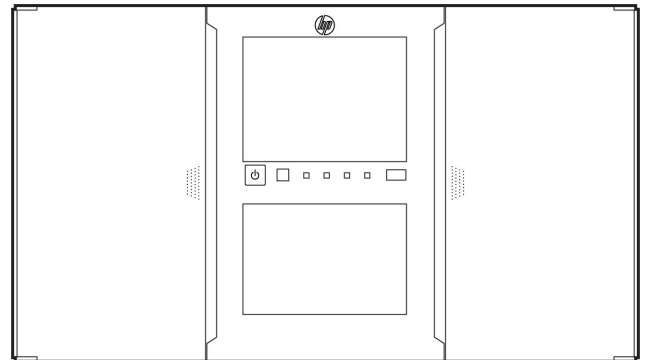
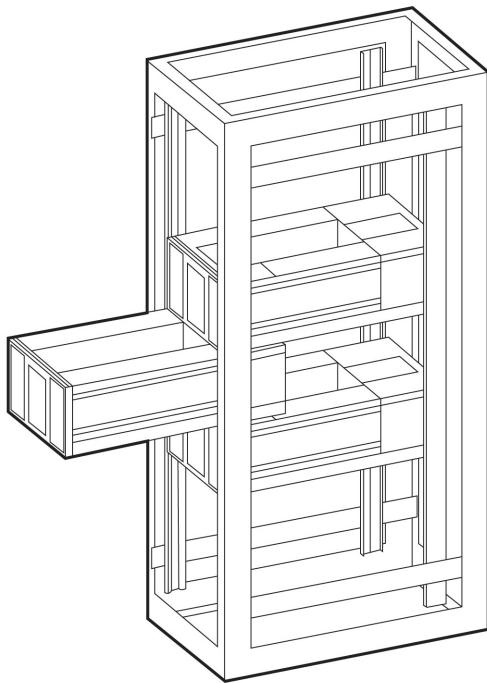


Overview

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

The HP 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.



HP 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

- HP StoreEver MSL6480 now supporting HP Enterprise Secure Key Manager (ESKM).
- Protect against connectivity failover through Control Path and Data Path failover now on the MSL6480.
- Increase library uptime by providing library LUN control failover and drive port to port failover
- Tape Library.

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 3.5 PBs*
- Performance scaling from 1 to 42 LTO HH Tape Drives for a max throughput of 60.4 TB/hour* or select 1-21 LTO FH Tape Drives.
- 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 HP StoreEver TapeAssure Advanced
- Manage multiple HP Tape Libraries from a single pane of glass with HP StoreEver CommandView Tape Library software
- Native drive data encryption with 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
- HP's 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 HP Converged Infrastructure including HP StoreOnce and HP StoreAll disk based retention platforms.

*Assumes fully populated and expanded MSL6480 Tape Library with LTO-6 at 2.5:1 compression

Family Comparison	MSL2024	MSL4048	MSL6480
Drive Technology Supported	LTO-6 Ultrium 6250 LTO-5 Ultrium 3000, 3280 LTO-4 Ultrium 1840, 1760	LTO-6 Ultrium 6250 LTO-5 Ultrium 3000, 3280 LTO-4 Ultrium 1840, 1760	LTO-6 Ultrium 6250 LTO-5 Ultrium 3000, 3280 LTO-4 Ultrium 1840, 1760
Maximum Number of Drives	2	4	42 HH 21 FH
LTO-6 Maximum Capacity (2.5:1 compression) LTO-5/LTO-4	150 TB (LTO-6)	300 TB (LTO-6)	3.5 PB (LTO-6, 560 slots) 500 TB (LTO-6, 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 (2.5:1 compression)	2.8 TB/hr (two 6250)	4.8 TB/hr (four 6250)	60.4 TB/hr (42x 6250)
Maximum Data Transfer (2:1 compression)	2 TB/hr (two 3000) 1.1 TB/hr (two 1760)	4.0 TB/hr (four 3000)	42.0 TB/hr (42 x 3000)
Drive Interface	8 Gb Native Fibre Channel (LTO 6, 5) 4 Gb Native Fibre Channel (LTO 4, 3) 6 Gb/sec SAS (LTO 6, 5) 3 Gb/sec SAS (LTO , 4)	8 Gb Native Fibre Channel (LTO 6, 5) 4 Gb Native Fibre Channel (LTO 4, 3) 6 Gb/sec SAS (LTO 6, 5) 3 Gb/sec SAS (LTO 4)	8 Gb Native Fibre Channel (LTO 6, 5) 4 Gb Native Fibre Channel (LTO-4) 6 Gb/sec SAS (LTO 6, 5) 3 Gb/sec SAS (LTO-4)

