#### Overview

### **HPE LTO Ultrium Storage Supplies**

HPE believes that LTO Ultrium tape technology will continue to play an essential role in meeting the challenge of digital storage in the future, when the amount of unstructured and archive data is projected to run into trillions of gigabytes.

Although utilising the cloud for some of this cool or cold data should certainly be an option, with global data creation and replication expected to experience a compound annual growth rate of 23% out to 2025 (source: IDC, 2021), the cost of retrieving even a fraction of that data on a regular basis from a cloud provider could cost around 80% more than comparable tape infrastructure (source: ESG, 2020).

Meanwhile, the limitations of disk areal density - HDD capacities are expected to increase by only 15% during this period (source: INSIC, 2019) - combined with the costs of energy and data centre floor space, as well as higher CAPEX expansion costs, make it unlikely that disk-based storage will become the exclusive platform for unstructured data.

The most compelling reason for the continued strategic value of HPE StoreEver tape is the rising threat of ransomware. For companies concerned about building stronger cybersecurity defences, HPE LTO tape technology allows them to follow the best practice advice of government agencies, such as the US FBI, UK National Cyber Security Centre, German Bundesamt für Sicherheit in der Informationstechnik, to keep backup and archive data offline. Tape is the only storage technology that is offline by design, enabling businesses to keep copies of their data behind a physical air gap that ransomware cannot breach.

Backed by this uncompromising media qualification process, HPE LTO Ultrium data cartridges support all HPE StoreEver and non HPE LTO Ultrium tape devices. The latest ninth generation products minimize interruption to network and SAN backup by being capable of protecting 1.44 TB/hour (full height drives only) of data at native speeds and storing up to 18 TB native (45 TB assuming 2.5:1 compression) on one piece of media (620% greater capacity than HPE LTO-6 Ultrium tapes).



#### **HPE LTO Ultrium Storage Supplies**

Overview

#### **Key Features & Benefits**

- Up to 45 TB compressed capacity on LTO tape drives and libraries.
- Supports transfer speeds of up to 300 MB/s (native, half height), 400 MB/s (native, full height), 700 MB/s (assuming 2.5:1 compression, half height), 1,000 MB/s (assuming 2.5:1 compression, full height) with LTO-9
- Tested to extremes to a level performance unique to Hewlett Packard Enterprise. Many of the test procedures required for successful HPE Brand qualification (e.g. Green Tape Test, load/unload, shoeshine, drop testing and environmental stress testing) are not required for the Ultrium logo.
- Both Re-Writable and WORM formats available.
- Unique HPE colored cartridges to assist with identification in mixed media environments.
- Very low cost per GB compared to alternative storage technologies that could be used for long term archival and retention. Over 80% cheaper than comparable all-cloud or all-disk storage solutions (based on a 1 PB archive, growing at 10% per annum, over 10 years<sup>1</sup>)

#### **Notes:** <sup>1</sup>The Economic Benefits of HPE StoreEver as Active Archival Storage, ESG, August 2020

- LTO cartridge memory in media to improve access time and provide enhanced media monitoring.
- Durable cartridge designed to minimize wear and debris (important in automation).
- HPE LTO-5 through LTO-9 supports native tape device data encryption for enhanced data security granted FIPS140-2 Level 1 certification
- Hewlett Packard Enterprise offers Custom Labeled and Non-Custom Labeled Tri Optic data cartridges. All labeled solutions are shipped in 20 packs.
  - Custom Labeled offerings allow automation customers to customize cartridges with a unique bar code sequence. Custom labels are pre-attached to the tapes before shipment. Available worldwide with a leadtime of up to 15 working days. Please note Europe requires a Minimum Order Quantity of 5 units or 100 total data cartridges (1 SKU unit 20 cartridges).
  - HPE Non-Custom Labeled tapes allow automation customers to receive labeled media without the lead times associated with a custom labeled solution. Barcode sequences are pre-determined by Hewlett Packard Enterprise and are guaranteed to be unique.

