

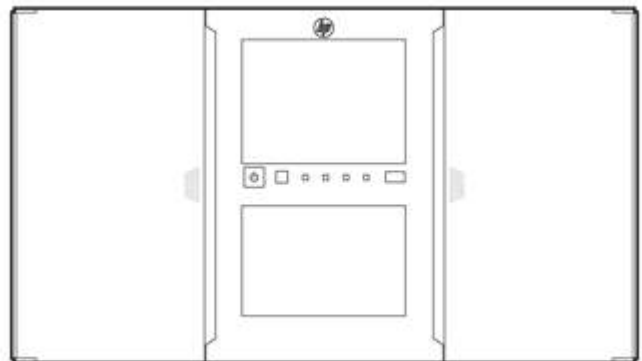
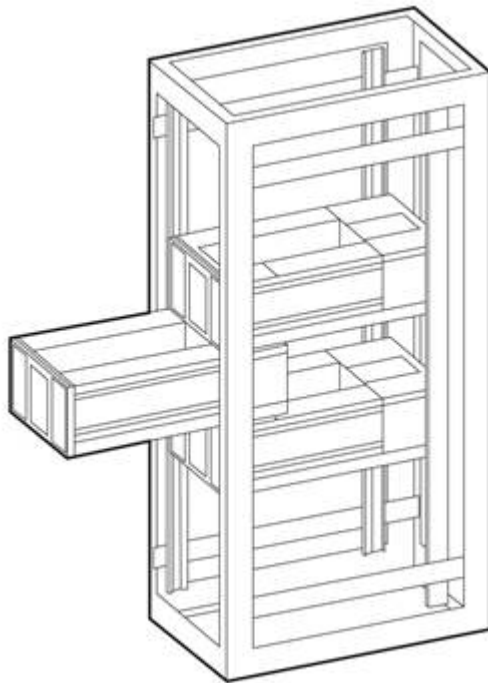
Overview

HPE StoreEver MSL6480 Tape Library

Are your ever expanding data storage, protection and retention needs getting out of hand?

The HPE StoreEver MSL6480 Tape Library is the gold standard for mid-range tape automation, delivering best-in-class scalability, density, and performance to meet your short-term backup and disaster recovery data protection needs, as well as long-term archival requirements. Keep pace with data growth by seamlessly scaling up to 7 modules-without disrupting daily data protection. You also save expensive space, as the MSL6480 provides the highest tape drive density per module of any mid-range tape library.

The MSL6480 Tape Library reduces the time and resources needed to achieve enterprise-class manageability, equipping you with proactive monitoring on single pane of glass control. Competitively priced, the MSL6480 Tape Library offers an outstanding return on your storage investment.



HPE StoreEver MSL6480 Tape Library
Industry leading scalability - from an 80-slot Base Library Module to 560 slots in a 42U Rack with the addition of up to 6 Expansion Modules

What's New

- LTO-7 Ultrium 15000 FC and SAS tape drives and tape media are now available

Overview

Key Features

- Setting the gold standard for mid-range library scalability - pay as you grow with the fast, non-disruptive addition of Expansion Modules
- Start with an 80-slot 6U form-factor Base Library Module, and add up to 6 Expansion Library Modules for a total of 560 slots in a 42U form factor
- In-box capacity scaling from 80 to 560 cartridge slots, 240 TB to 8.4PBs*
- Performance scaling from 1 to 42 LTO HH Tape Drives and transfer rates of 300 MB/s per LTO-7 Tape Drive.
- Industry leading storage density to save rack space, floor space, power, cooling and management costs - 13 cartridge slots (81 TB) per 1U of rack space
- Best in class flexibility with up to 20 partitions
- Customer installable, scalable and serviceable with a color touch control panel and wizards for installation and configuration
- Intelligent, proactive and predictive reporting with HPE StoreEver TapeAssure Advanced
- Manage multiple HPE Tape Libraries from a single pane of glass with HPE StoreEver CommandView Tape Library software
- Using the HPE Encryption Kit get the simplest, lowest cost encryption and key management solution available - no ISV support needed
- Existing customers of MSL2024, 4048, 8048 and 8096 Tape Libraries can repurpose their drive canisters in the new MSL6480 to leverage their investment
- HPs extensive interoperability testing means that MSL6480 integrates with industry-leading servers, operating systems and backup software
- Achieve higher levels of availability with data path failover and control path failover.
- Designed to integrate easily with HPE Converged Infrastructure including HPE StoreOnce and HPE StoreAll disk based retention platforms.

*Assumes fully populated and expanded MSL6480 Tape Library with LTO-7 at 2.5:1 compression

MSL Family Comparison	MSL2024	MSL4048	MSL6480
Drive Technology Supported	LTO-7 Ultrium 15000, LTO-6 Ultrium 6250 LTO-5 Ultrium 3000, 3280 LTO-4 Ultrium 1840, 1760	LTO-7 Ultrium 15000, LTO-6 Ultrium 6250 LTO-5 Ultrium 3000, 3280 LTO-4 Ultrium 1840, 1760	LTO-7 Ultrium 15000, LTO-6 Ultrium 6250 LTO-5 Ultrium 3000, 3280 LTO-4 Ultrium 1840, 1760
Maximum Number of Drives	2	4	42 HH 21 FH
Maximum Capacity (2.5:1 compression)	360TB (LTO-7)	720 TB (LTO-7)	8.4 PB (LTO-7, 560 slots) 1,200 TB (LTO-7, 80 slots)
Maximum Capacity (2:1 compression)	72 TB (LTO-5) 38.4 TB (LTO-4)	144 TB (LTO-5) 76.8 TB (LTO-4)	1.68 PB (LTO-5, 560 slots) 240 TB (LTO-5, 80 slots)
Maximum Data Transfer (Native)	2.16 TB/hr (two 15000) 1.15 TB/hr (two 6250)	4.32 TB/hr (four 15000) 2.3 TB/hr (four 6250)	45 TB/hr (Qty. 42 of 15000)
Drive Interface	8 Gb Native Fibre Channel (LTO 6, 5) 4 Gb Native Fibre Channel (LTO 4, 3)	8 Gb Native Fibre Channel (LTO 6, 5) 4 Gb Native Fibre Channel (LTO 4, 3)	8 Gb Native Fibre Channel (LTO 6, 5) 4 Gb Native Fibre Channel (LTO-4)



Overview

	6 Gb/sec SAS (LTO 6, 5) 3 Gb/sec SAS (LTO , 4)	6 Gb/sec SAS (LTO 6, 5) 3 Gb/sec SAS (LTO 4)	6 Gb/sec SAS (LTO 6, 5) 3 Gb/sec SAS (LTO-4)
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Product Highlights

Scalability

Keep pace with data growth across the lifecycle with the MSL6480's industry leading scalability.

Effortlessly address both short-term and long-term storage capacity and performance needs and respond to unpredictable data growth, variance in service, or changes to backup window and retention period. Scale-out architecture allows you to pay as you grow - simply add in new modules to boost capacity and performance without investing in a whole new library.

The unique modular design of the MSL6480 includes a continuous robotics feature to provide in-box scaling for higher performance, greater scalability, and higher reliability. Upgrades are fast and non-disruptive. Scale vertically from 80 to 560 cartridge slots to store up to 3.5 PB* in a single 19-inch rack. Several drive options are available

- Half Height Drives: add in between 1 and 42x HPE StoreEver LTO-7 Ultrium 15000, LTO-6 Ultrium 6250, LTO-5 Ultrium 3000 or LTO-4 Ultrium 1780 half-height SAS or FC drives for speeds of up to 60.4 TB/hour
- Full Height Drives: add in between 1 and 21x HPE StoreEver LTO-5 Ultrium 3280 FC or LTO-4 Ultrium 1840 FC tape drives for speeds up to 30.2 TB/hour.
- Any mixture of HH or FH drives in the same library

Scaling up with the MSL6480 couldn't be easier:

- Start with an empty Base Library and standard redundant power supplies.
- Add between 1 and 6 LTO-5, LTO-6, or LTO-7 half-height tape drives or 1 to 3 LTO-5 or LTO-4 full-height tape drives, and utilize up to 80 cartridge slots - a fully configured base unit with LTO-7 provides a max capacity of up to 8,400 TBs (assuming 2.5:1 compression)
- Then add between 1 and 6 empty expansion modules to the Base Library - each 6U expansion module includes standard redundant power supplies. Expansion modules can be flexibly installed above or below the base library module.
- You can then configure each expansion module with up to 6x LTO-7, LTO-6, LTO-5, or LTO-4 half-height tape drives or 3. LTO-5 or LTO-4 FC tape drives, and utilize up to 80 cartridge slots

*Assumes fully loaded with LTO-6 at a 2.5:1 data compression ratio

Easy Installation

Expansion modules are customer-installable; easy to configure and remove. The MSL6480 features a color touch operator control panel with wizards for installation and configuration.