Overview

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 HP StoreEver 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 HP 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 or LTO-6 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-6 provides a max capacity of up to 500 TBs and speeds of up to 8.4 TB/hour (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-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 HP racks. For more information on the HP rack offerings, please see the following URL: <http://h18004.www1.hp.com/products/servers/platforms/rackandpower.html>

Product Highlights

Manageability

The HP 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
-

HP Command View for Tape Libraries

HP Command View TL for Tape Libraries aggregates multiple HP tape libraries for centralized management. It is also the nerve center for TapeAssure data collection and analysis and, importantly it is able to manage HP 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 HP MSL6480 is available with HP 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.

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

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 HP 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.

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

Product Highlights

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. HP TapeAssure Advanced also analyzes the results of every tape use to ensure the availability of data placed in long-term storage, archive or DR.

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

Safeguarding data for Disaster Recovery

The HP 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 failover features:

- Dual redundant power supplies are included in each module.
- Both library LUN control failover and drive port to port failover help support ongoing host and SAN connectivity under a variety of adverse conditions:
 - Control Path Failover: reduces host command failures due to SAN issues
 - Connectivity: Integrated Fibre-channel (FC Bridging)
 - Configure a Primary and Failover Drive
 - Partitioning: Control Path Failover can be configured for each partition.
 - Data Path Failover: reduces read/write issues due to SAN issues

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. HP 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 HP StoreEver

The HP StoreEver 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 HP 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).

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

The HP 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.

Product Highlights

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, a cryptographic module running on FIPS 140-2 Level 3 validated hardware, 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 HP StoreEver MSL Encryption Kit provides a self-contained solution for MSL libraries with additional software, PCs, or servers required or involved.

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

HP MSL6480 is integrated with HP's Enterprise Secure Key Manager (ESKM) to provide centralized encryption key management for HP ESL G3, ESL E-Series, EML & MSL6480 Tape Libraries

- Automatic policy-based key generation and management supporting key/cartridge granularity
- ISV transparent key archival and retrieval for multiple libraries
- Extensible to emerging open standards
- Strong auditable security for encryption keys
 - Hardened server appliance
 - Secure identity-based access, administration and logging
 - Designed for FIPS 140-2 validation
- 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

LTO Ultrium Technology

HP LTO (Linear Tape Open) Ultrium Tape Drives use best of breed technology.. Inclusion of innovative features such as HP Adaptive Tape Speed (ATS) ensure that HP 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 HP Ultrium Tape Drives can be interchanged directly with Ultrium Tape Drives from other vendors.

Investment protection

HP 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 HP's exclusive variable Adaptive Tape Speed technology, to allow the tape drive to match its transfer rate to the host speed dynamically and continuously across the wide 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 and maximizes overall efficiency allowing the drive to respond immediately to any 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

HP LTO-6 Ultrium 6250
HP LTO-5 Ultrium 3280/3000
HP LTO-4 Ultrium 1840
HP LTO-4 Ultrium 1760

ATS data transfer rate range (native)

54 to 160 MB/s
47 to 140 MB/s
40 to 120 MB/s
35 to 80 MB/s

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.

