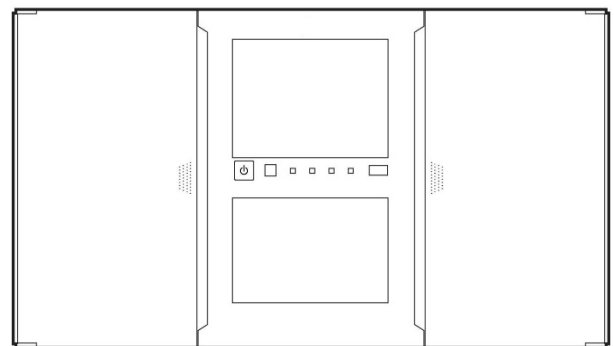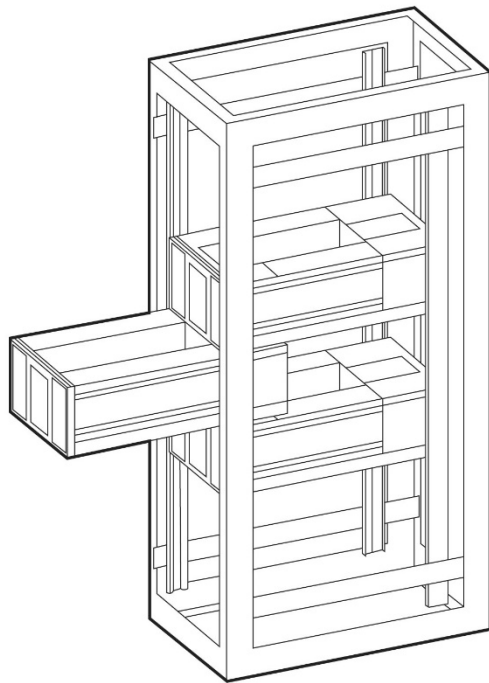## Overview

HPE StoreEver MSL6480 Tape Library

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 archive requirements. Keep pace with data growth by seamlessly scaling up to 7 modules-without disrupting daily data protection. The MSL6480 also saves floor space by providing 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.

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-8 Ultrium 30750 FC and SAS drive upgrade kits and LTO-8 tape media are now available
- HPE StoreEver MSL6480 now supports LTO-7 Type M media

Overview

Key Features

- Easy scalability - pay as you grow with the fast, non-disruptive addition of Expansion Modules for expansion of tape slots.
- 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 rack form factor
- 16.8PB of total maximum compressed capacity with 560 slots and LTO-8 drives
- Performance scaling from 1 to 42 LTO HH Tape Drives and transfer rates of 300 MB/s per LTO-8 Tape Drive.
- Industry leading storage density to save rack space, floor space, power, cooling and management costs - 13 cartridge slots (390 TB) per 1U of rack space
- Best in class flexibility with up to 20 logical library partitions
- Customer installable, scalable and serviceable with a color touch control panel and wizards for installation and configuration
- Manage multiple HPE Tape Libraries from a single pane of glass with HPE StoreEver CommandView Tape Library software
- Intelligent, proactive and predictive reporting with HPE StoreEver TapeAssure Advanced
- Using the HPE Encryption Kit get the simplest, lowest cost encryption and key management solution available - no additional software required
- Existing customers of MSL2024, 4048, and 3040 Tape Libraries can repurpose their drives in the MSL6480 library to leverage their investment
- HPE'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.

	MSL6480
Drive Technology Supported	LTO-8 Ultrium 30750 LTO-7 Ultrium 15000 LTO-6 Ultrium 6250 LTO-5 Ultrium 3000
Maximum Number of Drives	42 HH
Maximum Capacity (2.5:1 compression)	16.8 PB (LTO-8, 560 slots) 2.4PB (LTO-8, 80 slots)
Maximum Data Transfer (Native)	45.4 TB/hr (42 LTO-8 drives)
Drive Interface	8 Gb/sec Native Fibre Channel 6 Gb/sec SAS

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 16.8* in a single 19-inch rack. Several drive options are available
- Add between 1 and 42 HPE StoreEver LTO-8 Ultrium 30750, LTO-7 Ultrium 15000, LTO-6 Ultrium 6250 or LTO-5 Ultrium 3000 FC or SAS tape drives

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-8, LTO-7, LTO-6 or LTO-5 half-height tape drives and utilize up to 80 cartridge slots - a fully configured base unit with LTO-8 provides a max capacity of up to 2.4PB (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-8, LTO-7, LTO-6 or LTO-5 FC or SAS tape drives and utilize up to 80 cartridge slots per expansion module.

NOTE: *Assumes fully loaded with LTO-8 media cartridges 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/info/rackandpower**

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
- Command Language Interface (CLI), a menu-driven interface for obtaining library status, configuration information, and tape movement capability

Product Highlights

HPE Command View for Tape Libraries

HPE Command View for Tape Libraries Software (CVTL) is a single pane of glass management platform which allows users to manage, monitor and configure all of their tape libraries through a single console. It saves time by performing daily management and troubleshooting tasks from one location. CVTL also provides remote management, diagnostics and configuration for all MSL Tape Libraries from across the room or across the globe.