The MSL Tape Libraries are shipped as a rack-ready unit. The rack mount hardware included with the library allows installation in a variety of HPE racks. For more information on the HPE rack offerings, please see the following URL:

<http://www.hpe.com/go/rackandpower>

Product Highlights

Manageability

The HPE StoreEver MSL6480 comes with web-based remote manageability so it can be easily monitored and managed from across the room or across the globe.

Functions included in the management tool include:

- Status information on the drive and system
- System configuration operations and reporting
- System error and status logs
- Library and drive firmware upgrade capabilities
- Diagnostic tests and information
- Cartridge movement for maintenance and management purposes
- Cleaning cartridge support
- Security and access control
- SNMP support for IP communication
- Partitioning and Encryption management
- HTTPS capable
- IPv6 (Phase 2 and USGv6 certified) and IPv4 network protocol support

HPE Command View for Tape Libraries

HPE Command View TL for Tape Libraries aggregates multiple HPE tape libraries for centralized management. It is also the nerve center for TapeAssure data collection and analysis and, importantly it is able to manage HPE ESL G3, ESL E-Series, EML, and MSL tape libraries.

With Command View TL monitor backup logs, check drive status, receive trouble alerts, diagnose problems, and much more -- through a simple browser interface from anywhere in the world.

Set up and configure your FC or SAS attached tape library in less than two hours with configuration wizards and graphical interface:

- Select from a list of multiple supported libraries to manage
- View asset information for the library system
- View health summaries for all components of the library system
- View library inventory: slots, media, and drives
- Search for media by barcode label
- View details on drives and robotics, including WWNs, speeds, and connection types
- Configure hosts/HBA-to-drive mapping and masking settings with Secure Manager
- Automatically discover hosts and HBAs on the SAN or add your own for access control and security purposes
- Upgrade firmware on all library components
- Configure SNMP and email trap/event destinations to receive alerts asynchronously
- View persistent event logs for the library system

Product Highlights

TapeAssure Advanced

The HPE MSL6480 is available with HPE StoreEver TapeAssure Advanced - complete tape infrastructure analytics software designed to reduce unscheduled backup downtime, mitigate the risks in hardware failures and increase the return on investment through higher asset utilization.

HPE StoreEver TapeAssure Advanced Software provides an intuitive, easy to use dashboard, and advance analytics feature for performance, health and utilization related to tape drives and cartridges. TapeAssure Advanced Software is integrated into HPE StoreEver Command View TL Software for single pane of glass management, monitoring and analytics.

TapeAssure Advanced Software provides a dashboard display with pie charts, live and historical graphs for performance, health and utilization data, and highlights issues in the tape infrastructure. Advanced analytics feature makes use of predictive analytics to forecast the likelihood of failures, bottlenecks and load balancing issues in the tape infrastructure. It has unique capabilities of analytics around drive and library health and life as well as cartridge health and life. Analysis of drive/tape utilization forecast helps to plan hardware investments in a better way.

NOTE: HPE StoreEver TapeAssure Advanced Software is licensed by tape library; one license is required for each tape library.

Data Verification

HPE StoreEver Data Verification Software provides the ability to periodically scan and validate the quality of data on LTO tape cartridges stored in a tape backup or archive. Periodically scanning infrequently accessed tapes stored in a vault or inside a tape library to verify the data integrity so that a successful restore is possible when that critical business data is needed. StoreEver Data Verification Software is fully integrated into the HPE StoreEver Command View Tape Library Software and TapeAssure Advanced Software providing single pane of glass management, multi-library manageability, and proactive notification of health, usage, and life of the library, media, and tape drives.

Key Features:

- Periodically scan infrequently accessed LTO tapes to verify health of tape cartridges as well as the data stored on those tapes.
- Improve reliability and reduce the risk of restore failure
- Flexible policy based scan to verify data is healthy and accessible.
- Scanning without interrupting host applications.
- Protect all tape cartridges, active and vaulted archived media, with the same license.
- Receive proactive notification for needed media migration.
- Fully integrated with Command View Tape Library

Business Benefits:

- Peace of mind - ensure critical business data can be restored when most needed
- High Availability - No impact to ongoing backup operations
- Ease of Use - Single license for media in and out of the library
- Save Money - Migrate data only when needed

Product Highlights

High density storage Save rack space, floor space, and power and cooling costs with industry leading storage density. Offering 13 cartridge slots per 1U of rack space (or up to 81 TBs per 1U of rack space) using LTO-6 drives, the MSL6480 provides the highest tape drive density per module of any mid-range tape library.

Partitioning The MSL6480 Tape Library can be partitioned for greater flexibility and higher asset utilization. Partitioning allows each partitioned library to be presented to the host as an independent library, separate from other partitions in the library. Hosts for each partition own independent sets of media and can use ISV software that is different from the other partitions allowing maximum flexibility and utilization of the MSL library.
NOTE: The MSL6480 supports up to 20 partitions.

Proven Reliability With a rating of 2,000,000 robot load/unload cycles, the MSL Tape Libraries provides necessary high reliability for today's demanding environment. To improve reliability and longevity, all HPE Ultrium products feature Data Rate Matching (DRM). This allows the tape drive to dynamically and continuously adjust the speed of the drive, to match the speed of the host or network. This increases performance, reduces mechanical wear on the tape drive and extends tape life.

HPE Tape Libraries include redundancy features for high availability. Dual power supplies are standard for increased system reliability and uptime.

Longevity Organizations need to be confident that their data in archive is still there when they need it. LTO tape media is specified with a 30 year shelf life in normal ambient conditions. HPE TapeAssure Advanced also analysis the results of every tape use to ensure the availability of data placed in long-term storage, archive or DR.

HPE StoreOpen with LTFS makes accessing files as easy as disk. Retrieve files from long-term storage without dependency on backup software or hardware.

Product Highlights

Safeguarding data for Disaster Recovery The HPE StoreEver MSL6480 Tape Library can provide the 'last line of defense' for your data.

- Tape is inherently 'offline to threats' - tape's removable media is off-line to the threats from viruses, hackers and cyber-attacks that online data on disk is susceptible to. It is also a logically clean copy that won't be accidentally overwritten by mirroring software.
- LTO-5 and LTO-6 Ultrium tape drives include hardware based data encryption to prevent unauthorized access to data at rest.
- LTO-5 and LTO-6 cartridges are available with write-once-read-many (WORM) capability to prevent accidental overwriting of data archived on the tape.

Both WORM and hardware-based data encryption features help organizations with compliance to increased data security regulations.

High Availability

To make the most of your library performance, the MSL6480 offers high availability failover capability utilizing LTO-6 Tape Drives.

