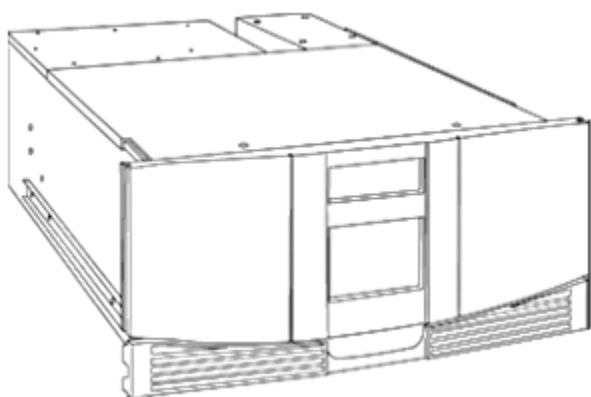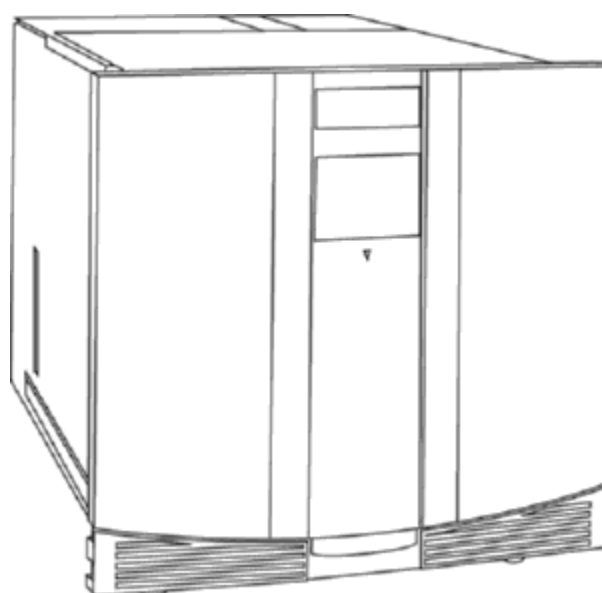# QuickSpecs

Overview

HP StorageWorks MSL6000 Tape Libraries provide a secure, centralized backup in a single automated device, freeing valuable IT resources for more strategic work. These libraries are ideal for medium to large IT networks, with or without a storage area network (SAN), experiencing uncertain data growth. The MSL6000 Tape Libraries offer a choice of tape technology including the HP StorageWorks LTO-4 Ultrium 1840 with embedded hardware encryption support, Ultrium 960, and SDLT 600 tape drives. Backups are secure with AES 256-bit hardware encryption embedded on the HP LTO-4 Ultrium 1840 Tape Drives. Encryption key management support is available with HP StorageWorks Data Protector and other ISV backup applications. This portfolio of tape libraries offers a secure, scalable, and manageable centralized tape backup solution that can grow with ever-changing backup and recovery needs, while reducing IT staff involvement.

The MSL6000 Tape Libraries will scale to larger configurations by enabling a single library to grow and change with capacity and technology as needs require. Not only will the MSL6000 Tape Library scale within the family, but it can also be scaled with MSL5000 Tape Libraries using a pass-through mechanism, for up to 16 drives and 240 slots. LTO-4 Ultrium 1840, Ultrium 960, and SDLT 600 tape drives are available as upgrades to currently installed MSL5000 and MSL6000 Tape Libraries. The MSL6000 Tape Libraries are easily managed through an intuitive GUI-control panel and integrated remote web management, allowing simple management capabilities from any remote or on-site location.

HP StorageWorks MSL6030/6026 Tape Library   HP StorageWorks MSL6060/6052 Tape Library

What's New

- HP StorageWorks MSL6000 Tape Libraries are now available with LTO-4 Ultrium 1840 hardware encrypting tape drives for secure high performance backups meeting consortium specifications for LTO-4

Key Features

- Scalable up to 16 drives and 240 slots
- Flexible in terms of choice for tape drive technology and library interface
- Investment protection for performance and capacity needs
- Manageable
- Secure with AES 256-bit embedded encryption support on the LTO-4 Ultrium 1840 tape drives.
- Reliable
- Extensive compatibility testing
- Agility in storage and movement of data

QuickSpecs

HP StorageWorks MSL6000 Tape Library

Overview

Customer Benefits

- Multi-unit stacking allows the library to grow with changing storage requirements for up 16 drives and 240 slots using either MSL6000 or MSL5000 Tape Libraries.
- Available with a broad choice of tape technologies including Ultrium 960 and SDLT600; and with either aSCSI LVD/SE or Fibre Channel interface.
- Backups are secure with embedded hardware encryption on the HP LTO-4 Ultrium 1840 Tape Drives. Receive the highest level of encryption capability ensuring data privacy and regulation compliance. Encryption key management support is available with HP StorageWorks Data Protector and other ISV backup applications
- Upgrade to a new drive technology by simply installing a drive upgrade kit into an existing library chassis.
- A controller-based architecture allows direct-attach configurations to easily move to a SAN environment via an interface card upgrade.
- User-friendly GUI control panel and web interface make library management easy from any remote or local location.
- Tape libraries provide consistent backup and automatically change tapes with a robotics rating of two million Mean Swaps Between Failures (MSBF).
- Works with industry-leading servers, operating systems and backup software. (http://www.hp.com/go/ebs)
- For dedicated import/export of data cartridges, each library includes one to two configurable mail slots, along with two to four removable magazines, dependent upon library configuration.