Key features include:
• View health summaries for the entire library environment
• View library & autoloader utilization by slots, media, and drives
• Search for media by barcode label
• Upgrade firmware for all libraries in an entire library environment
• View persistent event logs & drive support tickets for an entire library environment

Command View for Tape Libraries is also the centralized location for TapeAssure Advanced & Data Verification functionality.

HPE StoreEver Command View for Tape Libraries on the MSL6480 Tape Library can be purchased as a paper or electronic license. More information at: **http://www.hpe.com/storage/cvtl**

TapeAssure Advanced

The HPE StoreEver MSL6480 Tape Library is available with HPE StoreEver TapeAssure Advanced - analytics software with automated, predictive monitoring of health and performance of tape drives and cartridges. TapeAssure Advanced reporting and analysis allows users to get the most out of their investment by knowing how their library is being used. HPE StoreEver TapeAssure Advanced Software is fully integrated with HPE StoreEver Command View for Tape Libraries to provide an intuitive, easy to use dashboard for analysis of performance, health and utilization of tape drives and cartridges.

TapeAssure Advanced analytics features makes use of predictive forecasting to anticipate the likelihood of bottlenecks, failures and load balancing issues in the tape library environment. Analysis of drive/tape utilization helps users to understand available capacity and performance which helps to plan ahead.

For more information about TapeAssure Advanced, please visit **http://www.hpe.com/storage/tapeassure**

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 proactively validates and scans, non-disruptively, the quality of data stored on LTO tape cartridges. Scanning and validating infrequently accessed tapes ensures a successful restore is possible when critical business data is needed.
StoreEver Data Verification Software is fully integrated into the HPE StoreEver Command View for Tape Libraries Software providing a single pane of glass management platform.

Key Features:
• 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
• Scanning without interrupting host applications.
• Protect all tape cartridges, active and vaulted archived media, with the same license (per 100 cartridge slots)
• Receive proactive notification for needed media migration
• Fully integrated with Command View for Tape Libraries

Business Benefits:

Product Highlights

- Ensures critical business data can be restored when most needed
- **High Availability** - No impact to backup operations
- **Ease of Use** - Single license for 100 cartridge slots
- **Save Money** - Migrate data only when necessary

For more information about Data Verification, please visit
http://www.hpe.com/storage/dataverification

NOTE: HPE StoreEver Data Verification Software is only supported and licensed on the MSL3040 & MSL6480 tape libraries. One license is required per 100 cartridge slots.

Library and Tape Tools	The MSL6480 Tape Library is supported with HPE Library and Tape Tools (L&TT). L&TT is a free diagnostic tool for all of HPE's tape storage products. This robust diagnostic tool is designed for both the experienced professional and the untrained administrator, and it allows customers to verify the installation, ensure product reliability, perform diagnostics and achieve faster resolution of tape device issues. L&TT performs firmware upgrades, verification of device operation, failure analysis and a range of utility functions. Performance tools assist in troubleshooting issues and system configuration checks warn of common host issues. It also provides seamless integration with HPE support by generating and e-mailing test results and support tickets. HPE Support will require the use of L&TT to troubleshoot most device issues, so it is recommended that a support ticket is pulled and the device assessment test is run before calling. HPE Library & Tape Tools can be downloaded from the following location: **http://www.hpe.com/storage/downloads/tapetools** For more information on L&TT, please visit: **http://www.hpe.com/support/tapetools**.
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 390 TBs per 1U of rack space) using LTO-8 drives, the MSL6480 provides the highest tape drive density per module of any mid-range tape library.
Partitioning	The MSL6480 Tape Library supports up to 20 logical partitions 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.
LTO-7 Type M media	The MSL6480 Tape Library supports LTO-7 Type M media. This is the ability of an LTO-8 drive to write 9 TB (native) on a brand new LTO-7 cartridge instead of 6 TB (native) as specified by the LTO-7 format. LTO-7 Type M cartridges will be designated by an automation barcode label ending with the last 2 characters "M8". A standard 6TB LTO-7 cartridge is indicated with an automation barcode label ending in "L7". An LTO-8 cartridge has a capacity of 12 TB (native), and is indicated with an automation barcode label ending in "L8". Only unused LTO-7 cartridges may be initialized as LTO-7 Type M. Once a cartridge is initialized as Type M, it may not be changed back to a 6TB LTO-7 cartridge. Also, an LTO-7 Type M cartridge can only be written and read in an LTO-8 drive; LTO-7 drives are not capable of reading LTO-7 Type M cartridges. LTO-7 Type M media supports existing LTO format features including data compression, encryption and partitioning enabling LTFS. LTO-7 Type M media is not supported on WORM cartridges. LTO-9 drives will not be backward compatible with LTO-7 Type M media.
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

Product Highlights

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 MSL6480Tape 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 analyzesthe results of every tape use to ensure the availability of data placed in long-term storage, archive or DR.