- Data Path Failover:
 - Both ports of the drive are physically connected but only one is active.
 - Both ports are configured identically.
 - If a link failure is detected on the active port, the drive automatically deactivates that link and activates the standby link using the exact same names, reservations, encryption settings, etc.
 - Host may detect momentary connection loss then the drive connection recovers.
- Advanced Data Path Failover (using LTO-6 FC drives)
 - SAN wide failure protection
 - Both ports are connected and both are active but the driver selects between them and uses them one at a time
 - If a link breaks anywhere between the host and the drive, the host side driver switches to another path and recovers outstanding commands.
 - Drivers handle errors before applications see them
- Control Path Failover
 - The library has a virtual link through Control Path drive back to the switch.
 - The library has a unique WWN and shows up on the switch as a unique device instead of as a LUN behind a drive.
 - Both links share the same identity and only one is active at a time.
 - When one link goes down the other is activated with the same identity as the first link.
 - The host may detect a momentary link loss then the library is back at a different switch port but with the same identity.
- Advanced Control Path Failover (using LTO-6 FC drives)
 - SAN wide failure protection
 - Both the Control Path (CP) drive and the Control Path Failover (CPF) drive are accessible from the same hosts
 - If the Control Path drive is lost, the library activates the Control Path Failover drive and the host-based drivers find the robot on the new path
 - Drivers will handle errors before applications see them

Product Highlights

Data Encryption

With solutions for the small to medium business through the enterprise, safeguard your data while it's in the library, after export, and when it is offsite with integrated security features. Hewlett Packard Enterprise offers two encryption offerings, a native library-based data encryption and key management capabilities deliver one of the lowest costs data security solutions and doesn't require ISV support.

Data encryption with HPE StoreEver

The HPE StoreEver LTO-7, LTO-6, LTO-5 and LTO-4 Ultrium tape drives utilize the Advanced Encryption Standard (AES) with the longest and most secure keys -- 256 bits - for tape-based data encryption. AES-256 encryption is implemented using the Galois Counter Mode (GCM). This method adds Message Authentication Codes to ensure the integrity as well as privacy of the backup data stored on tape. The HPE LTO-7, LTO-6, LTO-5 and LTO-4 Ultrium Tape Drives are designed to be compliant with the standard for tape media security (IEEE 1619.1).

HPE StoreEver MSL6480 Library-enabled encryption solution for the small to medium business

The HPE MSL6480 offers an encryption solution that includes two USB key server tokens, product documentation, and firmware support. One encryption kit is needed per library or autoloader.

How it works:

- One USB key server token is installed in the USB port of the library to enable encryption. The token must remain in the tape library or tape autoloader while encryption is enabled.
- The USB key server token generates and stores keys for the LTO-6, LTO-5 or LTO-4 Ultrium drives. The USB key server token uses a hardware random number generator, with strong hardware security*, password authentication, and digital envelopes for strong encryption keys and security operations.
- A second USB key server token is provided in the kit to be used as a backup token which can be stored in a secure location.
- The keys are transferred securely token-to-token for backup or export, with no exposure to insecure PCs, servers, or networks. An option is also provided to save the token contents to a secure file.
- The most recently added keys on the token are able to be saved to a file to enable you to seed new tokens with keys from other tokens.

The HPE StoreEver MSL Encryption Kit provides a self-contained solution for MSL libraries without additional software, PCs, or servers required or involved.

* The HPE MSL Encryption Kit product is not FIPS validated. However, it is built from a device containing a FIPS 140-2 Level 3 validated cryptographic module.

HPE Enterprise Secure Key Manager (ESKM) for encryption key sharing across the enterprise

HPE MSL6480 is integrated with Hewlett Packard Enterprise's Enterprise Secure Key Manager (ESKM) to provide centralized encryption key management for HPE ESL G3, ESL E-Series, EML & MSL6480 Tape Libraries. The tape libraries support the ESKM in either the ESKM proprietary mode or the KMIP 1.2 protocol. One library encryption license will be needed based on the protocol of choice (either ESKM or KMIP protocol)

- Automatic policy-based key generation and management supporting key/cartridge granularity
- ISV transparent key archival and retrieval for multiple libraries

Product Highlights

- Extensible to emerging open standards
- Strong auditable security for encryption keys
 - Hardened server appliance
 - Secure identity-based access, administration and logging
 - Operable in FIPS mode (FIPS 140-2 level 2).
- Reliable lifetime key archival
 - Automatic multi-site clustering, key replication and failover
 - Comprehensive backup and restore functionality for keys
 - Redundant device components and active alerts

Secure Manager License

HPE MSL6480 Secure Manager License is an optional software feature that provides an additional level of security that lets you control access to the tape library by authorizing specific servers to access the library's drives and robotics. Secure Manager increases backup reliability by blocking disruptive traffic from unauthorized hosts to the library, which is one of the main causes of failed or incomplete backups.

- Easily configure device-level SAN access settings
- Allow only authorized servers to access tape drives and critical data
- Manage access control from a single pane of glass, through the library itself
- Paths to robotics can be separated between two independent SANs for isolation purposes

Secure Manager allows you to:

- create host access groups
- add and modify host information
- Map device access to specific hosts
- allows a disable feature when switch zoning is desired

LTO Ultrium Technology

HPE LTO (Linear Tape Open) Ultrium Tape Drives use best of breed technology.. Inclusion of innovative features such as HPE Adaptive Tape Speed (ATS) ensure that HPE Ultrium drives can meet the performance and reliability demands of a library environment. LTO technology is an open industry standard format; thus data written on HPE Ultrium Tape Drives can be interchanged directly with Ultrium Tape Drives from other vendors.

Investment protection

HPE LTO tape drives and automation products are founded on the LTO open standard and adhere to the published LTO format roadmap which publishes the roadmap out to generation 8 at 32TB of compressed capacity per cartridge. With in-built two generation backwards compatibility, LTO customers can be assured of investment protection.

Product Highlights

Data Rate Matching Data Rate Matching combines sophisticated buffer management with variable tape drivemotor speeds to match the tape drive transfer rate to the host output. . This feature ensures that the tape drive continues to stream data regardless of the environment, and brings three big advantages:

- It optimizes performance and maximizes overall efficiency, allowing the drive to respond immediately to any data speed changes from the host.
- It minimizes rewinding and repositioning of the tape, significantly reducing physical wear and increasing reliability.
- It minimizes the power requirements for the drive by reducing the number of repositions needed.

LTO Ultrium Tape Drive	ATS data transfer rate range (native)
HP LTO-7 Ultrium 15000	101 to 300 MB/s
HPE LTO-6 Ultrium 6250	54 to 160 MB/s
HPE LTO-5 Ultrium 3000	47 to 140 MB/s
HPE LTO-4 Ultrium 1760	33 to 80 MB/s

HPE 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. Every generation of LTO Ultrium since LTO-3 ()tape drives feature the ability to archive and store data in a read-only, 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, LTO Ultrium provides the ability to archive large amounts of data for periods of up to 30 years in a secure, untampered state. Ultrium tape drives include support for both rewritable and WORM media providing for a secure, long-term archiving solution into any data protection strategy. LTO Ultrium WORM provides the following advantages:

- 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
- 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- and fourth-generation LTO Ultrium products

Product Highlights

HPE Data Protector software

HPE Data Protector software automates high performance backup and recovery, from disk or tape, over unlimited distances, to enable 24x7x365 business continuity and improve IT resource utilization. Data Protector software responds to the pressure for lower IT costs and greater operational efficiency by offering acquisition and deployment costs which are 30 - 70 % less than competition. The license model is very simple and easy to understand, helping to reduce complexity. Extensive scalability and features for continuous backup and recovery operations enable growth with a single product. A superb solution, no other software can integrate better with the Hewlett Packard Enterprise market-leading line of disk and tape family of products, as well as with other heterogeneous storage infrastructures. As an integral component of the fast-growing Hewlett Packard Enterprise software portfolio, which includes storage resource management, archiving, replication, and device management software, Data Protector software also fully integrates with the Hewlett Packard Enterprise management solutions, allowing managing data protection as an essential element of an overall IT service. This solution offers the unique advantage of being able to source hardware, software, and award winning service offerings from a single, trusted source.

Data Protector software simplifies the use of complex backup and recovery procedures with the fastest installation, automated routine tasks, and easy-to-use features. The centralized multi-site management easily allows implementing multi-site changes, adapting in real time to changing business requirements. Appropriate for medium and large companies in any industry, Data Protector software is the ideal solution to reduce IT costs and complexity while remaining reliable and scalable to grow from single server environments to the largest distributed enterprise infrastructures.

