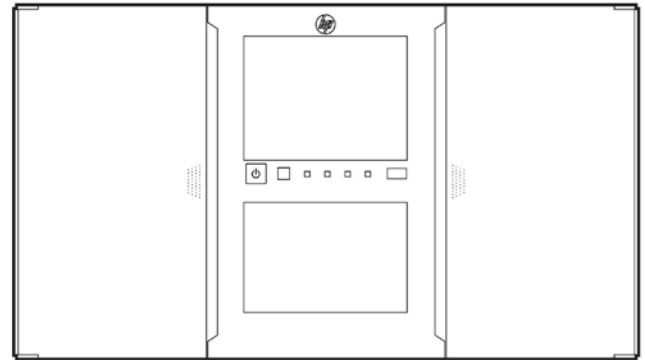
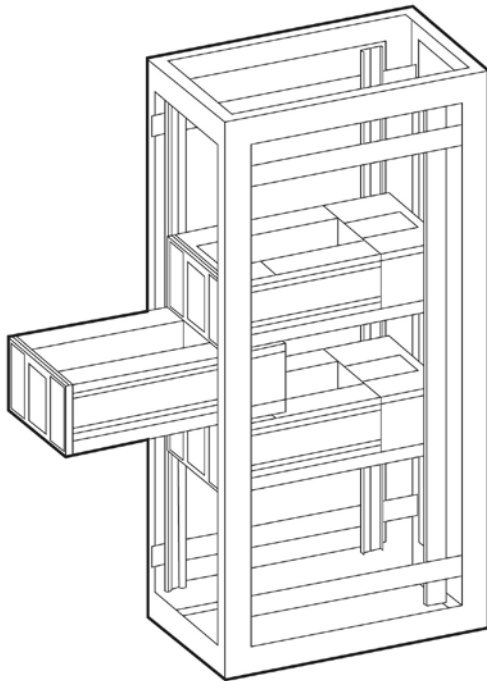


### Overview

#### 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

- HPE StoreEver MSL6480 LTO-7 Path Failover licenses are now available.
- New renamed HPE StoreEver MSL6480 LTO-5/6 Path Failover licenses are now available.
- LTO-7 Ultrium 15000 FC and SAS tape drives and tape media are now available

## 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
- Performance scaling from 1 to 42 LTO HH Tape Drives and transfer rates of 300 MB/s per LTO-7 Tape Drive.
- Industry leading storage density to save rack space, floor space, power, cooling and management costs - 13 cartridge slots (81 TB) per 1U of rack space
- Best in class flexibility with up to 20 logical library partitions
- Customer installable, scalable and serviceable with a color touch control panel and wizards for installation and configuration
- Intelligent, proactive and predictive reporting with HPE StoreEver TapeAssure Advanced
- Manage multiple HPE Tape Libraries from a single pane of glass with HPE StoreEver CommandView Tape Library software
- Using the HPE Encryption Kit get the simplest, lowest cost encryption and key management solution available - no additional software required
- 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.

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

## 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 8.4 PB\* in a single 19-inch rack. Several drive options are available

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

Scaling up with the MSL6480 couldn't be easier:

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

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

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### 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>

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### 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 aggregates multiple HPE tape libraries for centralized management. It is also the nerve center for TapeAssure data collection and analysis, Data Verification and management for the MSL tape libraries.

Command View TL monitors backup logs, checks drive status, receives trouble alerts, diagnoses 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

HPE StoreEver Command View for Tape Libraries Software is a free download for MSL2024 & MSL4048 Tape Libraries. Download available from:

[http://h20566.www2.hp.com/hpsc/swd/public/detail?sp4ts.oid=5410282&swItemId=MTX\\_f57d0dac16054eabbc8d2804eb&swEnvOid=54#tab1](http://h20566.www2.hp.com/hpsc/swd/public/detail?sp4ts.oid=5410282&swItemId=MTX_f57d0dac16054eabbc8d2804eb&swEnvOid=54#tab1)

### TapeAssure Advanced

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

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

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

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

### Data Verification

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

- Periodically scan infrequently accessed LTO tapes to verify health of tape cartridges as well as the data stored on those tapes.
- Improve reliability and reduce the risk of restore failure

## Product Highlights

- Flexible policy based scan to verify data is healthy and accessible.
- Scanning without interrupting host applications.
- Protect all tape cartridges, active and vaulted archived media, with the same license.
- Receive proactive notification for needed media migration.
- Fully integrated with Command View Tape Library

### Business Benefits:

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

### 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 195 TBs per 1U of rack space) using LTO-7 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.

### Proven Reliability

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

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

### Longevity

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

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

### 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-7, LTO-6 and LTO-5 Ultrium tape drives include hardware based data encryption to prevent unauthorized access to data at rest.
- 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-7, LTO-6 and LTO-5 Tape Drives.