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-8, LTO-7, LTO-6 and LTO-5 Ultrium tape drives include hardware based data encryption to prevent unauthorized access to data at rest.
- LTO-8, LTO-7, LTO-6 and LTO-5 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-8, LTO-7, LTO-6 and LTO-5 Tape Drives.
- **Basic Data Path Failover feature (Supports LTO-6 FC drives):**
    - This feature requires the HPE StoreEver MSL6480 High Availability LTO-6 Data Path Failover License
    - 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..
- **Basic Control Path Failover feature (Supports LTO-6 FC drives)**
    - This feature requires the HPE StoreEver MSL6480 High Availability LTO-6 Control Path Failover License.
    - 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.
- **Driver-based Data Path Failover (supports LTO-6 FC drives)**
    - This feature requires the HPE StoreEver MSL6480 High Availability LTO-6 Data Path Failover License.
    - 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.
- **Driver-based Control Path Failover (supports LTO-6 FCdrives)**

Product Highlights

- This feature requires the HPE StoreEver MSL6480 High Availability LTO-6 Control Path Failover License.
- 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
- .**LTO-7 + driver-based Data and Control Path Failover (supports LTO-8 and LTO-7 drives):**
    - LTO-7+ Path Failover supports Data Path and Control Path failover with LTO-8 and LTO-7 drives, unlocking feature-sets with just one license enabled in the library.
    - Both Drive paths are active; both ports are green and up in the library and the switch.
    - The Driver-Based Failover technology has the failover intelligence in the driver that runs on the server. Drivers on the host perform path and command failover recovery.
    - Requires host driver support, in addition to minimal tape drive and library firmware features, to manage multiple paths across multiple SAN. Presents a single drive or library path to applications and automatically transfers commands to the new path if the original path is lost.
    - The transfer to the failover path is invisible to most applications, avoiding the need for user intervention.
    - The Driver-Based Failover will only present one library path and one drive path to the host for each library or drive that is attached to the host.
    - If an LTO-8 or LTO-7 drive is enabled for Driver-Based Failover, it can still be seen by hosts with a standard driver even though the Driver-Based Failover will not be functional.

Data Encryption

The HPE MSL6480 Tape Library offers multiple options for data encryption, depending on the requirements for policy, regulation, compliance, and centralized key management.

- HPE MSL Encryption Kit
  The HPE MSL Encryption Kit provides a library-enabled encryption solution that greatly enhances data privacy, confidentiality, and integrity of your critical business data while supporting compliance requirements. While there are a wide range of encryption solutions available, the HPE MSL Encryption Kit is intended to be an easy and affordable library-enabled solution for small businesses.
  The encryption kit includes two USB key server tokens, product documentation, and firmware support. One encryption kit is needed per library and it must be physically accessible so that the USB token can be inserted into the automation device. One of the two tokens will plug into the USB port in the library and will generate and maintain encryption keys for the LTO-8, LTO-7, LTO-6 and LTO-5 drives/libraries. The second token will be used as a backup token, and will be used if the first token is lost or damaged The USB key server token uses a hardware random number generator, password authentication, and digital envelopes for strong encryption keys and security operations. The encryption kit provides a self-contained solution for autoloaders and MSL libraries with no additional software, PCs, or servers required or involved.

- Enterprise Secure Key Manager (ESKM) and KMIP
  The HPE MSL6480 Tape Library is compatible with Hewlett Packard Enterprise's Enterprise Secure Key Manager (ESKM) that provides centralized encryption key management for HPE MSL6480 Tape Libraries. The tape libraries are capable of operation using either the ESKM proprietary protocol or the KMIP 1.2 protocol. One library encryption license will be needed based on the protocol of choice (either ESKM or KMIP). For more information on HPE ESKM, visit: **http://www.hpe.com/storage/eskm**

For more information on all supported key management servers, please visit: **http://www.hpe.com/storage/DAPRcompatibility**

Product Highlights

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. By taking the best features from other tape technologies and combining them into a single new technology, Ultrium tape drives are in a league of their own. The LTO Ultrium specification is an industry standard format; thus data written on HPE Ultrium Tape Drives can be interchanged directly with LTO 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 twelve-generation LTO format roadmap.

The LTO standard for backward compatibility up to generation seven is to write back one generation and read back two generations. Eighth-generation LTO Ultrium drives read and write LTO-7 and LTO-8 media.

As part of the LTO open standard, all HPE tape drives and media offer the same standards of compatibility with tape drives and media manufactured by other LTO vendors.

Data Rate Matching   Data Rate Matching combines sophisticated buffer management with variable tape drive motor 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)
HPE LTO-8 Ultrium 30750	101 to 300 MB/s
HPE 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 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

Product Highlights

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 later-generation LTO Ultrium products

Micro Focus Data Protector software

Micro Focus 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 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. Data Protector software fully integrates with the Hewlett Packard Enterprise management solutions, allowing managing data protection as an essential element of an overall IT service.

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:

https://software.microfocus.com/en-us/software/data-protector

HPE Storage Media

Hewlett Packard Enterprise branded Linear Tape Open (LTO) Ultrium cartridges are designed, manufactured and tested to provide outstanding reliability for backing up, archiving and restoring your data. We continuously monitor the quality of our branded tapes using what we believe is the industry's most comprehensive and forensic specification for quality and reliability. Using real life conditions and both Hewlett Packard Enterprise and non-HPE drives, we supplement extensive in-process QA parametric testing with ongoing drive based scrutiny, to make sure performance is excellent for any combination of device, duty cycle and environment.