Family Comparison	MSL6030 Tape Library	MSL6026 Tape Library	MSL6060 Tape Library	MSL6052 Tape Library
Form Factor	5U	5U	10U	10U
Tape Drives Supported	LTO-4 Ultrium 1840 LTO-3 Ultrium 960	SDLT600	LTO-4 Ultrium 1840 LTO-3 Ultrium 960	SDLT600
Max Drives per Unit	2	2	4	4
Max Capacity per Unit (compressed 2:1)	48 TB (LTO-4) 24 TB (LTO-3)	15.6 TB	96 TB (LTO-4) 48 TB (LTO03)	31.2 TB
Max Number of Units Stacked	8	8	4	4
Max Data Transfer Rate per Unit (compressed, max drives)	1.7 TB/hr (LTO-4) 1.15 TB/hr (LTO-3)	518 GB/hr	3.4 TB/hr (LTO-4) 2.2 TB/hr (LTO-3)	1.04 TB/hr
Interface	Ultra320 SCSI LVD/SE 4Gb Fibre Channel	Ultra160 SCSI LVD/SE 2Gb Fibre Channel	Ultra320 SCSI LVD/SE 4Gb Fibre Channel	Ultra160 SCSI LVD/SE 2Gb Fibre Channel

Product Highlights

Multi-unit Scalability	The MSL6000 Tape Library has the capability for multi-unit scalability; up to four 10U libraries or eight 5U libraries can be scaled together into a single library. For the MSL6030/6026, the first two modules are linked using the MSL Universal Pass-Through Mechanism base unit kit, which has a shuttle mechanism for tape movement between units. For the MSL6060/6052, the first two modules are linked using the MSL Universal Pass-Through Mechanism base unit kit and a 10U extender kit. Additions of subsequent modules require one MSL 5U or one MSL 10U pass-through extender kit per library module. A MSL6000 Tape Library can also be scaled with a MSL5000 Tape Library for added flexibility and investment protection. The ISV application will determine mixed media and tape drive support per tape library configuration.
Manageability	The MSL6000 Tape Library includes web-based management to allow monitoring and managing of the library from across the room or across the globe. Many of the functions that are available on the front panel are included in the remote management interface. These include, but are not limited to: library and drive status, moving media, load/unload tape drives, access to diagnostics, library configuration, library statistics, inventory check, and security settings.
Proven Reliability	With a rating of 2,000,000 robot load/unload cycles, the MSL6000 Tape Library provides necessary high reliability for today's demanding environment. To improve reliability and longevity, all HP Ultrium products feature Data Rate Matching (DRM). This allows the tape drive to dynamically and continuously adjust the speed of the drive, from 27 MB/s to 80 MB/s, to match the speed of the host or network. This increases performance, reduces mechanical wear on the tape drive and extends tape life.
Data Privacy	To greatly enhance data privacy, HP StorageWorks MSLWXYZ Tape Libraries are now available with LTO-4 Ultrium 1840 hardware encrypting tape drives for secure high performance backups meeting consortium specifications for LTO-4. HP Data Protector Software can enable the drive encryption and provide basic key management capabilities. Additional ISV supporting hardware encryption is available per www.hp.com/go/ebs. The encryption on LTO-4 media occurs with or without compression and without speed or capacity penalties. You can read LTO2 and LTO3 tapes and write LTO3 tapes but hardware encryption is not supported in these formats.
	LTO4 uses the Advanced Encryption Standard (AES) with the longest and most secure keys, 256 bits. AES-256 is implemented within Galois Counter Mode (GCM). This is a method of increasing AES security by efficiently adding Message Authentication Codes to ensure the integrity of the backup data stored on tape. The HP 1840 Tape Drive is designed to be compliant with the emerging standard for tape drive security, IEEE 1619.1
Factory Express Portfolio for Servers and Storage	HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed. Customization must comply with all relevant product specifications and factory supported configurations.
	Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, and HP 9000 servers as well as MSA, VA7xxx, EVA, and XP disk arrays, rackable tape libraries and configurable network switches.
	Type of service support varies by platform and product family. For more information on Factory Express services for your specific server model or storage device please contact your sales representative or go to http://www.hp.com/go/factory-express.

Product Highlights

HP StorageWorks Library and Tape Tools (L&TT)

The MSL6000 Tape Library configurations are supported on HP's industry-leading diagnostic tool - HP StorageWorks 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.

LTO Ultrium Technology

The HP StorageWorks Ultrium 960 Tape Drive represents HP's third-generation of LTO tape drive technology. Positioned as the highest capacity drive in the StorageWorks family, the Ultrium 960 features an 800 GB compressed (2:1) storage capacity using new LTO 3 media. By doubling the capacity of current Ultrium drives, HP customers now require fewer data cartridges to meet their storage needs, significantly reducing their IT costs and increasing their ROI. The Ultrium 960 also features a compressed (2:1) data transfer rate of 160 MB/s. Using a new 16-channel recording head, an Ultra320 SCSI interface, and increases in media tracks and bit density, the HP Ultrium 960 sets a new performance benchmark as the world's fastest tape drive.