- **Basic Data Path Failover feature (Supports LTO-5 and LTO-6 drives):**
  - This feature requires the HPE StoreEver MSL6480 High Availability LTO-5/LTO-6 Data Path Failover License
  - Both ports of the drive are physically connected but only one is active.

## Product Highlights

- 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-5 and LTO-6 drives)**
  - This feature requires the HPE StoreEver MSL6480 High Availability LTO-5/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 drives)**
  - This feature requires the HPE StoreEver MSL6480 High Availability LTO-5/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 drives)**
  - This feature requires the HPE StoreEver MSL6480 High Availability LTO-5/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-7 drives):**
  - LTO-7 Path Failover supports Data Path and Control Path failover, 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-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.

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## 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.

## Product Highlights

Protect the confidentiality and integrity of your data:

The HPE 1/8 G2 & 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 1/8 G2 & 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 or autoloader 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 autoloader or library and will generate and maintain encryption keys for the LTO-7, LTO-6 and LTO-5 drives/libraries. 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.

Protect critical data across an enterprise:

The HPE MSL6480 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, browse <http://www.hpe.com/storage/eskm>

For more information on all supported key management servers, please visit:

<http://www.hpe.com/storage/DAPRcompatibility>

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<b>Secure Manager License</b>	<p>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.</p> <ul style="list-style-type: none"><li>• Easily configure device-level SAN access settings</li><li>• Allow only authorized servers to access tape drives and critical data</li><li>• Manage access control from a single pane of glass, through the library itself</li><li>• Paths to robotics can be separated between two independent SANs for isolation purposes</li></ul> <p>Secure Manager allows you to:</p> <ul style="list-style-type: none"><li>• create host access groups</li><li>• add and modify host information</li><li>• Map device access to specific hosts</li><li>• allows a disable feature when switch zoning is desired</li></ul>
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<b>LTO Ultrium Technology</b>	<p>HPE LTO (Linear Tape Open) Ultrium Tape Drives use best of breed technology.. Inclusion of innovative features such as HPE Adaptive Tape Speed (ATS) ensure that HPE Ultrium drives can meet the performance and reliability demands of a library environment. LTO technology is an open industry standard format; thus data written on HPE Ultrium Tape Drives can be interchanged directly with Ultrium Tape Drives from other vendors.</p>
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<b>Investment protection</b>	<p>HPE LTO tape drives and automation products are founded on the LTO open standard and adhere to the published LTO format roadmap which publishes the roadmap out to generation 8 at 32TB of compressed capacity per cartridge. With in-built two generation backwards compatibility, LTO customers can be assured of investment protection.</p>
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<b>Data Rate Matching</b>	<p>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</p>
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## Product Highlights

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

HP LTO-7 Ultrium 15000  
 HPE LTO-6 Ultrium 6250  
 HPE LTO-5 Ultrium 3000  
 HPE LTO-4 Ultrium 1760

### ATS data transfer rate range (native)

101 to 300 MB/s  
 54 to 160 MB/s  
 47 to 140 MB/s  
 33 to 80 MB/s

## HPE Ultrium WORM

Critical to the success of data retention policies in highly regulated environments is the ability to store and manage data in an unalterable state. Following stringent guidelines set forth by regulatory agencies such as the SEC and HIPPA, IT organizations must now integrate new solutions and policies that can verify the integrity of stored data for periods that can extend well beyond seven years. Every generation of LTO Ultrium since LTO-3 ( ) tape drives feature the ability to archive and store data in a read-only, non-rewriteable format that meets the most stringent regulatory guidelines. Using a combination of integrated fail-safe features in the drive firmware, cartridge memory, and tape formatting, LTO Ultrium provides the ability to archive large amounts of data for periods of up to 30 years in a secure, untampered state. Ultrium tape drives include support for both rewritable and WORM media providing for a secure, long-term archiving solution into any data protection strategy. LTO Ultrium WORM provides the following advantages:

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

## HPE Data Protector software

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

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

For further information, please visit our web page at: <http://www.hpe.com/storage/dataprotector>



## Product Highlights

### HPE StoreOpen Automation

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

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

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

<http://www.hpe.com/storage/StoreOpen>

**NOTE:** Technical support is not available with this FREE software download. Software is run at your own risk.

### HPE Storage Media

Hewlett Packard Enterprise recommends HPE-branded cartridges in the MSL Tape Libraries to assure the highest level of protection. The test program for HPE media is the most thorough and comprehensive in the industry.