Because HPE is a leading supplier of both LTO tape devices and media, we have the ability to re-create many different scenarios mirroring how customers use their cartridges. And many of HPE's protocols are either unique in nature or scale, such as the HPE 'Green Tape', and HPE 'Environmental Interchange' tests, or far surpass industry standards, for example, HPE's 'Locate/Rewind/Append' test. Since the beginning of 2016, almost 700 million meters of media have been pulled and over 40 million gigabytes of data have been written in HPE's demanding GTT protocol. All of these ongoing tests are intended to ensure HPE LTO Ultrium media is the most reliable you can find. Your best choice for ease of support and maximum dependability is to use HPE-branded Ultrium cartridges at all times.

Product Highlights

Compatibility   Hewlett Packard Enterprise's extensive compatibility testing program assures that your HPE MSL Tape
Libraries work with leading servers, operating systems, and backup software 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 complete and latest
list of servers, workstations, operating systems, and backup software that support the MSL tape
libraries, reference the HPE Data Agile DAPR Compatibility Matrix (Formerly EBS)
at: **http://www.hpe.com/storage/DAPRcompatibility.**

Service and Support and Warranty Information

Service and Support	**Protect your business beyond warranty with HPE Support Services** HPE PointNext delivers confidence, reduces risk and helps customers realize agility and stability. Our integrated portfolio of Services for storage help customers reduce costs, optimize data, streamline storage management, and improve backup and recovery. HPE Support Services enable you to choose the right service level, length of coverage and response time as you purchase your new storage solution, giving you full entitlement for the support for need for your IT and business.
Connect your devices	Unlock all of the benefits of your technology investment by connecting your products to HP Enterprise. Achieve up to 77%[1] reduction in down time, near 100%[2] diagnostic accuracy and a single consolidated view of your environment. By connecting, you will receive 24x7monitoring, pre-failure alerts, automatic call logging, and automatic parts dispatch. HPE Proactive Care Service and HPE Datacenter Care Service customers will also benefit from proactive activities to help prevent issues and increase optimization. All of these benefits are already available to you with your server storage and networking products, securely connected to HPE support. 1- IDC 2 – HP CSC reports 2014 - 2015

Recommended Services

Optimized Care	**HPE Proactive Care* with 24x7 coverage, three year Support Service + 20 Services credits** HPE Proactive Care gives customers an enhanced call experience plus helps preventing problems and maintains IT stability by utilizing personalized proactive reports with recommendations and advice when your products are connected to HPE. This Service combines three years' proactive reporting and advice with our 24x7 coverage, four hour hardware response time when there is a problem. **https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf**
Standard Care	**HPE Proactive Care* with 24x7 coverage, three year Support Service + 10 Services credits** HPE Proactive Care gives customers an enhanced call experience plus helps preventing problems and maintains IT stability by utilizing personalized proactive reports with recommendations and advice when your products are connected to HPE. This Service combines three years' proactive reporting and advice with our 24x7 coverage, four hour hardware response time when there is a problem. **https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf**
Basic Care	**HPE Foundation Care 24x7, three-year Support Service** HPE Foundation Care 24x7 gives you access to HPE 24 hours a day, seven days a week for assistance on resolving issues. This service includes need based Hardware onsite response within four hours. Simplify your support experience and make HPE your first call to help resolve hardware or software problems. **https://www.hpe.com/h20195/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en**
HPE Support Services Credits	Services Credits offer flexible services and technical skills to meet your changing IT demands. With a menu of service that is tailored to suit your needs, you get additional resources and specialist skills to help you maintain peak performance of your IT. Offered as annual credits, you can plan your budgets while proactively responding to your dynamic business.

NOTE: *HPE Proactive Care and HPE Proactive Care Advanced require that the customer connect their devices to make the most of these services and receive all the deliverables.

Related Services	**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**

Service and Support and Warranty Information

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**

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
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

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

For more information **http://www.hpe.com/services/storage**
HPE Support Service 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.

Related Options

Step 1 - Base Configuration

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

NOTE: This product is TAA (Trade Agreements Act) compliant.
NOTE: The HPE MSL6480 Tape Library Base and Expansion Modules are 6U rack mountable, 80-slot units. They do not contain any tape drives.
NOTE: Up to 6 HH tape drives may be added to the Base Module and each Expansion Module - see below for HPE StoreEver LTO-7, LTO-6 and LTO-5 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)
- Flyer for Veritas Backup Exec software*

*NOTE: Customers can download a fully functional 60-day trial of Backup Exec and receive a 50% discount off Veritas MSRP.

Visit **http://www.backupexec.com/hpe** for full details of the promotion

Factory Racking	Factory integrate MSL6480 Tape Library with other HPE products such as HPE ProLiant Servers	#0D1

NOTE: #0D1 will appear after the Tape Library part number on the sales order if HPE factory integration is indicated

Step 2 - Select Generation & Quantity of LTO Ultrium Tape Drives

HPE StoreEver LTO-8 Ultrium 30750 FC Drive Kit	HPE StoreEver MSL LTO-8 Ultrium 30750 FC Drive Upgrade Kit	Q6Q67A

NOTE: Half height LTO-8 FC tape drive. For use with the MSL2024, 4048, 3040 or 6480 libraries. Drive kit includes a tape drive and documentation
NOTE: #0D1 will appear after Q6Q67A on the sales order if HPE factory integration is indicated
NOTE: This product is TAA (Trade Agreements Act) compliant.