NOTE: For additional information regarding the HP StorageWorks Ultrium Tape Drives, please see the following QuickSpecs at:
http://h18006.www1.hp.com/products/storageworks/ultrium960/specifications.html

Data Rate Matching

- Data Rate Matching combines sophisticated buffer management with HP's exclusive Infinitely Variable Adaptive Tape Speed technology, to allow the tape drive to match its transfer rate to the host speed dynamically and continuously across the whole range of transfer rates. This feature ensures that the tape drive continues to stream data regardless of the environment, and brings two big advantages:It optimizes backup performance, regardless of the speed of the host or the network
- It minimizes rewinding and repositioning of the tape, thus reducing wear and increasing reliability

HP Ultrium WORM

Critical to the success of data retention policies in highly regulated environments is the ability to store and manage data in an unalterable state. Following stringent guidelines set forth by regulatory agencies such as the SEC and HIPPA, IT organizations must now integrate new solutions and policies that can verify the integrity of stored data for periods that can extend well beyond seven years.

The new Ultrium 960 tape drive features the ability to archive and store data in a non-rewriteable format that meets the most stringent regulatory guidelines. Using a combination of integrated fail-safe features in the drive firmware, cartridge memory, and tape formatting, the Ultrium 960 can archive large amounts of data for periods of up to 30 years in a secure, untampered state. Since all Ultrium 960 tape drives include support for both rewritable and WORM (write-once, read-many) media, IT organizations can now easily integrate a secure, long-term archiving solution into their current data protection strategy. As compared to other technologies that feature support for WORM storage, the Ultrium 960 offers the advantages of:

- A single drive to support all backup and archiving needs
- Two distinctive tape cartridges to easily distinguish and manage both rewriteable and WORM data cartridges
- A specially designed WORM data cartridge with multiple integrated fail-safe features to prevent accidental or intentional overwriting of data
- High-capacity, low-cost HP WORM media that can store up to 800GB of data on a single data cartridge
- Support from many backup and archiving software vendors, providing the most comprehensive and mainstream support in the industry
- The LTO open standard that offers greater choice and compatibility across all third-generation Ultrium products

NOTE: While all HP Ultrium 960 tape drives support LTO Ultrium WORM media, some third-generation

Product Highlights

LTO Ultrium tape drives from other manufacturers may not include read and write support for LTO Ultrium WORM media. For non-HP third-generation LTO Ultrium tape drives, please check the manufacturers' specifications to ensure this support is provided if you are using your WORM media. If WORM support is not provided, the drive will eject the WORM tape cartridge immediately upon insertion into to the tape drive.

SDLT Technology	DLT (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 drive, provides enhanced capacity and backup performance and includes several new features such as laser guided magnetic recoding (LGMR) technology, pivoting optical servo (POS), magneto-resistive cluster heads (MRC), partial response maximum likelihood (PRML) channel technology and backward-read compatibility with earlier generations of DLT drives (to be able to read media written in DLT type IV format).

HP SDLT WORM	The HP StorageWorks SDLT600 Tape Drive includes support for WORM (Write-Once, Read-Many) functionality. WORM implementation is dependent on the backup application and more information on which applications support WORM can be found at http://www.hp.com/go/connect.
	WORM technology provides an enhanced level of security against accidental or malicious alteration of data on tape cartridges. WORM can be important when implementing data retention policies to be compliant with regulations regarding the storage of data on non-rewritable, non-erasable media. The SDLT600 tape drive ships with support for WORM and can be set to WORM mode using the backup application. Once the cartridge has been set up for WORM, you will be unable to erase or overwrite the data on it, although you will be able to append data until the cartridge is full. WORM media can be read as often as required. When implementing WORM an unformatted or blank Super DLTtape II 600GB data cartridge is required.

HP Storage Media	HP recommends that you use HP-branded cartridges in the MSL6000 Tape Library to assure the highest level of protection for your valuable data. The test program for HP media is the most thorough and comprehensive in the industry.
	HP strongly encourages the use of bar code labels on tapes to track media and ensure optimum library performance and usability. Correctly labeling your media will allow the library to quickly determine media and drive compatibility.
	All HP cartridges must satisfy an exhaustive battery of additional tests that relate directly to real life situations, where real data and real businesses are at stake. The benefit of the HP brand specification for media is consistent quality. Through the testing of thousands of HP drives and HP cartridges, the ideal formulation for backup performance is defined and then continuously monitored. This hugely resource-intensive process is unique to HP and affords deep insight into the HP+HP backup solution for a wide range of environments and duty cycles. Your best choice for ease of support and maximum dependability is to use HP-branded Ultrium cartridges at all times.

Compatibility

HP's extensive compatibility testing program assures that your HP StorageWorks MSL6000 Tape Library works with leading servers, operating systems, and backup applications - and not just those sold by HP. The MSL6000 works seamlessly in many environments, making them especially suitable if you have a mixed system environment. For the latest list of servers, workstations, operating systems, and backup software that support the MSL6000, check the HP StorageWorks Enterprise Backup Solution compatibility matrix at http://www.hp.com/go/ebs.