LTO-6, LTO-5, LTO-4 Ultrium and LTO-3 Ultrium tape drives 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 tape drives can archive large amounts of data for periods of up to 30 years in a secure, 'untampered' state. Since all LTO-6, LTO-5, LTO-4 and LTO-3 Ultrium tape drives include support for both rewritable and WORM 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 tape drives offer 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
- 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 Ultrium products

Product Highlights

HP Data Protector software

HP 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 HP 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 HP software portfolio, which includes storage resource management, archiving, replication, and device management software, Data Protector software also fully integrates with the HP 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.hp.com/go/dataprotector>

Linear Tape File System (LTFS)

HP 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.hp.com/go/ltfs>

HP StoreOpen Automation

HP StoreOpen Automation is a free downloadable application that extends the LTFS capability to HP Autoloaders, HP MSL and ESL G3 Tape Libraries. By simply mounting the tape autoloader or library as a file system, the intuitive HP 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, HP StoreOpen Automation supports tape-to-tape operations. HP StoreOpen Automation takes advantage of other standard HP Tape Library features including data encryption and HP TapeAssure.

For more information, including user guide, downloads and compatibility, visit: <http://www.hp.com/go/HPStoreOpen>

Product Highlights

HP Storage Media

HP recommends that you use HP-branded cartridges in the MSL Tape Libraries 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.

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.

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.

Compatibility

Compatibility

HP's extensive compatibility testing program assures that your HP MSL Tape Libraries work with leading servers, operating systems, and backup applications - and not just those sold by HP. 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, check the HP Enterprise Backup Solution compatibility matrix at: <http://www.hp.com/go/ebs>.

Server Compatibility

The MSL Tape Library is supported on a wide range of HP systems. For details of which MSL Libraries work 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

MSL6480: 1-year onsite, next business day.

NOTE: The HP MSL Tape Libraries warranty includes support for Customer Self Repair (CSR). The tape library cartridges, external cables, drives, magazines (including mailslot), controller board (base and expansion), OCP module, cosmetics, DC power boards, chassis fan, robotics, chassis (base and expansion) and power supplies are mandatory customer self-repair parts. This means both the removal and replacement of the above parts are designed for easy replacement; the on-site warranty does not extend to these parts. However, customers may request HP Services to replace these replaceable units (RUs) for an additional charge. Also, customers who purchase an HP Support Agreement have the option to perform CSR or receive onsite support.

Please refer to HP's Limited Warranty Statement for further details:
<http://h18006.www1.hp.com/storage/warranty.html>

Service and Support

Services to accelerate time to results

HP 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.

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.

Discover, plan, and design Choose from a rich portfolio of services to make the most of HP StoreEver Storage,, so you can efficiently and affordably consolidate, manage, and extract value from unstructured data.

Start here to understand your data protection options. Next, develop a methodical plan and design the optimal HP StoreEver Storage, solution that addresses your unique technology requirements.

HP 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.hp.com/v2/GetPDF.aspx/4AA3-8490ENW.pdf>

HP 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.hp.com/v2/GetPDF.aspx/4AA4-1175ENW.pdf>

HP 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.hp.com/v2/GetPDF.aspx/4AA4-1199ENW.pdf>

Service and Support, HP Care Pack, and Warranty Information

Deploy and integrate

Implement HP StoreEver Storage, correctly-right from the start-so you can count on reduced risk and accelerated deployment, while implementing a best-practice configuration from day one. Then move on to proactively leverage products, tools, and technology to avoid problems and optimize performance. In this way, you get the most out of your HP StoreEver Storage, investment, as you keep your staff certified through project-based or residency services.

Installation of HP StoreEver MSL 6480 Tape Library can be done by the customers or optionally by HP. There are 2 Installation and Start-up services available - one for the base module and a separate one for the expansion module.