HPE StoreEver LTO-8 Ultrium 30750 SAS Drive Kit	HPE StoreEver MSL LTO-8 Ultrium 30750 SAS Drive Upgrade Kit	Q6Q68A

NOTE: Half height LTO-8 SAS tape drive. For use with the MSL2024, 4048, 3040 or 6480 libraries. Drive kit includes a tape drive and documentation
NOTE: #0D1 will appear after Q6Q68A on the sales order if HPE factory integration is indicated
NOTE: This product is TAA (Trade Agreements Act) compliant.

HPE StoreEver LTO-7 Ultrium 15000 FC Drive Kit	HPE StoreEver MSL LTO-7 Ultrium 15000 FC Drive Upgrade Kit	N7P36A

NOTE: Half height LTO-7 FC tape drive. For use with the MSL2024, 4048, 3040 or 6480 libraries. Drive kit includes a tape drive and documentation
NOTE: #0D1 will appear after N7P36A on the sales order if HPE factory integration is indicated

Related Options

NOTE: This product is TAA (Trade Agreements Act) compliant.

HPE StoreEver LTO-7 Ultrium 15000 SAS Drive Kit	HPE StoreEver MSL LTO-7 Ultrium 15000 SAS Drive Upgrade Kit **NOTE:** Half height LTO-7 SAS tape drive. For use with the MSL2024, 4048, 3040 or 6480 libraries. Drive kit includes a tape drive and documentation **NOTE:** #0D1 will appear after N7P37A on the sales order if HPE factory integration is indicated **NOTE:** This product is TAA (Trade Agreements Act) compliant.	N7P37A
HPE StoreEver LTO-6 Ultrium 6250 FC Drive Kit	HPE StoreEver MSL LTO-6 Ultrium 6250 Fibre Channel Drive Upgrade Kit **Kit Contents** (for each drive): One HPE StoreEver LTO-6 Ultrium 6250 FC Half-Height Tape Drive **NOTE:** Half height LTO-6 FC tape drive. For use with the MSL2024, 4048, 3040 or 6480 libraries. Drive kit includes a tape drive and documentation **NOTE:** #0D1 will appear after C0H28A on the sales order if HPE factory integration is indicated **NOTE:** This product is TAA (Trade Agreements Act) compliant.	C0H28A
HPE StoreEver LTO-6 Ultrium 6250 SAS Drive Kit	HPE 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:** Half height LTO-6 SAS tape drive. For use with the MSL2024, 4048, 3040 or 6480 libraries. Drive kit includes a tape drive and documentation **NOTE:** #0D1 will appear after C0H27A on the sales order if HPE factory integration is indicated **NOTE:** This product is TAA (Trade Agreements Act) compliant.	C0H27A
HPE StoreEver LTO-5 Ultrium 3000 SAS Drive Kit	HPE StoreEver 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:** Half height LTO-5 SAS tape drive. For use with the MSL2024, 4048, 3040 or 6480 libraries. Drive kit includes a tape drive and documentation **NOTE:** #0D1 will appear after BL540B on the sales order if HPE factory integration is indicated **NOTE:** This product is TAA (Trade Agreements Act) compliant.	BL540B

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	HPE 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	HPE StoreEver MSL6480 Command View TL E-LTU **NOTE:** This is an electronically delivered License.	TC444AAE
HPE StoreEver MSL6480 TapeAssure Advanced LTU	1 each	HPE StoreEver MSL6480 TapeAssure Advanced LTU **NOTE:** Advanced analytics feature makes use of predictive analytics to predict the likelihood of failures, bottlenecks and load balancing	TC445A

Related Options

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.

HPE StoreEver MSL6480 TapeAssure Advanced E-LTU	1 each	HPE 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	HPE 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	HPE 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	HPE 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	HPE 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	HPE 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	HPE StoreEver MSL6480 Secure Manager E-LTU **NOTE:** This is an electronically delivered License.	D4T75AAE
HPE StoreEver MSL6480 LTO-7+ Path Failover LTU	1 each	HPE StoreEver MSL6480 LTO-7+ Ultrium Path Failover LTU	P9H33A
HPE StoreEver MSL6480 LTO-7+ Path Failover E-LTU	1 each	HPE StoreEver MSL6480 LTO-7+ Ultrium Path Failover E-LTU	P9H33AAE
HPE StoreEver High Availability MSL6480	1 each	HPE StoreEver MSL6480 LTO-5/6 Control Path Failover LTU **NOTE:** High Availability Failover supports LTO-5 (full-height only) and LTO-6 FC Tape Drives only.	TC359A