Server Compatibility	The MSL6000 is supported on a wide range of HP systems. For details of which MSL6000 works with which systems, including third-party systems, reference the EBS compatibility matrix at http://www.hp.com/go/ebs for the latest hardware compatibility information.
OS Support	Reference the EBS compatibility matrix for the most up-to-date OS compatibility information at http://www.hp.com/go/ebs.
Software Support	Reference the EBS compatibility matrix for the most up-to-date software compatibility information at http://www.hp.com/go/ebs.

Service and Support, HP Care Pack, and Warranty Information

Warranty	The warranty for this product consists of one-year, next business day, onsite.

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 to multiple years

HP Care Pack Information	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 products 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://www.hp.com/hps/carepack/.

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 http://www.hp.com/hps/hardware/.

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

Service and Support, HP Care Pack, and Warranty Information

Support Services

HP Services provides up to a three-year, limited warranty, fully supported by a worldwide network of resellers and service providers and 9x5 hardware technical phone support during the warranty period. In addition, available service offerings include a full range of optional 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

Components

The following brick level options/components do not have individual HP Care Pack Services. These items will be included in product HP Care Pack Services into which they are installed.

Disk Drives	Tape Drives	CD/DVD ROM	SCSI Hubs in SBBs	Adapters
Bus Converters	Backplane RAID Controllers	Power Supplies	Cabling	Fans

Configuration Information

NOTE: The HP StorageWorks MSL6000 Tape Library comes standard as a rack-ready unit and includes a rack kit specifically designed for HP 10000/9000/5000 series racks. If the library will be installed into a HP System/E or Alpha rack, then a separate rack kit must also be purchased.

NOTE: Each library includes a 110/220 VAC power cord for US/Canada/Mexico (1 per 5U unit; 2 per 10U unit). For additional or specific regional power cord requirements, separate power cords must be ordered.

Step 1 – Select a Configuration

Select one:

Model Name	Model Description	Part Number
HP StorageWorks MSL6030/6026 Tape Library	HP MSL6030 1 LTO-4 Ultrium 1840 Drive Library	AJ029A
	HP MSL6030 1 LTO-4 Ultrium 1840 4Gb FC Drive Library	AJ030A
	HP MSL6030 1 Ultrium 960 Drive Library	AD606B
	HP MSL6030 2 Ultrium 960 Drive Library	AD607B
	HP MSL6030 1 Ultrium 960 Drive 4Gb FC Library	AD608B
	HP MSL6030 2 Ultrium 960 Drive 4Gb FC Library	AD609B

NOTE: The HP StorageWorks MSL6030 Tape Library supports 30 media slots (including one configurable mail slot) and up to two Ultrium tape drives (number of drives determined by SKU chosen). Additional drives can be added for a maximum of 2 drives per library module. The tape library ships as a rack-ready unit.

	HP MSL6026 1 SDLT600 Drive Library	AD582C
	HP MSL6026 2 SDLT600 Drive Library	AD583C
	HP MSL6026 1 SDLT600 Drive 2Gb FC Library	AD584C
	HP MSL6026 2 SDLT600 Drive 2Gb FC Library	AD585C

NOTE: The HP StorageWorks MSL6026 Tape Library supports 26 media slots (including one configurable mail slot) and up to two SDLT tape drives (number of drives determined by SKU chosen). Additional drives can be added for a maximum of 2 drives per library module. The tape library ships as a rack-ready unit.

Kit Contents (for each library):

- 12' 110/220 VAC US/Mexico/Canada Power Cord (1 per 5U unit)
- .5M VHDCI SCSI cable (1 per tape drive and 1 per FC card)
- (1) RJ-11 Serial cable
- VHDCI SCSI terminator (1 per tape drive)
- Rack mount hardware including template poster (for use with HP 10000/9000/5000 series racks)
- Documentation kit including Getting Started Poster and User's Guide (CD)

NOTE: Each MSL6030/6026 library installation will require, one (1) library system, one (1) geographically specific power cord (if other than US 110/220 VAC), and up to 30 HP data cartridges with bar code labels. SCSI applications will require (1) SCSI host cable for each drive. Fibre Channel applications will require one (1) Fibre Channel cable for each drive pair. Multi-unit configurations will require additional pass-through kits. Installation services may also be ordered for customers who prefer to have a certified HP engineer perform on-site library installation.

HP StorageWorks MSL6060/6052 Tape Library	HP MSL6060 2 LTO-4 Ultrium 1840 Drive Library	AJ031A
	HP MSL6060 2 LTO-4 Ultrium 1840 4Gb FC Library	AJ032A
	HP MSL6060 2 Ultrium 960 Drive Library	AD610B
	HP MSL6060 2 Ultrium 960 Drive 4Gb FC Library	AD611B

NOTE: The HP StorageWorks MSL6060 Tape Library ships with 60 media slots (including two configurable mail slots), redundant power supplies, and two Ultrium tape drives (number of drives determined by SKU chosen). Additional drives can be added for a maximum of 4 drives per library module. The tape library ships as a rack-ready unit.

Configuration Information

HP MSL6052 2 SDLT600 Drive Library	AD587B
HP MSL6052 2 SDLT600 Drive 2Gb FC Library	AD588B

NOTE: The HP StorageWorks MSL6052 Tape Library ships with 52 media slots (including two configurable mail slots), redundant power supplies, and two SDLT tape drives (number of drives determined by SKU chosen). Additional drives can be added for a maximum of 4 drives per library module. The tape library ships as a rack-ready unit.

