

### Overview

#### HPE StoreEver MSL3040 Tape Library

The highly scalable HPE StoreEver MSL3040 Tape Library provides small to mid-sized organizations with flexibility for long-term data protection and retention of data storage assets. With its modular design and ability to upgrade and reuse HPE MSL LTO upgrade drive kits, you can cost-effectively store up to 12.6 PB compressed with LTO-9 media. The HPE StoreEver MSL3040 Tape Library offers exceptional enterprise features and functionality as standard providing advanced security features and reliability. It delivers a tape storage solution that addresses backup challenges, long-term data management challenges as well as last line of defence protection against the threat of ransomware.



#### HPE StoreEver MSL3040 Tape Library

Industry leading scalability - from 40-slot Base Library Module to 280 slots in a 21U Rack with 6 Expansion Modules

#### What's New

- MSL3040 base module now supports Half-Height LTO-9 Ultrium 45000 MSL Drive Upgrade Kits
- LTO-9 Ultrium 45000 MSL SAS Drive Upgrade Kits available with a 12 Gb/s interface
- LTO-9 WORM Media is now supported with LTO-9 Ultrium 45000 MSL Drive Upgrade Kits

## Standard Features

### Key Features

- **High scalability** - Pay as you grow with the fast, non-disruptive addition of Expansion Modules for expansion of tape slots.
  - Start with 40-slot 3U form-factor Base Library Module, and add up to 6 Expansion Library Modules for a total of 280 slots in a 21U rack form factor
  - 12.6PB of total maximum capacity with 280 slots and LTO-9 drives
  - Performance scaling from 1 to 21 LTO HH Tape Drives and transfer rates of up to 300 MB/s per LTO-9 Tape Drive native.
- **Cost Effective tape solution**
  - Existing customers of MSL 1/8 Autoloaders, MSL2024 and MSL6480 Tape Libraries can repurpose their existing LTO-9, LTO-8, LTO-7 and LTO-6 drives in the new MSL3040 to leverage their investment
  - Industry leading storage density to save rack space, floor space, power, cooling and management costs –13 cartridge slots (585 TB) per 1U of rack space
  - Great flexibility with up to 21 logical library partitions
  - Customer installable, scalable and serviceable
- **Enterprise-class manageability and reliability**
  - Manage multiple HPE Tape Libraries from any location with HPE StoreEver Command View Tape Libraries (CVTL) software. Download for free at:
  - <http://www.hpe.com/storage/cvtldownload> Intelligent, proactive and predictive reporting with HPE StoreEver TapeAssure Advanced, a licensed feature of CVTL.
  - HPE Data Verification proactively scans and verifies that data that is stored on tapes is always retrievable if needed. This is also a licensed feature of CVTL.
- **Advanced security features**
  - Using the HPE Encryption Kit get the simplest, lowest cost encryption and key management solution available - no additional software required
  - HPE Secure Manager License provides an additional level of security that lets you control access to the tape library by authorizing specific servers
  - Achieve higher levels of availability with data path failover and control path failover.

MSL3040	
<b>Drive Technology Supported</b>	LTO-9 Ultrium 45000 LTO-8 Ultrium 30750 LTO-7 Ultrium 15000 LTO-6 Ultrium 6250
<b>Maximum Number of Drives</b>	21 HH
<b>Maximum Capacity (2.5:1 compression)</b>	1.8 PB (LTO-9, 40 slots) 12.6 PB (LTO-9, 280 slots)
<b>Maximum Data Transfer (Native)</b>	22.5 TB/hr (21 LTO-9 drives)
<b>Drive Interface</b>	8 Gb/sec Fibre Channel 12 Gb/sec SAS (LTO-9) 6 Gb/sec SAS (LTO-8 and earlier)
<b>Mail Slots</b>	5 slots per module



## Standard Features

### High Scalability

Keep pace with data growth across the lifecycle with the MSL3040's 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 modular design of the MSL3040 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 40 to 280 cartridge slots to store up to 12.6PB\* in a single 19-inch rack. Several drive options are available

- Add between 1 and 21 HPE StoreEver LTO-9 Ultrium 45000, LTO-8 Ultrium 30750, LTO-7 Ultrium 15000, LTO-6 Ultrium 6250 FC or SAS tape drives
- Scaling up with the MSL3040 couldn't be easier:
- Start with an empty Base Library
- Add a redundant power supply if required\*\*
- Add between 1 and 3 LTO-9, LTO-8, LTO-7 or LTO-6 half-height tape drives and utilize up to 40 cartridge slots - a fully configured base unit with LTO-8 provides a max capacity of up to 1.8PB (assuming 2.5:1 compression)
- Then add between 1 and 6 empty expansion modules to the Base Library - each 3U expansion module might require a power supply if further drives are to be installed in the expansion. Redundant power supply needs to be added if required\*\*.
- Expansion modules can be flexibly installed above or below the base library module
- You can then configure each expansion module with up to 3x LTO-9, LTO-8, LTO-7, or LTO-6 FC or SAS tape drives and utilize up to 40 cartridge slots per expansion module

#### Notes:

- \*Assumes fully loaded with LTO-9 media cartridges at a 2.5:1 data compression ratio
- \*\*Extra power supplies need to be factory integrated in order to be TAA compliant

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### Cost Effective Tape Solution

Existing customers of MSL 1/8 Autoloaders, MSL2024, and MSL6480 Tape Libraries can repurpose LTO-8, LTO-7 and LTO-6 drives in the MSL3040 to leverage their investment.

- Expansion modules are customer-installable; easy to configure and remove.
- Integrated bar code reader included.

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>

Save rack space, floor space, and power and cooling costs with industry leading storage density. The MSL3040 offers 13 cartridge slots per 1U of rack space providing up to 585 TBs per 1U of rack space using LTO-9 drives.