Related Options

LTO-5/6 Control Path Failover LTU		**NOTE:** This is a paper license that will be mailed.	
HPE StoreEver High Availability MSL6480 LTO-5/6 Control Path Failover E-LTU	1 each	HPE StoreEver MSL6480 LTO-5/6 Control Path Failover E-LTU **NOTE:** High Availability Failover supports LTO-5 (full-height only) and LTO-6 FC Tape Drives only. **NOTE:** This is an electronically delivered License.	TC359AAE
HPE StoreEver High Availability MSL6480 LTO-5/6 Data Path Failover LTU	1 each	HPE StoreEver MSL6480 LTO-5/6 Data Path Failover LTU **NOTE:** Data Path Failover supports LTO-5 (full-height only) and LTO-6 FC Tape Drives only. **NOTE:** This is a paper license that will be mailed.	TC360A
HPE StoreEver High Availability MSL6480 LTO-5/6 Data Path Failover E-LTU	1 each	HPE StoreEver MSL6480 LTO-5/6 Data Path Failover E-LTU **NOTE:** Data Path Failover supports LTO-5 (full-height only) and LTO-6 FC Tape Drives only. **NOTE:** This is an electronically delivered License.	TC360AAE

Step 4 - Select Additional Accessories

Power Cords	Quantity	Description	Part Number
	2 each	HPE 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	HPE C13 - Nema 5-15P US/CA 110V 10Amp 1.83m Power Cord	AF556A
	2 per module	HPE C13 - CEE-VII EU 250V 10Amp 1.83m Power Cord	AF568A
	2 per module	HPE C13 - BS-1363A UK/HK/SG 250V 10Amp 1.83m Power Cord	AF570A
	2 per module	HPE C13 - DK-2.5A DK 250V 10Amp 1.83m Power Cord	AF566A
	2 per module	HPE C13 - SEV 1011 CH 250V 10Amp 1.83m Power Cord	AF565A
	2 per module	HPE C13 - CEI-23-50 IT/CL 250V 10Amp 1.83m Power Cord	AF571A
	2 per module	HPE C13 - SABS-164 ZA 250V 10Amp 2.5m Power Cord	AF567A
	2 per module	HPE C13 - CNS-690 TW 110V 13Amp 1.83m Power Cord	AF561A
	2 per module	HPE C13 - GB-1002 CN 250V 10Amp 1.83m Power Cord	AF557A
	2 per module	HPE C13 - JIS C8303 JP 100V 12Amp 2.0m Power Cord	AF572A
	2 per module	HPE C13 - AS3112-3 AU 250V 10Amp 2.5m Power Cord	AF569A
	2 per module	HPE C13 - IRAM -2073 AR 250V 10A 2.5m Power Cord	AF558A
	2 per module	HPE C13 - Nema 5-15P TH/PH 250V 10Amp 1.83m Power Cord	AF559A
	2 per module	HPE C13 - KSC- 8305 KR 250V 10Amp 1.83m Power Cord	AF560A
	2 per module	HPE C13 - SI-32 IL 250V 10Amp 1.83m Power Cord	AF564A
	2 per module	HPE C13 - IS-1293 IN 240V 6Amp LV 2.0m Power Cord	AF562A

NOTE: This product can ONLY be used with an HPE approved power cord for 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

Related Options

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.

Factory Racking	Factory integrate the MSL Tape Libraries with other Hewlett Packard Enterprise products such as HPE ProLiant Servers **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.	#0D1
Encryption	HPE StoreEver 1/8 G2 Tape Autoloader and MSL Encryption Kit **NOTE:** The Encryption Kit key server token will generate and retain encryption keys for HPE LTO- 4 and later generation Ultrium tape drives in the library. Works independent of application or backup software; doesn't require ISV support.	AM495A
	HPE 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 quantity) **NOTE:** This is a paper license that will be mailed.	TC469A
	HPE 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 quantity) **NOTE:** This is an electronically delivered license.	TC469AAE
	HPE 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 **NOTE:** This is an electronically delivered license.	D4T76AAE
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 reference the HPE Data Agile DAPR Compatibility Matrix (Formerly EBS) and Design Guide located at: **http://www.hpe.com/go/DAPRcompatibility**. For more information on FC HBAs, see HPE StoreFabric Adapters at: **http://www.hpe.com/storage/san/**	
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 reference the HPE Data Agile DAPR Compatibility Matrix (Formerly EBS) and Design Guide located at: **http://www.hpe.com/go/DAPRcompatibility**. For more information on HPE Smart Array RAID controllers, see Fibre HPE P-class RAID controllers at: **http://www.hpe.com/servers/smartarray/** For more information on HPE ProLiant (SAS) host bus adapters, see H-class HBA controllers at: **http://www.hpe.com/servers/smartarray/**.	
HBAs and SAS Controllers	HPE Smart Array P408e-p SR Gen10 (8 external lanes/4GB cache) **NOTE:** Recommended for ProLiant Gen10 SAS tape automation connect.	804405-B21
	HPE Smart Array E208e-p SR Gen10 (8 external lanes/No cache) **NOTE:** Recommended for ProLiant Gen10 SAS tape automation connect.	804398-B21
	HPE Smart Array P431/2GB FBWC 12Gb 2-ports Ext SAS Controller	698531-B21

Related Options

NOTE: Recommended for ProLiant Gen9 SAS tape automation connect.

HPE H241 12Gb 2-ports Ext Smart Host Bus Adapter   726911-B21
NOTE: Recommended for ProLiant Gen9 SAS tape automation connect.