Kit Contents (for each library):

- 12' 110/220 VAC US/Mexico/Canada Power Cord (1 per 5U unit; 2 per 10U unit)
- .5M VHDCI SCSI cable (1 per tape drive and 1 per FC card)
- (1) RJ-11 Serial cable
- VHDCI SCSI terminator (1 per tape drive)
- Rack mount hardware including template poster (for use with HP 10000/9000/5000 series racks)
- Documentation kit including Getting Started Poster and User's Guide (CD)

NOTE: Each MSL6060/6052 library installation will require (1) library system, (2) geographically specific power cords (if other than US 110/220 VAC) and up to 60 data cartridges with bar code labels. SCSI applications will require one (1) SCSI host cable for each drive. Fibre Channel applications will require one (1) Fibre Channel cable for each drive pair. Multi-unit configurations will require additional pass-through kits. Installation services may also be ordered for customers who prefer to have a certified HP engineer perform an on-site library installation.

Step 2 - Select The Appropriate Rack Kit

Select one per library unit:

Rack Kits	Description	Part Number
	HP MSL System/E Rack Mount Kit	AG164A
	NOTE: Required to install a rack-ready MSL5000 or MSL6000 Tape Library into a HP System/E rack; one kit required per library being racked.	
	HP MSL 5U Tabletop to 10K Rack Conversion Kit	AG162A
	NOTE: Required to install a tabletop MSL5000 or MSL6000 Tape Library into a HP 10000/9000/5000 series rack; one kit required per library being racked.	
	HP MSL 5U Tabletop to Alpha/HP Rack Conversion Kit	AG161A
	NOTE: Required to install a MSL5000 or MSL6000 Tape Library into an Alpha rack; one kit required per library being racked.	

NOTE: Depending on the environment, different rack kits are required. Each rack-ready MSL6000 Tape Library includes a rack kit designed for HP 10000/9000/5000 series racks. If installing into these racks, no additional kits are needed. If the environment is different, one of the above kits is necessary for racking (one per library).

Configuration Information

Step 3 - Select The Appropriate Power Cord

Select one per 5U library unit or two per 10U library unit:

Power Cords	Description	Part Number
	Power Cord, US, C13, 10A, 1.83m	AF556A
	NOTE: This cord ships standard with each MSL6000 Tape Library (1 per 5U unit; 2 per 10 unit)	
	NOTE: Can be used to connect the rack-mounted device to PDUs with NEMA 5-15R receptacles.	
	PDU Power Cord, C13/C14, 10A, 2.5m	142257-002
	NOTE: Can be used to connect the rack-mounted device to PDUs with IEC-320 receptacles.	
	Power Cord, Euro, C13,10A , 1.83m	AF568A
	Power Cord, UK, C13,10A , 1.83m	AF570A
	Power Cord, Danish, C13, 10A , 1.83m	AF566A
	Power Cord, Swiss, C13,10A , 1.83m	AF565A
	Power Cord, Italian, C13,10A , 1.83m	AF571A
	Power Cord, South Africa, C13,10A , 2.5m	AF567A
	Power Cord, Taiwan, C13,12A , 1,83m	AF561A
	Power Cord, China, C13,10A 1.83,,	AF557A
	Power Cord, Japan, C13,12A , 2m	AF572A
	Power Cord, Australia, C13,10A , 2.5m	AF569A
	Power Cord, Argentina, C13,10A , 2.5m	AF558A
	Power Cord, Brazil, C13,10A , 1.83m	AF559A
	Power Cord, Korea, C13,10A , 1.83m	AF560A
	Power Cord, Israel, C13,10A , 1.83m	AF564A
	Power Cord, India, C13,10A , 2.0m	AF562A

NOTE: One power cord required for each MSL6030; two power cords required for each MSL6060. Select the correct power cord for your geographical location.

WARNING: Use of a non-HP approved Power Cord may result in (1) use of a power cord that does not meet individual country specific safety requirements; (2) a power cord with insufficient conductor amperage that could result in overheating with potential personal injury and/or property damage; and/or (3) an unapproved power cord could fracture resulting in the internal contacts being exposed which potentially could subject the user to a shock hazard. Use ONLY an HP approved power cord for your particular country. HP disclaims all liability in the event a non-HP approved power cord is used.