For further information, please visit our web page at:

<http://www.hpe.com/go/dataprotector>

Linear Tape File System (LTFS)

HPE LTFS makes tape self-describing, file-based, and easy-to-use, it also provides users with the ability to use standard file operations on tape media for accessing, managing and sharing files with an interface that behaves just like a hard disk. In addition, LTFS provides the ability to share data across platforms, as you would with a USB drive or memory stick. Simply load a tape into the drive, mount it into the file system, and it becomes visible as a disk. For more information, including user guide, downloads and compatibility, visit: <http://www.hpe.com/go/ltfs>

HPE StoreOpen Automation

HPE StoreOpen Automation is a free downloadable application that extends the LTFS capability to HPE Autoloaders, HPE MSL and ESL G3 Tape Libraries. By simply mounting the tape autoloader or library as a file system, the intuitive HPE StoreOpen Automation interface makes it easier to copy, rename, create or move files. When a cartridge folder is selected for use, that tape is automatically moved to an available tape drive.

When two drives are present, HPE StoreOpen Automation supports tape-to-tape operations. HPE StoreOpen Automation takes advantage of other standard HPE Tape Library features including data encryption and HPE TapeAssure.

For more information, including user guide, downloads and compatibility, visit:

<http://www.hpe.com/go/HPStoreOpen>

Product Highlights

HPE Storage Media Hewlett Packard Enterprise recommends that you use HPE-branded cartridges in the MSL Tape Libraries to assure the highest level of protection for your valuable data. The test program for HPE media is the most thorough and comprehensive in the industry.

All HPE 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 Hewlett Packard Enterprise brand specification for media is consistent quality. Through the testing of thousands of HPE drives and HPE cartridges, the ideal formulation for backup performance is defined and then continuously monitored. This hugely resource-intensive process is unique to Hewlett Packard Enterprise and affords deep insight into the HPE backup solution for a wide range of environments and duty cycles. Your best choice for ease of support and maximum dependability is to use HPE-branded Ultrium cartridges at all times. Correctly labeling your media will allow the library to quickly determine media and drive compatibility

Compatibility

Compatibility

Hewlett Packard Enterprise's extensive compatibility testing program assures that your HPE MSL Tape Libraries work with leading servers, operating systems, and backup applications - and not just those sold by Hewlett Packard Enterprise. The MSL libraries work 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 MSL tape libraries, reference the HPE Data Agile BURA Compatibility Matrix (Formerly EBS) at: <http://www.hpe.com/go/BURACompatibility>.

Server Compatibility

The MSL Tape Library is supported on a wide range of HPE systems. For details of which MSL Libraries work with which systems, including third-party systems, reference the HPE Data Agile BURA Compatibility Matrix (Formerly EBS) at: <http://www.hpe.com/go/BURACompatibility> for the latest hardware compatibility information.

OS Support

Reference the HPE Data Agile BURA Compatibility Matrix (Formerly EBS) for the most up-to-date OS compatibility information at: <http://www.hpe.com/go/BURACompatibility>.

Software Support

Reference the HPE Data Agile BURA Compatibility Matrix (Formerly EBS) for the most up-to-date software compatibility information at: <http://www.hpe.com/go/BURACompatibility>.

Service and Support, HP Care Pack, and Warranty Information

Service and Support	<p>Services to accelerate time to results</p> <p>HPE Storage Services bring you a rich portfolio of consulting and support services designed to add value to our core storage products and solutions. We have the know-how and experience to put storage technology to work for you. We work closely with you as your strategic partner, leveraging our full services portfolio to make sure that everything works to optimize your enterprise.</p> <p>Choose from services aligned to our storage product offerings and lifecycle. From mission-critical onsite services to innovative web-based remote support, you choose the precise level of attention and support your business demands.</p>
Design, integrate, migrate and transform	<p>Choose from a rich portfolio of services to make the most of HPE StoreEver MSL6480 Tape Library Storage , so you can efficiently and affordably consolidate, manage, and extract value from unstructured data.</p> <p>Start here to understand your data protection options. Next, develop a methodical plan and design the optimal HPE StoreEver MSL6480 Tape Library Storage that addresses your unique technology requirements.</p> <p>HPE Backup Recovery Efficiency Analysis - Assessment of how efficiently backup components are being used as the amount of data to be backed up continues to grow exponentially via analysis intelligence and a snapshot of your current backup environment. http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA3-8490ENW.pdf</p> <p>HPE Backup Recovery Impact Analysis - Focus placed on service requirements and design as the key to success for gaining a clear understanding of the role of increasingly diverse data protection strategies. http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-1175ENW.pdf</p> <p>HPE Backup Recovery Modernization - Initial discovery, interviews, reference architecture design, proposal content development, vendor grading, and final recommendations carried out so as to require minimal resources and locations on your part. http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-1199ENW.pdf</p>
Deploy and Implement	<p>Implement HPE StoreEver MSL6480 Tape Library correctly-right from the start-so you can count on reduced risk and accelerated deployment, while implementing a best-practice configuration from day one.</p> <p>HPE Installation and Startup Service for HPE StoreEver Storage Systems - Installation and testing of your hardware and software onsite, including configuration of the storage deployment</p> <p>HPE Storage and Data Consultant Residency Services - Strategically augments current environment with Hewlett Packard Enterprise resources who become your trusted advisor to provide answers that are right for your storage and backup environment</p> <p>HPE Storage Data Migration Service - End-to-end data migration service providing seamless discovery, assessment, planning, and design, completely customizable to your organization's storage area network (SAN) or network attached storage (NAS) environment and using innovative software to help you migrate to HPE storage quickly and efficiently http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA3-0774ENW.pdf</p> <p>HPE Proactive Select - A flexible way to purchase services to fit your environment with an extensive menu of HPE Proactive Select event and technical services, such as onsite firmware upgrades, health checks, assessments, and education http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA2-3842ENW.pdf</p>

Service and Support, HP Care Pack, and Warranty Information

Operate and support Choose the right support to maximize uptime, free up your resources, and achieve improved value-as you get the most out of the existing IT assets while accelerating time-to-revenue.

HPE Proactive Care 24x7 - Integrated proactive and reactive hardware and software support to help prevent problems and outages and to rapidly resolve a problem if one occurs. With products connected to HP, we help proactively prevent problems with tailored reports, analysis, and recommendations. When there is a problem an enhanced call experience with end to end case management helps resolve problems quickly.

<http://h20195.www2.hpe.com/v2/GetPDF.aspx/4AA3-8855ENW.pdf>

HPE Proactive Care Personalized Support - An option-if you have HPE Proactive Care- to bring increased personalization of HPE Proactive Care through the assignment of an local Account Service Manager (ASM) who develops a support plan and delivers IT best practice advice to help address IT issues and projects

<http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-3446ENW.pdf>

HPE Foundation Care24x7: HPE Foundation Care 24x7 connects you to Hewlett Packard Enterprise around the clock for assistance on resolving issues with hardware onsite response within four hours and software call back within two hours after opening your case. Utilize HPE Support Center for fast, easy online access to HP.

<http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-8876ENW.pdf>

Get connected and get back to business- HPE Storage Technology Services provide the path to get your HPE Simply StoreIT solutions and your business connected to HP. Once connected, our experts are able to scan your system and run health checks, then use that data to create personalized reports and recommendations for actions to take to prevent problems and downtime.

Problem prevention with personalized consultation: Your system is monitored 24x7 and you will be notified when issues occur. Data is automatically submitted into Hewlett Packard Enterprise's call center and authorized Channel partners for problem resolution. If a part is required, then parts dispatch is automatically invoked. We provide centralized access to your system information and case information via a personalized dashboard that may be accessed from anywhere, at any time. You gain access to our vast knowledge base for self-help. Plus, you can tap into the knowledge of not only Hewlett Packard Enterprise experts, but also Channel partners and other IT professionals

HPE Education Services - Comprehensive training for new, as well as experienced, storage administrators designed to expand your skills and keep you up to speed with the latest storage and virtualization technology from HPE Storage.