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### Partitioning

The MSL3040 Tape Library supports up to 21 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.

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## Standard Features

### Management Console

The HPE StoreEver MSL3040 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 and IPv4 network protocol support

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### HPE Command View for Tape Libraries

HPE Command View for Tape Libraries (CVTL) provides an easy to use interface for efficiently managing, monitoring and configuring an entire tape library environment from any remote location. HPE StoreEver TapeAssure Advanced is a licensed feature of CVTL that provides predictive analytics on health, performance and utilization related monitoring of all tape drives and cartridges. HPE StoreEver Data Verification Software is also a licensed feature of CVTL which proactively validates and scans, non-disruptively, the quality of data stored on LTO tape cartridges, which ensures a successful restore is possible when critical business data is needed. As of CVTL v6.1, a new capacity planning feature has been added to CVTL which allows users to view consumption metrics which enables accurate and timely future investments

HPE StoreEver TapeAssure Advanced and Data Verification Software can also be trialed for free once the CVTL Software has been installed. Simply download CVTL from

<http://www.hpe.com/storage/cvtldownload> and get a 60 day instant-on period to experience TapeAssure Advanced features, and trial Data Verification for the MSL3040 & MSL6480 Tape Libraries with a 10 cartridge slot license.

For more information about HPE Command View for Tape Libraries, please visit:

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

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### HPE Library and Tape Tools

The MSL3040 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:

For more information on L&TT, please visit: <http://www.hpe.com/support/tapetools>.



## Standard Features

### Linear Tape File System (LTFS)

LTFS makes tape self-describing, file-based, and easy-to-use, it also provides users with the ability to use standard file operations on tape media for accessing, managing and sharing files with an interface that behaves just like a hard disk. In addition, LTFS provides the ability to share data across platforms, as you would with a USB drive or memory stick. Simply load a tape into the drive, mount it into the file system, and it becomes visible as a disk.

For more information, including user guide, downloads and compatibility, visit: <http://www.hpe.com/storage/lfts>

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### HPE StoreOpen Software

HPE StoreOpen Software is a free software application that helps LTFS users to use and manage single tape drives, autoloaders and tape libraries

Available for Windows environments for automation products, it provides a native GUI with a familiar look and feel. It is installed automatically as part of the LTFS package and it completely removes the need for low-level terminal commands by guiding users through the full process of select, prepare and mount an LTFS cartridge.

For more information, including user guide, downloads and compatibility, visit: <http://www.hpe.com/storage/StoreOpen>

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### Safeguarding data for Disaster Recovery

The HPE StoreEver MSL3040 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-9, LTO-8, LTO-7 and LTO-6 Ultrium tape drives include hardware based data encryption to prevent unauthorized access to data at rest.
- LTO-9, LTO-8, LTO-7 and LTO-6 cartridges are available with write-once-read-many (WORM) capability to prevent accidental overwriting of data archived on the tape.

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

**Notes:** LTO-9 WORM media is now supported on HPE Ultrium LTO-9 Drives with the latest firmware.

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### Data Encryption

The HPE MSL3040 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, which must be physically accessible so that the USB token can be inserted into the automation device. The second token will be used as a backup token, in case the first one is lost or damaged. The USB key server token will plug into the USB port in the library and will generate and maintain encryption keys for the LTO-4 and later generation drives. 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.
- KMIP
- The HPE MSL3040 is capable of operation using the KMIP 1.2 protocol. One library encryption license will be needed based on the KMIP protocol.

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

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## Standard Features

### Secure Manager License

HPE MSL3040 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

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### 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 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 generations of LTO Ultrium products

**Notes:** [LTO-9 WORM media is now supported on HPE Ultrium LTO-9 Drives with the latest firmware.](#)

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### High Availability

To make the most of your library performance, the MSL3040 offers high availability failover capability utilizing LTO-9, LTO-8, LTO-7 and LTO-6 Tape Drives.

- **Driver-based Data Path Failover (supports LTO-6 drives)**
  - This feature requires the HPE StoreEver MSL3040 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.



## Standard Features

- **Driver-based Control Path Failover (supports LTO-6 drives)**
  - This feature requires the HPE StoreEver MSL3040 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-7 and later FC 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-9, 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.

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## 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 Hewlett Packard Enterprise 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, Hewlett Packard Enterprise '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.

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## LTO-7 Type M media

The MSL3040 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.



## Standard Features

### 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 available for increased system reliability and uptime.

### 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-9 Ultrium 45000	101 to 300 MB/s
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

### 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, if stored at the "Archival Life Recommended Storage" conditions. HPE TapeAssure Advanced also analyses the results of every tape use to ensure the availability of data placed in long-term storage, archive or DR.

### 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.

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. Ninth-generation LTO Ultrium drives read and write LTO-8 and LTO-9 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.





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## Standard Features

### LTO-9 Media Initialization

Media initialization has been implemented in LTO-9 technology to optimize data placement on each LTO-9 cartridge. The initialization enables the tape drive to intelligently align data to a specific tape cartridge. Each new LTO-9 cartridge requires a one-time initialization prior to starting read/write operations. This initialization is only required for the first use of a new LTO-9 cartridge. Subsequent loads do not require additional initialization. The initialization process varies in time depending on the environmental conditions of tape and drive. Most initializations will complete within an hour; however, in some cases it can take up to 2 hours.

To help customers complete this one-time initialization of new LTO-9 media in tape libraries, the MSL3040 provides an “LTO-9 New Media Initialization Wizard” feature which will guide the user through an automated process to load uninitialized media into LTO-9 tape drives to facilitate the completion of the LTO-9 media initialization process. For more information please reference the MSL3040 User Guide.