QuickSpecs

Related Options

Factory Racking	Factory integrate the MSL6000 Tape Library with other HP products such as HP ProLiant Servers. NOTE: #0D1 will appear after the MSL part number on the sales order if HP factory integration is selected.	#0D1
Tape Drives	HP MSL6000 LTO-4 Ultrium 1840 Tape Drive NOTE: For use in the MSL5000 Ultrium libraries; data transfer rates up to 80 MB/s. NOTE: For use in the MSL6000 Ultrium libraries; data transfer rates up to 160 MB/s.	AJ028A
	HP MSL6000 LTO-3 Ultrium 960 Drive NOTE: For use in the MSL5000 Ultrium libraries; data transfer rates up to 80 MB/s. NOTE: For use in the MSL6000 Ultrium libraries; data transfer rates up to 160 MB/s.	AD612B
	HP MSL6000 Ultrium 460 Drive NOTE: For use in the MSL5000 and MSL6000 Ultrium libraries.	AD605B
	HP MSL6000 SDLT600 Drive NOTE: For use in the MSL5000 and MSL6000 SDLT libraries. NOTE: For details on MSL drive upgrade compatibility, reference the Business Class Libraries Drive Upgrade matrix at ftp://ftp.compaq.com/pub/products/storageworks/techdoc/tapestorage/MSL_drivematrix.pdf	AD589B
FC Interface Card	HP e1200-320 4Gb Fibre Channel Interface Card NOTE: One FC interface card kit required for every two tape drives; for use in the MSL5000 or MSL6000 Tape Libraries.	AD577A
Slot Expansion Modules	HP MSL6030 0 Drive Ultrium Library NOTE: A zero drive library which includes 30 slots; to be used with either MSL5000 or MSL6000 Ultrium libraries.	AD597B
	HP MSL6026 0 Drive SDLT Library NOTE: A zero drive library which includes 26 slots; to be used with either MSL5000 or MSL6000 SDLT libraries.	AD581C
	HP MSL6060 0 Drive Ultrium Library NOTE: A zero drive library which includes 60 slots; to be used with either MSL5000 or MSL6000 Ultrium libraries.	AD602B
	HP MSL6052 0 Drive SDLT Library NOTE: A zero drive library which includes 52 slots; to be used with either MSL5000 or MSL6000 SDLT libraries.	AD586B
Pass-Through Mechanism Hardware	HP MSL Universal Pass-Through Mechanism Base Unit NOTE: Includes elevator mechanism and router; required to connect first two units in a stack; capable of handling both SDLT and LTO media.	AG163A
	HP MSL 10U Pass-Through Extender NOTE: Supported by the MSL 10U Tape Libraries only; one required for each unit connected to the stack, for second unit and additional units.	AG160A
	HP MSL 5U Pass-Through Extender NOTE: Supported by the MSL 5U Tape Libraries only; one required for each unit connected to the stack, for third units and additional units.	AG159A

Related Options

Magazines	HP MSL Ultrium Universal Magazine	AD621A
	NOTE: For use in the MSL5000 or MSL6000 Tape Libraries; includes two 15-slot magazines (left and right set).	
	HP MSL SDLT Universal Magazine	AD620A
	NOTE: For use in the MSL5000 or MSL6000 Tape Libraries; includes two 13-slot magazines (left and right set).	

Rack to Tabletop Conversion	HP MSL6000 5U Rack to Table Top Conversion Kit	AD622B
	NOTE: Can also be used with the MSL5000 Tape Libraries.	
	HP MSL6000 10U Rack to Table Top Conversion Kit	AD627B
	NOTE: Can also be used with the MSL5000 Tape Libraries.	

Rack Cabinets	10622 (22U) Universal Rack Cabinet - Shock Pallet	AF022A
	10636 (36U) Universal Rack Cabinet - Shock Pallet	AF012A
	10636 (36U) Universal Rack Cabinet with extension - Shock Pallet	AF014A
	10642 (42U) Universal Rack Cabinet - Shock Pallet	AF002A
	10642 (42U) Universal Rack Cabinet with extension - Shock Pallet	AF004A
	NOTE: The MSL Tape Libraries are certified to ship in HP 10000 series racks which include a shock pallet. It is mandatory to use a shock pallet in order to ship racks with equipment installed.	
	5642 (42U) Rack Cabinet	358254-B21
	NOTE: This rack ships unassembled and boxed on a standard size pallet. It is an industry standard 19" wide rack with side panels and rear doors; does not ship with the front door or casters.	
	NOTE: for additional HP ProLiant rack information, visit http://h18004.www1.hp.com/products/servers/proliantstorage/racks/index.html	

Cable Kits	6 ft VHDCI/VHDCI SCSI Cable Kit	341174-B21
	12 ft VHDCI/VHDCI SCSI Cable Kit	341175-B21
	6 ft VHDCI/HDTS68 SCSI Cable Kit	341176-B21
	12 ft VHDCI/HDTS68 SCSI Cable Kit	341177-B21
	2m SW LC/SC FC Cable Kit	221691-B21
	5m SW LC/SC FC Cable Kit	221691-B22
	15m SW LC/SC FC Cable Kit	221691-B23
	2m SW LC/LC FC Cable Kit	221692-B21
	5m SW LC/LC FC Cable Kit	221692-B22
	15m SW LC/LC FC Cable Kit	221692-B23

Host Bus Adapters	HP U320e SCSI Host Bus Adapter	AH627A
	NOTE: Recommended Dual Channel Ultra320 SCSI Controller for connecting multi-drive MSL Tape Libraries to HP ProLiant Servers.	
	For more information on HBAs please consult the EBS connectivity matrix at http://www.hp.com/go/ebs.	