All HPE cartridges must satisfy an exhaustive battery of additional tests that relate directly to real life situations, where real data and real businesses are at stake. The benefit of the Hewlett Packard Enterprise brand specification for media is consistent quality. Through the testing of thousands of HPE drives and HPE cartridges, the ideal formulation for backup performance is defined and then continuously monitored. This hugely resource-intensive process is unique to Hewlett Packard Enterprise and affords deep insight into the HPE backup solution for a wide range of environments and duty cycles. Your best choice for ease of support and maximum dependability is to use HPE-branded Ultrium cartridges at all times. Correctly labeling your media will allow the library to quickly determine media and drive compatibility

### Compatibility

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

<b>Service and Support</b>	<p><b>Protect your business beyond warranty with HPE Support Services</b></p> <p>HPE Technology Services 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.</p>
<b>Connect your devices</b>	<p>Unlock all of the benefits of your technology investment by connecting your products to HP Enterprise. Achieve up to 77%<sup>1</sup> reduction in down time, near 100%<sup>2</sup> diagnostic accuracy and a single consolidated view of your environment. By connecting, you will receive 24x7 monitoring, 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.</p> <p>1- IDC 2 – HP CSC reports 2014 - 2015</p>
<b>Recommended Services</b>	
<b>Optimized Care</b>	<p><b>HPE Proactive Care* with 24x7 coverage, three year Support Service + 20 Services credits</b></p> <p>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.</p> <p><a href="https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf">https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf</a></p>
<b>Standard Care</b>	<p><b>HPE Proactive Care* with 24x7 coverage, three year Support Service + 10 Services credits</b></p> <p>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.</p> <p><a href="https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf">https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf</a></p>
<b>Basic Care</b>	<p><b>HPE Foundation Care 24x7, three-year Support Service</b></p> <p>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.</p> <p><a href="https://www.hpe.com/h20195/V2/GetDocument.aspx?docname=4AA4-8876ENW&amp;cc=us&amp;lc=en">https://www.hpe.com/h20195/V2/GetDocument.aspx?docname=4AA4-8876ENW&amp;cc=us&amp;lc=en</a></p>
<b>HPE Support Services Credits</b>	<p>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.</p>

**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.

<b>Related Services</b>	<p><b>HPE Backup Recovery Efficiency Analysis</b> - 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.</p> <p><a href="http://h20195.www2.hpe.com/v2/GetPDF.aspx/4AA3-8490ENW.pdf">http://h20195.www2.hpe.com/v2/GetPDF.aspx/4AA3-8490ENW.pdf</a></p>
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## 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>

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### 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.

## Configuration Information

### Step 1 - Base Configuration

HPE StoreEver MSL6480 Model description	Part Number
HPE StoreEver MSL6480 Scalable Base Module	QU625A
HPE StoreEver MSL6480 Scaleable Expansion Module	QU626A
<p><b>NOTE:</b> This product is TAA (Trade Agreements Act) compliant.</p> <p><b>NOTE:</b> The HPE MSL6480 Tape Library Base and Expansion Modules are 6U rack mountable, 80-slot units. They do not contain any tape drives.</p> <p>Up to 6 HH tape drives or 3 FH tape drives may be added to the Base Module and each Expansion Module - see below for HPE StoreEver LTO-7, LTO-6, LTO-5 and LTO-4 Tape Drive ordering information.</p> <p><b>Kit Contents</b> (for each library):</p> <ul style="list-style-type: none"> <li>• Two 2.5M PDU Power Cord, C13/C14, 10A</li> <li>• Rack-mount hardware</li> <li>• Getting started poster</li> <li>• Redundant Power Supplies</li> <li>• Module interconnect cable (expansion module only)</li> </ul>	
<p>Factory integrate MSL6480 Tape Library with other HPE products such as HPE ProLiant Servers</p> <p><b>NOTE:</b> #0D1 will appear after the Tape Library part number on the sales order if HPE factory integration is indicated</p>	#0D1