**Notes:** LTO-9 WORM media is now supported on HPE Ultrium LTO-9 Drives with the latest firmware.

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### 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/StoreEverSupportMatrix>.**

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## Service and Support

### HPE Pointnext – Service and Support

**Get the most from your HPE Products.** Get the expertise you need at every step of your IT journey with **HPE Pointnext Services**. We help you lower your risks and overall costs using automation and methodologies that have been tested and refined by HPE experts through thousands of deployments globally. HPE Pointnext **Advisory Services** focus on your business outcomes and goals, partnering with you to design your transformation and build a roadmap tuned to your unique challenges. Our **Professional** and **Operational Services** can be leveraged to speed up time-to-production, boost performance and accelerate your business. HPE Pointnext specializes in flawless and on-time implementation, on-budget execution, and creative configurations that get the most out of software and hardware alike.

### Consume IT on your terms

**HPE GreenLake** brings the cloud experience directly to your apps and data wherever they are—the edge, colocations, or your data center. It delivers cloud services for on-premises IT infrastructure specifically tailored to your most demanding workloads. With a pay-per-use, scalable, point-and-click self-service experience that is managed for you, HPE GreenLake accelerates digital transformation in a distributed, edge-to-cloud world..

- Get Faster time to market
- Save on TCO, align costs to business
- Scale quickly, meet unpredictable demand
- Simplify IT operations across your data centers and clouds

### Managed services to run your IT operations

**HPE GreenLake Management Services** provides services that monitor, operate, and optimize your infrastructure and applications, delivered consistently and globally to give you unified control and let you focus on innovation.

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### Free up resources with Operational Services from HPE Pointnext Services

HPE delivers services for IT by using proven best practices as well as automation and methodologies that have been tested and refined by HPE experts and artificial intelligence through thousands of deployments globally. Choose from the recommended services for customers purchasing from Hewlett Packard Enterprise or an authorized reseller. Services are quoted using Hewlett Packard Enterprise order configuration tools.

### HPE Pointnext Tech Care.

HPE Pointnext Tech Care is the new operational service experience for HPE products. Tech Care goes beyond traditional support by providing access to product specific experts, an AI driven digital experience, and general technical guidance to not only reduce risk but constantly search for ways to do things better. HPE Pointnext Tech Care has been reimagined from the ground up to support a customer-centric, AI driven, and digitally enabled customer experience to move your business forward. HPE Pointnext Tech Care is available in three response levels. Basic, which provides 9x5 business hour availability and a 2 hour response time. Essential which provides a 15 minute response time 24x7 for most enterprise level customers, and Critical which includes a 6 hour repair commitment where available and outage management response for severity 1 incidents.

For more information: <https://www.hpe.com/services/techcare>

### HPE Pointnext Complete Care

HPE Pointnext Complete Care is a modular, edge-to-cloud IT environment service that provides a holistic approach to optimizing your entire IT environment and achieving agreed upon IT outcomes and business goals through a personalized and customer-centric experience. All delivered by an assigned team of HPE Pointnext Services experts. HPE Pointnext Complete Care provides:

- A complete coverage approach – edge to cloud
- An assigned HPE team
- Modular and fully personalized engagement
- Enhanced Incident Management experience with priority access
- Digitally enabled and AI Driven customer experience

For more information: <https://www.hpe.com/services/complecare>

For more information: <https://www.hpe.com/us/en/services/datacenter-hybrid-services.html>



## Service and Support

Other related services from HPE Pointnext Services

### Parts and Materials

HPE will provide HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product QuickSpecs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

#### Defective Media Retention

An option available with HPE Complete Care and HPE Pointnext Tech Care and applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.

#### HPE Installation Service

Provides for the basic hardware installation of HPE branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.

<https://h20195.www2.hpe.com/v2/Getdocument.aspx?docname=5981-9356enw>

#### HPE StoreEver MSL Tape Library and Autoloader Installation and Startup Service

Provides for the installation of HPE StoreEver MSL Tape Libraries and Autoloaders, including library subcomponents, into SAN environments.

For more information: <https://psnow.ext.hpe.com/doc/4AA6-2765ENW>

#### HPE Service Credits

Offers flexible services and technical skills to meet your IT demands as your business evolves. With a menu of services, you can access additional resources and specialist skills to help you maintain peak performance of your IT. HPE Service Credits help you proactively respond to your dynamic IT and business needs.

#### HPE Education Services

Provides comprehensive training designed to expand the skills of your IT staff and keep them up to speed with the latest technologies.

Consult your HPE Sales Representative or Authorized Channel Partner of choice for any additional questions and support options.

#### AI Powered and Digitally Enabled Support Experience

Achieve faster time to resolution with access to product-specific resources and expertise through a brand-new digital and data driven customer experience.

Sign into the customer engagement platform, featuring modern self-serve case creation and management capabilities with inline knowledge recommendations. You will find powerful troubleshooting support through a new intelligent virtual agent with seamless transition when needed to a live support agent.

For more information: <https://support.hpe.com/hpsc/public/home/signin>

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## Service and Support

### HPE Support Center

The HPE Support Center is a personalized online support portal with access to information, tools and experts to support HPE business products. Submit support cases online, chat with HPE experts, access support resources or collaborate with peers. The HPE Support Center Mobile App\* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime.

HPE Insight Remote Support and HPE Support Center are available at no additional cost with a HPE warranty, HPE Support Service or HPE contractual support agreement.

**Notes:** \*HPE Support Center Mobile App is subject to local availability.

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

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### For more information

- <http://www.hpe.com/services>
- <https://www.hpe.com/us/en/services/operational.html>

To learn more on HPE Storage Services, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Contact information for a representative in your area can be found at “Contact HPE” For more information: <https://www.hpe.com/us/en/contact-hpe.html>

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

- Services for customers purchasing from HPE or an enterprise reseller are quoted using HPE order configuration tools.