HP Installation and Startup Service for HP StoreEver Storage Systems - Installation and testing of your hardware and software onsite, including configuration of the storage deployment ([HP Installation and Startup Service for HP StoreEver ESL, EML, and MSL Tape Libraries data sheet - 5981-7355EN / ENN](#))

HP Proactive Select - A flexible way to purchase services to fit your environment with an extensive menu of HP Proactive Select event and technical services, such as onsite firmware upgrades, health checks, assessments, and education.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-3842ENW.pdf>

HP Storage Data Migration Services - End-to-end data migration service providing seamless discovery, assessment, planning, and design, completely customizable to your organization's storage area network or network attached storage environment and using innovative software to help you migrate to HP storage quickly and efficiently. <http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-0774ENW.pdf>

HP Storage and Data Consultant Residency Service - Strategic augmentation of your current environment with HP resources who become your trusted advisor to provide answers that are right for your storage and backup environment.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-9481ENW.pdf>

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.

HP Proactive Care 24x7 - Hardware and software support services designed specifically for your technology with rapid access to Advanced Solution Center Specialists plus firmware and software management and best practice advice

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

HP Proactive Care Personalized Support - An option-if you have HP Proactive Care- to bring increased personalization of the Proactive Care support experience through the assignment of an Account Service Manager (ASM) who provides IT best practice advice to help address IT issues and projects.

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

HP Support Plus 24 - Support for environments where proactive help from HP is not required, with 24x7 hardware and software support onsite that includes third-party support with a maximum four-hour onsite response.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6638EN.pdf>

HP 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 HP Storage. <http://education.hp.com/curr-storsan.htm>

Service and Support, HP Care Pack, and Warranty Information

Optimized Care-delivers best performance and stability through deployment and proactive management practices

Standard Care-maintains high level of uptime, along with expert help to cut the cost and complexity of implementation and support

Basic Care-Minimum recommended support

Remote Support Automation

For more information

Choose from three levels of operate and support care

HP Proactive Care 24x7-Plus, 20 credits per year

HP Proactive Care 24x7-Plus, 10 credits per year

Support Plus 24- Plus, 10 credits per year

HP Insight Remote Support-Available at no additional cost to all warranty, HP Care Pack Service and service agreement customers, uses proven technology to deliver secure, reliable 24x7 remote monitoring, diagnosis and problem resolution.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-4676ENW.pdf>

<http://h18004.www1.hp.com/products/servers/management/insight-remote-support/overview.html>
www.hp.com/services/storage

To learn more on HP Storage Services, please contact your HP sales representative or HP Authorized Channel Partner

HP Care Pack Services are sold by HP and HP Authorized Service Partners:

- Services for customers purchasing from HP or an enterprise reseller are quoted using HP order configuration tools.
 - Customers purchasing from a commercial reseller can find HP Care Pack Services at www.hp.com/go/lookuptool
-

Configuration Information

Step 1 - Base Configuration

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

NOTE: The HP 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 HP 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