Related Options

Media	LTO-4 Media	
	HP LTO4 Ultrium 1.6TB RW Data Cartridge (1 pack)	C7974A
	HP LTO4 Ultrium 1.6TB WORM Data Cartridge (1 pack)	C7974W
	HP LTO4 Ultrium RW Bar Code Labels (100 pack)	Q2009A
	HP LTO4 Ultrium WORM Bar Code Labels (100 pack0	Q2010A
	HP LTO4 Ultrium 1.6TB RW Custom Labeled Data Cartridge (20 pack)	C7974AL
	HP LTO4 Ultrium 1.6TB WORM Custom Labeled Data Cartridge (20 pack)	C7974WL
	HP LTO4 Ultrium 1.6TB RW Non-Custom Labeled Data Cartridge (20 pack)	C7974AN
	NOTE: Non-custom labels will come pre-labeled with a pre-determined number sequence.	
	HP Ultrium Universal Cleaning Cartridge	C7978A
	LTO-3 Media	
	HP Ultrium 800GB RW Data Cartridge	C7973A
	HP Ultrium 800GB WORM Data Cartridge	C7973W
	HP Ultrium 3 RW Bar Code Label Pack	Q2007A
	HP Ultrium 3 WORM Bar Code Label Pack	Q2008A
	HP Ultrium 800GB RW Custom Labeled Data Cartridge (20 pack)	C7973AL
	HP Ultrium 800GB WORM Custom Labeled Data Cartridge (20 pack)	C7973WL
	HP Ultrium 800GB Non-Custom Labeled Data Cartridge (20 pack)	C7973AN
	NOTE: Non-custom labels will come pre-labeled with a pre-determined number sequence.	
	HP Ultrium Universal Cleaning Cartridge	C7978A
	LTO-2 Media	
	HP Ultrium 2 Bar Code Label Pack	Q2002A
	HP Ultrium 400GB Data Cartridge	C7972A
	HP Ultrium 400GB Custom Labeled Data Cartridge (20 pack)	C7972AL
	HP Ultrium 400GB Non-Custom Labeled Data Cartridge (20 pack)	C7972AN
	NOTE: Non-custom labels will come pre-labeled with a pre-determined number sequence.	
	HP Ultrium 400 GB Storage Media Kit	C8014A
	NOTE: Kit includes 20 HP Ultrium 400GB data cartridges, one HP Ultrium Universal Cleaning Cartridge, 20 colored labels, a protective carrying case that can be used to securely store or transport data cartridges, one copy of "The Essentials of Successful Tape Backup," and one copy of HP StorageWorks Data Protector Express Evaluation Software (60 day free trial).	
	HP Ultrium Universal Cleaning Cartridge	C7978A
	SDLT600 Media	
	HP SDLT II 600GB Data Cartridge	Q2020A
	HP SDLT Cleaning Cartridge	C7982A
	HP SDLT II Bar Code Label Pack	Q2006A

Related Options

HP Care Pack Services	MSL6030/6026 Non-configurable Care Packs	
	Installation (electronic)	U4823E
	HW, 3-year, next-day, onsite (electronic)	U2859E
	HW, 3-year, same-day, 13x5, 4 hour response, onsite (electronic)	U2860E
	HW, 3-year, same-day, 24x7, 4 hour response, onsite (electronic)	U2861E
	HW, 3-year, same-day, 6 hour call to repair, onsite (electronic)	U9287E
	Installation & startup for SAN environments (electronic)	UA871E
	MSL6060/6052 Non-configurable Care Packs	
	Installation (electronic)	U4824E
	HW, 3-year, next day, onsite (electronic)	U2862E
	HW, 3-year, same day, 13x5, 4 hour response, onsite (electronic)	U2863E
	HW, 3-year, same day, 24x7, 4 hour response, onsite (electronic)	U2864E
	HW, 3-year, same day, 6 hour call to repair, onsite (electronic)	U9288E
	Installation & startup for SAN environments (electronic)	UA872E

*NOTE: Support Plus covers Hardware support only.

Hewlett Packard also offers 1-year options for the services quoted above.

Due to the complexities involved with the initial installation of an enterprise Library into a SAN environment, Hewlett Packard recommends that customers take advantage of the SAN Implementation Service (UA871E or UA872E). This service covers pre-installation preparation activities, installation and configuration of the library and router, configuration of hosts and switches, verification testing and customer orientation.

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 back up issues will occur outside standard business hours) and that the service coverage regarding period, covers the minimum expected life of the host system.