### Factory Racking

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

<p><b>HPE StoreEver LTO-7 Ultrium 15000 FC Drive Kit</b></p>	<p>HPE StoreEver MSL LTO-7 Ultrium 15000 FC Drive Upgrade Kit</p> <p><b>NOTE:</b> Half height LTO-7 FC tape drive. For use with the MSL2024, 4048, or 6480 libraries. Drive kit includes a tape drive and documentation</p> <p><b>NOTE:</b> #0D1 will appear after N7P36A on the sales order if HPE factory integration is indicated</p> <p><b>NOTE:</b> This product is TAA (Trade Agreements Act) compliant.</p>	N7P36A
<p><b>HPE StoreEver LTO-7 Ultrium 15000 SAS Drive Kit</b></p>	<p>HPE StoreEver MSL LTO-7 Ultrium 15000 SAS Drive Upgrade Kit</p> <p><b>NOTE:</b> Half height LTO-7 SAS tape drive. For use with the MSL2024, 4048, or 6480 libraries. Drive kit includes a tape drive and documentation</p> <p><b>NOTE:</b> #0D1 will appear after N7P37A on the sales order if HPE factory integration is indicated</p> <p><b>NOTE:</b> This product is TAA (Trade Agreements Act) compliant.</p>	N7P37A
<p><b>HPE StoreEver LTO-6 Ultrium 6250 FC Drive Kit</b></p>	<p>HPE StoreEver MSL LTO-6 Ultrium 6250 Fibre Channel Drive Upgrade Kit</p> <p><b>Kit Contents</b> (for each drive): One HPE StoreEver LTO-6 Ultrium 6250 FC Half-Height Tape Drive</p> <p><b>NOTE:</b> Each HPE MSL6480 Tape Library Module is able to hold up to six tape drives - to a maximum of 42 drives in a fully expanded Library.</p> <p><b>NOTE:</b> #0D1 will appear after C0H28A on the sales order if HPE factory integration is indicated</p> <p><b>NOTE:</b> This product is TAA (Trade Agreements Act) compliant.</p>	C0H28A
<p><b>HPE StoreEver LTO-6 Ultrium 6250 SAS Drive Kit</b></p>	<p>HPE StoreEver MSL LTO-6 Ultrium 6250 SAS Drive Upgrade Kit</p> <p><b>Kit Contents</b> (for each drive): One HPE StoreEver LTO-6 Ultrium 6250 SAS Half-Height Tape Drive</p> <p><b>NOTE:</b> Each HPE MSL6480 Tape Library Module is able to hold up to six tape drives - to a maximum of 42 drives in a fully expanded Library.</p>	C0H27A

## Configuration Information

**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.

<b>HPE StoreEver LTO-5 Ultrium 3280 FC Drive Kit</b>	<p>HPE StoreEver MSL LTO-5 Ultrium 3280 Fibre Channel Drive Upgrade Kit</p> <p><b>Kit Contents</b> (for each drive): One HPE StoreEver LTO-5 Ultrium 3280 Fibre Channel Full-Height Tape Drive</p> <p><b>NOTE:</b> Each HPE MSL6480 Tape Library Module is able to hold up to three Full-Height tape drives - to a maximum of 21 drives in a fully expanded Library</p> <p><b>NOTE:</b> #0D1 will appear after BL535B on the sales order if HPE factory integration is indicated</p> <p><b>NOTE:</b> This product is TAA (Trade Agreements Act) compliant.</p>	BL535B
<b>HPE StoreEver LTO-5 Ultrium 3000 FC Drive Kit</b>	<p>HPE StoreEver MSL LTO-5 Ultrium 3000 Fibre Channel Drive Upgrade Kit</p> <p><b>Kit Contents</b> (for each drive): One HPE StoreEver LTO-5 Ultrium 3000 FC Half-Height Tape Drive</p> <p><b>NOTE:</b> Each HPE MSL6480 Tape Library Module is able to hold up to six tape drives - to a maximum of 42 drives in a fully expanded Library</p> <p><b>NOTE:</b> #0D1 will appear after BL544B on the sales order if HPE factory integration is indicated</p> <p><b>NOTE:</b> This product is TAA (Trade Agreements Act) compliant.</p>	BL544B
<b>HPE StoreEver LTO-5 Ultrium 3000 SAS Drive Kit</b>	<p>HPE StoreEver MSL LTO-5 Ultrium 3000 SAS Drive Upgrade Kit</p> <p><b>Kit Contents</b> (for each drive): One HPE StoreEver LTO-5 Ultrium 3000 SAS Half-Height Tape Drive</p> <p><b>NOTE:</b> Each HPE MSL6480 Tape Library Module is able to hold up to six tape drives - to a maximum of 42 drives in a fully expanded Library.</p> <p><b>NOTE:</b> #0D1 will appear after BL540B on the sales order if HPE factory integration is indicated</p> <p><b>NOTE:</b> This product is TAA (Trade Agreements Act) compliant.</p>	BL540B

## Step 3 - Select Software Licenses

Select each option as required with quantities specified:

Software Licenses	Quantity	Description	Part Number
<b>HPE StoreEver MSL6480 Command View TL LTU</b>	1 each	HPE StoreEver MSL6480 Command View TL LTU <b>NOTE:</b> This is a paper license that will be mailed	TC444A
<b>HPE StoreEver MSL6480 Command View TL E-LTU</b>	1 each	HPE StoreEver MSL6480 Command View TL E-LTU <b>NOTE:</b> This is an electronically delivered License	TC444AAE
<b>HPE StoreEver MSL6480 TapeAssure Advanced LTU</b>	1 each	HPE StoreEver MSL6480 TapeAssure Advanced LTU <b>NOTE:</b> 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. <b>NOTE:</b> One license needed per library and Command View TL must be installed. <b>NOTE:</b> This is a paper license that will be mailed.	TC445A
<b>HPE StoreEver MSL6480 TapeAssure Advanced E-LTU</b>	1 each	HPE StoreEver MSL6480 TapeAssure Advanced E-LTU <b>NOTE:</b> One license needed per library and Command View TL must be installed.	TC445AAE

## Configuration Information

<b>HPE StoreEver MSL6480 ESKM Encryption LTU</b>	1 each	<p><b>NOTE:</b> This is an electronically delivered License</p> <p>HPE StoreEver MSL6480 ESKM Encryption LTU</p> <p><b>NOTE:</b> The ESKM Encryption License will enable encryption keys to be received from the HPE ESKM for strong data encryption and key management. One per library is required (regardless of Expansion Module qty)</p> <p><b>NOTE:</b> This is a paper license that will be mailed.</p>	TC469A
<b>HPE StoreEver MSL6480 ESKM Encryption E-LTU</b>	1 each	<p>HPE StoreEver MSL6480 ESKM Encryption E-LTU</p> <p><b>NOTE:</b> The ESKM Encryption License will enable encryption keys to be received from the HPE ESKM. One per library is required (regardless of Expansion Module qty)</p> <p><b>NOTE:</b> This is an electronically delivered License</p>	TC469AAE
<b>HPE StoreEver MSL6480 KMIP 1.2 Key Manager LTU</b>	1 each	<p>HPE StoreEver MSL6480 KMIP 1.2 Key Manager LTU</p> <p><b>NOTE:</b> This is a paper license that will be mailed.</p>	D4T76A
<b>HPE StoreEver MSL6480 KMIP 1.2 Key Manager E-LTU</b>	1 each	<p>HPE StoreEver MSL6480 KMIP 1.2 Key Manager E-LTU</p> <p><b>NOTE:</b> This is an electronically delivered License</p>	D4T76AAE
<b>HPE StoreEver MSL6480 Secure Manager LTU</b>	1 each	<p>HPE StoreEver MSL6480 Secure Manager LTU</p> <p><b>NOTE:</b> This is a paper license that will be mailed.</p>	D4T75A
<b>HPE StoreEver MSL6480 Secure Manager E-LTU</b>	1 each	<p>HPE StoreEver MSL6480 Secure Manager E-LTU</p> <p><b>NOTE:</b> This is an electronically delivered License</p>	D4T75AAE
<b>HPE StoreEver MSL6480 LTO-7 Path Failover LTU</b>	1 each	HPE StoreEver MSL6480 LTO-7 Ultrium Path Failover LTU	P9H33A
<b>HPE StoreEver MSL6480 LTO-7 Path Failover E-LTU</b>	1 each	HPE StoreEver MSL6480 LTO-7 Ultrium Path Failover E-LTU	P9H33AAE
<b>HPE StoreEver High Availability MSL6480 LTO-5/6 Control Path Failover LTU</b>	1 each	<p>HPE StoreEver MSL6480 LTO-5/6 Control Path Failover LTU</p> <p><b>NOTE:</b> High Availability Failover supports LTO-5 (full-height only) and LTO-6 Tape Drives only..<b>NOTE:</b> This is a paper license that will be mailed.</p>	TC359A
<b>HPE StoreEver High Availability MSL6480 LTO-5/6 Control Path Failover E-LTU</b>	1 each	<p>HPE StoreEver MSL6480 LTO-5/6 Control Path Failover E-LTU</p> <p><b>NOTE:</b> High Availability Failover supports LTO-5 (full-height only) and LTO-6 Tape Drives only..<b>NOTE:</b> This is an electronically delivered License</p>	TC359AAE
<b>HPE StoreEver High Availability MSL6480 LTO-5/6 Data Path Failover LTU</b>	1 each	<p>HPE StoreEver MSL6480 LTO-5/6 Data Path Failover LTU</p> <p><b>NOTE:</b> Data Path Failover supports LTO-5 (full-height only) and LTO-6 Tape Drives only.</p> <p><b>NOTE:</b> This is a paper license that will be mailed.</p>	TC360A
<b>HPE StoreEver High Availability MSL6480 LTO-5/6 Data Path Failover E-LTU</b>	1 each	<p>HPE StoreEver MSL6480 LTO-5/6 Data Path Failover E-LTU</p> <p><b>NOTE:</b> Data Path Failover supports LTO-5 (full-height only) and LTO-6 Tape Drives only.</p> <p><b>NOTE:</b> This is an electronically delivered License</p>	TC360AAE