<http://education.hpe.com/curr-storsan.htm>

Service and Support, HP Care Pack, and Warranty Information

Optimized Care-With products connected to Hewlett Packard Enterprise and proactive advice, deliver the highest levels of performance and stability through deployment and proactive management practices

Choose from three levels of operate and support care
HPE Proactive Care 24x7, plus 20 HPE Proactive Select credits for the 1st year
Additional options - HPE Proactive Care Personalized Support (once per Proactive Care support new environment), an additional day of HPE Personalized Support, and 10 additional HPE Proactive Select credits per year, per array

Standard Care-With products connected to Hewlett Packard Enterprise and proactive advice, maintain high level of uptime, along with expert help to cut the cost and complexity of implementation and support

HPE Proactive Care 24x7, plus 10 HPE Proactive Select credits for the 1st year
Additional options - HPE Proactive Care Personalized Support (once per Proactive Care support new environment), an additional day of HPE Personalized Support, and 10 additional HPE Proactive Select credits per year, per array

Basic Care-With products connected to Hewlett Packard Enterprise and proactive advice, minimum recommended support

HPE Foundation Care 24x7
Additional options - 10 Proactive Select credits per year

For more information <http://www.hpe.com/services/storage>

HPE Care Pack Services are sold by Hewlett Packard Enterprise and Hewlett Packard Enterprise Authorized Service Partners:

- Services for customers purchasing from Hewlett Packard Enterprise or an enterprise reseller are quoted using Hewlett Packard Enterprise order configuration tools.
- Customers purchasing from a commercial reseller can find HPE Care Pack Services at

<http://www.hpe.com/go/lookuptool>

Configuration Information

Step 1 - Base Configuration

HPE StoreEver	Model description	Part Number
MSL6480	HP StoreEver MSL6480 Scalable Base Module	QU625A
	HP StoreEver MSL6480 Scaleable Expansion Module	QU626A

NOTE: The HPE MSL6480 Tape Library Base and Expansion Modules are 6U rack mountable, 80-slot units. They do not contain any tape drives.

Up to 6 HH tape drives or 3 FH tape drives may be added to the Base Module and each Expansion Module - see below for HPE StoreEver LTO-6, LTO-5 and LTO-4 Tape Drive ordering information.

Kit Contents (for each library):

- Two 2.5M PDU Power Cord, C13/C14, 10A
- Rack-mount hardware
- Getting started poster
- Redundant Power Supplies
- Module interconnect cable (expansion module only)

Step 2 - Select Generation & Quantity of Ultrium Tape Drives

HPE StoreEver LTO-7 Ultrium 15000 FC Drive Kit	HP StoreEver MSL LTO-7 Ultrium 15000 FC Drive Upgrade Kit NOTE: Half height LTO-7 FC tape drive. For use with the MSL2024, 4048, or 6480 libraries. Drive kit includes a tape drive and documentation	N7P36A
HPE StoreEver LTO-7 Ultrium 15000 SAS Drive Kit	HP StoreEver MSL LTO-7 Ultrium 15000 SAS Drive Upgrade Kit NOTE: Half height LTO-7 SAS tape drive. For use with the MSL2024, 4048, or 6480 libraries. Drive kit includes a tape drive and documentation	N7P37A
HPE StoreEver LTO-6 Ultrium 6250 FC Drive Kit	HP StoreEver MSL LTO-6 Ultrium 6250 FC Drive Upgrade Kit Kit Contents (for each drive): One HPE StoreEver LTO-6 Ultrium 6250 FC Half-Height Tape Drive NOTE: Each HPE MSL6480 Tape Library Module is able to hold up to six tape drives - to a maximum of 42 drives in a fully expanded Library.	C0H28A
HPE StoreEver LTO-6 Ultrium 6250 SAS Drive Kit	HP StoreEver MSL LTO-6 Ultrium 6250 SAS Drive Upgrade Kit Kit Contents (for each drive): One HPE StoreEver LTO-6 Ultrium 6250 SAS Half-Height Tape Drive NOTE: Each HPE MSL6480 Tape Library Module is able to hold up to six tape drives - to a maximum of 42 drives in a fully expanded Library.	C0H27A
HPE StoreEver LTO-5 Ultrium 3280 FC Drive Kit	HP MSL LTO-5 Ultrium 3280 Fibre Channel Drive Upgrade Kit Kit Contents (for each drive): One HPE StoreEver LTO-5 Ultrium 3280 Fibre Channel Full-Height Tape Drive NOTE: Each HPE MSL6480 Tape Library Module is able to hold up to three Full-Height tape drives - to a maximum of 21 drives in a fully expanded Library	BL535B

Configuration Information

HPE StoreEver LTO-5 Ultrium 3000 FC Drive Kit	HP MSL LTO-5 Ultrium 3000 Fibre Channel Drive Upgrade Kit Kit Contents (for each drive): One HPE StoreEver LTO-5 Ultrium 3000 FC Half-Height Tape Drive NOTE: Each HPE MSL6480 Tape Library Module is able to hold up to six tape drives - to a maximum of 42 drives in a fully expanded Library	BL544B
HPE StoreEver LTO-5 Ultrium 3000 SAS Drive Kit	HP MSL LTO-5 Ultrium 3000 SAS Drive Upgrade Kit Kit Contents (for each drive): One HPE StoreEver LTO-5 Ultrium 3000 SAS Half-Height Tape Drive NOTE: Each HPE MSL6480 Tape Library Module is able to hold up to six tape drives - to a maximum of 42 drives in a fully expanded Library.	BL540B
HPE StoreEver LTO-4 Ultrium 1840 FC Drive Kit	HP MSL LTO-4 Ultrium 1840 4Gb FC Drive Upgrade Kit Kit Contents (for each drive): One HPE StoreEver LTO-4 Ultrium 1840 Fibre Channel Full-Height Tape Drive NOTE: Each HPE MSL6480 Tape Library Module is able to hold up to three tape drives - to a maximum of 21 Full-Height drives in a fully expanded Library.	AJ042B
HPE StoreEver LTO-4 Ultrium 1760 SAS Drive Kit	HP MSL LTO-4 Ultrium 1760 SAS Drive Upgrade Kit Kit Contents (for each drive): One HPE StoreEver LTO-4 Ultrium 1760 SAS Half-Height Tape Drive NOTE: Each HPE MSL6480 Tape Library Module is able to hold up to three tape drives - to a maximum of 42 Full-Height drives in a fully expanded Library.	AK383B

Step 3 - Select Software Licenses

Select each option as required with quantities specified:

Software Licenses	Quantity	Description	Part Number
HPE StoreEver MSL6480 Command View TL LTU	1 each	HP StoreEver MSL6480 Command View TL LTU NOTE: This is a paper license that will be mailed	TC444A
HPE StoreEver MSL6480 Command View TL E-LTU	1 each	HP StoreEver MSL6480 Command View TL E-LTU NOTE: This is an electronically delivered License	TC444AAE
HPE StoreEver MSL6480 TapeAssure Advanced LTU	1 each	HP StoreEver MSL6480 TapeAssure Advanced LTU NOTE: Advanced analytics feature makes use of predictive analytics to predict the likelihood of failures, bottlenecks and load balancing issues in the tape infrastructure. It has unique capabilities of analytics around drive health and life as well as cartridge health and life. NOTE: One license needed per library and Command View TL must be installed. NOTE: This is a paper license that will be mailed.	TC445A