QuickSpecs

HP StorageWorks MSL6000 Tape Library

Technical Specifications

Form Factor			MSL6030/26 Tape Library	MSL6060/52 Tape Library
			5U Rack-mount	10U Rack-mount
Dimensions			MSL6030/26 Tape Library	MSL6060/52 Tape Library
	Out-of-Box (HxWxD)		8.75 x 17.00 x 30.00 in (22.22 x 43.18 x 76.20 cm)	17.50 x 17.00 x 30.00 in (44.45 x 43.18 x 76.20 cm)
	Shipping (HxWxD)		15.25 x 23.00 x 38.25 in (38.73 x 58.42 x 97.15 cm)	33.00 x 47.00 x 31.00 in (83.62 x 119.38 x 78.74 cm)
Weight			MSL6030/26 Tape Library	MSL6060/52 Tape Library
	Out-of-Box (0-drive)		43.0 lb (19.50 kg)	95.0 lb (43.99 kg)
	Shipping (0-drive)		75.0 lb (34.01 kg)	147.0 lb (66.67 kg)
	Out-of-Box (1-drive)		47.6 lb (21.59 kg)	N/A
	Shipping (1-drive)		79.6 lb (36.10 kg)	N/A
	Out-of-Box (2-drive)		52.2 lb (23.67kg)	104.2 lb (47.26 kg)
	Shipping (2-drive)		84.2 lb (38.19 kg)	156.2 lb (70.85 kg)
Capacity			MSL6030 Tape Library	MSL6060 Tape Library
LTO-4 Ultrium 1840	Base unit		24 TB (native) 48 TB (compressed)	48 TB (native) 96 TB (compressed)
	Maximum configuration		192 TB (native) 384 TB (compressed) NOTE: 8 modules with multi-unit scalability	192 TB (native) 384 TB (compressed) NOTE: 4 modules with multi-unit scalability
LTO-3 Ultrium 960	Base unit		12 TB (native) 24 TB (compressed)	24 TB (native) 48 TB (compressed)
	Maximum configuration		96 TB (native) 192 TB (compressed) NOTE: 8 modules with multi-unit scalability	96 TB (native) 192 TB (compressed) NOTE: 4 modules with multi-unit scalability
			MSL6026 Tape Library	MSL6052 Tape Library
SDLT600	Base unit		7.8 TB (native) 15.6 TB (compressed)	15.6 TB (native) 31.2 TB (compressed)
	Maximum configuration		62.4 TB (native) 124.8 TB (compressed) NOTE: 8 modules with multi-unit scalability	62.4 TB (native) 124.8 TB (compressed) NOTE: 8 modules with multi-unit scalability

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Technical Specifications

Maximum Transfer Rate		MSL6030 Tape Library	MSL6060 Tape Library
LTO-4 Ultrium 1840	Base unit	864 GB/hr (native) 1.7 TB/hr (compressed) NOTE: 2 drives per library	1.7 TB/hr (native) 3.4 TB/hr (compressed) NOTE: 4 drives per library
	Maximum configuration	6.9 TB/hr (native) 13.8 TB/hr (compressed) NOTE: 8 modules, 16 drives with multi-unit configuration	6.9 TB/hr (native) 13.8 TB/hr (compressed) NOTE: 4 modules, 16 drives with multi-unit configuration
LTO-3 Ultrium 960	Base unit	576 GB/hr (native) 1.15 TB/hr (compressed) NOTE: 2 drive configuration	1.15 TB/hr (native) 2.3 TB/hr (compressed) NOTE: 4 drive configuration
	Maximum configuration	4.6 TB/hr (native) 9.2 TB/hr (compressed) NOTE: 8 modules, 16 drives with multi-unit scalability	4.6 TB/hr (native) 9.2 TB/hr (compressed) NOTE: : 4 modules, 16 drives with multi-unit scalability
		MSL6026 Tape Library	MSL6052 Tape Library
SDLT600	Base unit	259 GB/hr (native) 518 GB/hr (compressed) NOTE: 2 drive configuration	518 GB/hr (native) 1 TB/hr (compressed) NOTE: 4 drive configuration
	Maximum configuration	2 TB/hr (native) 4 TB/hr (compressed) NOTE: 8 modules, 16 drives with multi-unit scalability	2 TB/hr (native) 4 TB/hr (compressed) NOTE: 4 modules, 16 drives with multi-unit scalability
Interface	Ultra320 LVD SCSI, VHDCI interconnect (Ultrium 1840/ 960) Ultra160 LVD SCSI, VHDCI interconnect (SDLT600) 4Gb Fibre Channel (Ultrium 1840/ 960) 2Gb Fibre Channel (SDLT600)		
Reliability	MTBF	250,000 hours (100% duty cycle; excludes drives)	
	MSBF	2,000,000 robot load/unload cycles	
Acoustic Noise		MSL6030/26 Tape Library	MSL6060/52 Tape Library
	Noise Power Emission Level	8 bels, maximum	8 bels, maximum
	Avg Sound Pressure Level	52 dBA	52 dBA
Heat Dissipation		MSL6030/26 Tape Library	MSL6060/52 Tape Library
	Typical	612 BTU's/hour	1020 BTU's/hour
	Maximum	671 BTU's/hour	1224 BTU's/hour
Power Consumption		MSL6030/26 Tape Library	MSL6060/52 Tape Library
	Base unit	Auto-ranging	Auto-ranging
	Voltage	100 to 240 VAC, ±10% @ 50 to 60Hz, ±5%	100 to 240 VAC, ±10% @ 50 to 60Hz, ±5%
Power Requirement		MSL6030/26 Tape Library	MSL6060/52 Tape Library
	Typical	180 Watts	300 Watts
	Maximum	240 Watts	440 Watts
Robotics Performance		MSL6030/26 Tape Library	MSL6060/52 Tape Library
	Initialization time	100 sec	240 sec
	Inventory time	60 sec	110 sec
	Cartridge swap (drive to slot)	8 sec average	15 sec average NOTE: 35 sec average cartridge swap time for 4 scaled modules.
Relative Humidity (non-condensing)	Operating	10 to 80% @ 82° F (28° C)	
	Shipping	10 to 90% @ 82° F (28° C)	

Technical Specifications

Temperature Range	Operating	50° to 95° F (10° to 35° C)	
	Shipping	-40° to 140° F (-40° to 60° C)	