Customers purchasing from a commercial reseller can find HPE Support Services at <https://ssc.hpe.com/portal/site/ssc/>

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### Connect your devices\*

**Notes:** \*Only include if the product can be connected

Unlock all of the benefits of your technology investment by connecting your products to Hewlett Packard Enterprise. Reduce down time, increase diagnostic accuracy and have 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 Tech Care Service and HPE Complete 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.

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## Configuration Information

### Step 1 - Base Configuration

#### HPE StoreEver MSL3040

##### Base Module description

HPE StoreEver MSL3040 Scalable Library Base Module

**SKU**

Q6Q62B

##### Notes:

- This product is TAA (Trade Agreements Act) compliant.
- The base module is 3U rack mountable.
- Base module enables 40 slots
- Standard power supply is included with the base module. Redundant power supply is not included as standard, if required it needs to be added to the order. This needs to be factory integrated, #0D1, in order to be TAA compliant
- It does not contain any tape drives, up to 3 HH tape drives may be added to the base module
- MSL3040 rack-rail extends between approximately 683 and 900mm (between 68.3 and 90 cm).

##### Kit Contents

- 2.5M PDU Power Cord, C13/C14, 10A
- Rack-mount hardware
- Getting started poster
- Power Supply

HPE StoreEver MSL3040 Scalable Library Expansion Module

Q6Q63A

##### Notes:

- Expansion module activates 40 slots.
- This product is TAA (Trade Agreements Act) compliant.
- The expansion module is 3U rack mountable.
- It does not contain any tape drives, up to 3 HH tape drives may be added to the expansion module. If drives are added to the expansion module then a power supply is required. Standard or redundant power supplies are not included. If needed, these will have to be added to the order. If TAA compliance is required, power supplies need to be factory integrated, #0D1.

##### Kit Contents

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

HPE StoreEver MSL3040 Upgrade Power Supply Kit

Q6Q64A

##### Notes:

- Redundant power supply is not included as standard with the base module, if required it needs to be added to the order. This needs to be factory integrated, #0D1, in order to be TAA compliant
- In EMEA, for the redundant power supply kit (Q6Q64A) to be integrated into the library base module (Q6Q62B), the library must be factory integrated (#0D1) into a rack.
- If the library, Q6Q62B (HPE MSL3040 Scalable Base Module) is racked (0D1), then the Power Supply kit, Q6Q64A (HPE MSL3040 Upgrade Power Supply Kit), or drives can be integrated (0D1) into the library.
- For the expansion module, neither the standard power supply nor the redundant are included. A power supply is only needed if tape drives need to be installed in the expansion module. If TAA compliance is required, power supplies need to be factory integrated, #0D1.
- In EMEA, for the power supply or redundant power supply kits (Q6Q64A) to be integrated into the expansion modules (Q6Q63A), the expansion module must be factory integrated (#0D1) into a rack. If the Expansion Module (Q6Q63A) is racked (0D1), then the Power Supply kit, Q6Q64A (HPE MSL3040 Upgrade Power Supply Kit), or drives can be integrated (0D1) into the Expansion Module



## Configuration Information

### Factory Racking

Factory integrate MSL3040 Tape Library with other HPE products such as HPE ProLiant Servers

#0D1

**Notes:** #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

### Description

SKU

#### HPE StoreEver MSL LTO-9 Ultrium 45000 FC Drive Upgrade Kit

HPE StoreEver MSL LTO-9 Ultrium 45000 Fibre Channel Drive Upgrade Kit

R6Q74A

#### Notes:

- Half height LTO-9 FC tape drive. For use with the MSL 1/8 Autoloader, MSL2024, MSL3040 or MSL6480 libraries. Drive kit includes a tape drive and documentation.
- #0D1 will appear after R6Q74A on the sales order if HPE factory integration is indicated.
- For tape drives to be integrated into the library, the library must be factory integrated (#0D1) into a rack
- This product is TAA (Trade Agreements Act) compliant.

#### HPE StoreEver MSL LTO-9 Ultrium 45000 SAS Drive Upgrade Kit

HPE StoreEver MSL LTO-9 Ultrium 45000 SAS Drive Upgrade Kit

R6Q75A

#### Notes:

- Half height LTO-9 SAS tape drive. For use with the MSL 1/8 Autoloader, MSL2024, MSL3040 or MSL6480 libraries. Drive kit includes a tape drive and documentation.
- #0D1 will appear after R6Q75A on the sales order if HPE factory integration is indicated.
- For tape drives to be integrated into the library, the library must be factory integrated (#0D1) into a rack
- This product is TAA (Trade Agreements Act) compliant

#### HPE StoreEver LTO-8 Ultrium 30750 FC Drive Kit

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

Q6Q67A

#### Notes:

- 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.
- #0D1 will appear after Q6Q67A on the sales order if HPE factory integration is indicated.
- For tape drives to be integrated into the library, the library must be factory integrated (#0D1) into a rack
- 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

#### Notes:

- 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.
- #0D1 will appear after Q6Q68A on the sales order if HPE factory integration is indicated.
- For tape drives to be integrated into the library, the library must be factory integrated (#0D1) into a rack
- This product is TAA (Trade Agreements Act) compliant