| Read/Write Compatibility |                |                |                |                |                |
|--------------------------|----------------|----------------|----------------|----------------|----------------|
|                          | LTO-5 Drive    | LTO-6 Drive    | LTO-7 Drive    | LTO-8 Drive    | LTO-9 Drive    |
| LTO-5 Media              | Read/Write     | Read/Write     | Read Only      | Not Compatible | Not Compatible |
| LTO-6 Media              | Not Compatible | Read/Write     | Read/Write     | Not Compatible | Not Compatible |
| LTO-7 Media              | Not Compatible | Not Compatible | Read/Write     | Read/Write     | Not Compatible |
| LTO-7 Type M             | Not Compatible | Not Compatible | Not Compatible | Read/Write     | Not Compatible |
| LTO-8 Media              | Not Compatible | Not Compatible | Not Compatible | Read/Write     | Read/Write     |
| LTO-9 Media              | Not Compatible | Not Compatible | Not Compatible | Not Compatible | Read/Write     |

### Why Buy LTO?

The decision about which tape technology you should buy next should be based on your future, not your past, investment. Choose the LTO Ultrium format when you need the following advantages:

- Maximum offline security to guard against the threat of ransomware
- Almost limitless scalable storage capacity
- Ultra low cost of ownership for long term data protection, backup and archiving
- High reliability and performance
- Compatibility with a broad range of operating systems and servers (e.g., a mixed system environment)
- A solid roadmap for future generations of the technology

• An open format available from multiple vendors

#### **Proven Reliability**

- Hewlett Packard Enterprise ensures the highest level of quality with a specification for HPE Brand LTO Ultrium tapes that far exceed industry standards and are monitored throughout every batch of production.
- Ultimately, the best possible microscope to test tape cartridges is a tape drive, or rather thousands of tape drives, performing the same backup and restore tasks as end users. As a leader in LTO Ultrium hardware and storage supplies, HPE has comprehensive R&D and manufacturing programs to scrutinise the performance of tape backup solutions under every conceivable kind of stress. Since the beginning of 2016, over 9,500 cartridges have been tested in HPE's demanding GTT protocol. Over 1.2 billion meters of media has been pulled and over 72 million gigabytes of data has been written.
- Hewlett Packard Enterprise Brand qualification also includes procedures like drop testing, creep append, load/unload, environmental stress tests and archival simulation that are not required to gain the LTO Ultrium logo
- Designed for the demanding environment of large-scale libraries, HPE LTO Ultrium media has a 30-year archival storage life when stored in recommended conditions (see below).

#### **HPE LTO-9 Ultrium Format**

The latest HPE LTO- Ultrium tape drive technology uses a linear format of 8,960 tracks, writing thirty two (32) tracks simultaneously. The data is written in a serpentine pattern; the tape reverses direction after each set of thirty two tracks is written.

LTO Ultrium formats are open standards. This means that data written on any certified LTO Ultrium tape drive can be interchanged directly with Ultrium tape drives from different vendors.

#### **Compatibility Testing**

HPE LTO Ultrium data cartridges are fully supported and compatible with all certified LTO Ultrium tape products. Because HPE LTO Ultrium media is LTO Ultrium logo compliant, it may be used with any other non- Hewlett Packard Enterprise device that bears the LTO Ultrium logo.

#### **Related Hardware Options**

#### HPE StoreEver LTO Ultrium Tape Drives

The family of HPE LTO Ultrium tape drives is the Hewlett Packard Enterprise premier line of backup and archive devices. Based on the LTO Ultrium format, an open standard with a well-defined twelve-generation roadmap, HPE LTO Ultrium tape drives offer customers the best choice for investment protection. With ultimate reliability and ease of use in mind, even at 100% duty cycles, the Hewlett Packard Enterprise rugged design builds on superior LTO technology and adds advanced features like hardware data encryption to create a new level of data protection. The tape drives employ dynamic data rate matching to adjust to the speed of the host, reducing wear and tear on both drive and media and increasing performance, even on slower hosts. The family of tape drives also features support for HPE Library and Tape Tools which provides HPE TapeAssure health monitoring, diagnostics, and performance optimization.