HP StoreEver LTO-6 Ultrium 6250 FC Drive Kit	<p>HP StoreEver MSL LTO-6 Ultrium 6250 Fibre Channel Drive Upgrade Kit</p> <p>Kit Contents (for each drive): One HP StoreEver LTO-6 Ultrium 6250 FC Half-Height Tape Drive</p> <p>NOTE: Each HP MSL6480 Tape Library Module is able to hold up to six tape drives - to a maximum of 42 drives in a fully expanded Library.</p>	COH28A
HP StoreEver LTO-6 Ultrium 6250 SAS Drive Kit	<p>HP StoreEver MSL LTO-6 Ultrium 6250 SAS Drive Upgrade Kit</p> <p>Kit Contents (for each drive): One HP StoreEver LTO-6 Ultrium 6250 SAS Half-Height Tape Drive</p> <p>NOTE: Each HP MSL6480 Tape Library Module is able to hold up to six tape drives - to a maximum of 42 drives in a fully expanded Library.</p>	COH27A
HP StoreEver LTO-5 Ultrium 3280 FC Drive Kit	<p>HP MSL LTO-5 Ultrium 3280 Fibre Channel Drive Upgrade Kit</p> <p>Kit Contents (for each drive): One HP StoreEver LTO-5 Ultrium 3280 Fibre Channel Full-Height Tape Drive</p> <p>NOTE: Each HP 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</p>	BL535B
HP StoreEver LTO-5 Ultrium 3000 FC Drive Kit	<p>HP MSL LTO-5 Ultrium 3000 Fibre Channel Drive Upgrade Kit</p> <p>Kit Contents (for each drive):</p> <p>One HP StoreEver LTO-5 Ultrium 3000 FC Half-Height Tape Drive</p> <p>NOTE: Each HP MSL6480 Tape Library Module is able to hold up to six tape drives - to a maximum of 42 drives in a fully expanded Library</p>	BL544B
HP StoreEver LTO-5 Ultrium 3000 SAS Drive Kit	<p>HP MSL LTO-5 Ultrium 3000 SAS Drive Upgrade Kit</p> <p>Kit Contents (for each drive): One HP StoreEver LTO-5 Ultrium 3000 SAS Half-Height Tape Drive</p> <p>NOTE: Each HP MSL6480 Tape Library Module is able to hold up to six tape drives - to a maximum of 42 drives in a fully expanded Library.</p>	BL540B

Configuration Information

HP StoreEver LTO-4 Ultrium 1840 FC Drive Kit	<p>HP StoreEver LTO-4 Ultrium 1840 Fibre Channel Tape Drive Kit</p> <p>Kit Contents (for each drive): One HP StoreEver LTO-4 Ultrium 1840 Fibre Channel Full-Height Tape Drive</p> <p>NOTE: Each HP 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.</p>	AJ042B
HP StoreEver LTO-4 Ultrium 1760 SAS Drive Kit	<p>HP MSL LTO-4 Ultrium 1760 SAS Drive Upgrade Kit</p> <p>Kit Contents (for each drive): One HP StoreEver LTO-4 Ultrium 1760 SAS Half-Height Tape Drive</p> <p>NOTE: Each HP 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.</p>	AK383B

Step 3 - Select Software Licenses

Select each option as required with quantities specified:

Software Licenses	Quantity	Description	Part Number
	1 each	<p>HP StoreEver MSL6480 Command View TL LTU</p> <p>Provides management and control through a single pane of glass, while TapeAssure provides comprehensive summaries and detailed information about the status, performance, utilization, and health of all tape drives and tape media. Utilization and performance reporting features allow you to optimize the use of your HP MSL Tape Libraries and Tape Drives</p> <p>NOTE: This is a paper license that will be mailed</p>	TC444A
	1 each	<p>HP StoreEver MSL6480 Command View TL E-LTU</p> <p>Provides management and control through a single pane of glass, while TapeAssure provides comprehensive summaries and detailed information about the status, performance, utilization, and health of all tape drives and tape media. Utilization and performance reporting features allow you to optimize the use of your HP MSL Tape Libraries and Tape Drives</p> <p>NOTE: This is an electronically delivered License</p>	TC444AAE
	1 each	<p>HP StoreEver MSL6480 TapeAssure Advanced LTU</p> <p>One per library</p> <p>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.</p> <p>NOTE: One license needed per library and Command View TL must be installed.</p>	TC445A
	1 each	<p>HP StoreEver MSL6480 TapeAssure Advanced E-LTU</p> <p>One per library</p> <p>Advanced analytics feature makes use of predictive analytics to predict the likelihood of failures, bottlenecks and load balancing issues in the</p>	TC445AAE