Configuration Information

HPE StoreEver MSL6480 TapeAssure Advanced E-LTU	1 each	HP StoreEver MSL6480 TapeAssure Advanced E-LTU NOTE: One license needed per library and Command View TL must be installed. NOTE: This is an electronically delivered License	TC445AAE
HPE StoreEver MSL6480 ESKM Encryption LTU	1 each	HP StoreEver MSL6480 ESKM Encryption LTU NOTE: The ESKM Encryption License will enable encryption keys to be received from the HPE ESKM for strong data encryption and key management. One per library is required (regardless of Expansion Module qty) NOTE: This is a paper license that will be mailed.	TC469A
HPE StoreEver MSL6480 ESKM Encryption E-LTU	1 each	HP StoreEver MSL6480 ESKM Encryption E-LTU NOTE: The ESKM Encryption License will enable encryption keys to be received from the HPE ESKM. One per library is required (regardless of Expansion Module qty) NOTE: This is an electronically delivered License	TC469AAE
HPE StoreEver MSL6480 KMIP 1.2 Key Manager LTU	1 each	HP StoreEver MSL6480 KMIP 1.2 Key Manager LTU NOTE: This is a paper license that will be mailed.	D4T76A
HPE StoreEver MSL6480 KMIP 1.2 Key Manager E-LTU	1 each	HP StoreEver MSL6480 KMIP 1.2 Key Manager E-LTU NOTE: This is an electronically delivered License	D4T76AAE
HPE StoreEver MSL6480 Secure Manager LTU	1 each	HP StoreEver MSL6480 Secure Manager LTU NOTE: This is a paper license that will be mailed.	D4T75A
HPE StoreEver MSL6480 Secure Manager E-LTU	1 each	HP StoreEver MSL6480 Secure Manager E-LTU NOTE: This is an electronically delivered License	D4T75AAE
HPE StoreEver High Availability MSL6480 Control Path Failover LTU	1 each	HP StoreEver MSL6480 High Availability Control Path Failover LTU NOTE: High Availability Failover cannot be used with LTO-4 tape drives. NOTE: This is a paper license that will be mailed.	TC359A
HPE StoreEver High Availability MSL6480 Control Path Failover E-LTU	1 each	HP StoreEver MSL6480 High Availability Control Path Failover E-LTU NOTE: High Availability Failover cannot be used with LTO-4 tape NOTE: This is an electronically delivered License	TC359AAE
HPE StoreEver High Availability MSL6480 Data Path Failover LTU	1 each	HP StoreEver MSL6480 High Availability Data Path Failover LTU NOTE: High Availability Failover cannot be used with LTO-4 tape drives NOTE: This is a paper license that will be mailed.	TC360A
HPE StoreEver High Availability MSL6480 Data Path Failover E-LTU	1 each	HP StoreEver MSL6480 High Availability Data Path Failover E-LTU NOTE: High Availability Failover support LTO-5 and LTO-6 Tape Drives NOTE: This is an electronically delivered License	TC360AAE

Configuration Information

Step 4 - Select Additional Accessories

Power Cords	Quantity	Description	Part Number
	2 each	HP C13 - C14 WW 250V 10Amp 2.5m Jumper Cord NOTE: This cord ships standard with each MSL Tape Library; can be used to connect the rack-mounted device to PDUs with IEC-320 receptacles.	142257-002
	Quantity to order	Regional Power Cord Options NOTE: Two PDU cords are shipped with each module (above). If regional power cords are preferred, order qty (2) per module. One for each power supply that ships with the library; please select the correct power cord for your geographical location.	
	2 per module	HP C13 - Nema 5-15P US/CA 110V 10Amp 1.83m Power Cord	AF556A
	2 per module	HP C13 - CEE-VII EU 250V 10Amp 1.83m Power Cord	AF568A
	2 per module	HP C13 - BS-1363A UK/HK/SG 250V 10Amp 1.83m Power Cord	AF570A
	2 per module	HP C13 - DK-2.5A DK 250V 10Amp 1.83m Power Cord	AF566A
	2 per module	HP C13 - SEV 1011 CH 250V 10Amp 1.83m Power Cord	AF565A
	2 per module	HP C13 - CEI-23-50 IT/CL 250V 10Amp 1.83m Power Cord	AF571A
	2 per module	HP C13 - SABS-164 ZA 250V 10Amp 2.5m Power Cord	AF567A
	2 per module	HP C13 - CNS-690 TW 110V 13Amp 1.83m Power Cord	AF561A
	2 per module	HP C13 - GB-1002 CN 250V 10Amp 1.83m Power Cord	AF557A
	2 per module	HP C13 - JIS C8303 JP 100V 12Amp 2.0m Power Cord	AF572A
	2 per module	HP C13 - AS3112-3 AU 250V 10Amp 2.5m Power Cord	AF569A
	2 per module	HP C13 - IRAM -2073 AR 250V 10A 2.5m Power Cord	AF558A
	2 per module	HP C13 - Nema 5-15P TH/PH 250V 10Amp 1.83m Power Cord	AF559A
	2 per module	HP C13 - KSC- 8305 KR 250V 10Amp 1.83m Power Cord	AF560A
	2 per module	HP C13 - SI-32 IL 250V 10Amp 1.83m Power Cord	AF564A
	2 per module	HP C13 - IS-1293 IN 240V 6Amp LV 2.0m Power Cord	AF562A
WARNING: This product can ONLY be used with an HPE approved power cord for			

Configuration Information

your specific geographic region. Use of a non-HPE approved power cord may result in: 1) not meeting individual country specific safety requirements; 2) insufficient conductor capacity that could result in overheating with potential personal injury and/or property damage; and 3) an unapproved power cord could fracture resulting in the internal contacts being exposed, which potentially could subject the user to a shock hazard. Hewlett Packard Enterprise disclaims all liability in the event a non-HPE approved power cord is used.

Related Options

Factory Racking	<p>Factory integrate the MSL Tape Libraries with other Hewlett Packard Enterprise products such as HPE ProLiant Servers</p> <p>NOTE: #0D1 will appear after the Tape Library part number on the sales order if HPE factory integration is indicated. One Base Module and up to 6 Expansion Modules can be factory integrated up to 42U in a single rack.</p>	#0D1
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Encryption	<p>HP 1/8 G2 Tape Autoloader and MSL Tape Library LTO-4 Encryption Kit</p> <p>NOTE: The Encryption Kit key server token will generate and retain encryption keys for HPE LTO-6, LTO-5 or LTO- 4 Ultrium tape drives in the library. Does not require support from ISV.</p>	AM495A
	<p>HP StoreEver MSL6480 ESKM Encryption LTU</p> <p>NOTE: the ESKM Encryption License will enable encryption keys to be received from the HPE ESKM for strong data encryption and key management. One per library is required (regardless of Expansion Module qty)</p> <p>NOTE: This is a paper license that will be mailed.</p>	TC469A
	<p>HP StoreEver MSL6480 ESKM Encryption E-LTU</p> <p>NOTE: the ESKM Encryption License will enable encryption keys to be received from the HPE ESKM. One per library is required (regardless of Expansion Module qty)</p> <p>NOTE: This is an electronically delivered License</p>	TC469AAE
	<p>HP StoreEver MSL6480 KMIP 1.2 Key Manager LTU</p> <p>NOTE: This is a paper license that will be mailed.</p>	D4T76A
	<p>HP StoreEver MSL6480 KMIP 1.2 Key Manager E-LTU</p> <p>NOTE: This is an electronically delivered License</p>	D4T76AAE

FC Host Bus Adapters	<p>The MSL Libraries are certified with a number of Fibre Channel Host Bus Adapters. For the most current list of supported FC HBAs, please reference the HPE Data Agile BURA Compatibility Matrix (Formerly EBS) and Design Guide located at: http://www.hpe.com/go/BURACompatibility.</p> <p>For more information on FC HBAs, see Fibre Channel Host Bus Adapters at: http://h18006.www1.hpe.com/storage/saninfrastructure/hba.html.</p>	
SAS Host Bus Adapters	<p>The MSL Libraries are certified with a number of SAS Host Bus Adapters and ProLiant Smart Array Controllers. For the most current list of supported devices, please reference the HPE Data Agile BURA Compatibility Matrix (Formerly EBS) and Design Guide located at: http://www.hpe.com/go/BURACompatibility.</p> <p>For more information on HPE Smart Array RAID controllers, see Fibre HPE Smart Array RAID controllers at: http://h18004.www1.hpe.com/products/servers/proliantstorage/arraycontrollers/index.html.</p> <p>For more information on HPE ProLiant (SAS) host bus adapters, see: http://h18004.www1.hpe.com/products/servers/proliantstorage/adapters/index.html.</p>	