## Configuration Information

Description	SKU
<b>HPE StoreEver LTO-7 Ultrium 15000 FC Drive Kit</b> HPE StoreEver MSL LTO-7 Ultrium 15000 FC Drive Upgrade Kit	N7P36A
<b>Notes:</b> <ul style="list-style-type: none"> <li>– 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.</li> <li>– #OD1 will appear after N7P36A on the sales order if HPE factory integration is indicated.</li> <li>– For tape drives to be integrated into the library, the library must be factory integrated (#OD1) into a rack</li> <li>– This product is TAA (Trade Agreements Act) compliant.</li> </ul>	
<b>HPE StoreEver LTO-7 Ultrium 15000 SAS Drive Kit</b> HPE StoreEver MSL LTO-7 Ultrium 15000 SAS Drive Upgrade Kit	N7P37A
<b>Notes:</b> <ul style="list-style-type: none"> <li>– 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.</li> <li>– #OD1 will appear after N7P37A on the sales order if HPE factory integration is indicated.</li> <li>– For tape drives to be integrated into the library, the library must be factory integrated (#OD1) into a rack</li> <li>– This product is TAA (Trade Agreements Act) compliant.</li> </ul>	
<b>HPE StoreEver LTO-6 Ultrium 6250 FC Drive Kit</b> HPE StoreEver MSL LTO-6 Ultrium 6250 Fibre Channel Drive Upgrade Kit	COH28A
<b>Notes:</b> <ul style="list-style-type: none"> <li>– 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.</li> <li>– #OD1 will appear after COH28A on the sales order if HPE factory integration is indicated.</li> <li>– For tape drives to be integrated into the library, the library must be factory integrated (#OD1) into a rack</li> <li>– This product is TAA (Trade Agreements Act) compliant</li> </ul>	
<b>HPE StoreEver LTO-6 Ultrium 6250 SAS Drive Kit</b> HPE StoreEver MSL LTO-6 Ultrium 6250 SAS Drive Upgrade Kit	COH27A
<b>Notes:</b> <ul style="list-style-type: none"> <li>– 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.</li> <li>– #OD1 will appear after COH27A on the sales order if HPE factory integration is indicated.</li> <li>– For tape drives to be integrated into the library, the library must be factory integrated (#OD1) into a rack</li> <li>– This product is TAA (Trade Agreements Act) compliant.</li> </ul>	

### Step 3 - Select Software Licenses

Select each option as required with quantities specified.

Quantity	Description	SKU
	<b>HPE StoreEver MSL TapeAssure Advanced LTU</b>	
1 each	HPE StoreEver MSL Command View for Tape Libraries - TapeAssure Advanced LTU	TC406A
<b>Notes:</b> <ul style="list-style-type: none"> <li>– 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.</li> <li>– One license needed per library and Command View TL must be installed.</li> <li>– This is a paper license that will be mailed.</li> </ul>		



## Configuration Information

Quantity	Description	SKU
	<b>HPE StoreEver MSL TapeAssure Advanced E-LTU</b>	
1 each	HPE StoreEver MSL Command View for Tape Libraries - TapeAssure Advanced E-LTU	TC406AAE
	<b>Notes:</b>	
	<ul style="list-style-type: none"> <li>– One license needed per library and Command View TL must be installed.</li> <li>– This is an electronically delivered License.</li> </ul>	
	<b>HPE StoreEver MSL6480 CVTL Data Verification Software LTU</b>	
1 each	HPE StoreEver MSL3040 Command View for Tape Libraries - Data Verification 100 Cartridges E-LTU	Q8K43AAE
	<b>Notes:</b>	
	<ul style="list-style-type: none"> <li>– One license needed per library and Command View TL must be installed.</li> <li>– This is an electronically delivered License.</li> </ul>	
	<b>HPE StoreEver MSL3040 KMIP Key Manager LTU</b>	
1 each	HPE StoreEver MSL3040 KMIP Key Manager LTU	Q8K98A
	<b>Notes:</b> This is a paper license that will be mailed.	
	<b>HPE StoreEver MSL3040 KMIP Key Manager E-LTU</b>	
1 each	HPE StoreEver MSL3040 KMIP Key Manager E-LTU	Q8K98AAE
	<b>Notes:</b> This is an electronically delivered License.	
	<b>HPE StoreEver MSL3040 Secure Manager LTU</b>	
1 each	HPE StoreEver MSL3040 Secure Manager LTU	Q8K99A
	<b>Notes:</b> This is a paper license that will be mailed.	
	<b>HPE StoreEver MSL3040 Secure Manager E-LTU</b>	
1 each	HPE StoreEver MSL3040 Secure Manager E-LTU	Q8K99AAE
	<b>Notes:</b> This is an electronically delivered License.	
	<b>HPE StoreEver MSL3040 LTO-7+ Path Failover LTU</b>	
1 each	HPE StoreEver MSL3040 LTO-7+ Path Failover LTU	Q8L00A
	<b>Notes:</b> This is an electronically delivered License.	
	<b>HPE StoreEver MSL3040 LTO-7+ Path Failover E-LTU</b>	
1 each	HPE StoreEver MSL3040 LTO-7+ Path Failover E-LTU	Q8L00AAE
	<b>Notes:</b> This is an electronically delivered License.	
	<b>HPE StoreEver High Availability MSL3040 LTO-6 Control Path Failover LTU</b>	
1 each	HPE StoreEver MSL3040 High Availability LTO-6 Control Path Failover LTU	Q8K96A
	<b>Notes:</b> This is an electronically delivered License.	
	<b>HPE StoreEver High Availability MSL3040 LTO-6 Control Path Failover E-LTU</b>	
1 each	HPE StoreEver MSL3040 High Availability LTO-6 Control Path Failover E-LTU	Q8K96AAE
	<b>Notes:</b> This is an electronically delivered License.	
	<b>HPE StoreEver High Availability MSL3040 LTO-6 Data Path Failover LTU</b>	
1 each	HPE StoreEver MSL3040 High Availability LTO-6 Data Path Failover LTU	Q8K97A
	<b>Notes:</b> This is an electronically delivered License.	
	<b>HPE StoreEver High Availability MSL3040 LTO-6 Data Path Failover E-LTU</b>	
1 each	HPE StoreEver MSL3040 High Availability LTO-6 Data Path Failover E-LTU	Q8K97AAE
	<b>Notes:</b> This is an electronically delivered License.	