Configuration Information

	<p>tape infrastructure. It has unique capabilities of analytics around drive health and life as well as cartridge health and life.</p> <p>NOTE: One license needed per library and Command View TL must be installed.</p>	
1 each	<p>NOTE: This is an electronically delivered License</p> <p>HP StoreEver MSL6480 ESKM Encryption LTU</p> <p>NOTE: the ESKM Encryption License will enable encryption keys to be received from the HP ESKM for strong data encryption and key management. One per library is required (regardless of Expansion Module qty)</p>	TC469A
1 each	<p>NOTE: This is a paper license that will be mailed.</p> <p>HP StoreEver MSL6480 ESKM Encryption E-LTU</p> <p>NOTE: the ESKM Encryption License will enable encryption keys to be received from the HP ESKM. One per library is required (regardless of Expansion Module qty)</p>	TC469AAE
1 each	<p>NOTE: This is an electronically delivered License</p> <p>HP StoreEver MSL6480 Control Path Failover LTU</p> <p>Control path failover uses library and drive firmware to create a new Fibre Channel path to a drive or robot if the original path is lost. Most applications recognize the new path and some will automatically retry commands after the original path is lost. Other applications may require user intervention to begin using the new path.</p>	TC359A
1 each	<p>NOTE: This is a paper license that will be mailed.</p> <p>HP StoreEver MSL6480 Control Path Failover E-LTU</p> <p>Control path failover uses library and drive firmware to create a new Fibre Channel path to a drive or robot if the original path is lost. Most applications recognize the new path and some will automatically retry commands after the original path is lost. Other applications may require user intervention to begin using the new path.</p>	TC359AAE
1 each	<p>NOTE: This is an electronically delivered License</p> <p>HP StoreEver MSL6480 Data Path Failover LTU</p> <p>Control path failover uses library and drive firmware to create a new Fibre Channel path to a drive or robot if the original path is lost. Most applications recognize the new path and some will automatically retry commands after the original path is lost. Other applications may require user intervention to begin using the new path.</p>	TC360A
1 each	<p>NOTE: This is a paper license that will be mailed.</p> <p>HP StoreEver MSL6480 Data Path Failover E-LTU</p> <p>Control path failover uses library and drive firmware to create a new Fibre Channel path to a drive or robot if the original path is lost. Most applications recognize the new path and some will automatically retry commands after the original path is lost. Other applications may require user intervention to begin using the new path.</p>	TC360AAE

Configuration Information

user intervention to begin using the new path.

NOTE: This is an electronically delivered License

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 HP approved power cord for your specific geographic region. Use of a non-HP approved power cord may result in: 1) not meeting individual country specific safety requirements; 2) insufficient conductor ampacity 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. HP disclaims all liability in the event a non-HP approved power cord is used.	
Encryption Kit		HP 1/8 G2 Tape Autoloader and MSL Tape Library Encryption Kit NOTE: The Encryption Kit key server token will generate and retain up to 100 encryption keys for HP LTO-6, LTO-5 or LTO- 4 Ultrium tape drives in the library. Does not require support from ISV.	AM495A

Related Options

Factory Racking Factory integrate the MSL Tape Libraries with other HP products such as HP ProLiant Servers #0D1
NOTE: #0D1 will appear after the Tape Library part number on the sales order if HP factory integration is indicated. Only the Control Module and one Expansion Module can be factory integrated. Expansion module s 2-6 and all tape drives are field installed.

Encryption HP 1/8 G2 Tape Autoloader and MSL Tape Library LTO-4 Encryption Kit AM495A
NOTE: The Encryption Kit key server token will generate and retain encryption keys for HP LTO-6, LTO-5 or LTO- 4 Ultrium tape drives in the library. Does not require support from ISV.

HP StoreEver MSL6480 ESKM Encryption LTU TC469A
NOTE: the ESKM Encryption License will enable encryption keys to be received from the HP 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.

HP StoreEver MSL6480 ESKM Encryption E-LTU TC469AAE
NOTE: the ESKM Encryption License will enable encryption keys to be received from the HP ESKM. One per library is required (regardless of Expansion Module qty)
NOTE: This is an electronically delivered License

FC Host Bus Adapters The MSL Libraries are certified with a number of Fibre Channel Host Bus Adapters. For the most current list of supported FC HBAs, please see the HP Storage EBS (Enterprise Backup Solutions) Compatibility Matrices document and EBS Design Guide located at: www.hp.com/go/ebs.

