061	Power Cord, (Italy)	
157218-081	Power Cord, (Denmark)	
139867-006	Power Cord, (Japan)	

Order Local power cords separately.

Drive, capacity, and memory upgrade kits

231823-B22	MSL5KField Upgrade SDLT 110/220GB DR, LVD	720591730017
293475-B21	MSL5000 SDLT160/320 Upgrade Drive in Hot Plug Canister	613326517949

QuickSpecs

RELATED OPTIONS *(continued)*

Media and Bar Code Labels

232136-B21	MSL5000 dual magazine DLT/SDLT pack (2 x 13 slot magazines, left and right)	720591739829
188527-B21	SDLT Media 5-pack	720591390273
188527-B22	SDLT Media 10-pack	720591390587
188527-B26	SDLT Media 20-pack	720591433208
158398-001	DLT Bar Code Labels 100 pieces	720591244507

- Additional media
- Additional magazines
- Bar Code Labels

SCSI Cables

341174-B21	SCSI Cable, VHDCI/VHDCI, 6 feet	743172660817
341175-B21	SCSI Cable, VHDCI/VHDCI, 12 feet	743172660824
341176-B21	SCSI Cable, VHDCI/Wide, 6 feet	743172660831
341177-B21	SCSI Cable, VHDCI/Wide, 12 feet	743172660848
201160-B21	SCSI Cable, VHDCI/Wide, 10 meter	720591469108

Check the cable-adapter matrix for tape libraries on:
ftp://ftp.compaq.com/pub/products/storageworks/tape-and-optical-storage/adapter-cable-matrix.pdf

* Requires LVD extender 221249-B21.

SCSI Host Bus Adapter/Hewlett-Packard Fibre Channel to SCSI Router (optional)

	Host Bus adapter for SCSI connectivity from server to tape library in direct SCSI environment	
	Modular Data Router, Network Storage Router, Embedded FC Router to connect SCSI Library to Fibre Channel Hub/Switch	
	ProLiant Controllers	
129803-B21	64 bit/66-MHz PCI dual channel Wide Ultra III SCSI adapter	743172876379
	Alpha Controllers	
3X-KZPCA-AA	Single Channel Ultra LVD Controller	
	Modular Data Router (required for SAN configuration)	
163083-B21	Modular Data Router (1 FC x 2 LVD SCSI)	720591260887
218241-B21	Modular Data Router (2 FC x 4 LVD SCSI)	720591570657
	Network Storage Router (required for SAN configuration)	
262653-B21	Network Storage Router M2402 (2FC X 4 LVD SCSI)	613326254516
286694-B21	MSL Embedded Fiber Option E1200– Opal	613326447635
	(Configured in the HP PCI slot within the MSL5026 DLX/SL libraries)	
	(Includes cooling fan module which is required for configuring the router card on the MSL5026 opal colored libraries; requires HP services to install)	
280823-B21	Network Storage Router N1200 (1FC x 2 LVD SCSI)	613326408087

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hp StorageWorks MSL5026SL tape library (Opal)

RELATED OPTIONS *(continued)*

Pass through mechanism

304825-B21	MSL5000, Universal Pass through mechanism (includes elevator mechanism and router, required to connect first two units in a stack)	613326628447
231824-B22	MSL5026, 5U Passthrough extender (required one for each unit connected to the stack, for third and additional units)	720591730079
231824-B21	MSL5000, Passthrough mechanism (includes elevator mechanism and router)	720591730055

Rack mounting Kits

304826-B21	MSL5000 system/e RM kit (HP racks)	613326628423
231894-B22	MSL5000 TT-RM KIT, ProLiant Rack	720591734336
231894-B21	MSL5000 TT-RM KIT, Alpha Rack	720591734312
254795-001	Alpha Rail Kit	720591166243

Data Protection Suites

	CommVault Galaxy	
281593-B21	Phan Kit, CommVault Galaxy	613326417072
	Media Kit that contains Live "Trial" software	
281577-B21	DP Suite, single server	613326416877
	Designed for backing up a single server, with no server clients, using a single internal or external tape drive.	
281585-B21	DP Suite, SAN standard	613326417010
	Entry level SAN kit that contains:	
	• ISV application software for six servers on the SAN	
	• Two server clients for backing up over the LAN	
	• Each SAN server has a choice of a database agent or open file systems option	
	• Support for up to eight shared automated, tape drives	
281588-B21	DP Suite, SAN advanced	613326417041
	Data center SAN kit that contains:	
	• ISV application software for fourteen servers on the SAN	
	• Two server clients for backing up over the LAN	
	• Each SAN server has a choice of a database agent or open file systems option	
	• Support of up to sixteen shared, automated tape drives	
281582-B21	DP Suite, Network	613326416921
	Designed for backing up a single server and server clients over the network using a tape drive, an autoloader or business class automation. Includes choice of one database agent or open file systems option.	