Optical cables	**OM4 LC-LC type cables**	
	HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable	QK732A
	HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable	QK733A
	HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable	QK734A
	HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable	QK735A
	HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable	QK736A
	HPE 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.

Cable Kits (SAS)	HPE StoreEver 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.

HPE StoreEver 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.

HPE StoreEver 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.

HPE StoreEver Mini-SAS High Density to 4-lane Mini-SAS External Fanout 2m Cable   K2R09A
HPE StoreEver Mini-SAS High Density to 4-lane Mini-SAS External Fanout 4m Cable   K2R10A
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 HPE G2 Enterprise Series, Enterprise Series, G2 Advanced Series, Advanced Series, Standard Series, and other HPE square hole or round hole 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.

Related Options

Media	HPE LTO-8 Ultrium 30TB RW Data Cartridge	Q2078A
	HPE LTO-8 Ultrium 30TB WORM Data Cartridge	Q2078W
	HPE LTO-7 Ultrium 15TB RW Data Cartridge	C7977A
	HPE LTO-7 Ultrium No Case 960 Tape Pallet	C7977AB
	HPE LTO-7 Ultrium RW 960 Tape Pallet	C7977AD
	HPE LTO-7 Ultrium 15TB Eco Case Data Cartridge 20 Pack	C7977AH
	HPE LTO-7 Ultrium 15TB WORM Data Cartridge	C7977W
	HPE LTO-6 Ultrium 6.25TB MP RW Data Cartridge	C7976A
	HPE LTO-6 Ultrium 6.25TB MP WORM Data Cartridge	C7976W
	HPE LTO-6 Ultrium 6.25TB BaFe RW Data Cartridge	C7976B
	HPE LTO-6 Ultrium 6.25TB BaFe WORM Data Cartridge	C7976BW
	HPE LTO-5 Ultrium 3TB RW Data Cartridge	C7975A
	HPE LTO-5 Ultrium 3TB WORM Data Cartridge	C7975W

Bar Code Labels

HPE LTO-8 Ultrium RW Bar Code Label Pack	Q2015A
HPE LTO-7 Ultrium Type M RW Bar Code Label Pack	Q2016A
HPE LTO-7 Ultrium RW Bar Code Label Pack	Q2014A
HPE LTO-6 Ultrium RW Bar Code Label Pack	Q2013A
HPE LTO-5 Ultrium RW Bar Code Label Pack	Q2011A
HPE 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.

HPE LTO-8 Ultrium 30TB RW 20 Data Cartridges Non Custom Labeled with Cases	Q2078AN
HPE LTO-7 Ultrium Type M 22.5TB RW 20 Data Cartridges Non Custom Labeled with Cases	Q2078MN
HPE LTO-7 Ultrium RW No Case Custom Labeled Data Cartridge 20 Pack	C7977AC
HPE LTO-7 Ultrium Non Custom Labeled Data Cartridge 20 Pack	C7977AN
HPE LTO-6 Ultrium 6.25TB MP RW Non Custom Labeled Data Cartridge 20 Pack	C7976AN
HPE LTO-6 Ultrium 6.25TB BaFe RW Non Custom Labeled Data Cartridges 20 Pack	C7976BN
HPE 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.

HPE LTO-8 Ultrium 30TB RW 20 Data Cartridges Custom Labeled with Cases	Q2078AL
HPE LTO-8 Ultrium 30TB WORM 20 Data Cartridges Custom Labeled with Cases	Q2078WL
HPE LTO-8 Ultrium 30TB RW 20 Data Cartridges Custom Labeled Library Pack without Cases	Q2078AC
HPE LTO-7 Ultrium Type M 22.5TB RW 20 Data Cartridges Custom Labeled with Cases	Q2078ML
HPE LTO-7 Ultrium Type M 22.5TB RW 20 Data Cartridges Custom Labeled Library Pack without Cases	Q2078MC
HPE LTO-7 Ultrium 15 TB RW RFID Custom Labeled Data Cartridge (20 pack)	7977AF
HPE LTO-7 Ultrium RW Custom Labeled Data Cartridge 20 Pack	C7977AL
HPE LTO-7 Ultrium WORM Custom Labeled Data Cartridge 20 Pack	C7977WL

Related Options

HPE LTO-6 Ultrium 6.25TB MP RW Custom Labeled Data Cartridge 20 Pack	C7976AL
HPE LTO-6 Ultrium 6.25TB MP RW Custom Labeled Data Cartridge No Case 20 Pack	C7976AC
HPE LTO-6 Ultrium 6.25TB MP RFID RW Custom Labeled Data Cartridge 20 Pack	C7976AF
HPE LTO-5 RW Custom Labeled Data Cartridge 20 Pack	C7975AL
HPE LTO-5 RW Custom Labeled No Case Data Cartridge 20 Pack	C7975AC
HPE 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**