## Step 4 - Select Additional Accessories

## Configuration Information

Power Cords	Quantity	Description	Part Number
	2 each	HP C13 - C14 WW 250V 10Amp 2.5m Jumper Cord <b>NOTE:</b> 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
	<b>Quantity to order</b>	Regional Power Cord Options <b>NOTE:</b> 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
		<b>NOTE:</b> 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 overheating with potential personal injury and/or property damage; and 3) an unapproved power cord could fracture resulting in the internal contacts being exposed, which potentially could subject the user to a shock hazard. Hewlett Packard Enterprise disclaims all liability in the event a non-HPE approved power cord is used.	

## Related Options

<b>Factory Racking</b>	<p>Factory integrate the MSL Tape Libraries with other Hewlett Packard Enterprise products such as HPE ProLiant Servers</p> <p><b>NOTE:</b> #0D1 will appear after the Tape Library part number on the sales order if HPE factory integration is indicated. One Base Module and up to 6 Expansion Modules can be factory integrated up to 42U in a single rack.</p>	#0D1
<b>Encryption</b>	<p>HPE StoreEver 1/8 G2 Tape Autoloader and MSL Tape Library LTO-4 Encryption Kit</p> <p><b>NOTE:</b> The Encryption Kit key server token will generate and retain encryption keys for HPE LTO-7, LTO-6, LTO-5 or LTO- 4 Ultrium tape drives in the library. Works independent of application or backup software; doesn't require ISV support.</p> <p>HPE StoreEver MSL6480 ESKM Encryption LTU</p> <p><b>NOTE:</b> 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)</p> <p><b>NOTE:</b> This is a paper license that will be mailed.</p> <p>HPE StoreEver MSL6480 ESKM Encryption E-LTU</p> <p><b>NOTE:</b> 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)</p> <p><b>NOTE:</b> This is an electronically delivered License</p> <p>HPE StoreEver MSL6480 KMIP 1.2 Key Manager LTU</p> <p><b>NOTE:</b> This is a paper license that will be mailed.</p> <p>HPE StoreEver MSL6480 KMIP 1.2 Key Manager E-LTU</p> <p><b>NOTE:</b> This is an electronically delivered License</p>	<p>AM495A</p> <p>TC469A</p> <p>TC469AAE</p> <p>D4T76A</p> <p>D4T76AAE</p>
<b>FC Host Bus Adapters</b>	<p>The MSL Libraries are certified with a number of Fibre Channel Host Bus Adapters. For the most current list of supported FC HBAs, please reference the HPE Data Agile DAPR Compatibility Matrix (Formerly EBS) and Design Guide located at: <a href="http://www.hpe.com/go/DAPRcompatibility">http://www.hpe.com/go/DAPRcompatibility</a>. For more information on FC HBAs, see Fibre Channel Host Bus Adapters at: <a href="http://h18006.www1.hpe.com/storage/saninfrastructure/hba.html">http://h18006.www1.hpe.com/storage/saninfrastructure/hba.html</a>.</p>	
<b>SAS Host Bus Adapters</b>	<p>The MSL Libraries are certified with a number of SAS Host Bus Adapters and ProLiant Smart Array Controllers. For the most current list of supported devices, please reference the HPE Data Agile DAPR Compatibility Matrix (Formerly EBS) and Design Guide located at: <a href="http://www.hpe.com/go/DAPRcompatibility">http://www.hpe.com/go/DAPRcompatibility</a>. For more information on HPE Smart Array RAID controllers, see Fibre HPE Smart Array RAID controllers at: <a href="http://h18004.www1.hpe.com/products/servers/proliantstorage/arraycontrollers/index.html">http://h18004.www1.hpe.com/products/servers/proliantstorage/arraycontrollers/index.html</a>. For more information on HPE ProLiant (SAS) host bus adapters, see: <a href="http://h18004.www1.hpe.com/products/servers/proliantstorage/adapters/index.html">http://h18004.www1.hpe.com/products/servers/proliantstorage/adapters/index.html</a>.</p>	
<b>HBAs and SAS Controllers</b>	<p>HP H221 PCIe 3.0 SAS Host Bus Adapter</p> <p><b>NOTE:</b> Recommended for ProLiant Gen8 SAS tape automation connect</p> <p>HP H222 Host Bus Adapter</p> <p><b>NOTE:</b> Recommended for ProLiant Gen8 SAS tape automation connect</p>	<p><b>HBA/ Controller Product Number</b></p> <p>729552-B21</p> <p>650926-B21</p>