#### HPE StoreEver MSL 1/8 Tape Autoloader

The HPE StoreEver MSL 1/8 Tape Autoloader provides a cost-effective and easy-to-manage tape solution. The HPE MSL 1/8 Autoloader combines incredible storage density and features into a compact 1U form factor. Capable of up to 240 TB of compressed capacity in only a 1U form factor, the autoloader is well equipped to offer room for data growth. Web-based remote management offers the capability to quickly and easily access, configure, monitor, and troubleshoot the autoloader that will reduce dependencies on local IT staff while allowing multiple sites to be supported centrally. Protect confidential information with native encryption, ensuring that if a tape is lost or stolen your data is protected from unauthorized access. Proactively monitor utilization, operational performance, as well as health information for both the drive and media with TapeAssure.

#### HPE StoreEver MSL2024 Tape Library

The HPE StoreEver MSL2024 Tape Library meets demanding storage requirement of businesses needing unattended backup, disaster recovery, or archive capability. It offers a broad choice of storage capacity and technology including LTO-8, LTO-7 or LTO-6 Ultrium tape drives. Web-based remote management makes the HPE StoreEver MSL2024 easily managed from across the room or across the globe, eliminating the need for remote office IT staff. Quickly and simply manage the tape media both in and out of the library with the standard bar code reader, configurable mail slots, and multiple 12-slot removable magazines. If a tape were lost or stolen, protect important business data from unauthorized access with data encryption options. MSL library investment protection and uncertain data growth are easily managed within the MSL library portfolio. Quickly increase capacity and/or performance with tool-free drive upgrades in the HPE StoreEver MSL2024, or move tape drive kits to the HPE StoreEver MSL3040 or HPE StoreEver MSL6480 for library scalability and additional enterprise class features. Proactively receive detailed information about your MSL libraries with HPE Command View for Tape Libraries. Information about the library, drives, and media are all monitored for utilization, operational performance, and life and health information. Prevent problems before they occur by proactively receiving notification if any library, drive or tape media parameters fall below HPE's recommended standards.

#### HPE StoreEver MSL3040

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 reuse existing HPE MSL LTO upgrade drive kits, you can cost-effectively store up to 8.16 PB of data (with LTO-8). Scale vertically from 32 to 272 cartridge slots to store up to 8.16 PB in a single 19-inch rack simply adding additional modules to boost performance and capacity without the need to invest in a whole new library. 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 and long-term data management challenges such as storing medical records, video surveillance files or for business compliance.

#### HPE StoreEver MSL6480

The HPE StoreEver MSL6480 Tape Library is the gold standard for mid-range tape automation, delivering best-inclass 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, with 560 slots and 16.8 PB capacity (with LTO-8), without disrupting daily data protection. The HPE StoreEver MSL6480 also saves floor space by providing the highest tape drive density per module of any midrange tape library. It reduces the time and resources needed to achieve enterprise-class manageability, equipping you with proactive monitoring on single pane of glass control.

#### HPE T950 and TFinity Tape Libraries

HPE T950 Tape Libraries deliver enormous scalability to keep pace with unpredictable data growth. Choose from a range of base configurations and scale up to 10,020 LTO-8 tape cartridges in increments of 10 slots or 7,615 TS11xx Technology tape cartridges in increments of 9 slots for capacity on demand. Incorporating between 1 and 120 tape drives you can consolidate and store up to 285 PB (compressed 2.5:1) using TS1155 Technology or 300 PB (compressed 2.5:1) using LTO-8 tape cartridges, of enterprise data.

Meeting enterprise data growth challenges head-on, HPE TFinity® ExaScale Tape Libraries deliver enormous scalability to keep pace with unpredictable data growth. Choose from a range of base configurations and scale up to 53,460 LTO-8 tape cartridges or 40,680 TS11xx Technology cartridges in increments of 10 LTO of 9 TS11xx Technology slots for capacity on demand. Incorporating between 1 and 144 tape drives you can consolidate and store up to 1.52 EB (compressed 2.5:1) using TS11xx Technology or 1.6 EB (compressed 2.5:1) using LTO-8 tape cartridges of enterprise data.