Related Options

HBAs and SAS Controllers

HBA/ Controller Product Number

HP H221 PCIe 3.0 SAS Host Bus Adapter NOTE: Recommended for ProLiant Gen8 SAS tape automation connect	729552-B21
HP H222 Host Bus Adapter NOTE: Recommended for ProLiant Gen8 SAS tape automation connect	650926-B21
HP H241 12Gb 2-ports Ext Smart Host Bus Adapter NOTE: Recommended for ProLiant Gen9 SAS tape automation connect	726911-B21
HP Smart Array P222/512 FBWC 6Gb 1-port Int/1-port Ext SAS Controller NOTE: for ProLiant Gen8 SAS tape automation connect	631667-B21
HP Smart Array P421/1GB FBWC 6Gb 2-ports Ext SAS Controller NOTE: for ProLiant Gen8 SAS tape automation connect	631673-B21
HP Smart Array P421/2GB FBWC 6Gb 2-ports Ext SAS Controller NOTE: for ProLiant Gen8 SAS tape automation connect	631674-B21
HP Smart Array P721m/512 FBWC 6Gb 4-ports Ext Mezzanine SAS Controller NOTE: Recommended for Gen8 C series blade enclosure tape automation connect.	655636-B21
HP Smart Array P721m/2GB FBWC 6Gb 4-ports Ext Mezzanine SAS Controller NOTE: Recommended for Gen8 C series blade enclosure tape automation connect	650072-B21
HP Smart Array P212/ZM 1-ports Int/1-ports Ext PCIe x8 SAS Controller NOTE: for ProLiant G6/G7 SAS tape automation connect. 256MB or larger write cache recommended for more than two tape drives.	462828-B21
HP Smart Array P212/256 1-ports Int/1-ports Ext PCIe x8 SAS Controller NOTE: Recommended for ProLiant G6/G7 SAS tape automation connect.	462834-B21
HP Smart Array P411/256 2-ports Ext PCIe x8 SAS Controller NOTE: Recommended for ProLiant G6/G7 SAS tape automation connect.	462830-B21
HP Smart Array P411/512 BBWC 2-ports Ext PCIe x8 SAS Controller NOTE: Recommended for ProLiant G6/G7 SAS tape automation connect.	462832-B21



Related Options

HP Smart Array P711m/1G 6Gb FBWC 4-ports Ext Mezzanine SAS Controller	513778-B21
NOTE: Recommended for C-series blade enclosure tape automation connect.	
HP Smart Array P712m/256 6Gb 2-ports Int/2-ports Ext Mezzanine SAS Controller	488348-B21
NOTE: Recommended for C-series blade enclosure tape automation connect.	
HPE Smart Array P700m/256 4-ports Ext PCIe x8 SAS Controller	
HPE Smart Array P700m/512 4-ports Ext PCIe x8 SAS Controller	

Optical cables

OM4 LC-LC type cables	
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable	QK732A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable	QK733A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable	QK734A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable	QK735A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable	QK736A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable	QK737A

Allowed cable lengths:

External Cable type	Drive type	2Gb	4Gb	8Gb
OM2	All drive types	0.5m - 300m	0.5m - 150m	NA
OM3/OM4	All except LTO-5 Ultrium 3000	0.5m - 500m	0.5m - 380m	0.5m - 150m
OM3/OM4	LTO-5 Ultrium 3000	0.5m - 300m	0.5m - 150m	0.5m - 50m

NOTE: The HPE MSL LTO-5 Ultrium 3000 Drive contains an internal OM2 optical cable and limits the maximum allowed cable lengths to those as specified for OM2. The lowest OM rating in a path from the drive to the switch or HBA will dictate the maximum length of the connection path.

Related Options

Cable Kits (SAS)	HP 2m External Mini-SAS to 4x1 Mini-SAS Cable	AN975A
	NOTE: One cable is required for every four autoloaders or every four library drives. Use this cable to connect HPE MSL SAS Tape Libraries to Mini-SAS (SFF8088) ports.	
	HP 4m External Mini-SAS to 4x1 Mini-SAS Cable	AN976A
	NOTE: One cable is required for every four autoloaders or every four library drives. Use this cable to connect HPE MSL SAS Tape Libraries to Mini-SAS (SFF8088) ports.	
	HP External SAS to mini-SAS Fanout Cable	AH587A
	NOTE: One cable is required for every four drives. Use this cable to connect HPE MSL SAS Tape Libraries to legacy 3Gb SAS controllers with Infiniband (SFF8470) connectors.	
	HP Mini SAS High Density to 4-lane Mini SAS External Fanout 2 Meter Cable	K2R09A
	HP Mini SAS High Density to 4-lane Mini SAS External Fanout 2 Meter Cable	K2R09A
	HP 2.0m External Mini SAS High Density to Mini SAS Cable	716191-B21
	NOTE: One cable is required for every tape drive. Use this cable to connect HPE MSL SAS Tape Libraries to the HPE H241 Smart Host Bus Adapter.	
	HP 4.0m External Mini SAS High Density to Mini SAS Cable	716193-B21
	NOTE: One cable is required for every tape drive. Use this cable to connect HPE MSL SAS Tape Libraries to the HPE H241 Smart Host Bus Adapter.	

Rack Cabinets	The MSL6480 libraries are supported in a variety of HPE Rack offerings, including the HPE Intelligent Series Racks and the HPE 10000 G2 Series Racks.
	NOTE: If ordering the #0D1 Factory Integration option, the MSL6480 Tape Libraries are certified to ship with one base module and up to 6 expansion modules (up to 42U) installed in the HPE Intelligent Series rack.

Media	HP LTO-7 Ultrium 15 TB RW Data Cartridge	C7977A
	HP LTO-7 Ultrium 15 TB No Case Pallet of 960 Tapes	C7977AB
	HP LTO-7 Ultrium 15 TB Pallet of 960 Tapes	C7977AD
	HP LTO-7 Ultrium 15 TB Eco Pack (20 Pack)	C7977AH
	HP LTO-6 Ultrium 6.25TB MP RW Data Cartridge	C7976A
	HP LTO-6 Ultrium 6.25TB MP WORM Data Cartridge	C7976W
	HP LTO-6 Ultrium 6.25TB BaFe RW Data Cartridge	C7976B
	HP LTO-6 Ultrium 6.25TB BaFe WORM Data Cartridge	C7976BW
	HP LTO-5 Ultrium 3TB RW Data Cartridge	C7975A
	HP LTO-5 Ultrium 3TB WORM Data Cartridge	C7975W
	Bar Code Labels	



Related Options

HP LTO-7 Ultrium RW Bar Code Label Pack	Q2014A
HP LTO-6 Ultrium RW Bar Code Label Pack	Q2013A
HP LTO-5 Ultrium RW Bar Code Label Pack	Q2011A
HP LTO-5 Ultrium WORM Bar Code Label Pack	Q2012A
Non-Custom Labeled Data Cartridges	
NOTE: Non-Custom labels will come pre-labeled with a pre-determined number sequence.	
HP LTO-7 Ultrium 15 TB RW Custom Labeled No Case Library Pack (20 pack)	C7977AC
HP LTO-7 Ultrium 15 TB RW Non-Custom Labeled Data Cartridge (20 pack)	C7977AN
HP LTO-6 Ultrium 6.25TB MP RW Non Custom Labeled Data Cartridge 20 Pack	C7976AN
HP LTO-6 Ultrium 6.25TB BaFe RW Non Custom Labeled Data Cartridges 20 Pack	C7976BN
HP LTO-5 Ultrium Non-custom Labeled Data Cartridge 20 Pack	C7975AN
Custom Labeled Data Cartridges	
NOTE: Custom labeled products allow customers to customize a specific sequence printed on each label.	
HP LTO-7 Ultrium 15 TB RW RFID Custom Labeled Data Cartridge (20 pack)	7977AF
HP LTO-7 Ultrium 15 TB RW Custom Labeled Data Cartridge (20 pack)	C7977AL
HP LTO-7 Ultrium 15 TB WORM Custom Labeled Data Cartridge (20 pack)	C7977WL
HP LTO-6 Ultrium 6.25TB MP RW Custom Labeled Data Cartridge 20 Pack	C7976AL
HP LTO-6 Ultrium 6.25TB MP RW Custom Labeled Data Cartridge No Case 20 Pack	C7976AC
HP LTO-6 Ultrium 6.25TB MP RFID RW Custom Labeled Data Cartridge 20 Pack	C7976AF
HP LTO-5 RW Custom Labeled Data Cartridge 20 Pack	C7975AL
HP LTO-5 RW Custom Labeled No Case Data Cartridge 20 Pack	C7975AC
HP LTO-5 WORM Custom Labeled Cartridge 20 Pack	C7975WL