## Related Options

HP H241 12Gb 2-ports Ext Smart Host Bus Adapter	726911-B21
<b>NOTE:</b> Recommended for ProLiant Gen9 SAS tape automation connect	
HP Smart Array P222/512 FBWC 6Gb 1-port Int/1-port Ext SAS Controller	631667-B21
<b>NOTE:</b> for ProLiant Gen8 SAS tape automation connect	
HP Smart Array P421/1GB FBWC 6Gb 2-ports Ext SAS Controller	631673-B21
<b>NOTE:</b> for ProLiant Gen8 SAS tape automation connect	
HP Smart Array P421/2GB FBWC 6Gb 2-ports Ext SAS Controller	631674-B21
<b>NOTE:</b> for ProLiant Gen8 SAS tape automation connect	
HP Smart Array P721m/512 FBWC 6Gb 4-ports Ext Mezzanine SAS Controller	655636-B21
<b>NOTE:</b> Recommended for Gen8 C series blade enclosure tape automation connect.	
HP Smart Array P721m/2GB FBWC 6Gb 4-ports Ext Mezzanine SAS Controller	650072-B21
<b>NOTE:</b> Recommended for Gen8 C series blade enclosure tape automation connect	
HP Smart Array P411/256 2-ports Ext PCIe x8 SAS Controller	462830-B21
<b>NOTE:</b> Recommended for ProLiant G6/G7 SAS tape automation connect.	
HP Smart Array P711m/1G 6Gb FBWC 4-ports Ext Mezzanine SAS Controller	513778-B21
<b>NOTE:</b> Recommended for C-series blade enclosure tape automation connect.	
HP Smart Array P712m/256 6Gb 2-ports Int/2-ports Ext Mezzanine SAS Controller	488348-B21
<b>NOTE:</b> Recommended for C-series blade enclosure tape automation connect.	
HPE Smart Array P700m/256 4-ports Ext PCIe x8 SAS Controller	507925-B21
HPE Smart Array P700m/512 4-ports Ext PCIe x8 SAS Controller	508226-B21

## Optical cables

### OM4 LC-LC type cables

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

Allowed cable lengths:

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

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

## Cable Kits (SAS)

HPE StoreEver 2m External Mini-SAS to 4x1 Mini-SAS Cable	AN975A
<b>NOTE:</b> 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
<b>NOTE:</b> 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.	

## Related Options

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 a variety of HPE Rack offerings, including the HPE Intelligent Series Racks and the HPE 10000 G2 Series Racks.

**NOTE:** If ordering the #0D1 Factory Integration option, the MSL6480 Tape Libraries are certified to ship with one base module and up to 6 expansion modules (up to 42U) installed in the HPE Intelligent Series rack.

## Media

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

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

HPE LTO-7 Ultrium RW Bar Code Label Pack Q2014A

HP LTO-6 Ultrium RW Bar Code Label Pack Q2013A

HP LTO-5 Ultrium RW Bar Code Label Pack Q2011A

HP LTO-5 Ultrium WORM Bar Code Label Pack Q2012A

### Non-Custom Labeled Data Cartridges

**NOTE:** Non-Custom labels will come pre-labeled with a pre-determined number sequence.

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

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.

HPE LTO-7 Ultrium 15 TB RW RFID Custom Labeled Data Cartridge (20 pack) 7977AF

## Related Options

HPE LTO-7 Ultrium RW Custom Labeled Data Cartridge 20 Pack	C7977AL
HPE LTO-7 Ultrium WORM Custom Labeled Data Cartridge 20 Pack	C7977WL
HP LTO-6 Ultrium 6.25TB MP RW Custom Labeled Data Cartridge 20 Pack	C7976AL
HP LTO-6 Ultrium 6.25TB MP RW Custom Labeled Data Cartridge No Case 20 Pack	C7976AC
HP LTO-6 Ultrium 6.25TB MP RFID RW Custom Labeled Data Cartridge 20 Pack	C7976AF
HP LTO-5 RW Custom Labeled Data Cartridge 20 Pack	C7975AL
HP LTO-5 RW Custom Labeled No Case Data Cartridge 20 Pack	C7975AC
HP LTO-5 WORM Custom Labeled Cartridge 20 Pack	C7975WL

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

## HPE Support Service 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

HPE Install Storage MSL 5060/6060 Tape Service	U4824E
HPE 1 MSL10U Library Installation and Startup Service	UA872E

**NOTE:** In order to maximize ROI and product uptime, and minimize the cost of ownership, Hewlett-Packard Enterprise recommends the 3-year, 24 x 7 service options. These offerings will ensure that any product issue can be tackled when they occur (most back up issues will occur outside standard business hours) and that the service coverage regarding period, covers the minimum expected life of the host system