#### Warranty and Support

Includes a limited lifetime warranty, fully supported by a worldwide network of resellers and service providers as well as toll-free 24 X 7 technical phone support during the warranty period. For full details on warranty and support for pre-labeled media, please go to: https://www.hpe.com/us/en/contact-hpe.html

Service and Support

#### **HPE Pointnext Tech Care**

HPE Pointnext Tech Care is the new operational service experience for HPE StoreEver products. HPE Pointnext 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; **Critical** which includes a 6 hour repair commitment where available and outage management response for severity 1 incidents. For full detail, please go to: <u>https://www.hpe.com/pointnext</u>.

#### **HPE Financial Services**

Although many customers are looking to upgrade or purchase new tape equipment, they may face challenges investing in new capital expenditure (CAPEX) projects and/or have cashflow limitations that prevent them from moving forward. But with HPE Financial Services (HPEFS), you can provide them with an easy and instant solution to finance new HPE StoreEver equipment without over-stretching cashflow or requiring them to find large sums of money upfront. And in many cases, a flexible finance solution from HPE FS will cost them less over the full term than actually buying the equipment. For full detail, please go to: <u>www.hpe.com/us/en/</u> services.html.

#### **Configuration Information**

#### **SKU 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 Custom Labeled Library Pack 20 Data Cartridges without Cases Q2079AC 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 RW Custom Labeled 20 Data Cartridges with Cases Q2079AL HPE LTO-9 Ultrium 45TB RW Non Custom Labeled 20 Data Cartridges with Cases Q2079AN 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 RW 960 Data Cartridge Pallet without Cases Q2078AB Q2078AC HPE LTO-8 Ultrium 30TB RW Custom Labeled Library Pack 20 Data Cartridges without Cases Q2078AD HPE LTO-8 Ultrium 30TB RW 960 Data Cartridge Pallet with Cases HPE LTO-8 Ultrium 30TB RW 20 Data Cartridges Library Pack without Cases Q2078AH Q2078AL HPE LTO-8 Ultrium 30TB RW Custom Labeled Library Pack 20 Data Cartridges with Cases Q2078AN HPE LTO-8 Ultrium 30TB RW Non Custom Labeled Library Pack 20 Data Cartridges with Cases HPE LTO-8 Ultrium 30TB WORM Data Cartridge Q2078W HPE LTO-8 Ultrium 30TB WORM Custom Labeled Library Pack 20 Data Cartridges with Q2078WL Cases HPE LTO-7 Ultrium Type M 22.5TB RW 20 Data Cartridges Custom Labeled Library Pack Q2078MC without Cases **Notes:** LTO-7 Type M cartridges can only be initialized in a Tape library with LTO-8 drives that supports LTO-7 Type M. HPE LTO-7 Ultrium Type M 22.5TB RW 20 Data Cartridges Custom Labeled with Cases Q2078ML Notes: LTO-7 Type M cartridges can only be initialized in a Tape library with LTO-8 drives that supports LTO-7 Type M. HPE LTO-7 Ultrium Type M 22.5TB RW 20 Data Cartridges Non Custom Labeled with Cases Q2078MN **Notes:** LTO-7 Type M cartridges can only be initialized in a Tape library with LTO-8 drives that supports LTO-7 Type M. HPE LTO-7 Ultrium Type M RW Bar Code Label Pack Q2016A HPE LTO-7 Ultrium 15TB RW Data Cartridge C7977A HPE LTO-7 Ultrium No Case 960 Tape Pallet C7977AB HPE LTO-7 Ultrium RW No Case Custom Labeled Data Cartridge 20 Pack C7977AC 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 RW Custom Labeled Data Cartridge 20 Pack C7977AL HPE LTO-7 Ultrium Non Custom Labeled Data Cartridge 20 Pack C7977AN HPE LTO-7 Ultrium WORM Data Cartridge C7977W HPE LTO-7 Ultrium WORM Custom Labeled Data Cartridge 20 Pack C7977WL HPE LTO-7 Ultrium RW Bar Code Label Pack Q2014A