## Configuration Information

### Step 4 - Select Additional Accessories

#### Power Cords

Quantity	Description	
1 each	HPE C13 - C14 WW 250V 10Amp 2.5m Jumper Cord	142257-002

**Notes:** This cord ships standard with each MSL3040 Base Tape Library and Power Supply Upgrade Kit. It can be used to connect the rack-mounted device to PDUs with IEC-320 receptacles.

#### Regional Power Cord Options

**Notes:** One PDU cord is shipped with each base module (above). If regional power cords are preferred, order qty (1) for the base module and one with each upgrade power supply purchased. Please select the correct power cord for your geographical location.

**Quantity to order:** 1 per base module and upgrade power supply

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

#### Notes:

- 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:
  - o Not meeting individual country specific safety requirements;
  - o Insufficient conductor capacity that could result in overheating with potential personal injury and/or property damage
  - o 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

### Redundant Power Supply Upgrade Kit

#### Description

HPE StoreEver MSL3040 Upgrade Power Supply Kit

#### SKU

Q6Q64A

#### Notes:

- Redundant power supply is not included as standard with the base module, if required it needs to be added to the order. This needs to be factory integrated, #OD1, in order to be TAA compliant.
- For the expansion module, neither the standard power supply nor the redundant are included. A power supply is only needed if tape drives need to be installed in the expansion module. If TAA compliance is required, power supplies need to be factory integrated, #OD1.

### Factory Racking

#OD1

Factory integrate the MSL Tape Libraries with other Hewlett Packard Enterprise products such as HPE ProLiant Servers

**Notes:** #OD1 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 21U in a single rack.

### Encryption

HPE StoreEver 1/8 G2 Tape Autoloader and MSL Tape Library Encryption Kit

AM495A

**Notes:** The Encryption Kit key server token will generate and retain encryption keys for HPE LTO Ultrium tape drives in the library. Works independent of application or backup software; doesn't require ISV support.

HPE StoreEver MSL3040 KMIP Key Manager LTU

Q8K98A

**Notes:** This is a paper license that will be mailed.

HPE StoreEver MSL3040 KMIP Key Manager E-LTU

Q8K98AAE

**Notes:** This is an electronically delivered License.

### FC Host Bus Adapters

The MSL Libraries are certified with a number of Fibre Channel Host Bus Adapters. For the most current list of supported FC HBAs, please reference the HPE Data Agile DAPR Compatibility Matrix (Formerly EBS) and Design Guide located at:

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



## Related Options

### HBAs and SAS Controllers

#### Description

#### SKU

HPE Smart Array P408e-p SR Gen10 (8 External Lanes/4GB Cache) 12G SAS PCIe Plug-in Controller 804405-B21

**Notes:** Recommended for ProLiant Gen10 SAS tape automation connect.

HPE Smart Array E208e-p SR Gen10 (8 External Lanes/No Cache) 12G SAS PCIe Plug-in Controller 804398-B21

**Notes:** Recommended for ProLiant Gen10 SAS tape automation connect.

Microsemi Adaptec HBA 1100-8e A1100-8E

**Notes:** Recommended SAS HBA for DL & ML Gen9 servers only. HPE does not provide official support for this adapter, however the configuration is supported.

### 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 drive tapes	0.5m - 500m	0.5m - 380m	0.5m - 150m

**Notes:** 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 External 12Gb Mini SAS High Density to Mini SAS High Density 4-lane 2m Fanout Cable P35176-B21

**Notes:** 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 (SFF8644) ports.

HPE External 12Gb Mini SAS High Density to Mini SAS High Density 4-lane 4m Fanout Cable P35175-B21

**Notes:** 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 (SFF8644) ports.

HPE StoreEver Mini-SAS High Density to 4-lane Mini-SAS External Fanout 2m Cable K2R09A

**Notes:** One cable can connect up to four tape drives. Use this cable to connect HPE MSL SAS Tape Libraries to the ProLiant Gen9 and Gen 10 Smart Host Bus Adapter and the HPE H241 Smart Host Bus Adapter.

HPE External 4.0m (13ft) Mini-SAS HD 4x to Mini-SAS HD 4x Cable 716199-B21

**Notes:** One cable is required for every LTO-9 tape drive. Use this cable to connect HPE MSL SAS Tape Libraries to 12 Gb SAS Host Bus Adapters.

HPE External 2.0m (6ft) Mini-SAS HD 4x to Mini-SAS HD 4x Cable 716197-B21

**Notes:** One cable is required for every LTO-9 tape drive. Use this cable to connect HPE MSL SAS Tape Libraries to 12 Gb SAS Host Bus Adapters.

HPE StoreEver Mini-SAS High Density to 4-lane Mini-SAS External Fanout 4m Cable K2R10A

**Notes:** One cable can connect up to four tape drives. Use this cable to connect HPE MSL SAS Tape Libraries to the ProLiant Gen9 and Gen 10 Smart Host Bus Adapter and the HPE H241 Smart Host Bus Adapter.



## Related Options

### Description

HPE 2.0m External Mini SAS High Density to Mini SAS Cable SKU  
716191-B21

**Notes:** 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.

HPE 4.0m External Mini SAS High Density to Mini SAS Cable 716193-B21

**Notes:** 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 MSL3040 libraries are supported in a variety of HPE Rack offerings, including the HPE Intelligent Series Racks and the HPE 10000 G2 Series Racks.