For more information on FC HBAs, see Fibre Channel Host Bus Adapters at:
<http://h18006.www1.hp.com/storage/saninfrastructure/hba.html>.

SAS Host Bus Adapters 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 see the HP Storage EBS (Enterprise Backup Solutions) Compatibility Matrices document and EBS Design Guide located at: www.hp.com/go/ebs.

For more information on HP Smart Array RAID controllers, see Fibre HP Smart Array RAID controllers at:
<http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/index.html>.

For more information on HP ProLiant (SAS) host bus adapters, see:
<http://h18004.www1.hp.com/products/servers/proliantstorage/adapters/index.html>.

Related Options

Slot Expansion Modules

	HBA/ Controller Product Number
HP H221 Host Bus Adapter NOTE: Recommended for ProLiant Gen8 SAS tape automation connect	650931-B21
HP H222 Host Bus Adapter NOTE: Recommended for ProLiant Gen8 SAS tape automation connect	650926-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 P421/1GB FBWC 6Gb 2-ports Ext SAS Controller NOTE: for ProLiant Gen8 SAS tape automation connect	631674-B21
HP Smart Array P721m/512 4-ports Ext Mezzanine SAS Controller NOTE: Recommended for Gen8 C series blade enclosure tape automation connect.	655636-B21
HP Smart Array P721m/2G FBWC 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
HP Smart Array P711m/1G 6Gb FBWC 4-ports Ext Mezzanine SAS Controller NOTE: Recommended for C-series blade enclosure tape automation connect.	513778-B21
HP Smart Array P712m/256 6Gb 2-ports Int/2-ports Ext Mezzanine SAS Controller NOTE: Recommended for C-series blade enclosure tape automation connect.	488348-B21
HP Smart Array P700m/256 4-ports Ext PCIe x8 SAS Controller	
HP Smart Array P700m/512 4-ports Ext PCIe x8 SAS Controller	

Related Options

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 HP 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.

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 HP 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 HP 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 HP MSL SAS Tape Libraries to legacy 3Gb SAS controllers with Infiniband (SFF8470) connectors.	

Rack Cabinets

The MSL6480 libraries are supported in a variety of HP Rack offerings, including the HP Intelligent Series Racks and the HP 10000 G2 Series Racks. For more information on the HP rack offerings, please see the following URL: <http://h18004.www1.hp.com/products/servers/platforms/rackandpower.html>

NOTE: If ordering the #0D1 Factory Integration option, the MSL6480 Tape Libraries are only certified to ship with one base module and one expansion module installed in the HP Intelligent Series rack.

Related Options

Media	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	
	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-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-6 Ultrium 6.25TB MP RW Custom Labeled Data Cartridge 20 Pack	C7976AL
	HP LTO-6 Ultrium 6.25 TB MP RW Library Pack (No Case) Custom Labeled Data Cartridge (20 pack)	C7976AC
	HP LTO-6 Ultrium 6.25 TB MP RW RFID 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.hp.com/storage/storagemedia.html?psn=storage>

Related Options

HP 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
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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 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	200 TB (LTO-6, 80 slots) 120 TB (LTO-5, 80 slots)
	- Per Library	1.4 PB (LTO-6, 560 slots) 840 TB (LTO-5, 560 slots)
	Compressed (2.5:1) - Per Module	500 TB (LTO-6, 80 slots)
	- Per Library	3.5 PB (LTO-6 560 slots)
Maximum Transfer Rate	Native - Per Module	3.46 TB/hour (LTO-6) 3 TB/hour (LTO-5)
	- Per Library	24 TB/hr (LTO-6) 21 TB/hr (LTO-5)
	Compressed (2.5:1) - Per Module	8.6 TB/hr (LTO-6)
	- Per Library	60.4 TB/hr (LTO-6)
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
	Shipping	35,000 ft (10,675 m)

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