QuickSpecs

hp StorageWorks MSL5026SL tape library (Opal)

RELATED OPTIONS *(continued)*

Data Protection Suites *(continued)*

	CA BrightStor ARCserve	
283915-B21	Phan Kit, CA ARCserve	613326431962
	Media Kit that contains Live "Trial" software	
281576-B21	DP Suite, single server	613326416860
	Designed for backing up a single server, with no server clients, using a single internal or external tape drive.	
281583-B21	DP Suite, SAN standard	613326416990
	Entry level SAN kit that contains:	

- ISV application software for six servers on the SAN
- Two server clients for backing up over the LAN
- Each SAN server has a choice of a database agent or open file systems option
- Support for up to eight shared automated, tape drives

281586-B21	DP Suite, SAN advanced	613326417027
	Data center SAN kit that contains:	

- ISV application software for fourteen servers on the SAN
- Two server clients for backing up over the LAN
- Each SAN server has a choice of a database agent or open file systems option
- Support of up to sixteen shared, automated tape drives

281581-B21	DP Suite, Network	613326416914
	Designed for backing up a single server and server clients over the network using a tape drive, an autoloader or business class automation. Includes choice of one database agent or open file systems option.	

QuickSpecs   hp StorageWorks MSL5026SL tape library (Opal)

RELATED OPTIONS *(continued)*

Data Protection Suites *(continued)*

	VERITAS Backup Exec	
283914-B21	Phan Kit, VERITAS Backup Exec	613326431948
	Media Kit that contains Live "Trial" software	
281578-B21	DP Suite, single server	613326416884
	Designed for backing up a single server, with no server clients, using a single internal or external tape drive.	
281584-B21	DP Suite, SAN standard	613326417003
	Entry level SAN kit that contains:	

- ISV application software for six servers on the SAN
- Two server clients for backing up over the LAN
- Each SAN server has a choice of a database agent or open file systems option
- Support for up to eight shared automated, tape drives

281587-B21	DP Suite, SAN advanced	613326417034
	Data center SAN kit that contains:	

- ISV application software for fourteen servers on the SAN
- Two server clients for backing up over the LAN
- Each SAN server has a choice of a database agent or open file systems option
- Support of up to sixteen shared, automated tape drives

281580-B21	DP Suite, Network	613326416907
	Designed for backing up a single server and server clients over the network using a tape drive, an autoloader or business class automation. Includes choice of one database agent or open file systems option.	

QuickSpecs

hp StorageWorks MSL5026SL tape library (Opal)

RELATED OPTIONS *(continued)*

Data Protection Suites *(continued)*

	Legato NetWorker	
293599-B21	Phan Kit, Legato NetWorker	613326520048
	Media Kit that contains Live "Trial" software	
293600-B21	DP Suite, single server	613326520024
	Designed for backing up a single server, with no server clients, using a single internal or external tape drive.	
293602-B21	DP Suite, SAN standard	613326518380
	Entry level SAN kit that contains:	

- ISV application software for six servers on the SAN
- Two server clients for backing up over the LAN
- Each SAN server has a choice of a database agent or open file systems option
- Support for up to eight shared automated, tape drives

293603-B21	DP Suite, SAN advanced	613326518366
	Data center SAN kit that contains:	

- ISV application software for fourteen servers on the SAN
- Two server clients for backing up over the LAN
- Each SAN server has a choice of a database agent or open file systems option
- Support of up to sixteen shared, automated tape drives

293601-B21	DP Suite, Network	613326520000
	Designed for backing up a single server and server clients over the network using a tape drive, an autoloader or business class automation. Includes choice of one database agent or open file systems option.	