**Notes:** If ordering the #0D1 Factory Integration option, the MSL3040 Tape Libraries are certified to ship with one base module and up to 6 expansion modules (up to 21U) installed in the HPE Intelligent Series rack.

### Description

#### Media

Description	SKU
HPE LTO-9 Ultrium 45TB RW Data Cartridge	Q2079A
HPE LTO-9 Ultrium 45TB RW 960 Data Cartridge Pallet without Cases	Q2079AB
HPE LTO-9 Ultrium 45TB RW 960 Data Cartridge Pallet with Cases	Q2079AD
HPE LTO-9 Ultrium 45TB RW 20 Data Cartridges Library Pack without Cases	Q2079AH
HPE LTO-9 Ultrium 45TB WORM Data Cartridge	Q2079W
HPE LTO-9 Ultrium 45TB WORM Custom Labeled 20 Data Cartridges with Cases	Q2079WL
HPE LTO-8 Ultrium 30TB RW Data Cartridge	Q2078A
HPE LTO-8 Ultrium 30TB WORM Data Cartridge	Q2078W
HPE LTO-8 Ultrium 30TB RW 960 Data Cartridge Pallet without Cases	Q2078AB
HPE LTO-8 Ultrium 30TB RW 960 Data Cartridge Pallet with Cases	Q2078AD
HPE LTO-8 Ultrium 30TB RW 20 Data Cartridges Library Pack without Cases	Q2078AH
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 WORM Data Cartridge	C7977W
HPE LTO-6 Ultrium 6.25TB RW Data Cartridge	C7976A
HPE LTO-6 Ultrium 6.25TB 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-9 Ultrium RW Bar Code Label Pack	Q2017A
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



## Related Options

HPE LTO-5 Ultrium WORM Bar Code Label Pack Q2012A

### Description

**SKU**

#### Non-Custom Labeled Data Cartridges

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

HPE LTO-9 Ultrium 45TB RW Non Custom Labeled 20 Data Cartridges with Cases Q2079AN

HPE LTO-8 Ultrium 30TB RW Non Custom Labeled Library Pack 20 Data Cartridges 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 RW Non Custom Labeled 20 Data Cartridges with Cases 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

**Notes:** Custom labeled products allow customers to customize a specific sequence printed on each label.

HPE LTO-9 Ultrium 45TB RW Custom Labeled Library Pack 20 Data Cartridges without Cases Q2079AC

HPE LTO-9 Ultrium 45TB RW Custom Labeled 20 Data Cartridges with Cases Q2079AL

HPE LTO-8 Ultrium 30TB RW Custom Labeled Library Pack 20 Data Cartridges with Cases Q2078AL

HPE LTO-8 Ultrium 30TB WORM Custom Labeled Library Pack 20 Data Cartridges with Cases Q2078WL

HPE LTO-8 Ultrium 30TB RW Custom Labeled Library Pack 20 Data Cartridges 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

HPE LTO-6 Ultrium 6.25TB RW Custom Labeled 20 Data Cartridges with Cases C7976AL

HPE LTO-6 Ultrium 6.25TB RW Custom Labeled 20 Data Cartridges Library Pack without Cases C7976AC

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

**Notes:** For more information on LTO media, see:

<https://www.hpe.com/us/en/product-catalog/storage/storage-media.hits-12.html>

## HPE Support Service Options

HPE 3 Year Foundation Care Next Business Day MSL 3040 Base Module Service H9XW8E

HPE 3 Year Foundation Care Same Business Day MSL 3040 Base Module Service H9XX0E

HPE 3 Year Foundation Care 24x7 MSL 3040 Base Module Service H9XX5E

HPE 3 Year Foundation Care Call-To-Repair MSL 3040 Base Module Service H9XY1E

HPE 5 Year Foundation Care 24x7 MSL 3040 Base Module Service HA0R0E

HPE 5 Year Foundation Care Call-To-Repair MSL 3040 Base Module Service HA0R6E

HPE 1 Year Post Warranty Foundation Care Next Business Day MSL 3040 Base Module Service HA0S2PE



## Related Options

<b>Description</b>	<b>SKU</b>
HPE 1 Year Post Warranty Foundation Care Same Business Day MSL 3040 Base Module Service	HA0S4PE
HPE 1 Year Post Warranty Foundation Care 24x7 MSL 3040 Base Module Service	HA0S7PE
HPE 1 Year Post Warranty Foundation Care Call-To-Repair MSL 3040 Base Module Service	HA0T1PE
HPE Installation Storage Service	U4823E
HPE StoreEver MSL2024 Autoloader Installation and Startup Service	UA871E