HPE Support Service Options	**Same Day Response**	
	HPE 1Y Foundation Care SBD MSL6480 Base Library	U3DG0PE
	HPE 1Y Foundation Care 24x7 MSL6480 Base Library	U3CS6PE
	HPE 1Y Foundation Care CTR MSL6480 Base Library	U3CT4PE
	HPE 3Y Foundation Care SBD MSL6480 Base Library	U3DF7E
	HPE 3Y Foundation Care 24x7 MSL6480 Base Library	U3CS3E
	HPE 3Y Foundation Care CTR MSL6480 Base Library	U3CT1E
	HPE 4Y Foundation Care 24x7 MSL6480 Base Library	U3CS4E
	HPE 4Y Foundation Care CTR MSL6480 Base Library	U3CT2E
	HPE 5Y Foundation Care 24x7 MSL6480 Base Library U3CS5E	UF844E
	HPE 5Y Foundation Care CTR MSL6480 Base Library U3CT3E	UF845E
	Next Business Day Response	
	HPE 3Y Foundation Care NBD MSL6480 Base Library	U3CR5E
	Hardware Services	
	HPE StoreEver MSL6480 Base Startup Service	U8E80E

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-8 Ultrium 30750 LTO-7 Ultrium 15000 LTO-6 Ultrium 6250 LTO-5 Ultrium 3000
Maximum Number of Drives **- Per Module** **- Per fully expanded Library**		6 HH (per Module) 42 HH (per Library)
Number of Slots **- Per Module** **- Per fully expanded Library**		80 (per Module) 560 (per Library)
Drive Interface		8 Gb Native Fibre Channel 6 Gb/sec SAS
Maximum Capacity	**Native** **- Per Module** **- Per Library**	960 TB (LTO-8, 80 slots) 480 TB (LTO-7, 80 slots) 200 TB (LTO-6, 80 slots) 120 TB (LTO-5, 80 slots) 6.72PB (LTO-8, 560 slots) 3.36 PB (LTO-7, 560 slots) 1.4 PB (LTO-6, 560 slots) 840 TB (LTO-5, 560 slots)
	Compressed (2.5:1) **- Per Module** **- Per Library**	2.4 PB (LTO-8, 80 slots) 1.2 PB (LTO-7, 80 slots) 500 TB (LTO-6, 80 slots) 16.8 PB (LTO-8, 560 slots) 8.4 PB (LTO-7, 560 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**	6.48 TB/hour (with 6 LTO-8 drives) 6.48 TB/hour (with 6 LTO-7 drives) 3.46 TB/hour (with 6 LTO-6 drives) 3 TB/hour (with 6 LTO-5 drives) 45.4 TB/hr (with 42 LTO-8 drives)45.4 TB/hr (with 42 LTO-7 drives) 24.2 TB/hr (with 42 LTO-6 drives) 21.2 TB/hr (with 42 LTO-5 drives)
	Compressed (2.5:1) **- 6 HH drives Per Module** **- 42 HH drives Per Library**	Up to 20.64 TB/hr (with 6 LTO-8 drives) Up to 20.64 TB/hr (with 6 LTO-7 drives) 8.6 TB/hr (qty 6 Ultrium 6250 drives) Up to 144.9 TB/hr (with 42 LTO-8 drives) Up to 144.9 TB/hr (with 42 LTO-7 drives) 60.4 TB/hr (qty 42 Ultrium 6250 drives)

Technical Specifications

	LTO-5 Compressed (2:1) **-6 HH drives Per Module** **- 42HH drives Per Library**	6.0 TB/hr (qty 6 Ultrium 3000drives) 42 TB/hr (qty 42 Ultrium 3000 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)
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 Mbits/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	10% 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
04-Jun-2018	From Version 20 to 21	Changed	Notes for the HPE StoreEver MSL6480 Scalable Expansion Module were revised.
05-Mar-2018	From Version 19 to 20	Changed	Product Highlights and Related Options were revised.
05-Feb-2018	From Version 18 to 19	Changed	Overview, Product Highlights, Related Options, and Technical Specifications were revised.
04-Dec-2017	From Version 17 to 18	Changed	LTO-8 updates.
04-Sept-2017	From Version 16 to 17	Changed	Changes made throughout all the document.
07-Aug-2017	From Version 15 to 16	Changed	Changes made to the Product Highlights Section.
13-Jan-2017	From Version 14 to 15	Changed	Changes to the HPE StoreEver Archive Manager section.
18-Nov-2016	From Version 13 to 14	Changed	Added the HPE StoreEver Archive Manager in the Product Highlights section.
15-Aug-2016	From Version 12 to 13	Changed	Changes made to the Configuration Section.
01-Jul-2016	From Version 11 to 12	Changed	Cosmetic changes.
31-Mar-2016	From Version 10 to 11	Changed	HPE rebranding, LTO-7 capacity updates, part no corrections.
15-Jan-2016	From Version 9 to 10	Changed	Updated content and edited. LTO-7 Support added.
01-Dec-2015	From Version 8 to 9	Changed	Changes made throughout all the document.
24-Apr-2015	From Version 7 to 8	Changed	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." 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."
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	Changes made to the chart in the Overview section. Changes made throughout the Configuration Information.
30-sept-2013	From Version 1 to 2	Changed	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. Increase library uptime by providing library LUN control failover and drive port to port failover Tape Library. Changes made in the Product Highlights section. Changes made in the Configuration Information. Changes made in the Related Options section and in the Technical Specifications.

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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