## Technical Specifications

		<b>MSL6480</b>
<b>Drive Technology</b>		LTO-7 Ultrium 15000 LTO-6 Ultrium 6250 LTO-5 Ultrium 3000/3280 LTO-4 Ultrium 1760
<b>Maximum Number of Drives</b> - Per Module - Per fully expanded Library		6 HH or 3 FH (per Module) 42 HH or 21 FH (per Library)
<b>Number of Slots</b> - Per Module - Per fully expanded Library		80 (per Module) 560 (per Library)
<b>Drive Interface</b>		8 Gb Native Fibre Channel (LTO-7, LTO-6, LTO-5) 6 Gb/sec SAS (LTO-7, LTO-6, LTO-5) 8 Gb Native Fibre Channel (LTO-4) 6 Gb/sec SAS (LTO-4)
<b>Maximum Capacity</b>	<b>Native</b> - Per Module - Per Library	480 TB (LTO-7, 80 slots) 200 TB (LTO-6, 80 slots) 120 TB (LTO-5, 80 slots) 3.36 PB (LTO-7, 560 slots) 1.4 PB (LTO-6, 560 slots) 840 TB (LTO-5, 560 slots)
	<b>Compressed (2.5:1)</b> - Per Module - Per Library	1.2 PB (LTO-7, 80 slots) 500 TB (LTO-6, 80 slots) 3.5 PB (LTO-6 560 slots)
	<b>Compressed (2:1)</b> - Per Module - Per Library	240 TB (LTO-5, 80 slots) 1.68 PB (LTO-5, 560 slots)
<b>Maximum Transfer Rate</b>	<b>Native</b> - Per Module - Per Library	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 TB/hr (with 42 LTO-7 drives) 24 TB/hr (with 42 LTO-6 drives) 21 TB/hr (with 42 LTO-5 drives)
	<b>LTO-7 Compressed (2.5:1)</b> - 6 HH drives Per Module - 42 HH drives Per Library	Upto 20.64 TB/hr (with 6 LTO-7 drives) Upto 144.9 TB/hr (with 42 LTO-7 drives)
	<b>LTO-6 Compressed (2.5:1)</b> - 6 HH drives Per Module - 42 HH drives Per Library	8.6 TB/hr (qty 6 Ultrium 6250 drives) 60.4 TB/hr (qty 42 Ultrium 6250 drives)
	<b>LTO-5 Compressed (2:1)</b> - 6 HH drives Per Module - 42 HH drives Per Library 3 FH drives per Module 21 FH drives per library	6.0 TB/hr (qty 6 Ultrium 3000drives) 42 TB/hr (qty 42 Ultrium 3000 drives) 3.0 TB/hr (qty 3 Ultrium 3280 drives) 21TB/hr (qty 21 Ultrium 3280 drives)
		<b>MSL6480</b>

## Technical Specifications

<b>Dimensions</b>	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)
<b>Weight</b>	Out of box	90.4 lbs (43.6 kg)
	Shipping	120.1 lbs (54.5 kg)
	<b>NOTE:</b> 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.	
<b>Reliability</b>	MTBF (mean time between failures)	100,000 hours (based on 1M MSBF)
	MSBF (Mean swaps before failure)	2,000,000
<b>Average Cartridge Swap Time (drive to slot, slot to drive)</b>		40 seconds (Base Unit)
<b>Initialization Time</b>		77 to 204 seconds
<b>Inventory Time</b>		1:10 minutes (minimum) to 1:26minutes (maximum) Base unit
<b>Connectors</b>	Mini-SAS (MSL SAS model only) LC Optical Fibre (MSL FC models only) (1)RJ-45 Ethernet	
<b>Color Control Panel information (on front panel)</b>	Color, 5.7 inch diagonal, resistive touchscreen, full VGA , 4/3 aspect ratio	
<b>Management Interface</b>	10/100/1000 Mbits/second, auto-configuring interface. RJ-45 connection. Https configurable.	
<b>Power</b>	200 Watts (max)	
<b>Input Requirements</b>	100-120V, 200-240 VAC, 3.5 to 1.5 Amperes , 50 to 60 Hz	
<b>Relative Humidity (non-condensing)</b>	Operating	20% to 80%
	Shipping	20% to 90%
<b>Temperature Range (wet bulb)</b>	Operating	50° to 95° F (10° to 35° C)
	Shipping	-22° to 140° F (-30° to 60° C)
	<b>NOTE:</b> Library operating temperature limits are based on the industry standard tape limit.	
<b>Altitude</b>	Operating	13,000 ft (4000 m)
	Shipping	35,000 ft (10,675 m)

## Summary of Changes

Date	Version History	Action	Description of Change
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 <b>HPE StoreEver Archive Manager section</b>
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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