HPE LTO-6 Ultrium 6.25TB RW Data Cartridge

C7976A

### **Configuration Information**

| -   |               |
|---|---------------|
| HPE LTO-6 Ultrium 6.25TB RW Custom Labeled 20 Data Cartridges with Cases  | C7976AL       |
| HPE LTO-6 Ultrium 6.25TB RW Non Custom Labeled 20 Data Cartridges with Cases                                      | C7976AN       |
| HPE LTO-6 Ultrium 6.25TB RW 960 Data Cartridge Pallet with Cases  | C7976AD       |
| HPE LTO-6 Ultrium 6.25TB BaFe RW Data Cartridge   | C7976B        |
| HPE LTO-6 Ultrium 6.25TB BaFe RW Non Custom Labeled Data Cartridges 20 Pack                                       | C7976BN       |
| HPE LTO-6 Ultrium 6.25TB RW Custom Labeled 20 Data Cartridges Library Pack without<br>Cases                       | C7976AC       |
| HPE LTO-6 Ultrium 6.25TB RW 20 Data Cartridges Library Pack without Cases   | C7976AH       |
| HPE LTO-6 Ultrium 6.25TB WORM Data Cartridge  | C7976W        |
| HPE LTO-6 Ultrium 6.25TB WORM Custom Labeled 20 Data Cartridges with Cases  | C7976WL       |
| HPE LTO-6 Ultrium 6.25TB BaFe RW Custom Labeled Data Cartridge 20 Pack  | C7976BL       |
| HPE LTO-6 Ultrium 6.25TB BaFe RW Eco Case Data Cartridge 20 Pack  | C7976BH       |
| HPE LTO-6 Ultrium 6.25TB BaFe WORM Data Cartridge   | C7976BW       |
| HPE LTO-6 Ultrium RW Bar Code Label Pack  | Q2013A        |
| HPE LTO-5 Ultrium 3TB RW Data Cartridge   | C7975A        |
| HPE LTO-5 RW Custom Labeled Data Cartridge 20 Pack  | C7975AL       |
| HPE LTO-5 Ultrium 3TB WORM Data Cartridge   | C7975W        |
| HPE LTO-5 Ultrium Non-custom Labeled Data Cartridge 20 Pack   | C7975AN       |
| HPE LTO-5 WORM Custom Labeled Cartridge 20 Pack   | C7975WL       |
| HPE LTO-5 RW Custom Labeled No Case Data Cartridge 20 Pack  | C7975AC       |
| HPE Ultrium Universal Cleaning Cartridge  | C7978A        |
| HPE LTO-5 Ultrium RW Bar Code Label Pack  | Q2011A        |
| HPE LTO-5 Ultrium WORM Bar Code Label Pack  | Q2012A        |
| HPE LTO-6 Ultrium RW Bar Code Label Pack  | Q2013A        |
| HPE LTO-7 Ultrium RW Bar Code Label Pack  | Q2014A        |
| HPE LTO-7 Ultrium Type M RW Bar Code Label Pack   | Q2016A        |
| <b>Notes:</b> LTO-7 Type M cartridges can only be initialized in a Tape library with LTO-8 drives that so Type M. | upports LTO-7 |
| HPE LTO-8 Ultrium RW Bar Code Label Pack  | Q2015A        |
| HPE LTO-9 Ultrium RW Bar Code Label Pack  | Q2017A        |
| Notes: BaFe = Barium Ferrite  |               |
|   |               |