## Technical Specifications

<b>MSL3040</b>		
<b>Drive Technology</b>	LTO-9 Ultrium 45000 LTO-8 Ultrium 30750 LTO-7 Ultrium 15000 LTO-6 Ultrium 6250	
<b>Maximum Number of Drives - Per Module</b>	3 HH (per Module)	
<b>- Per fully expanded Library</b>	21 HH (per Library)	
<b>Number of Slots - Per Module</b>	40 (Base Module)/40 (Expansion Module)	
<b>- Per fully expanded Library</b>	280 (per Library)	
<b>Drive Interface</b>	8 Gb Native Fibre Channel 12 Gb/sec SAS (LTO-9) 6 Gb/sec SAS (LTO-8 and earlier)	
<b>Maximum Capacity</b>	<b>Native - Per Base Module</b>	720 TB (LTO-9, 40 slots) 480 TB (LTO-8, 40 slots) 240 TB (LTO-7, 40 slots) 100 TB (LTO-6, 40 slots)
	<b>- Per Full Library</b>	5 PB (LTO-9, 280 slots) 3.36PB (LTO-8, 280 slots) 1.68 PB (LTO-7, 280 slots) 700 TB (LTO-6, 280 slots)
	<b>Compressed (2.5:1) - Per Module</b>	1.8 PB (LTO-9, 40 slots) 1.2 PB (LTO-8, 40 slots) 600 TB (LTO-7, 40 slots) 250 TB (LTO-6, 40 slots)
	<b>- Per Library</b>	12.6 PB (LTO-9, 280 slots) 8.4 PB (LTO-8, 280 slots) 4.2 PB (LTO-7, 280 slots) 1.75 PB (LTO-6, 280 slots)
<b>Maximum Transfer Rate</b>	<b>Native - Per Module</b>	3.24 TB/hour (with 3 LTO-9 drives) 3.24 TB/hour (with 3 LTO-8 drives) 3.24 TB/hour (with 3 LTO-7 drives) 1.73 TB/hour (with 3 LTO-6 drives)
	<b>- Per Library</b>	22.5 TB/hr (with 21 LTO-9 drives) 22.5 TB/hr (with 21 LTO-8 drives) 22.5 TB/hr (with 21 LTO-7 drives) 14 TB/hr (with 21 LTO-6 drives)
	<b>Compressed (2.5:1) - 3 HH drives Per Module</b>	Up to 8.1TB/hr (with 3 LTO-9 drives) Up to 8.1TB/hr (with 3 LTO-8 drives) Up to 8.1TB/hr (with 3 LTO-7 drives) 4.3 TB/hr (with 3 LTO-6 drives)
	<b>- 21 HH drives Per Library</b>	Up to 72.45 TB/hr (with 21 LTO-9 drives) Up to 72.45 TB/hr (with 21 LTO-8 drives) Up to 72.45 TB/hr (with 21 LTO-7 drives) 30.2 TB/hr (with 21 LTO-6 drives)
<b>MSL3040</b>		
<b>Dimensions</b>	<b>Out-of-Box (HxWxD)</b>	5.24 X 18.98 X 34.27 in (13.3 x 48.2 x 87.3 cm)
	<b>Shipping (HxWxD)</b>	12.6 X 27.09 X 45.59 in (61.5 x 80.0 x 120.0 cm)
<b>Weight</b>	<b>Out of box</b>	55.34 lbs (25.1 kg)
	<b>Shipping</b>	68.34 lbs (31 kg)

## Technical Specifications

**Notes:** 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.

<b>Reliability</b>	<b>MTBF</b> (mean time between failures)	125,000 hours (based on 1M MSBF)
	<b>MSBF</b> (Mean swaps before failure)	1,000,000
<b>Average Cartridge Swap Time (drive to slot, slot to drive)</b>	N/A	26 seconds (Base Unit)
<b>Initialization Time</b>	N/A	77 to 204 seconds <b>Notes:</b> For LTO-9 see <a href="#">LTO-9 media initialization section</a>
<b>Inventory Time</b>	N/A	50 seconds (average) 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>	Monochrome graphic display, 4 inch diagonal, 240 by 128 black dots, 4/3 aspect ratio	
<b>Management Interface</b>	10/100/1000 Mbits/second, auto-configuring interface. RJ-45 connection. Https configurable.	
<b>Power</b>	230 Watts (max)	
<b>Input Requirements</b>	100-240 VAC, 3.7A Max., 50/60Hz	
<b>Relative Humidity</b> (non-condensing)	<b>Operating</b>	20% to 80%
	<b>Shipping</b>	20% to 90%
<b>Temperature Range</b> (wet bulb)	<b>Operating (LTO-5 to LTO-8)</b>	50° to 95° F (10° to 35° C)
	<b>Operating (LTO-9)</b>	59° to 89° F (15° to 32° C)
	<b>Shipping</b>	-22° to 140° F (-30° to 60° C)
	<b>Notes:</b> Library operating temperature limits are based on the industry standard tape limit.	
<b>Altitude</b>	<b>Operating</b>	13,000 ft (4000 m)
	<b>Shipping</b>	35,000 ft (10,675 m)





## Summary of Changes

Date	Version History	Action	Description of Change
18-Apr-2022	Version 19	Changed	Technical Specifications section was updated
07-Feb-2022	Version 18	Changed	Overview, Standard Features and Configuration Information sections were updated
10-Jan-2022	Version 17	Changed	Overview, Standard Features, Configuration Information, Related Options and Technical Specifications sections were updated
15-Sep-2021	Version 16	Changed	Standard Features and Service and Support sections were updated.
07-Jun-2021	Version 15	Changed	Standard Features section was updated.
01-Feb-2021	Version 14	Changed	Related Options section was updated.
07-Dec-2020	Version 13	Changed	Technical Specifications section was updated
05-Oct-2020	Version 12	Changed	Configuration Information section was updated
08-Sep-2020	Version 11	Changed	Configuration Information section was updated
17-Aug-2020	Version 10	Changed	QuickSpecs layout was updated and Branding Refresh was applied.
09-Dec-2019	Version 9	Changed	Related Options section was updated
07-Oct-2019	Version 8	Changed	Related Options section was updated
03-Jun-2019	Version 7	Changed	Overview section was updated.
15-Apr-2019	Version 6	Changed	Overview and Configuration Information sections were updated.
04-Mar-2019	Version 5	Changed	Related Options section was updated.
01-Oct-2018	Version 4	Changed	Overview, Product Highlights, Service and Support, Configuration Information, Related Options and Technical Specification sections were updated. SKU descriptions were updated. Obsolete SKUs were removed.
05-Mar-2018	Version 3	Changed	Product Highlights and Related Options were revised.
05-Feb-2018	Version 2	Changed	Product Highlights and Related Options were revised.
04-Dec-2017	Version 1	New	New QuickSpecs



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

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