NOTE: For more information on LTO media, see: <http://h18006.www1.hpe.com/storage/storagemedia.html?psn=storage>

Related Options

HPE Care Pack Options	Same Day Response	
	HP 1year 4hour 13x5 MSL8096 HW Support	UF835E
	HP 1year 4hour 24x7 MSL8096 HW Support	UF836E
	HP 1year 6hour 24x7 Call to Repair MSL8096 HW Support	UF837E
	HP 3 year 4 hour 13x5 MSL8096 Hardware Support	UF839E
	HP 3 year 4 hour 24x7 MSL8096 Hardware Support	UF840E
	HP 3 year 6 hour 24x7 Call to Repair MSL8096 Hardware Support	UF841E
	HP 4 year 4 hour 13x5 MSL8096 Hardware Support	UF842E
	HP 4 year 4 hour 24x7 MSL8096 Hardware Support	UF843E
	HP 5year 4hour 13x5 MSL8096 HW Support	UF844E
	HP 5year 4hour 24x7 MSL8096 HW Support	UF845E
	Next Business Day Response	
	HP 3 year Next business day MSL8096 Hardware Support	UF838E
	Hardware Services	
	HP Install Storage MSL 5060/6060 Tape Service	U4824E
	HP Startup for 1 MSL 10U Library Service	UA872E

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

Technical Specifications

		MSL6480
Drive Technology		LTO-6 Ultrium 6250 LTO-5 Ultrium 3000/3280 LTO-4 Ultrium 1840/1760
Maximum Number of Drives - Per Module - Per fully expanded Library		6 HH or 3 FH (per Module) 42 HH or 21 FH (per Library)
Number of Slots - Per Module - Per fully expanded Library		80 (per Module) 560 (per Library)
Drive Interface		8 Gb Native Fibre Channel (LTO-6, LTO-5) 6 Gb/sec SAS (LTO-6, LTO-5) 8 Gb Native Fibre Channel (LTO-4) 6 Gb/sec SAS (LTO-4)
Maximum Capacity	Native - Per Module - Per Library	200 TB (LTO-6, 80 slots) 120 TB (LTO-5, 80 slots) 1.4 PB (LTO-6, 560 slots) 840 TB (LTO-5, 560 slots)
	Compressed (2.5:1) - Per Module - Per Library	500 TB (LTO-6, 80 slots) 3.5 PB (LTO-6 560 slots)
	Compressed (2:1) - Per Module - Per Library	240 TB (LTO-5, 80 slots) 1.68 PB (LTO-5, 560 slots)
Maximum Transfer Rate	Native - Per Module - Per Library	3.46 TB/hour (qty 6 Ultrium 6250 drives) 3 TB/hour (qty 6 Ultrium 3000/3280 drives) 24 TB/hr (qty 42 Ultrium 6250 drives) 21 TB/hr (qty 42 Ultrium 3000 drives)
	LTO-6 Compressed (2.5:1) - 6 HH drives Per Module - 42 HH drives Per Library	8.6 TB/hr (qty 6 Ultrium 6250 drives) 60.4 TB/hr (qty 42 Ultrium 6250 drives)
	LTO-5 Compressed (2:1) - 6 HH drives Per Module - 42 HH drives Per Library 3 FH drives per Module 21 FH drives per library	6.0 TB/hr (qty 6 Ultrium 3000 drives) 42 TB/hr (qty 42 Ultrium 3000 drives) 3.0 TB/hr (qty 3 Ultrium 3280 drives) 21 TB/hr (qty 21 Ultrium 3280 drives)
		MSL6480
Dimensions	Out-of-Box (HxWxD)	10.55 X 18.7 X 35.1 in (26.8 x 47.5 x 89.2 cm)
	Shipping (HxWxD)	24.2 X 31.5 X 47.2 in (61.5 x 80.0 x 120.0 cm)

Technical Specifications

Weight	Out of box	90.4 lbs (43.6 kg)
	Shipping	120.1 lbs (54.5 kg)
	NOTE: The weight of each library varies somewhat based on the type and number of LTO tape drives contained in the configuration. Configurations with different numbers of tape drives can be calculated by adding or subtracting the weight of a tape drive. An LTO-6 Ultrium 6250 drive weighs 2.10 kg/4.63 lbs.	
Reliability	MTBF (mean time between failures)	100,000 hours (based on 1M MSBF)
	MSBF (Mean swaps before failure)	2,000,000
Average Cartridge Swap Time (drive to slot, slot to drive)		40 seconds (Base Unit)
Initialization Time		77 to 204 seconds
Inventory Time		1:10 minutes (minimum) to 1:26minutes (maximum) Base unit
Connectors	Mini-SAS (MSL SAS model only) LC Optical Fibre (MSL FC models only) (1)RJ-45 Ethernet	
Color Control Panel information (on front panel)	Color, 5.7 inch diagonal, resistive touchscreen, full VGA , 4/3 aspect ratio	
Management Interface	10/100/1000 Mbytes/second, auto-configuring interface. RJ-45 connection. Https configurable.	
Power	200 Watts (max)	
Input Requirements	100-120V, 200-240 VAC, 3.5 to 1.5 Amperes , 50 to 60 Hz	
Relative Humidity (non-condensing)	Operating	20% to 80%
	Shipping	20% to 90%
Temperature Range (wet bulb)	Operating	50° to 95° F (10° to 35° C)
	Shipping	-22° to 140° F (-30° to 60° C)
	NOTE: Library operating temperature limits are based on the industry standard tape limit.	
Altitude	Operating	13,000 ft (4000 m)
	Shipping	35,000 ft (10,675 m)

Summary of Changes

Date	Version History	Action	Description of Change
01-Dec-2015	From Version 8 to 9	Changed	Changes made throughout all the document.
24-Apr-2015	From Version 7 to 8	Changed	<p>Changed from "The HPE StoreEver MSL Encryption Kit provides a self-contained solution for MSL libraries with additional software, PCs, or servers required or involved."</p> <p>To show as: "The HPE StoreEver MSL Encryption Kit provides a self-contained solution for MSL libraries without additional software, PCs, or servers required or involved."</p>
31-Oct-2014	From Version 6 to 7	Changed	Changes made throughout all the document.
15-Sep-2014	From Version 5 to 6	Changed	Changes made to the Related Options section.
20-Aug-2014	From Version 4 to 5	Changed	Changes made throughout all the document.
10-jun-2014	From Version 3 to 4	Changed	What's new section was updated: Product highlights; sku description updated
		Added	Configuration information
20-dec-2013	From Version 2 to 3	Changed	<p>Changes made to the chart in the Overview section.</p> <p>Changes made throughout the Configuration Information.</p>
30-sept-2013	From Version 1 to 2	Changed	<p>Changes made to the What's New section: HPE StoreEver MSL6480 now supporting HPE Enterprise Secure Key Manager (ESKM). Protect against connectivity failover through Control Path and Data Path failover now on the MSL6480.</p> <p>Increase library uptime by providing library LUN control failover and drive port to port failover Tape Library.</p> <p>Changes made in the Product Highlights section.</p> <p>Changes made in the Configuration Information.</p> <p>Changes made in the Related Options section and in the Technical Specifications.</p>

Summary of Changes

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



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