### **Technical Specifications**

|                                    | LTO-5 Ultrium   | LTO-6 Ultrium  | LTO-7 &<br>LTO-7 Type M                              | LTO-8 Ultrium                                     | LTO-9 Ultrium  |
|------------------------------------|---|--|--|---|--|
| Magnetic Material                  | Metal Particle  | Metal Particle<br>or Barium<br>Ferrite               | Barium Ferrite                                       | Barium Ferrite                                    | Barium Ferrite                                       |
| Recording Density                  | 385 kbits/inch  | 385 kbits/inch                                       | 485 kbits/inch                                       | 525 kbits/inch                                    | 545 kbits/inch                                       |
| Number of Data<br>Tracks           | 1,280   | 2,176  | 3,584 & 5376   | 6,656   | 8,960  |
| Recording Capacity                 | 1.5 TB/3.0 TB   | 2.5/6.25 TB  | 6/15 TB &<br>9/22.5 TB                               | 12/30 TB  | 18/45 TB   |
| Tape Width (mm)                    | 12.65   | 12.65  | 12.65  | 12.65   | 12.65  |
| Tape Thickness (um)                | 6.4   | 6.4  | 5.6  | 5.6   | 5.2  |
| Tape Length (m)                    | 846   | 846  | 960  | 960   | 1035   |
| External Dimensions                | 1.8 x 4.45 x 4.37<br>in<br>(2.1 x 11.3 x 11.1<br>cm)                      | 1.8 x 4.45 x<br>4.37 in<br>(2.1 x 11.3 x<br>11.1 cm) | 1.8 x 4.45 x<br>4.37 in<br>(2.1 x 11.3 x<br>11.1 cm) | 1.8 x 4.45 x 4.37 in<br>(2.1 x 11.3 x 11.1<br>cm) | 1.8 x 4.45 x 4.37<br>in<br>(2.1 x 11.3 x 11.1<br>cm) |
| Cartridge Weight                   | 0.63 lb (285.2 g)   | 0.63 lb (285.2<br>g)                                 | 0.63 lb (285.2<br>g)                                 | 0.63 lb (285.2 g)                                 | 0.63 lb (285.2 g)                                    |
| Archival Life                      | 30 years  | 30 years   | 30 years   | 30 years  | 30 years   |
| Recommended<br>Storage Environment | 60°F to 90°F<br>(16°C to 32°C)<br>20% to 80%<br>Relative<br>Humidity (RH) | 59°F to 77°F<br>(15°C to 25°C)<br>20% to 80% RH      |  | 1   |  |
| Recommend<br>Operating             | 50°F to 113°F<br>(10°C to 45°C)   |  |  |   |  |
| Environment                        | 20% to 80% RH   |  |  |   |  |
| Allowable<br>Environment           | Same as the<br>Recommended<br>Operating and<br>Storage<br>Environments    | 59°F to 95°F<br>(15°C to 35°C)<br>20% to 80% RH      |  |   |  |
| Archival Life                      | 41°F to 73°F  | 59°F to 77°F   |  |   |  |
| Recommended<br>Storage Conditions  | (5°C to 23°C)<br>20% to 50% RH  | (15°C to 25°C)<br>20% to 80% RH                      | I  |   |  |

### Summary of Changes

| Version History | Action   | Description of Change   |
|-----------------|--|---|
| Version 27      | Changed  | Standard Features section was updated.  |
| Version 26      | -  | Major update for NPI of LTO-9 media. Addition of information  |
|                 | Ū  | about new LTO-9 products. Removal of LTO-3 and LTO-4  |
|                 |  | following EOL. Added information about HPE PointNext and HPE  |
|                 |  | Financial Services. Edited LTO-6 MP SKU product descriptions.   |
|                 |  | Updated temperature and environmental details in Technical  |
|                 |  | Specifications.   |
| Version 25      | Changed  | Standard Features and Configuration Information sections were   |
|                 | grangea  | updated.  |
| Version 24      | Changed  | QuickSpecs layout was updated and Branding Refresh was  |
|                 | <b>J</b>   | applied.  |
| Version 23      | Changed  | Overview, Standard Features and Configuration Information   |
|                 |  | sections were updated.  |
| Version 22      | Changed  | Information about Type M products was added.  |
|                 |  | Tables and specifications relating to Type M were revised.  |
|                 |  | Type M product descriptions were updated.   |
|                 |  | Certain passages relating to HPE brand testing information that   |
|                 |  | are no longer accurate were removed.  |
| Version 21      | Changed  | Updated throughout with information about new LTO-8 products  |
|                 |  | Updated throughout with information about new LTO-7 products  |
|                 | -  | Overview: Completely updated Models and updated Key features  |
|                 | Changea  | Benefits section.   |
| Version 18      | Changed  | Changes made to the Introduction of Overview only.  |
|                 |  | Changes were made in the Product Highlights and Technical   |
|                 | grangea  | Specifications sections.  |
| Version 16      | Removed  | Mentions of StorageWorks were removed.  |
|                 |  | Models were revised   |
|                 | grangea  | Mentions of Bar Code and RFID was added   |
|                 |  | Related Hardware Options was added to Product Highlights  |
| Version 14      | Changed  | Options was completely revised and all mentions of HPE RFID   |
|                 | Changea  | Labeled Data Cartridges were added.   |
| Version 13      | Changed  | Changes were made throughout the QuickSpecs.  |
|                 | -  | Changes made to the Introduction of Overview only.  |
|                 |  | Added EMEA version.   |
|                 |  | Changes made throughout the entire QuickSpecs, except for the   |
|                 | Changea  | Related Options section.  |
| Version 9       | Changed  | Changes made throughout the entire QuickSpecs, except for the   |
|                 | Changea  | Technical Specifications section.   |
| Version 8       | Changed  | Updated the OVERVIEW section.   |
|                 |  | Corrected the North America QS to be a duplicate of the   |
|                 | Changea  | Worldwide.  |
| Version 6       | Changed  | Moved the "Introduction" paragraph to precede the image. Made   |
|                 | Changea  | minor column changes to "Technical Specifications."   |
|                 | Added  | Added four models to "Models" Section.  |
| Version 5       |  | Changes made throughout the entire QuickSpecs, including  |
|                 | Changeu  | removing "StorageWorks" from the title.   |
| Varcian 4       | Changed  | This QuickSpecs has been completely rebuilt, including a new  |
|                 | Changeu  | title.  |
|                 | Version 26<br>Version 25<br>Version 24<br>Version 23 | Version 26ChangedVersion 25ChangedVersion 24ChangedVersion 23ChangedVersion 22ChangedVersion 21ChangedVersion 20ChangedVersion 19ChangedVersion 17ChangedVersion 18ChangedVersion 17ChangedVersion 16RemovedVersion 17ChangedVersion 16RemovedVersion 17ChangedVersion 16RemovedVersion 17ChangedVersion 16RemovedVersion 17ChangedVersion 16RemovedVersion 17ChangedVersion 16RemovedVersion 17ChangedVersion 18ChangedVersion 19ChangedVersion 10ChangedVersion 11AddedVersion 9ChangedVersion 7ChangedVersion 7ChangedVersion 6ChangedVersion 5Changed |

### Summary of Changes

| Date        | Version History | Action  | Description of Change   |
|-------------|-----------------|---------|---|
| 12-Sep-2003 | Version 3       | Changed | High ReliabilityLTO Ultrium 100/200 GB tape technology uses a<br>"best of breed" technology approach, taking the best features from<br>other tape technologies and combining them into a single new<br>technology without the need for design compromises to<br>accommodate legacy compatibility requirements. Designed for the<br>demanding environment of large-scale libraries, Ultrium 400 GB<br>media is certified for 1 million passes or 260 full back ups and has<br>a 30 year archival storage life<br>Media Durability1,000,000 passes on any area of tape, equates to<br>over 20,000 end-to-end passes/260 full tape backups |
| 29-Aug-2003 | Version 2       | Changed | This QuickSpecs has been converted into the new system.   |
| 19-Nov-2002 | Version 1       | New     | New QuickSpecs  |

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